



Minnesota Department of Transportation

Trunk Highway 29 Corridor Study

Final Report

June 2023



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Acknowledgements

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Executive Summary

In partnership with the City of Alexandria, MnDOT conducted a corridor study to evaluate potential improvements to Highway 29 from 8th Avenue to 18th Avenue. The study examined the existing conditions and future transportation, and mobility needs of the corridor. It was done to aid in developing a long-term vision for the corridor.

Existing Conditions

Hwy 29 is functionally classified as a Principal Arterial with an average daily traffic volume in 2021 of 16,300 vehicles (north of 12th Avenue) and 18,051 (south of 12th Avenue). It is currently a 5-lane facility with on-street parking available on both sides of the road. The roadway exists on a developed urban corridor, and some re-development is occurring in the area. Major traffic generators include the Alomere Health Center, Cenex Midtown Express, Alexandria Technical & Community College, various fast food restaurants, and retail and banking establishments.

The Study reviewed past planning documents and studies and included a preliminary environmental review. It also analyzed existing and future traffic operations and considered other transit, multimodal elements, and needs. No significant safety or operational issues were identified. However, City staff and public input indicated that pedestrian crossings feel unsafe and vehicle crossings are difficult. Accommodating pedestrians and vehicle traffic crossing Hwy 29 was identified as a top priority.

Access along the corridor is a significant concern. Numerous local streets bisect the corridor. Most local streets are two-way stop controlled. However, traffic signals exist at 10th Avenue, 15th Avenue, and 17th Avenue. The 15th Street signal does not currently meet warrants and appears to be a candidate for removal. Numerous driveways directly access Hwy 29, many of which appear unnecessary or redundant. The study identified 24 locations where driveway access could be considered for removal or relocation. Additionally, a parking study indicated that a maximum of 29 percent of the available parking spaces were being utilized on any given block and that sufficient off-street parking was also available in those areas. On-street parking for most of the corridor was completely unused during the time of observation.

Community Engagement

Two public open house meetings were held. The first meeting focused on data gathering and introducing the project to the community and the public was encouraged to share opinions and their perspective on the needs of the corridor. The open house was not widely attended, and few comments were received. The comments received include the following:

- The community would not be comfortable with medians.
- They are neutral about the number of access points and existing traffic lights on the corridor.
- Some do not think that roundabouts would work.
- There is a belief that trails would not be a good idea by some, yet others felt dedicated space for bikes is a good idea.
- Several indicated that we should not make the parking lanes narrow like in the downtown area.
- There was a consensus that on-street parking is not necessary.
- Alomere Health wants to maintain full access and a signal at 17th Avenue.

The second meeting discussed the various alternatives outlined in this document and presented the findings to date. Generally, the comments received mirrored those of the previous meeting. However, more discussion was had regarding the 17th Street and 18th Street access control. Discussion items included:

- Re-aligning the east leg of 17th further north to match 17th on the west side to allow for more spacing and signals at both 17th and 18th
- Coordination with businesses on potential access changes
- Installing a raised median in the corridor
- Multiple comments were received in support of eliminating parking.
- Three-lane vs. five-lane roadway and various access control options were discussed at 17th and 18th.
- Next steps were discussed as it was determined that the corridor needed additional analysis to finalize the geometric alternatives.

Alternatives Considered

Two corridor alternatives were developed based on input from the community and project stakeholders. Concept layouts and cost estimates were prepared for 3 lane and 5 lane options. The 3-lane alternative appeared to accommodate existing and future traffic volumes, minimize pedestrian and vehicle crossing distances and maximize green space. However, it was determined that additional analysis should be done to ensure this alternative is viable. The 5-lane alternative has capacity that would exceed the existing and future traffic needs and is a barrier to cross traffic without a traffic control device, but it is preferred by the city.

In addition to the corridor options several intersection control alternatives were also evaluated. This was done to address access control concerns near 17th and 18th Ave. The options considered included:

- Signals at both 17th and 18th Avenues (Alternative 1).
- Multi Lane Roundabouts at both 17th and 18th Avenues (Alternative 2).
- 2-Way stop at 18th Avenue and a signal at 17th Avenue (Alternative 3).
- Signal at 18th Avenue and three-quarter access at 17th Avenue (Alternative 4).

Next Steps

Additional detailed analysis and design and a formal environmental review, as required by the National Environmental Policy Act (NEPA), will likely be necessary to determine specific implementation strategies along the Hwy 29 corridor. The environmental review process should include additional opportunities for community input.

Project partner coordination should continue identifying funding, developing designs, and implementing the selected long-term vision for the Hwy 29 Corridor. This should include a detailed review of corridor operations, emphasizing 17th and 18th Avenues and the surrounding area with recent traffic impact changes.

Chapter 1 – Background and Corridor Vision

This Study examined Trunk Highway 29 (Hwy 29) between 8th Avenue and 18th Avenue in Alexandria. This corridor is a primary mode of transportation for travelers reaching their homes and places of employment, but also a priority corridor for access to vacation destinations and cabins.

The goals of this Study included identifying the needs of motorized and non-motorized traffic, examining opportunities to improve local road access, improve pedestrian safety, and increase green space.

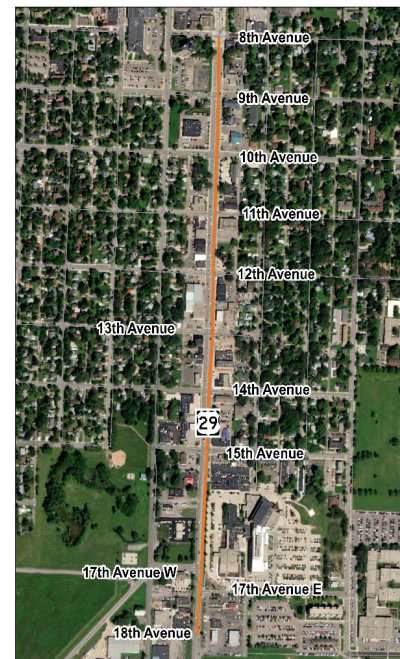


Figure 1 Project Area



Figure 2 Existing Cross Section

Past Studies

This corridor has been the subject of multiple prior studies including:

18th Avenue Corridor Plan

The 18th Avenue Corridor Plan includes improvements at the southern portion of the project area near the Alomere Hospital. Areas of this plan that overlap this project study include a potential open space opportunity at 18th Avenue on the western side of the street. This could require rerouting the existing 18th Avenue corridor. A future signal at 18th Avenue was also included as part of this Plan.

Hwy 29 Signal Optimization Project

This study was completed in 2020.

The signal timings developed in this plan were reportedly implemented in the field in October 2020. Synchro files were developed for this study which contains the geometrics and signal timings for Hwy 29.

The traffic volumes used in this study were collected on March 4, 2020 (this was before the COVID-19 Stay at Home Order was enacted). Aside from these collected volumes, estimated summer tourism peak volumes were developed.

The optimization study's approach to estimating peak hour volume cases was to multiply four times the highest volume 15-minute interval counted during the peak hour.

The volumes used for this study were compared to the volumes collected by Stonebrooke in Winter 2022 for the 10th Ave, 15th Ave, and 17th Ave intersections.

The volumes used in the Synchro models for the optimization study were generally higher in the PM peak and lower in the AM peak than what was counted by Stonebrooke.

The study reported non-summer peak delays and Level of Service (delays from Synchro) with the volumes developed in this study. Operational issues identified in this study were:

- At the 10th Avenue and Hwy 29 intersection, the mid-day peak hour Westbound delay, 57 seconds, was operating at Level of Service E.
- At the 10th Avenue and Hwy 29 intersection, the PM peak hour Westbound delay, 73 seconds, was operating at Level of Service E, and the Eastbound delay, 68 seconds was operating at Level of Service E.

Hwy 29 Intersection Control Evaluations at 17th and 18th Avenue

An Intersection Control Evaluation (ICE) was completed in January 2021 by the City. The traffic volumes used in the ICE were collected in June 2019. The ICE traffic volumes were also compared to those collected in Winter 2022 for the 17th Ave intersection.

Operational results for this study were only reported for 2040 conditions, so no comparison was made to the existing conditions model developed by this project. The ICE report recommended relocating the traffic signal from 17th Ave E to 18th Ave E.

Alexandria Pedestrian and Bicycle Scoping Recommendation Report

This document provided non-motorized transportation improvement recommendations. Including evaluating the following:

- Hwy 29 as a 3-lane cross-section with roundabouts.
- Hwy 29 as a 4-lane cross-section with roundabouts.
- Hwy 29 as a 5-lane cross-section.
- Narrowing Lanes to 11’.
- Provide a 10’ shared use path on both sides.
- Parking Bump outs.
- Boulevards with Landscaping and pedestrian-level lighting.
- Reducing or eliminating on-street parking.
- Sidewalk-level bike lanes.
- Pedestrian Hybrid Beacon.
- Adding an additional signalized crossing location.

The scoping document recommends considering roadway reconfiguration from a 5-lane section to a 3-lane section or 4-lane section (with a median), with mini-roundabouts or urban compact roundabouts to maximize boulevards and space for non-motorized users.

Alexandria Area 2023 Transportation Study

This document is an ongoing, comprehensive plan for the transportation system in Alexandria. It is intended to be a blueprint for goal setting, deficiency analysis, and solution identification.

Chapter 2 – Understanding the Corridor

The developed urban corridor has numerous local street access points at approximately 430’ intervals. Traffic signals are currently located at 17th Ave, 15th Ave, and 10th Ave.

In 2022, the city of Alexandria reconstructed 18th Ave from Fillmore Street to Jefferson Street, including improvements to the Hwy 29 intersection. Also, in 2020 the NE quadrant of the Hwy 29/18th Ave intersection was re-developed to include a Cenex Midtown Express Convenience store. In the NW quadrant of Hwy 29 and 18th Ave, the existing Taco Johns restaurant also constructed a new parking lot with access on to 18th Ave.

Turning movement counts were collected for this project on February 24, 2022, at the intersections of 17th Ave/Hwy 29 and 10th Ave/Hwy 29. They were also collected at 15th Avenue/Hwy 29 on March 9, 2022. The counts were collected on different days due to a technical issue with the cameras. The peak hour turning movement counts from winter 2022 are displayed in the following table:

Intersection	Time	Southbound				Westbound				Northbound				Eastbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Hwy 29 and 10th Ave	AM	0	12	709	39	0	34	44	13	0	41	392	15	0	74	56	51
	PM	0	21	615	22	0	51	44	30	0	65	750	21	0	69	56	67
Hwy 29 and 15th Ave	AM	0	45	677	3	0	24	9	12	0	7	418	20	0	12	3	10
	PM	0	12	694	9	0	49	10	37	0	19	789	15	0	41	10	11
Hwy 29 and 17th Ave	AM	-	85	580	-	-	32	-	32	-	-	475	84	-	-	-	-
	PM	-	60	721	-	-	92	-	97	-	-	790	45	-	-	-	-

Table 1 2022 Winter - Existing Turning Movement Counts (U stands for U-Turn. L and R and for Left and Right Turns and T stands for Thru traffic)

Existing Traffic Operations Analysis

Synchro created An existing condition model that included AM and PM peak-hour traffic scenarios for the winter weekday conditions. Traffic operations were evaluated at the 10th, 15th, and 17th Avenue intersections. All 3 were found to be operating at an acceptable Level of Service (LOS), and a summary of the results is included below.

Control	Intersection	Approach	AM Peak Hour				PM Peak Hour			
			LOS by Approach (Sec/Veh)		LOS by Intersection (Sec/Veh)		LOS by Approach (Sec/Veh)		LOS by Intersection (Sec/Veh)	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Signal	Hwy 29 and 10th Ave	N bound	5	A	10	A	6	A	10	A
		W bound	31	D			34	C		
		S bound	6	A			6	A		
		E bound	27	C			32	C		
Signal	Hwy 29 and 15th Ave Hwy	N bound	1	A	4	A	2	A	6	A
		W bound	30	C			31	C		
		S bound	4	A			5	A		
Signal	Hwy 29 and 17th Ave	E bound	28	C	4	A	37	D	6	A
		W bound	24	C			24	C		
		S bound	2	A			3	A		

¹Delay for all movements taken from SimTraffic Reports

Table 2 2022 Winter Existing Conditions – Operations Results

Streetlight Data Time of Year Volume Comparisons

Streetlight was also used to compare average winter volumes to the summer tourism peak volumes. Streetlight Data turning movement counts were also obtained for 17th Avenue, 15th Avenue, and 10th Avenue. The comparison between winter 2019 (average from January – March) and summer 2021 (average from June-August) AM and PM peak traffic volumes at the intersections are displayed in the following tables:

AM Peak			
Average Peak Hour Intersection Volume (StreetLight)			
10th Ave	Winter	Summer Peak	Difference
	1197	1439	20.2%
15th Ave	Winter	Summer Peak	Difference
	1326	1534	15.7%
17th Ave	Winter	Summer Peak	Difference
	1301	1533	17.85%

Table 3 AM Peak Intersection Volumes (2019-2021)

PM Peak			
Average Peak Hour Intersection Volume (StreetLight)			
10th Ave	Winter	Summer Peak	Difference
	1429	1440	0.8%
15th Ave	Winter	Summer Peak	Difference
	1540	1543	0.2%
17th Ave	Winter	Summer Peak	Difference
	1555	1538	-1.1%

Table 4 PM Peak Intersection Volumes (2019-2021)

Traffic Study Volume Comparisons

An analysis of the data collected for this effort was compared to the Signal optimization project and the ICE report completed for 17th Avenue. This comparison determined that the collected volumes accurately reflect the traffic along the corridor for the winter 2022 timeframe. A comparison of the traffic data is below.

AM Peak						
Intersection		Data Source				
		Stonebrooke Counts (Spring 2022)	Optimization Project (March 2020)	ICEs (June 2019)	Streetlight Data (2019 Winter)	
10th Ave	Peak Hour Int. Volume	1480	1389	-	1197	1439
	Difference (%) from Stonebrooke	-	-6%	-	-19%	-3%
15th Ave	Peak Hour Int. Volume	1240	1308	-	1326	1539
	Difference (%) from Stonebrooke	-	5%	-	7%	24%
17th Ave	Peak Hour Int. Volume	1328	1300	1200	1301	1533
	Difference (%) from Stonebrooke	-	-2%	-10%	8%	15%

Table 5 AM Peak Traffic Study Volume

PM Peak						
Intersection		Data Source				
		Stonebrooke Counts (Spring 2022)	Optimization Project (March 2020)	ICEs (June 2019)	StreetLight Data (Winter 2019)	Streetlight Data (Summer 2021 Peak)
10th Ave	Peak Hour Int. Volume	1811	2032	-	1429	1440
	Difference (%) from Stonebrooke	-	12%	-	-21%	-26%
15th Ave	Peak Hour Int. Volume	1696	1882	-	1540	1543
	Difference (%) from Stonebrooke	-	11%	-	-9%	-9%
17th Ave	Peak Hour Int. Volume	1822	1867	1958	1555	1538
	Difference (%) from Stonebrooke	-	2%	7%	-15%	-16%

Table 6 PM Peak Traffic Study Volume

Summer Peak Traffic Operations

To create estimated summer peak weekday traffic volumes, a summer peak growth factor of 17.9% was used based on the average from Streetlight Data and using the average traffic growth at the intersections from the am peak. This factor was applied to the winter 2022 turning movement counts collected by Stonebrooke. The estimated summer peak hour turning movement counts are below:

Intersection	Time	Southbound				Westbound				Northbound				Eastbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Hwy 29 and 10th Ave	AM	0	14	851	47	0	41	53	16	0	49	470	19	0	89	67	61
	PM	0	25	738	26	0	61	53	36	0	78	900	25	0	83	67	80
Hwy 29 and 15th Ave	AM	0	54	812	4	0	29	11	14	0	8	502	24	0	14	4	12
	PM	0	14	833	11	0	59	12	44	0	23	947	18	0	49	12	13
Hwy 29 and 17th Ave	AM	-	102	696	-	-	38	-	38	-	-	570	101	-	-	-	-
	PM	-	72	865	-	-	110	-	116	-	-	948	54	-	-	-	-

Table 7 2022 Summer - Projected Turning Movement Counts (U stands for U-Turn, L and R and for Left and Right Turns and T stands for Thru traffic)

Synchro models for the AM and PM peaks were created using the estimated summer peak weekday turning movement counts and the signal timings provided by the Hwy 29 Signal Optimization Project. All traffic movements were found to be operating at acceptable Level of Service (LOS).

Control	Intersection	Approach	AM Peak Hour				PM Peak Hour			
			LOS by Approach (Sec/Veh)		LOS by Intersection (Sec/Veh)		LOS by Approach (Sec/Veh)		LOS by Intersection (Sec/Veh)	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Signal	Hwy 29 and 10th Ave	N bound	6	A	11	B	7	A	12	B
		W bound	34	C			36	D		
		S bound	7	A			7	A		
		E bound	31	C			33	C		
Signal	Hwy 29 and 15th Ave	N bound	2	A	5	A	3	A	7	A
		W bound	33	C			33	C		
		S bound	5	A			5	A		
		E bound	28	C			42	D		
Signal	Hwy 29 and 17th Ave	N bound	3	A	4	A	6	A	7	A
		W bound	26	C			28	C		
		S bound	2	A			3	A		

¹Delay for all movements taken from SimTraffic Reports

Table 8 2022 Summer – Operations Results

Crash Analysis

Crash Data was collected from MnCMAT 2 at the intersections along Hwy 29 from 8th Avenue to 18th Avenue for the last full five-year period (2017-2021). A critical crash rate analysis was completed for each intersection to determine if any intersections on this corridor had an existing crash problem. None of the intersections had a crash problem. In addition, all intersections had a crash rate below the statewide averages for the intersection type (i.e. signalized or th-ru-stop).

Two bicycle-involved crashes happened during the 2017-2021 period. One of these involved a cyclist running into a car while the cyclist was attempting to cross Hwy 29 at 8th Avenue. The cyclist had a possible injury. The other involved a cyclist being hit by a car while trying to cross 13th Avenue at Hwy 29. The car was encroaching toward the intersection from a stopped condition and traveling at low speed when the crash occurred. The cyclist had a minor injury.

Corridor 5-year Crash History (2017-2021)

A total of 33 Crashes were reported on the corridor between 2017 and 2021 including 4 minor injury (B), 13 possible injury (C) and 16 property damage only (PDO).



Figure 3 Crash Map

Intersection	Total Crashes	K	A	B	C	PDO	Observed Crash Rate	Statewide Average	Critical Rate	Critical Index
8 th Avenue	2	0	0	0	2	0	0.065	0.128	0.310	0.210
9 th Avenue	0	0	0	0	0	0	0	N/A	0	N/A
10 th Avenue	8	0	0	0	4	4	0.225	0.508	0.830	0.270
11 th Avenue	0	0	0	0	0	0	0	N/A	0	N/A
12 th Avenue	1	0	0	0	0	1	0.030	0.128	0.300	0.100
13 th Avenue	1	0	0	1	0	0	0.027	0.128	0.290	0.090
14 th Avenue	0	0	0	0	0	0	0	N/A	0	N/A
15 th Avenue	6	0	0	0	1	5	0.156	0.508	0.820	0.190
17 th Avenue W	2	0	0	1	0	1	0.054	0.128	0.290	0.190
17 th Avenue E	5	0	0	1	2	2	0.135	0.508	0.820	0.160
18 th Avenue	3	0	0	1	1	1	0.085	0.128	0.300	0.280

K = Fatal / A = Serious Injury / B = Minor Injury / C = Possible Injury / PDO = Property Damage Only / U = Unknown

Table 9 Crash Data by Intersection (2017-2021)

Segment	Total Crashes	K	A	B	C	PDO
12 th to 13 th Ave	1	0	0	0	1	0
14 th to 15 th Ave	4	0	0	0	2	2

Table 10 Crash Data by Segment (2017-2021)

Existing Access and Parking

The Hwy 29 corridor is bisected by local streets at approximately 430 feet spacing. The majority of local streets are two-way stop-controlled. However, traffic signals exist at 10th Avenue, 15th Avenue, and 17th Avenue. The 15th Street signal does not currently meet warrants and appears to be a candidate for removal.

Numerous driveways directly access Hwy 29, many of which appear unnecessary or redundant, while others could likely be relocated to the minor street. This study identified at least 24 locations where driveway access could be considered for removal or relocation.

Below is a summary table of the existing access points along the corridor. In total, there are 34 access points along the corridor. Because there is no median, all driveways can be accessed from the north and south during all hours of the day.

Block (Avenue)	West Driveways	East Driveways
8 th to 9 th	0	1
9 th to 10 th	1	2
10 th to 11 th	1	2
11 th to 12 th	3	3
12 th to 13 th	1	2
13 th to 14 th	2	3
14 th to 15 th	3	2
15 th to 17 th	6	2
17 th to 18 th	0	0
TOTAL	18	16

Table 11 Existing Access Points along Hwy 29



Figure 4 Possible Access Changes

- Remove or relocate access
- Maintain access

A parking study completed on June 9, 2022, indicated that a maximum of 29 percent of the available parking spaces were being utilized on any given block and that sufficient off-street parking was available. On-street parking for most of the corridor was completely unused during the time of observation.

There were no instances during either AM or PM peak periods where no parking spaces were available. A summary of the findings is provided below.

Block	Direction	On-Street Spaces	Off-Street Spaces	7AM		8AM		12 PM		1PM		4 PM		5PM	
				On	Off	On	Off	On	Off	On	Off	On	Off	On	Off
8th Ave to 9th Ave	North	10	25	0	4	0	23	0	23	0	21	1	20	1	22
	South	12	0	0	0	0	0	0	0	0	0	0	0	0	0
9th Ave to 10th Ave	North	9	50	0	3	0	7	0	9	0	12	0	10	0	16
	South	10	66	0	1	0	17	0	37	0	44	1	28	1	32
10th Ave to 11th Ave	North	10	45	0	6	0	15	0	10	0	12	0	21	0	20
	South	11	19	0	1	0	4	0	4	0	5	1	6	2	7
11th Ave to 12th Ave	North	10	41	0	2	0	17	0	32	0	33	0	23	0	25
	South	9	59	0	3	0	10	2	27	0	30	2	24	2	27
12th Ave to 13th Ave	North	5	12	0	4	0	1	1	10	0	10	0	12	0	12
	South	10	27	0	1	0	5	2	14	1	18	1	22	2	19
13th Ave to 14th Ave	North	7	39	0	4	0	38	0	38	2	37	0	38	0	35
	South	6	16	0	12	0	18	0	22	0	20	0	32	0	30
14th Ave to 15th Ave	North	8	60	0	15	0	20	0	29	0	34	0	29	0	30
	South	7	47	0	5	0	5	0	17	0	25	0	18	0	19
15th Ave to 17th Ave	North	0	95	0	29	0	58	0	41	0	47	0	53	0	50
	South	0	151	0	29	0	28	0	89	0	94	0	29	0	33
17th Ave to 18th Ave	North	0	86	0	2	0	2	0	23	0	30	0	14	0	16
	South	0	27	0	5	0	15	0	57	0	60	0	32	0	33

Table 12 2022 Existing Parking Utilization

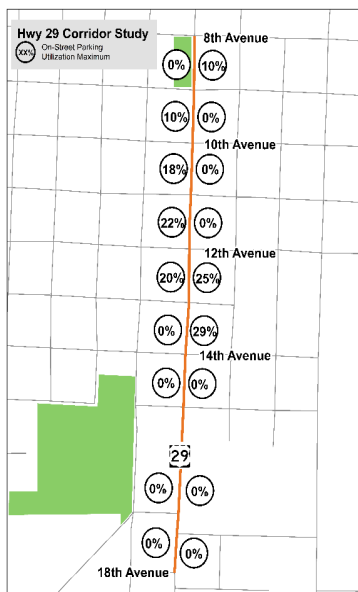


Figure 5 Parking Utilization

Pavement Conditions

MnDOT's Pavement quality data was analyzed to determine the pavement rating along Hwy 29. Ride Quality Index (RQI), Surface Rating (SR), and Pavement Quality Index (PQI) along Hwy 29 are all within the "good" range. Remaining Service Life (RSL) is "low," meaning that this segment of Hwy 29 will only last 0-3 more years.

The curb and gutter conditions are "good," with some spot improvements in recent years. With a reconstruction of this corridor, replacing the existing curb and gutter could provide some needed improvements.

Corridor sidewalks are generally in "good" condition. However, there are segments where the cross slope is greater than two percent and areas of significant cracking, causing an issue with ADA compliance.

Land Use

Except for the 8th Avenue to 9th Avenue block on the western side of the corridor and the hospital to the south, the entire section is classified as "General Commercial." This land use is meant to provide space for concentrated businesses and commercial activity where vehicular-oriented activities can be maximized with minor infringement on residential neighborhoods. The 8th Avenue to 9th Avenue block is classified as Open Space, Parks & Recreation because of the Veterans Memorial Park. The hospital on the southern end of the corridor is classified as "Institutional." One half-block off the corridor is "Traditional Neighborhood Mixed Use."

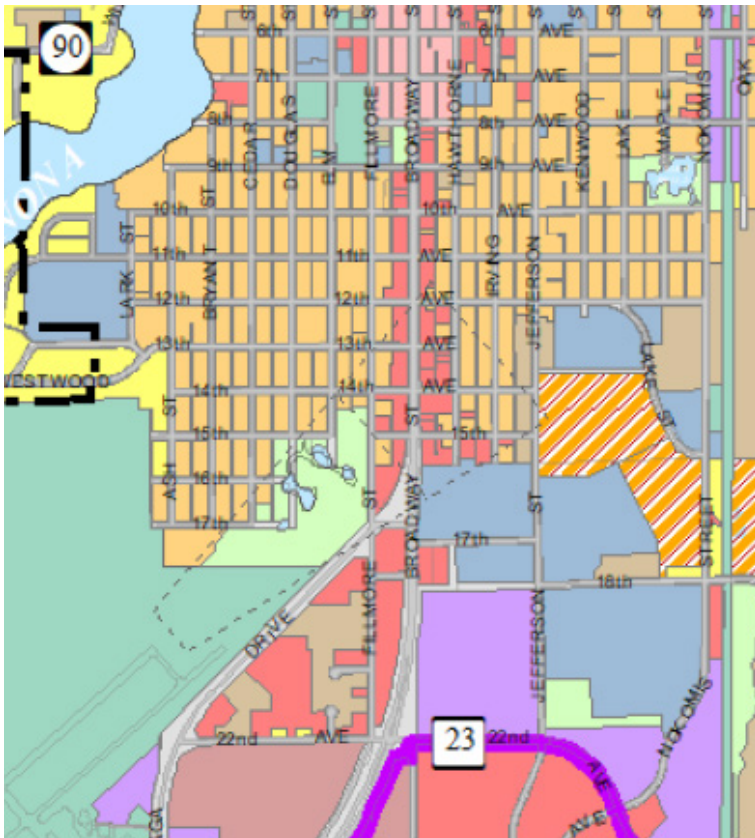


Figure 6 Existing Land Use. Image from 2040 Comprehensive Plan

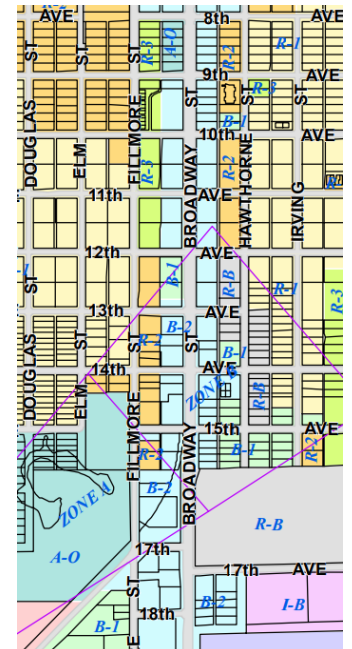


Figure 7 Existing Zoning. Image from 2040 Comprehensive Plan

Environmental Constraints

Wetlands

Per the National Wetlands Inventory, this corridor does not include any wetlands or open water.

Environmental Risks

The Minnesota Pollution Control Agency tracks any potential environmental risk sites. There are a handful of sites along the corridor. These do not include sites that are listed for Hazardous Waste.

- Tire Associates Warehouse (933 Broadway St.) –Petroleum Remediation.
- Former Cenex Store (915 Broadway St.) – Brownfield, Underground Tanks, Petroleum Remediation, Leak Site.
- Farm Credit Services of West Central (1022 Broadway St.) –Petroleum Remediation, Leak Site.
- Quality Auto Service (1104 Broadway St.) –Petroleum Remediation, Leak Site, Underground Tanks.
- Minnesota-Ohio Oil (1121 Broadway St.) – Underground Tanks.
- Mike’s Car Wash (1223 S Broadway St.) – Petroleum Remediation, Leak Site, Underground Tanks.
- Coastal Mart (1324 Broadway St.) – Petroleum Remediation, Leak Site, Underground Tanks.
- Cross Tool (1419 Broadway St.) –Industrial Stormwater.
- Eye Associates (1610 Broadway St.) – Construction Stormwater.
- Douglas County Hospital (111 17th Ave. E) – Construction Stormwater, Petroleum Remediation, Leak Site, Underground Tanks.
- Cenex Car Care Center – (1705 Broadway St.) – Petroleum Remediation, Leak Site, Underground Tanks.

There are 26 hazardous waste locations along the corridor. The map can be found here: www.pca.state.mn.us/about-mpca/whats-in-my-neighborhood

Pedestrian and Bicycle Accommodations

Hwy 29 has been identified as a City Bike Route per the Pedestrian Enhancements Study (2010). There is currently no dedicated bicycle infrastructure or painted markings along the corridor. Bicyclists must travel on the shoulder, in parking or traffic lanes. Most of the corridor has sidewalks along both sides of the street except for the west side of the road between 15th and 18th Avenues. However, the city has a planned trail expansion project to fill this gap. All major intersections have marked crosswalks and pedestrian ramps.

The Central Lakes Trail runs east-west just north of the corridor. The Central Lakes State Trail is a 55-mile asphalt trail linking three counties and ten communities. It is used by cyclists and pedestrians for recreational and utilitarian purposes by residents and is a significant tourism amenity drawing users from across the State of Minnesota.

A Pedestrian and Bicycle Scoping Document was completed in 2021 by MnDOT. This report identified the following issues and needs along the Hwy 29 corridor:

- There are origins and destinations on the corridor, such as parks, restaurants, banks, drug stores, a hospital, and gas stations, among other commercial uses.
- Sidewalk gaps exist between 15th Avenue and 18th Avenue.
- No specifically designated bicycle facilities exist on the project corridor.
- The distance between signalized pedestrian crossings is up to a half mile.
- Some intersections are identified in the District Safety Plan as having a high risk for vehicles and pedestrians and bicyclists.
- Some intersections on the project corridor have crash rates higher than the statewide average for similar intersections.

Transit Operations

Alexandria currently offers both commuter and local transit services.

Rainbow Rider provides local and commuter services, including Douglas County, Grant County, Pope County, Stevens County, Traverse County, and Todd County in West Central Minnesota. Reservations must be made in advance for stops, not along fixed routes. For the fixed-route express bus service, buses travel along Hwy 29 to Viking Towers on the north side of Alexandria and down to Wal-Mart on the southern side. Bus stops are located at these businesses rather than along the curb line.



Figure 8 Transit Stop in Alexandria

Utilities

Overhead lighting is provided about every 100 feet along both sides of the corridor. These are served by underground electric lines that run along the right of way.

Fiber Optic utilities run underground across Hwy 29 at 11th Ave and parallel with the corridor at the Alomere Health Hospital.

Water distribution and sanitation lines run along the west side of the right of way along the entire project area. Storm sewers are located at multiple locations at each block.

Site Conditions

The corridor was examined to determine if there were any existing obstructions or obstacles beyond other aspects of this report. None were found.

Future Forecast Turning Movements

20-year future (2042) forecasted AADTs were obtained using MnDOT historical AADT data and the MnESAL Forecasting Tool. A growth rate of 0.5% per year was determined to be appropriate and utilized for this effort. The annual growth rate was applied to the 2022 summer peak weekday turning movement counts to calculate the projected 2042 turning movement counts.

The estimated 2042 summer peak hour turning movement counts are displayed in the following table:

Intersection	Time	Southbound				Westbound				Northbound				Eastbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Hwy 29 and 10th Ave	AM	0	16	937	52	0	46	60	18	0	54	518	21	0	102	77	70
	PM	0	28	812	29	0	69	60	41	0	86	991	28	0	95	77	92
Hwy 29 and 15th Ave	AM	0	60	894	5	0	32	13	16	0	9	553	27	0	16	5	14
	PM	0	16	917	13	0	65	14	49	0	26	1042	20	0	54	14	15
Hwy 29 and 17th Ave	AM	-	113	766	-	-	48	-	48	-	-	627	112	-	-	-	-
	PM	-	80	952	-	-	139	-	146	-	-	1043	60	-	-	-	-

Table 13 Future 2042 Summer – Projected Turning Movement Counts

Future No-Build Traffic Operations

Synchro models for the AM and PM peaks were created using the estimated future 2042 turning movement counts. Hwy 29 Signal Optimization Project timing was used. The delays for the 2042 future no-build were all at an acceptable Level of Service (LOS) for the 10th, 15th, and 17th Avenue intersections.

The peak hour delays and Level of Service results for the 2042 future no-build conditions models are displayed in the following table:

Control	Intersection	Approach	AM Peak Hour				PM Peak Hour			
			LOS by Approach (Sec/Veh)		LOS by Intersection (Sec/Veh)		LOS by Approach (Sec/Veh)		LOS by Intersection (Sec/Veh)	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Signal	Hwy 29 and 10th Ave	N bound	7	A	12	B	8	A	13	B
		W Bound	32	C			35	C		
		S Bound	8	A			8	A		
		E Bound	32	C			34	C		
Signal	Hwy 29 and 15th Ave	N Bound	2	A	5	A	4	A	7	A
		W Bound	34	C			33	C		
		S Bound	5	A			6	A		
		E Bound	31	C			40	D		
Signal	Hwy 29 and 17th Ave	N Bound	4	A	5	A	8	A	8	A
		W Bound	26	C			28	C		
		S Bound	2	A			4	A		
¹ Delay for all movements taken from SimTraffic Reports										

Table 14 Future 2042 No-Build – Summer Operations Results

In the PM peak model for the 2042 no-build conditions, at the intersection of Hwy 29 and 10th Avenue, the eastbound left turn queue at times does not clear within one signal cycle. This was not observed to last for more than two signal cycles in a row with any of the simulations and could likely be resolved by adjusting timing.

Chapter 3 – Creating the Alternatives

The next step in the process was to establish feasible long-term alternatives for the Hwy 29 corridor taking into consideration the technical analysis and input received from the public and stakeholders. To accomplish this, a range of conceptual corridor access alternatives were developed.

Alternatives Development Process

The alternatives analysis was two-fold. First, the Study team examined the number of lanes between 8th and 18th Avenues. Five intersections were studied. These intersections were 10th Avenue, 12th Avenue, 15th Avenue, and 17th and 18th Avenues.

- At 10th Avenue, turn lanes are needed and the intersection has a Level of Service (Level of Service) of C.
- 12th Avenue met spacing guidelines but does not meet warrants.
- 15th Avenue signal warrants were not met. It is a candidate for removal.
- 17th and 18th Avenues were examined as a pair. They needed more in-depth analysis.

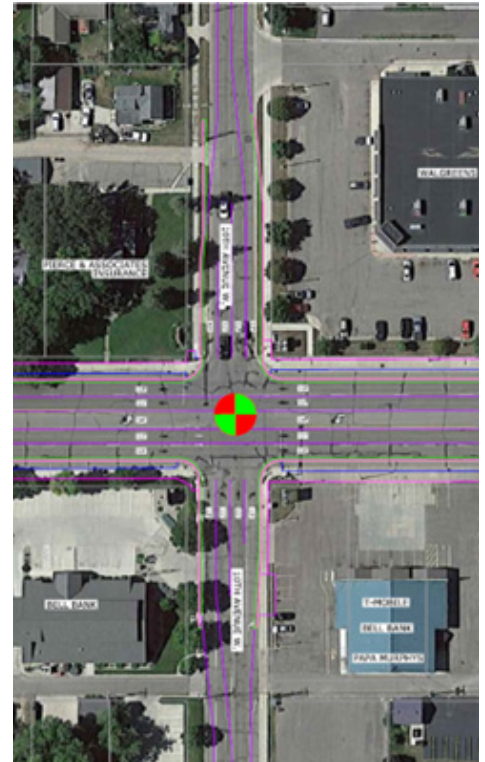


Figure 19 10th Avenue Intersection

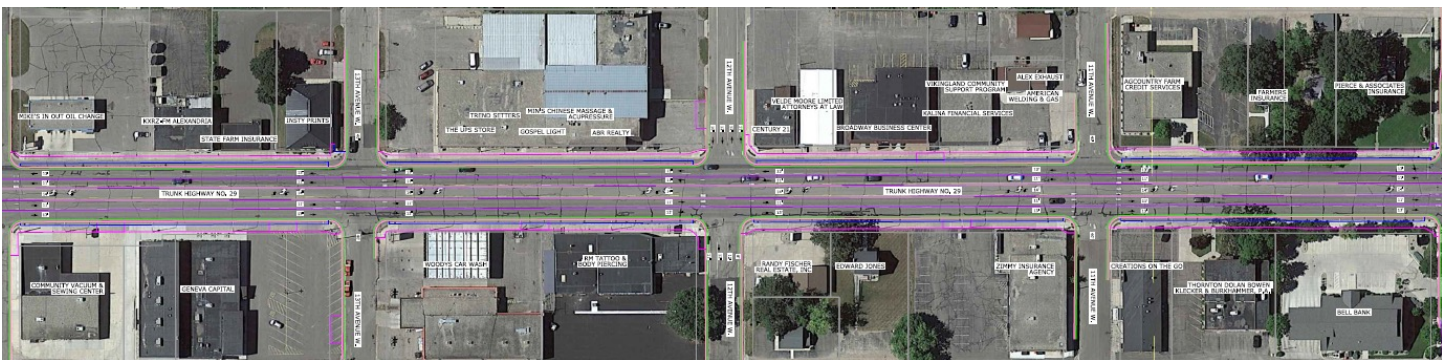


Figure 10 12th Avenue Intersection

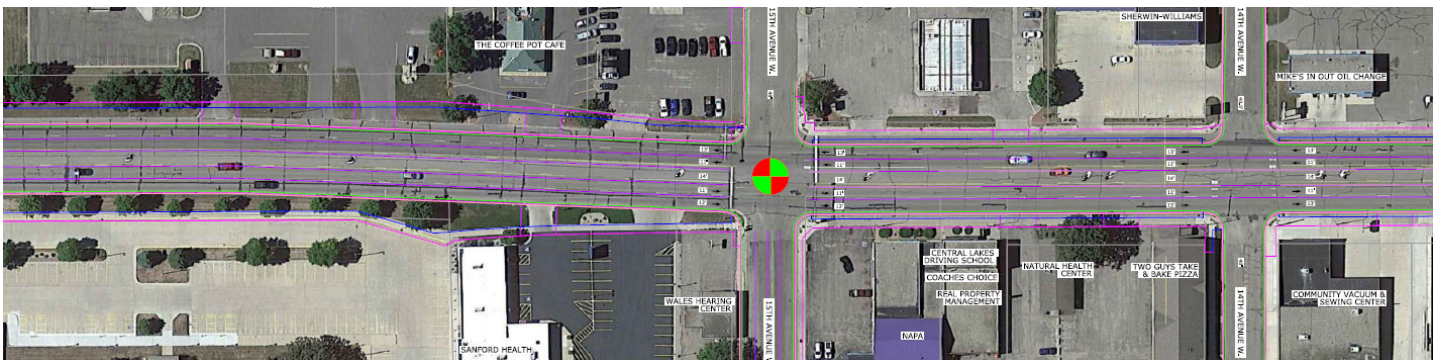


Figure 11 15th Avenue Intersection

Corridor Alternatives

Both a three-lane and five-lane option were considered. The three-lane offers shorter crossing distances for pedestrians and side street motorists, maximizes green space, and reduces crashes. The five-lane section would include removing on-street parking to increase green space.

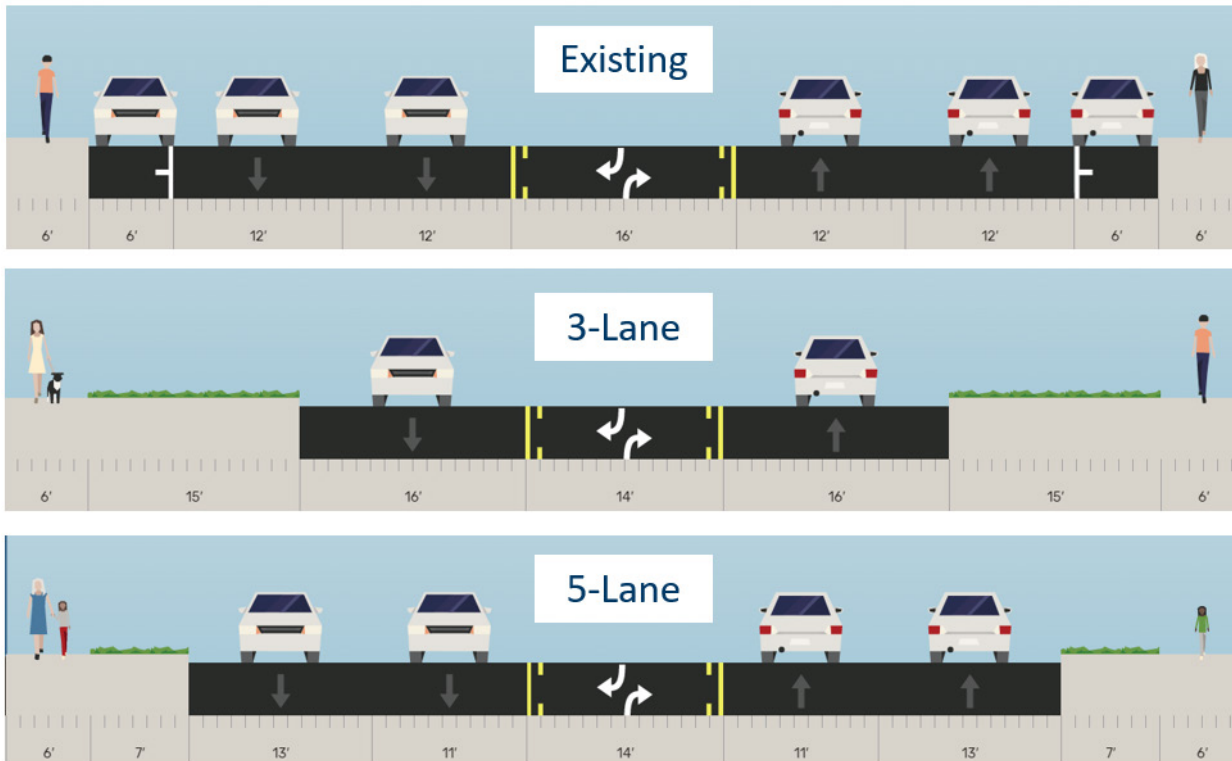


Figure 12 Corridor Alternatives

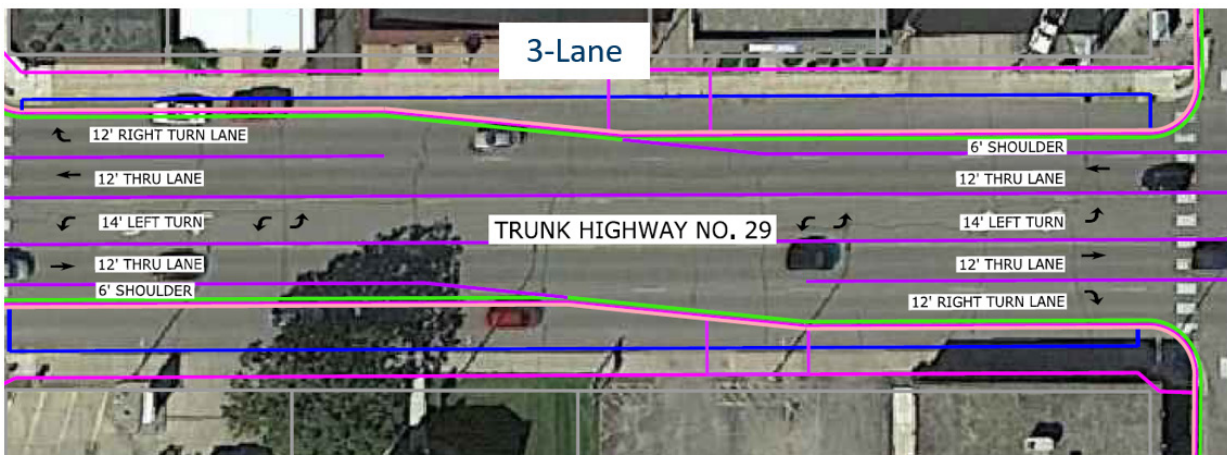


Figure 13 Three-Lane Alternative

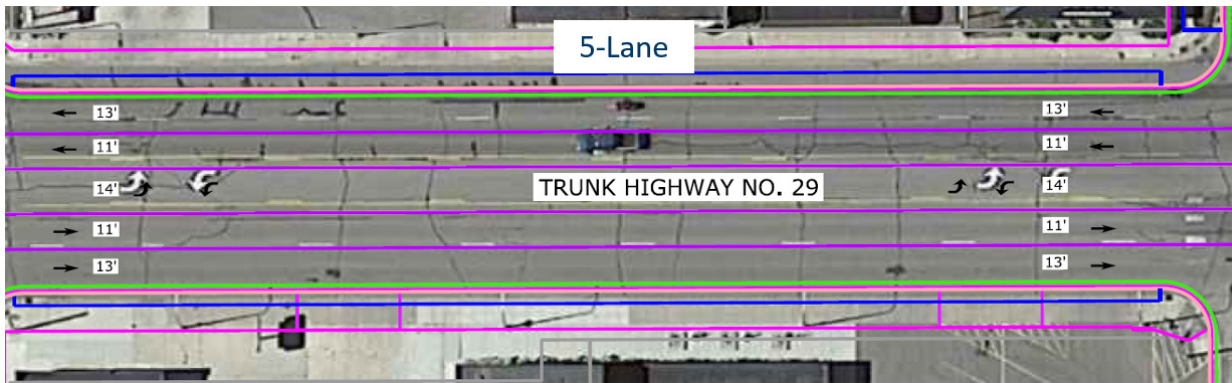


Figure 14 Five-Lane Alternative

Intersection Alternatives – 17th and 18th Avenues

Four options were considered for the 17th and 18th Avenue intersection area:

1. Signals at both 17th and 18th Avenues.
2. Roundabouts at both 17th and 18th Avenues.
3. 2-Way stop at 18th Avenue and a signal at 17th Avenue.
4. A signal at 18th Avenue and three-quarter access at 17th Avenue.

Having a signal at both intersections does not meet signal spacing requirements. Two signals are not necessary for acceptable operations. Unnecessary signals decrease safety, so Alternative 1 was not recommended.



Figure 15 Alternative 1 - Signals at both 17th and 18th Avenues

Having two roundabouts would have significant property impacts. The capacity of two roundabouts far exceeds the need. Having two roundabouts in such proximity to each other would also likely increase the crash rate. This option also costs significantly more than the other three. Due to these reasons, Alternative 2 was not recommended.

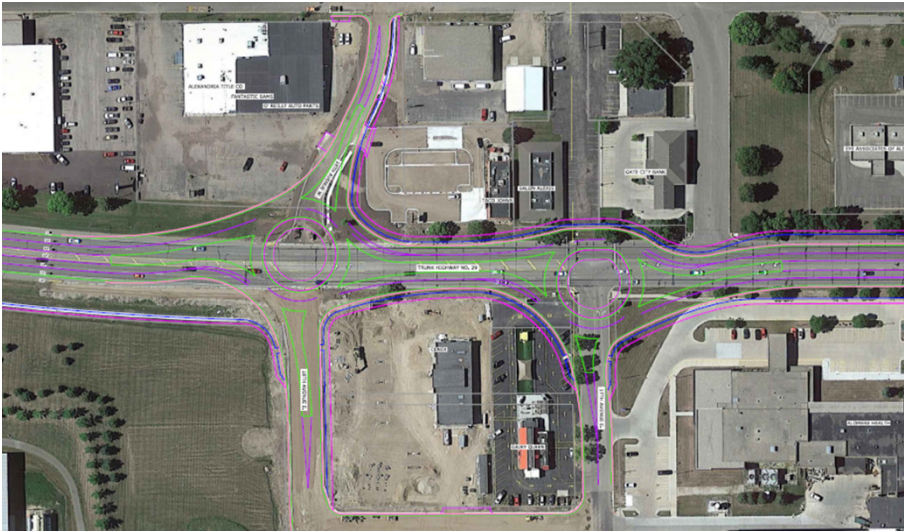


Figure 16 Alternative 2 - Roundabouts at both 17th and 18th Avenues

Alternative 3 essentially represents the exiting condition with a two-way stop at 18th Avenue and a signal at 17th Avenue. The two-way will not accommodate expected traffic on 18th. The eastbound Level of Service is an E, and eastbound through, westbound through, westbound left and westbound right are all Level of Service F. There are also safety concerns at 18th Avenue. In this scenario, 17th operates acceptably, but because of the level of service concerns at 18th Avenue, Alternative 3 was not recommended.

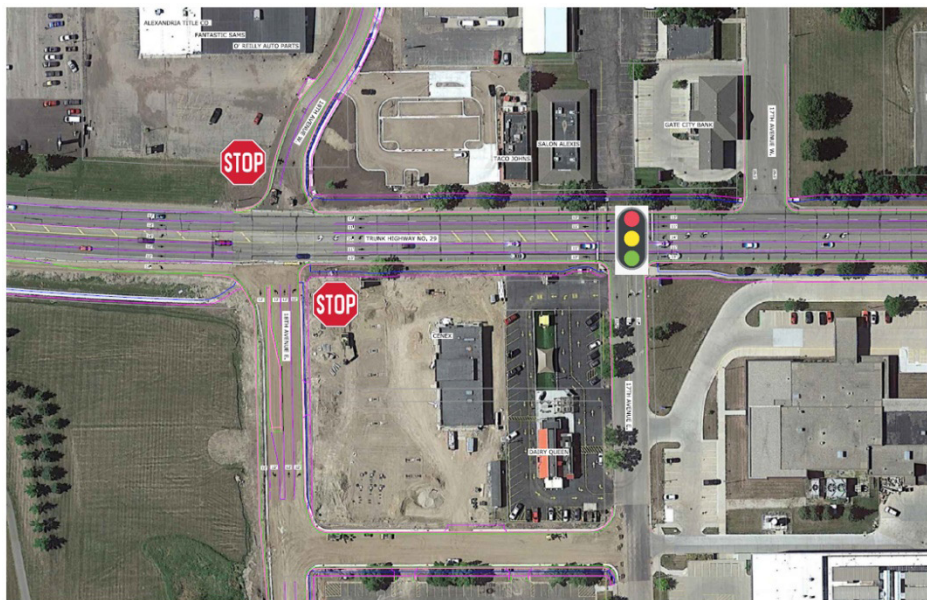


Figure 17 Alternative 3 - Two-way stop at 18th Avenue and signal at 17th Avenue

Alternative 4 included a signal at 18th Avenue and three-quarter access at 17th Avenue. This scenario has an expected Level of Service C at 18th Avenue and provides full access to Hwy 29. The 18th Avenue signal would accommodate 17th Avenue left turn traffic. However, a dedicated left turn lane is anticipated to be needed for westbound traffic.

The 2022 reconstruction of 18th did not accommodate this, so additional improvements to 18th are likely needed. Also, the Cenex gas station site expanded in the NE corner dramatically. This included adding additional pumps as well as a convenience store. On the West side of Hwy 29, Taco John's added a parking lot with access directly onto 18th. These two sites are high-traffic generators that likely would significantly impact 18th Ave traffic. However, since both sites and 18th Avenue were reconstructed during this study, accurate traffic volumes were unavailable. Based on the information available during the study, Alternative 4 appears to be the best option.

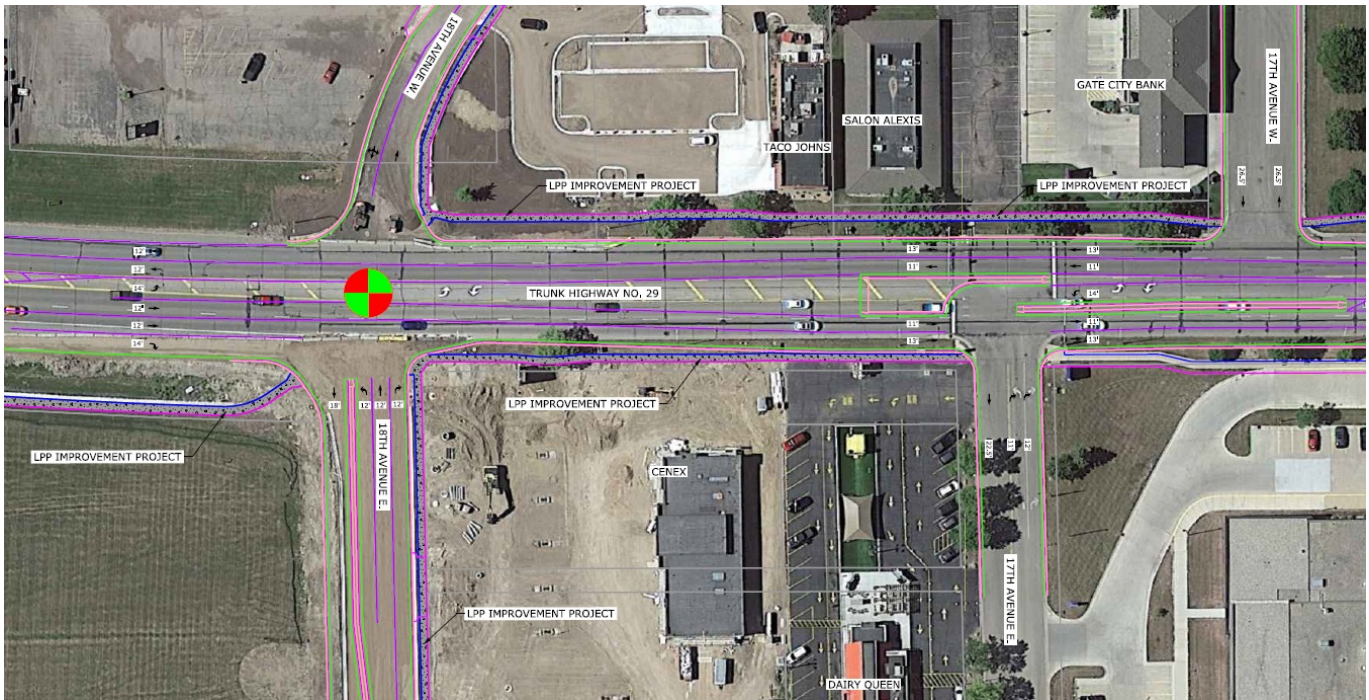


Figure 18 Alternative 4 - Signal at 18th with 3/4 access at 17th Avenue

	Level of Service	Safety	Cost	Right of Way Impacts	Viability
17th and 18th Multi-Lane RAB, Signal at 15th	★★★★★	★★★	\$\$\$\$	★	★
Signal at 18th ¾ access at 17th	????	★★★★	\$\$	★★★★★	★★★★★
Stop control 18th Signal 17th	??	★	\$	★★★★★	★★★
Signal at 17th Signal at 18th	???	★★★	\$\$	★★★★★	★

Table 15 Evaluation Matrix

Chapter 4 – Public Engagement

As part of this project, there were two rounds of public engagement. There was also a Study Review Committee.

Project Management Team

The Study Review Committee (SRC) consisted of community members with firsthand knowledge of the corridor. This includes business owners, advocates, and City and County Staff. These members and their roles in the community are listed at the beginning of this document.

The SRC met three times throughout the project. At the first meeting, they helped project staff understand the corridor's needs and priorities. At the second meeting, they heard firsthand the public's comments from the first open house and helped fill and gaps. At the final SRC meeting, the group selected the final recommendation for the corridor after the draft alternatives were created.

Public Engagement Round 1

Meeting Format

An Open House public meeting was held on October 6, 2022. A recorded presentation that mirrored the content was available online via the project website for those that were not able to attend the meeting in person. The purpose of this public meeting was to encourage the public to comment on the existing conditions of the corridor and how they use the corridor itself. Attendees reviewed display boards discussing existing conditions and the project schedule. Three boards consisted of a sticker survey with questions regarding their priorities. A large-scale aerial map was available for providing specific comments along the study area. Handouts and project staff were available to provide project updates and answer questions.

The meeting was held at the Douglas County Public Works building to provide an accessible location near the project study area. The online component allowed access for those that could not attend the meeting or needed more time to review project materials.

The in-person meeting was an hour and a half and conducted in an open house format with visual display boards, maps, and hard/electronic copies. Attendees were given the opportunity to submit written comments or provide verbal testimony to project staff. Staff from the Minnesota Department of Transportation, the City of Alexandria, and project consultants were available to answer questions.

Attendance

There were 20 total attendees at the public meetings. Meeting and attendee information is shown in Table 1.

Date/Time	Location	Attendance
In-Person Open House	Douglas County Public Works	20
Online Recorded Presentation	Project Website	59

Table 16 Attendance

*Attendance figures are based on participants who signed in and does not include staff.

Notification

Public meeting notifications were provided on the MnDOT website, the project email list, and MnDOT social media. In addition, a public meeting announcement was posted to individual stakeholders throughout the corridor.

Information Presented

At the Open House, information was provided regarding the corridor's existing conditions, including crash data, parking utilization, existing access points, pavement condition, pedestrian and bicycle facilities, wetland data, traffic operations, and utilities. Several boards encouraged participation in ranking priorities, including parking, medians, streetlights, bicycle infrastructure, etc.

General project information was provided via display boards, including an overview of the project, status, and anticipated schedule.

Handouts provided at the meeting included a project overview and how to stay involved. These handouts were available as a takeaway to meeting attendees. Comment sheets were also provided for meeting participants to leave feedback about the project if they preferred to leave handwritten comments instead of verbal comments with the project staff.

All open house boards and handouts were available on the project website: www.dot.state.mn.us/d4/projects/hwy298thave/

Summary of Comments

Public meeting attendees were provided with a comment sheet to submit feedback about Highway 29.

A review of the comments/questions received, through comment sheets and verbally, at the meeting found several common themes including access, parking lanes, and safety.

Written and Verbal Comments Received

A compilation of written and verbal comments was received from comment sheets, and verbally at each public meeting. The figure below indicates the number of comment sheets and surveys submitted at each meeting.

Feedback Type	Location	Number of Comments
In-Person Open House Comment Cards	Douglas County Public Works	1
Formstack Online	Project Website	1
In-Person Open House Sticker Activity	Douglas County Public Works	6
Online Survey / Map	Project Website	33

Table 17 Feedback Type

Below are the comments received in person and online.

- Signal timing while waiting on side streets is too long.
- Street parking is not necessary and can be eliminated.
- A green space median would help beautify the area; however, some preferred center turn lanes to a median.
- Green space could be added to the boulevard.
- Traffic speed is a concern.
- 8th and 14th are dangerous for pedestrians and bicyclists.
- The driving lanes are too narrow.
- Don't do the same thing as north of the corridor. The parking lanes are too narrow there

Project Survey Comments Received

In addition to the public open house meetings, an online survey was also conducted. Below is a summary of the survey results for both the in-person and online survey questions. Both formats were identical to ensure that data was consistent. The first eight questions were on a Rickert scale of 1-5 to show the favorable components. The options below are ranked from highest to lowest to indicate which the public was more supportive of.

On-street parking was the top suggested improvement. Participants felt that on-street parking was not being used in most areas and that on-street parking space could be allocated to something else. The improvement that was supported the least was narrowing the corridor.

Suggested Improvement	Rating
Getting rid of on-street parking	3.5
Get rid of some access to businesses	3.1
Adding or changing traffic signals	3.0
Make turning onto Hwy 29 easier	2.8
Adding a multi-use trail	2.6
Adding a median	2.5
Adding a roundabout	2.3
Narrowing the corridor	2.1

Table 18 How do you feel about...

The final questions of the survey asked how the participants use the corridor daily and some demographic questions to understand the project audience.

Mode of Transportation	Number
Car	33
Walking	15
Transit	4
Biking	3
Carpool	1

Table 19 How do you use this Corridor?

Public Engagement Round 2

Meeting Format

A 2nd Open House public meeting was held on May 23, 2023. A formal presentation was given to those in attendance. The purpose of this public meeting was to encourage the public to comment on the alternatives provided and ask questions of the project team. Attendees reviewed display boards discussing existing conditions, draft alternatives, and the project schedule. Handouts and project staff were available to provide project updates and answer questions.

The meeting was held at the Douglas County Public Works building to provide an accessible location near the project study area.

The in-person meeting was two hours and conducted in an open house format with visual display boards, maps, and hard/electronic copies. Attendees were given the opportunity to submit written comments or provide verbal testimony to project staff. Staff from the Minnesota Department of Transportation, the City of Alexandria, and project consultants were available to answer questions.

Attendance

There were 20 total attendees at the public meetings. Meeting and attendee information is shown in Table 1.

Date/Time	Location	Attendance
In-Person Open House	Douglas County Public Works	20

*Attendance figures are based on participants who signed in and does not include staff

Table 20 Attendance

Notification

Public meeting notifications were provided on the MnDOT website, the project email list, and MnDOT social media. In addition, a public meeting announcement was posted to individual stakeholders throughout the corridor.

Information Presented

At the Open House, information was provided regarding the corridor’s existing conditions, including crash data, parking utilization, existing access points, pavement condition, pedestrian and bicycle facilities, wetland data, traffic operations, and utilities. Several boards encouraged participation in ranking priorities, including parking, medians, streetlights, bicycle infrastructure, etc. New in this round of engagement were the draft alternatives for the public to review.

General project information was provided via display boards, including an overview of the project, status, and anticipated schedule.

Handouts provided at the meeting included a project overview and how to stay involved. These handouts were available as a takeaway to meeting attendees. Comment sheets were also provided for meeting participants to leave feedback about the project if they preferred to leave handwritten comments instead of verbal comments with the project staff.

All open house boards and handouts were available on the project website:

www.dot.state.mn.us/d4/projects/hwy298thave/

Summary of Comments

Public meeting attendees received a comment sheet to submit feedback about Highway 29.

Written and verbal comments received

A compilation of written and verbal comments was received from comment sheets and verbally at each public meeting. The figure below indicates the number of comment sheets and surveys submitted at each meeting.

Feedback Type	Location	Number of Comments
In-Person Open House Comment Cards	Douglas County Public Works	0
Transcribed Oral Comments to Project Team Members	Douglas County Public Works	

Table 21 Feedback Type

Below are the comments received in person and online.

- There was some confusion between this project and the project to the north. This project is only from 8th to 18th Avenues and does not extend to the downtown.
- There was good discussion about the access changes along the corridor. At this point, we do not know access changes that would come at a later stage of the project and would involve the public.
- How do you transition from the downtown area to 8th Ave. if you wanted to look at a 3-lane? This would be finalized in the final design stage of the project.
- Could you relocate/realign 17th Ave. so you could have signals at both 18th and 17th? This would be examined further in the final design stage of the project.

Chapter 5 – Next Steps

This project intended to review past efforts and provide additional information to aid in developing a long-term vision for the corridor. Implementation of the vision will take commitment and collaboration from all project partners. The City of Alexandria, Douglas County, and MnDOT will continue to collaborate to establish a consensus, complete an environmental review, and preliminary and final design of the preferred alternatives.

Additional analysis needs to be done. The existing corridor volume far exceeds the existing traffic volume and future corridor volumes. The traffic counts for the corridor are outdated with recent construction projects and planned construction projects in the area. The 15th Avenue signal does not meet warrants and is a candidate for removal. Access closures and on-street parking should be studied further alongside the final design.

At the same time as this Study, the 18th Avenue intersection was aligned, and the Cenex gas station at the southern end of the corridor was being reconstructed. The realignment of 18th Avenue revised access to the Taco John's parking lot. As a result, trip generation at this location is not accounted for in this Study.

A future reconstruction project is planned for 2028 or later by MnDOT. The next step will be to continue the development of the project working with all stakeholders.

Appendix A: Public Engagement Materials

WHAT IS THE HIGHWAY 29 CORRIDOR STUDY?

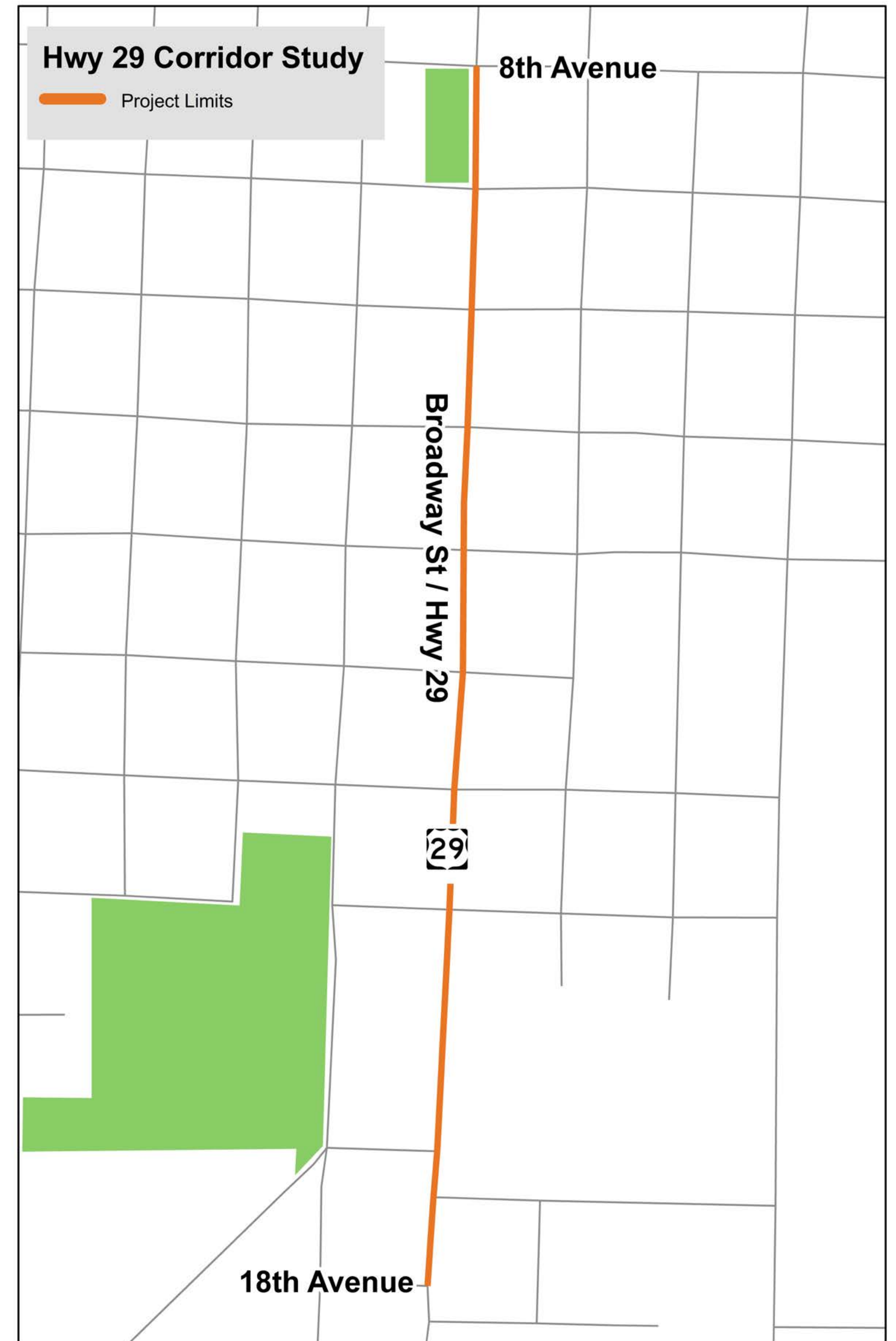
About the Study:

MnDOT, in partnership with the City of Alexandria, is conducting a corridor study to evaluate improvements that can be made along Highway 29 in Alexandria. The study will also examine the future transportation and mobility needs to develop a long-term vision for the corridor.

To work more closely with the community; local leaders, residents and business owners will work directly with project staff throughout the study. This partnership allows for a direct connection to the community through a transparent and collaborative process.

Goals of the Study:

- Identify the future corridor vision.
- Improve access and traffic control.
- Maintain safe and efficient operations.
- Consider multimodal enhancements.



HOW WILL THE STUDY BE CONDUCTED?

Phase 1 Summer / Fall 2022

- Identify existing and future traffic and safety concerns
- Identify potential corridor users
- Understand issues and concerns to identify priorities

Gather Input,
Determine Needs,
Evaluate Existing
Conditions

Phase 2 Fall / Winter 2022

Develop, Evaluate, and
Refine Alternatives

- Identify roadway elements
- Identify cross section and intersection control needs
- Evaluate and compare concepts

Phase 3 Spring - Summer 2023

- Recommend improvements
- Develop implementation plan
- Document recommendations

Develop
Recommendations
and Final Plan

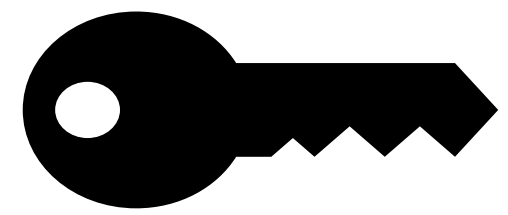
Comprehensive Public and Stakeholder Engagement



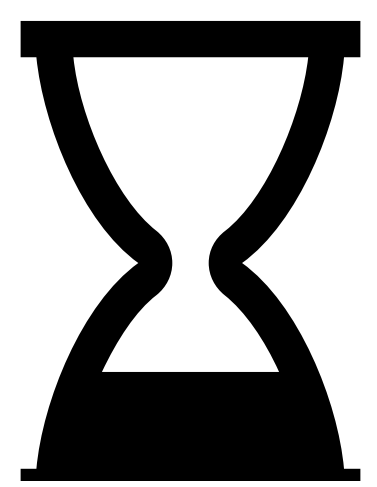
CORRIDOR BACKGROUND



In the last 5 years, there have been 33 crashes, including 2 involving a person bicycling. All intersections had a crash rate below statewide averages.



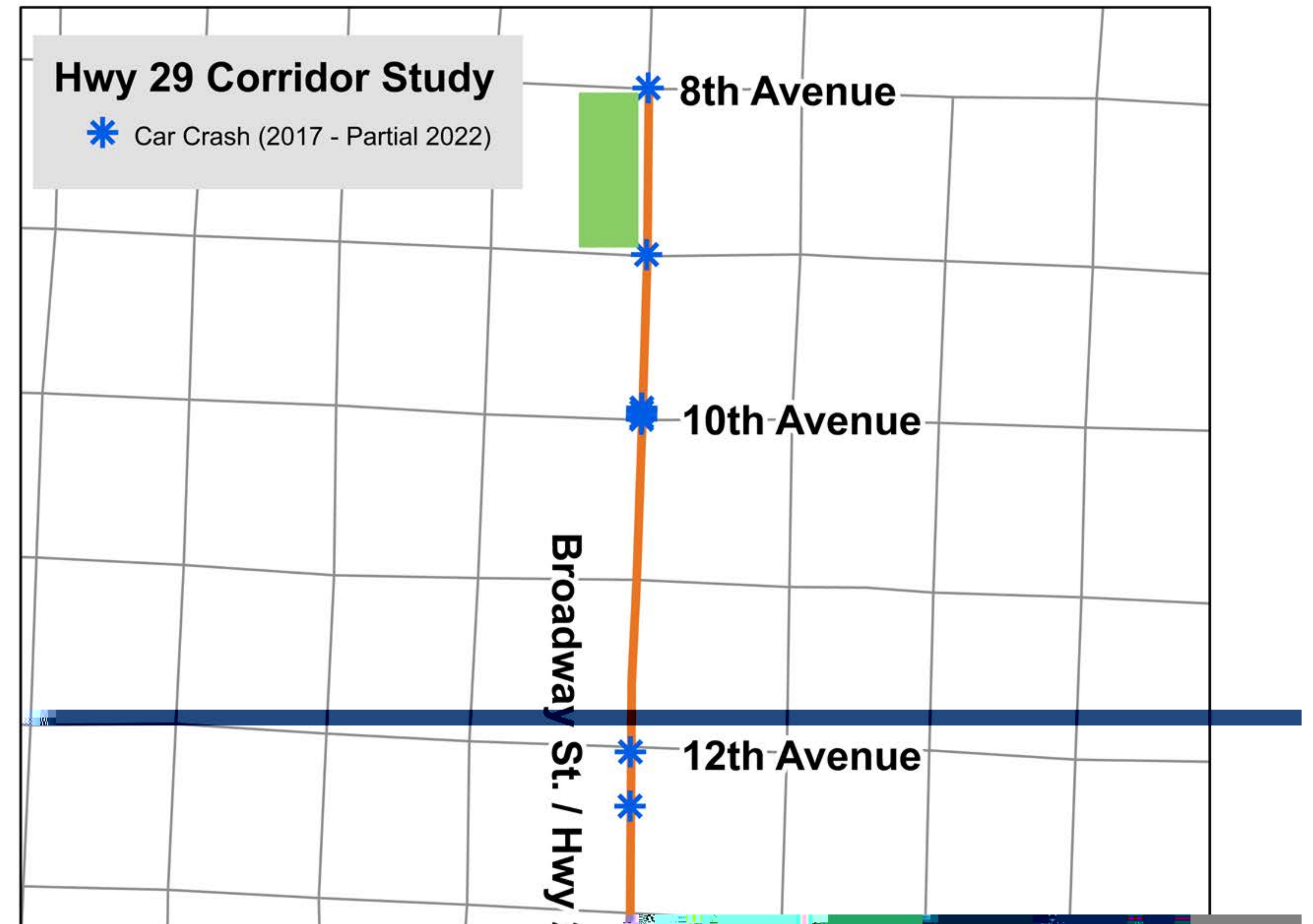
There are 34 access points along the corridor. All driveways can be accessed from the north and south.



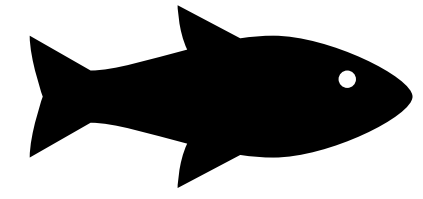
Remaining Service Life (RSL) of this segment's pavement is "low" meaning it will only last 0-3 more years.



Hwy 29 is identified as a City Bike Route per the 2010 Pedestrian Enhancements Study. Currently, no infrastructure exists beyond sidewalks and crosswalks.



CORRIDOR BACKGROUND



This area does not include any wetlands or historic locations.



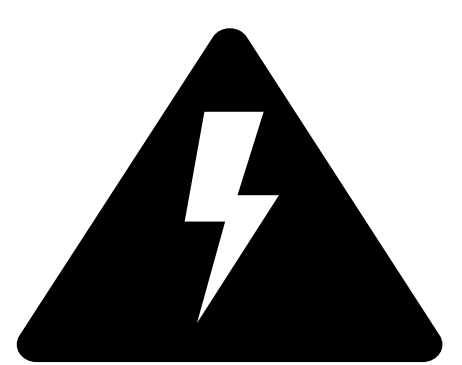
All traffic movements are operating at an acceptable level of service (LOS).



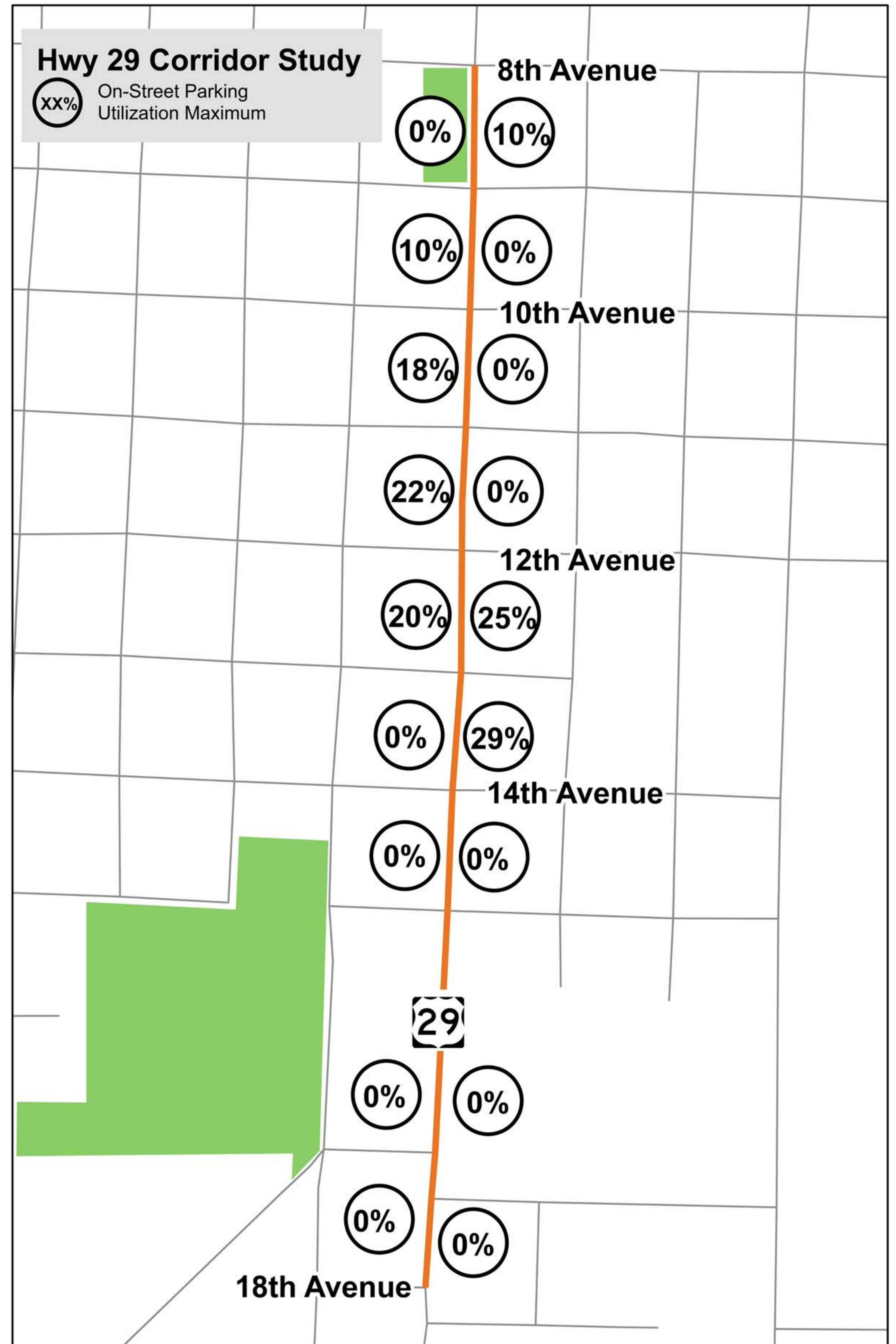
Daily occupancy of on-street parking spaces on Hwy 29 peaks at 29 percent.



Hwy 29 is used for both commuter and local transit service.



Utilities along this corridor include electric, fiber optic, water, sanitary sewer, and storm sewer.



PROJECT SURVEY

Please place a sticker on the scale of 1-10 for the following questions...

How would you feel about narrowing the corridor?

(Not comfortable narrowing)

1

2

3

4

(Yes, let's narrow)

5

How would you feel about adding medians?

(Not comfortable adding)

1

2

3

4

(Yes, let's add medians)

5

How do you feel about current access to businesses?

(Not enough access)

1

2

3

4

(Get rid of access)

5



PROJECT SURVEY

Please place a sticker on the scale of 1-10 for the following questions...

How do you feel about the current traffic signals?

(There are too many)

1

2

3

4

(There are not enough)

5

How would you feel about roundabouts?

(I don't think they would work here)

1

2

3

4

(I think they could work here)

5

How do you feel about turning onto/from Hwy 29?

(I find it hard to turn onto/off Hwy 29)

1

2

3

(I find it easy to turn onto/off Hwy 29)

4

5



PROJECT SURVEY

Please place a sticker on the scale of 1-10 for the following questions...

How important is on-street parking to you?
(I need it and use it often)

1

2

3

(I do not need on-street parking here)

4

5

How do you feel about multi-use trails?
(I don't think they would work here)

1

2

3

4

(I think they could work here)

5

How do you use this corridor? (Place a dot at ALL options you use)

Walking

Biking

Transit

Carpool

Car



HOW CAN I STAY INVOLVED?



Share your input using the interactive map!



Take the study survey!



Visit the study website. Sign up for email updates: mndot.gov/d4/projects/hwy298thave

Contact us!

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WHAT IS THE HIGHWAY 29 CORRIDOR STUDY?

About the Study:

MnDOT, in partnership with the City of Alexandria, is conducting a corridor study to evaluate improvements that can be made along Highway 29 in Alexandria. The study will also examine the future transportation and mobility needs to develop a long-term vision for the corridor.

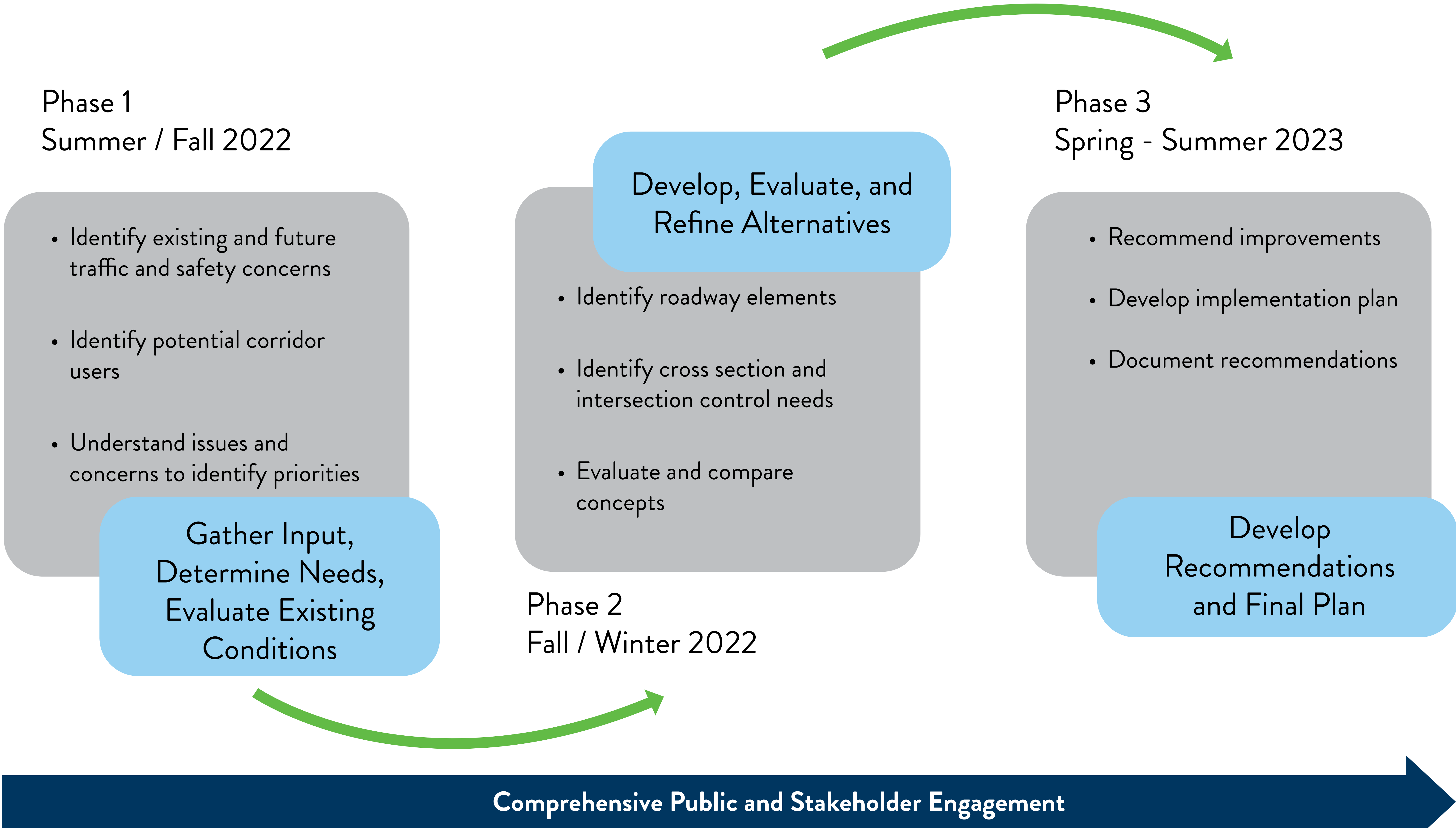
To work more closely with the community; local leaders, residents and business owners will work directly with project staff throughout the study. This partnership allows for a direct connection to the community through a transparent and collaborative process.

Goals of the Study:

- Identify the future corridor vision
- Improve access and traffic control
- Maintain safe and efficient operations
- Consider multimodal enhancements



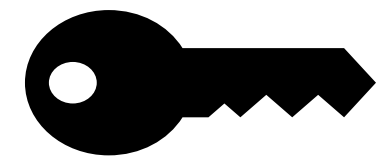
HOW WILL THE STUDY BE CONDUCTED?



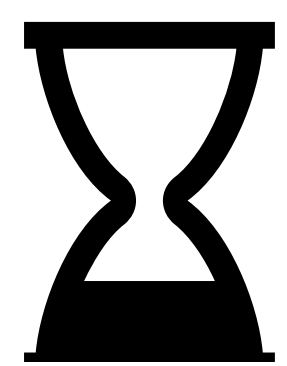
CORRIDOR BACKGROUND



In the last 5 years, there have been 33 crashes, including 2 involving a person bicycling. All intersections had a crash rate below statewide averages.



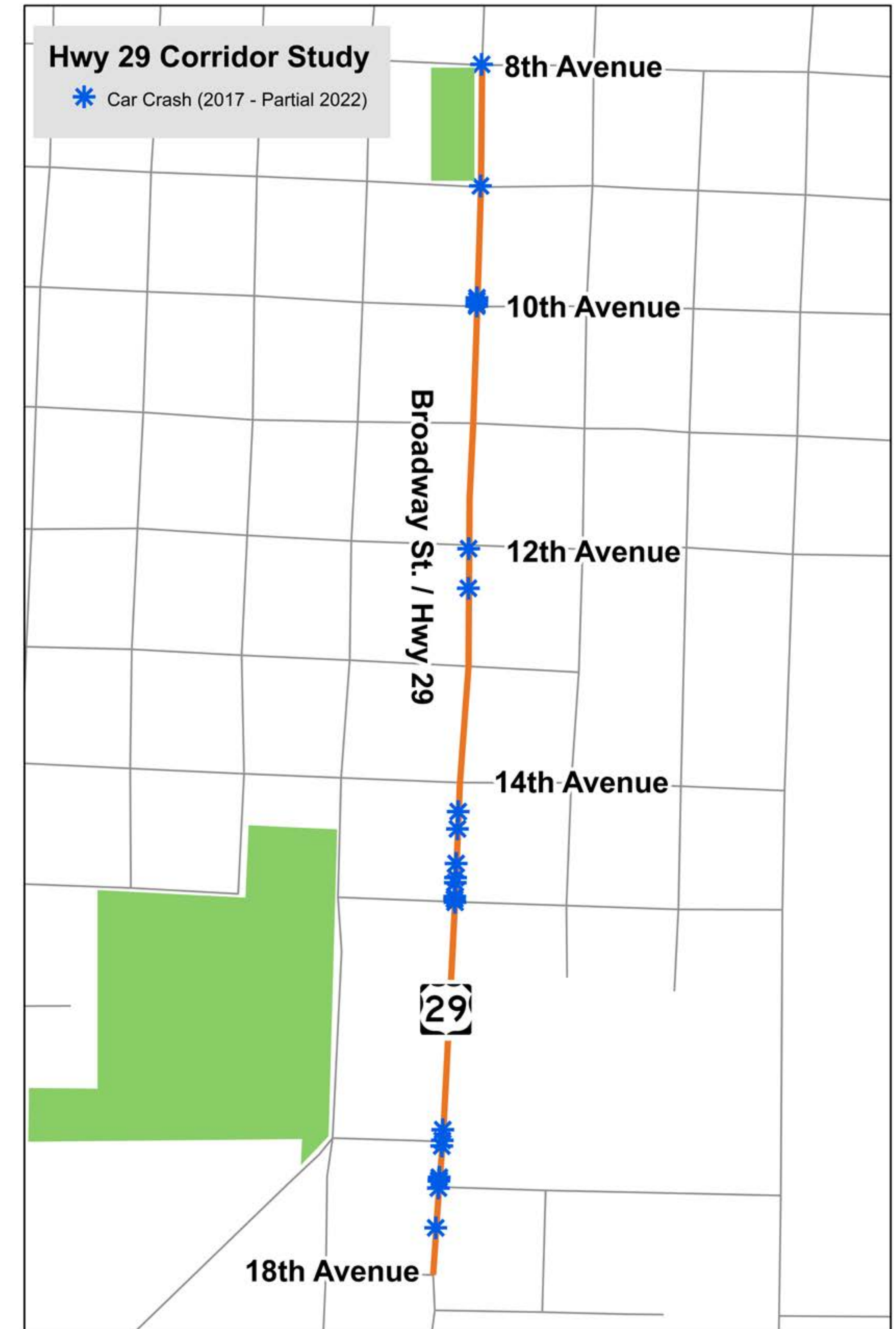
There are 34 access points along the corridor. All driveways can be accessed from the north and south.



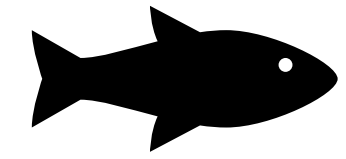
Remaining Service Life (RSL) of this segment's pavement is "low" meaning it will only last 0-3 more years.



Hwy 29 is identified as a City Bike Route per the 2010 Pedestrian Enhancements Study. Currently, no infrastructure exists beyond sidewalks and crosswalks.



CORRIDOR BACKGROUND



This area does not include any wetlands or historic locations.



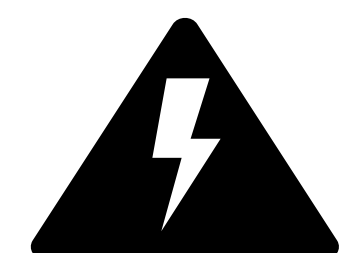
All traffic movements are operating at an acceptable level of service (LOS).



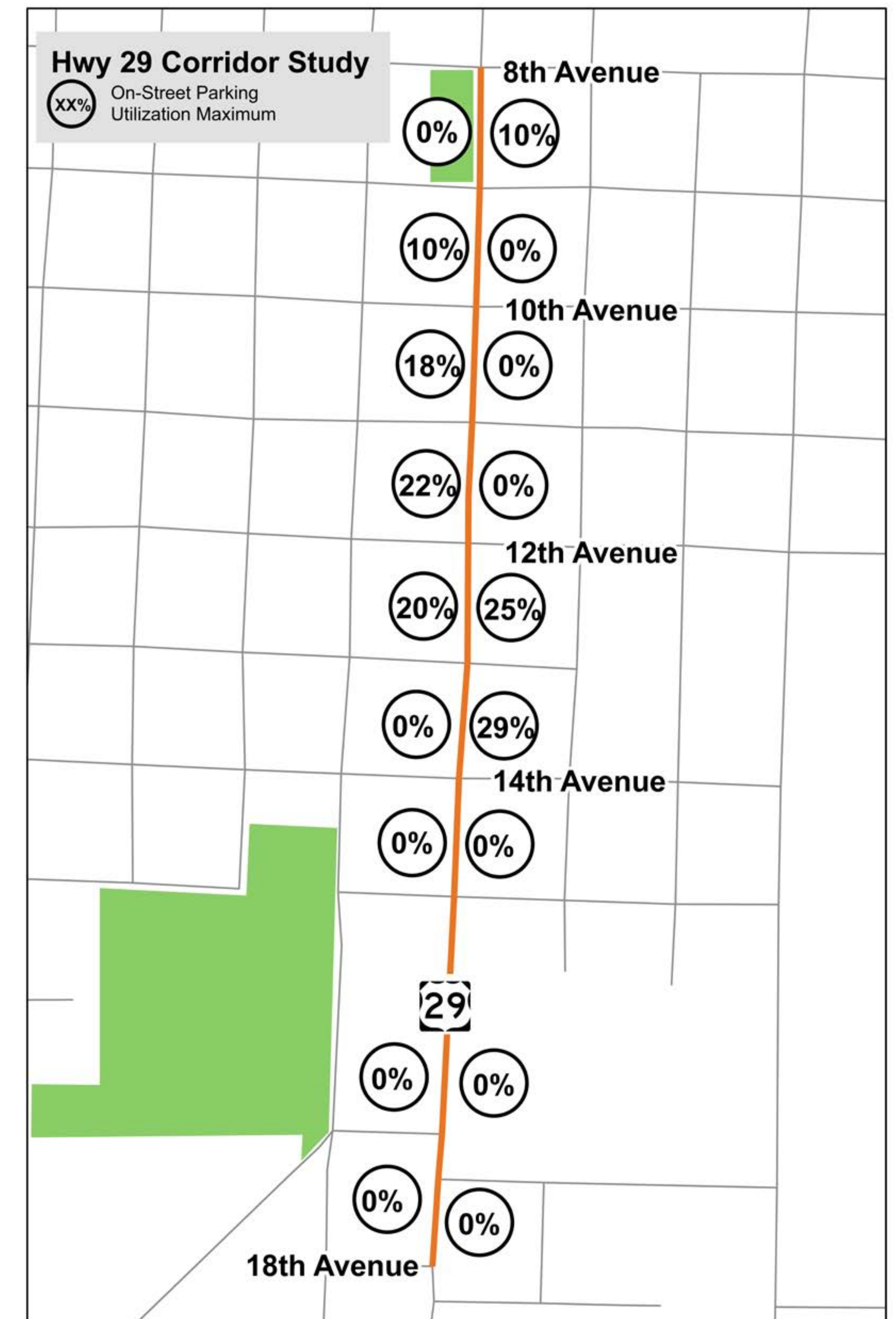
Daily occupancy of on-street parking spaces on Hwy 29 peaks at 29 percent.



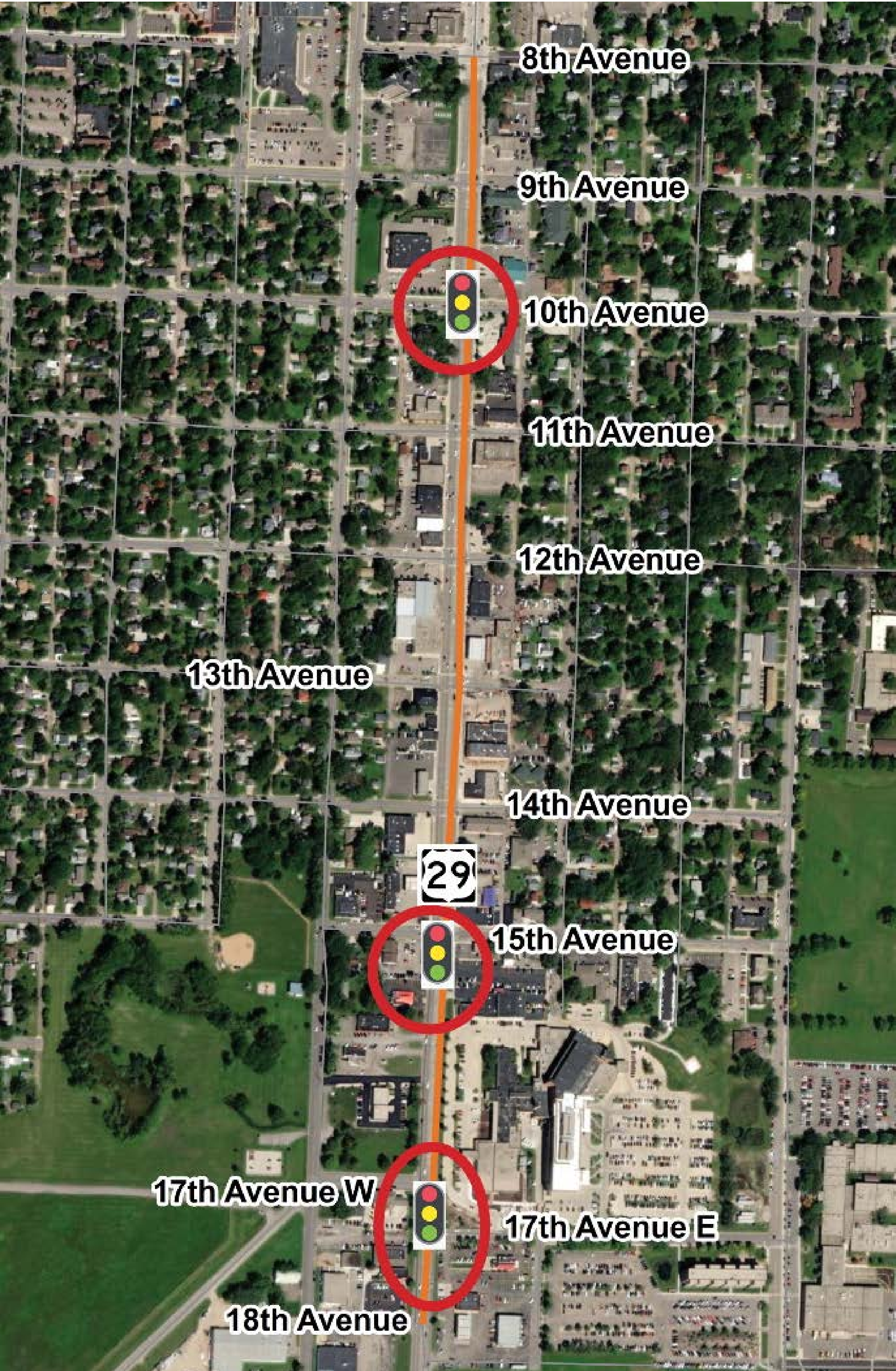
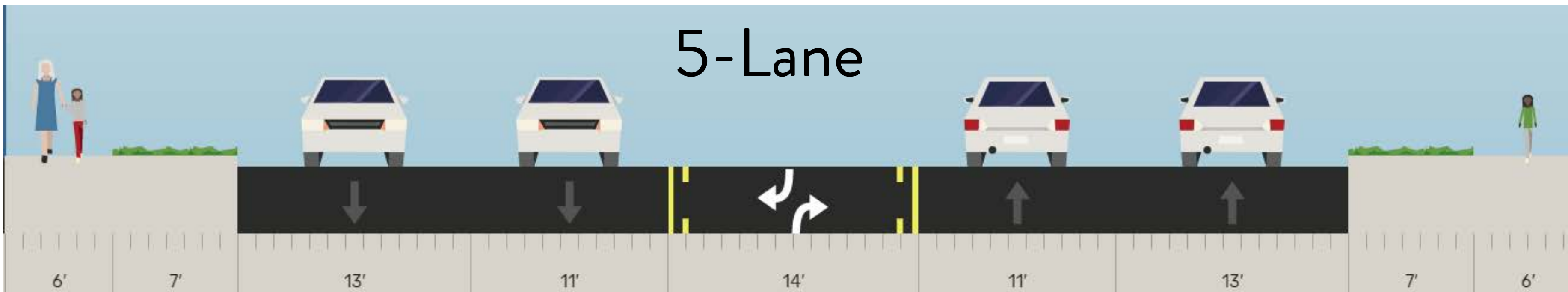
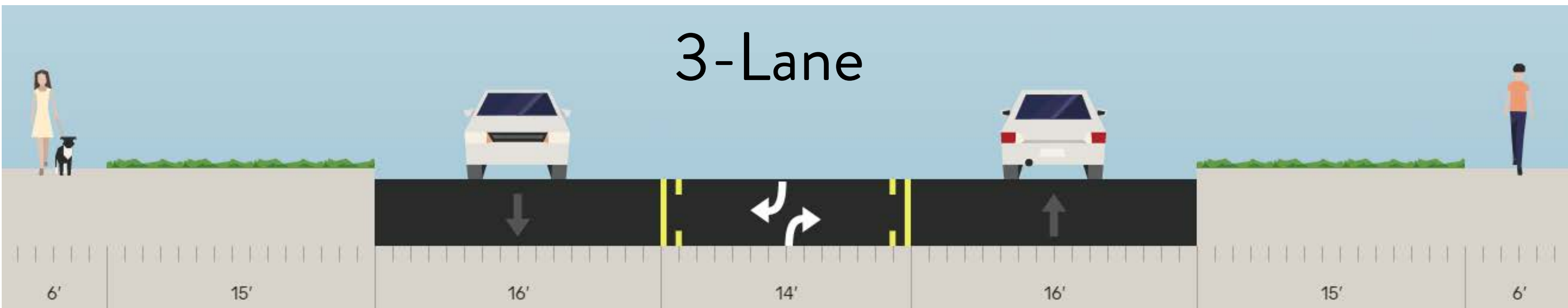
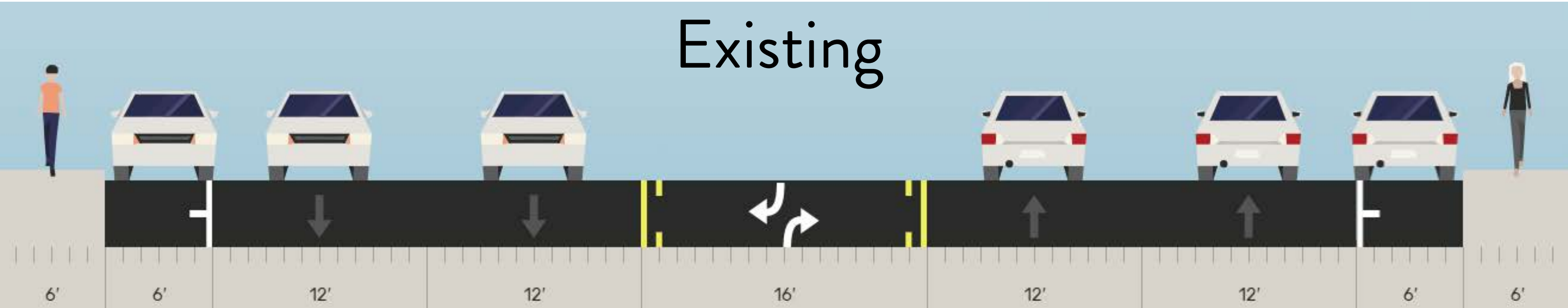
Hwy 29 is used for both commuter and local transit service.



Utilities along this corridor include electric, fiber optic, water, sanitary sewer, and storm sewer.

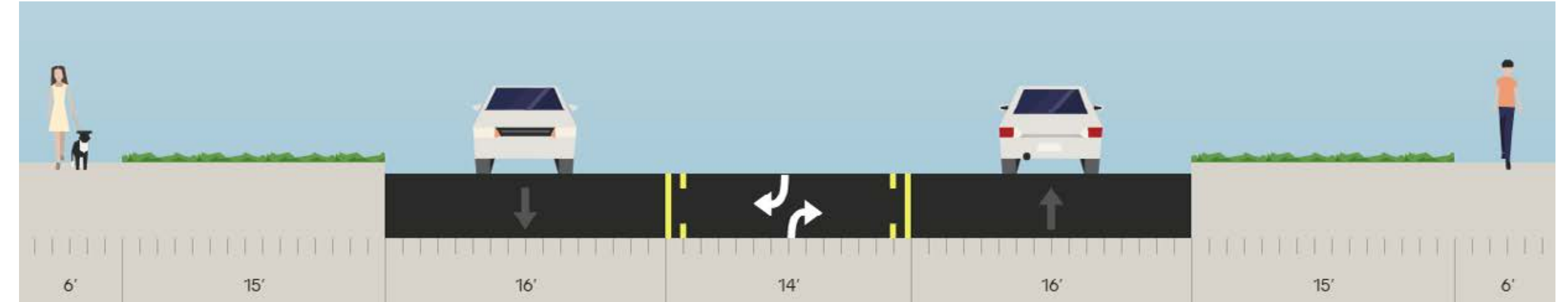


OPTIONS CONSIDERED



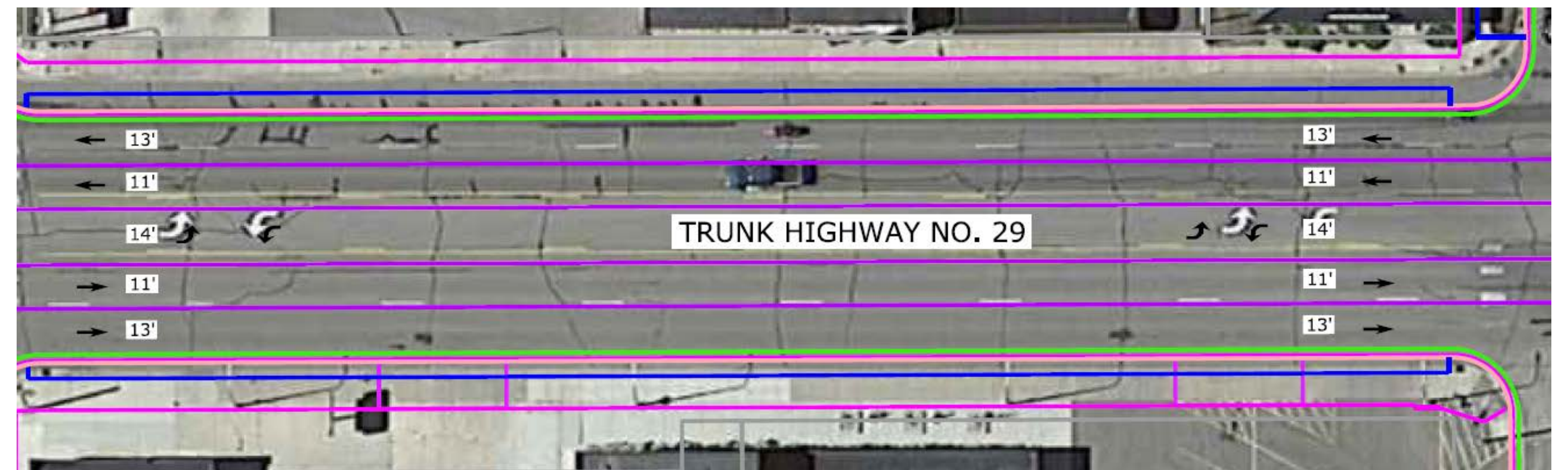
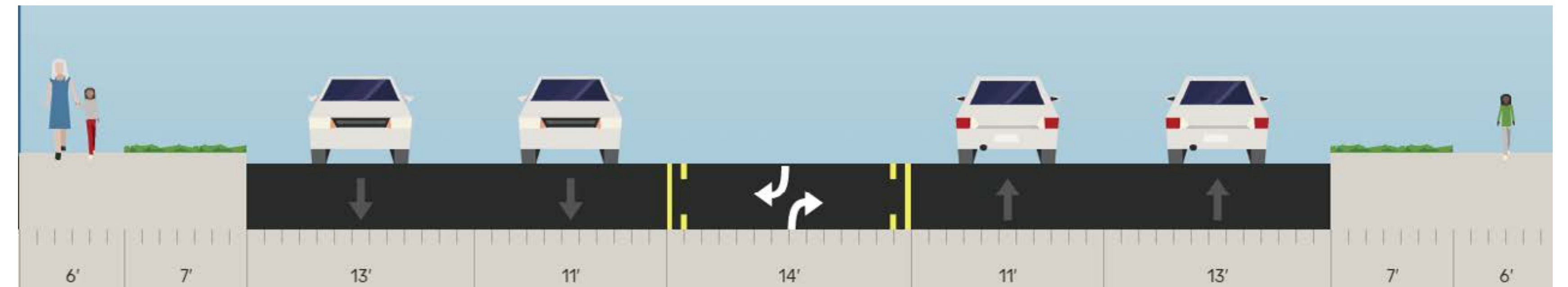
3-LANE

- Effective on roadways with 25,000 vehicles per day or less
- Side street motorists cross only 3 lanes of traffic
- Reduces pedestrian crossing distance
- Maximizes greenspace
- Reduces crashes by 20+ percent per FHWA





5-LANE

- Can accommodate over 36,000 vehicles per day
- Narrower corridor than existing possible
- Increased greenspace
- Reduced access
- Eliminated parking



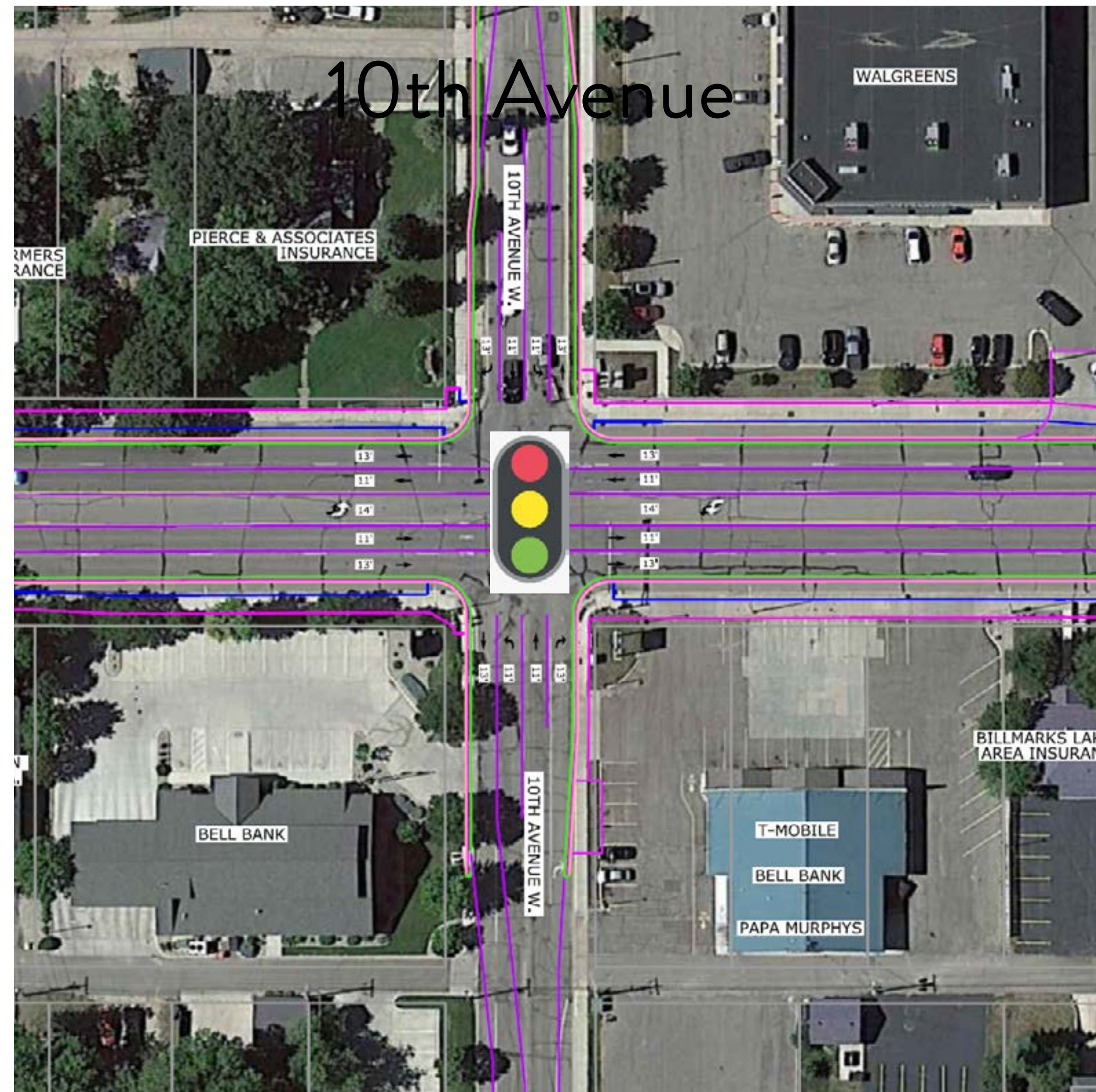
ACCESS STUDY

- Limit access off Hwy 29 to defer to side street access (where safe and viable).
- 24 locations could be considered for removal or relocation.

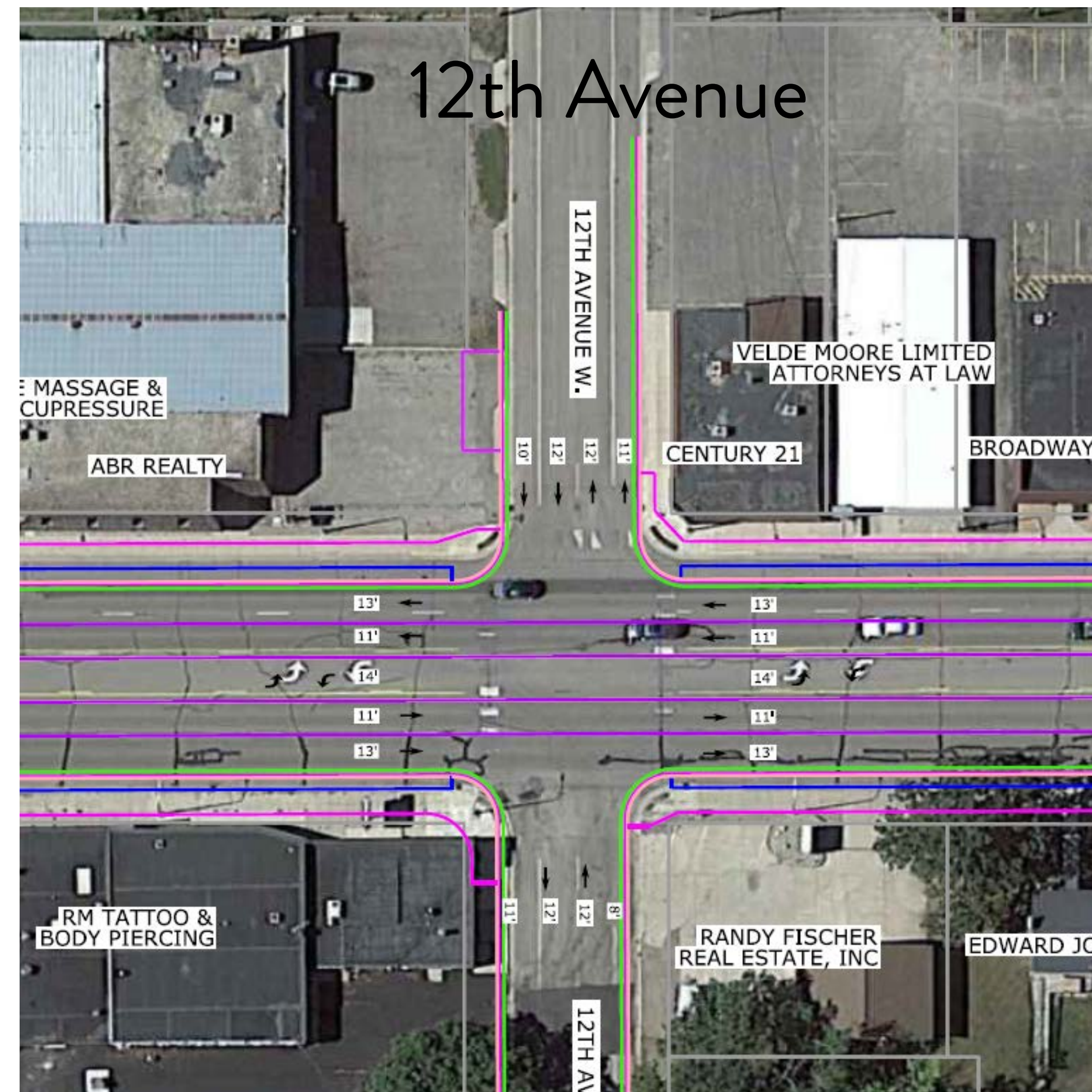
-  Remove or relocate access
-  Maintain access



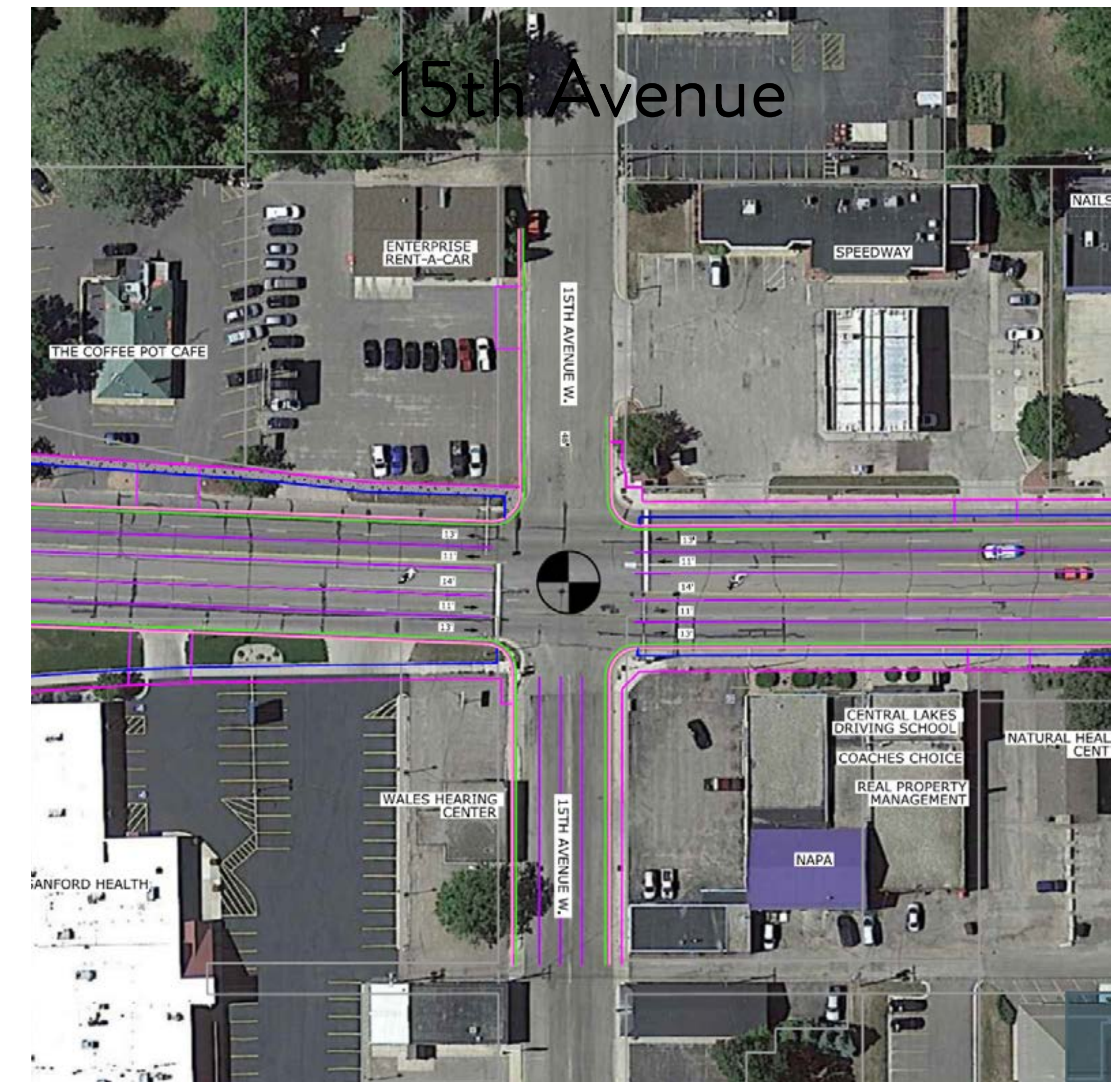
INTERSECTIONS - 10TH, 12TH, AND 15TH



- Turn lanes needed
- Eastbound left turn Level of Service C
- Westbound left turn Level of Service C



- Met spacing guidelines
- Does not meet warrants

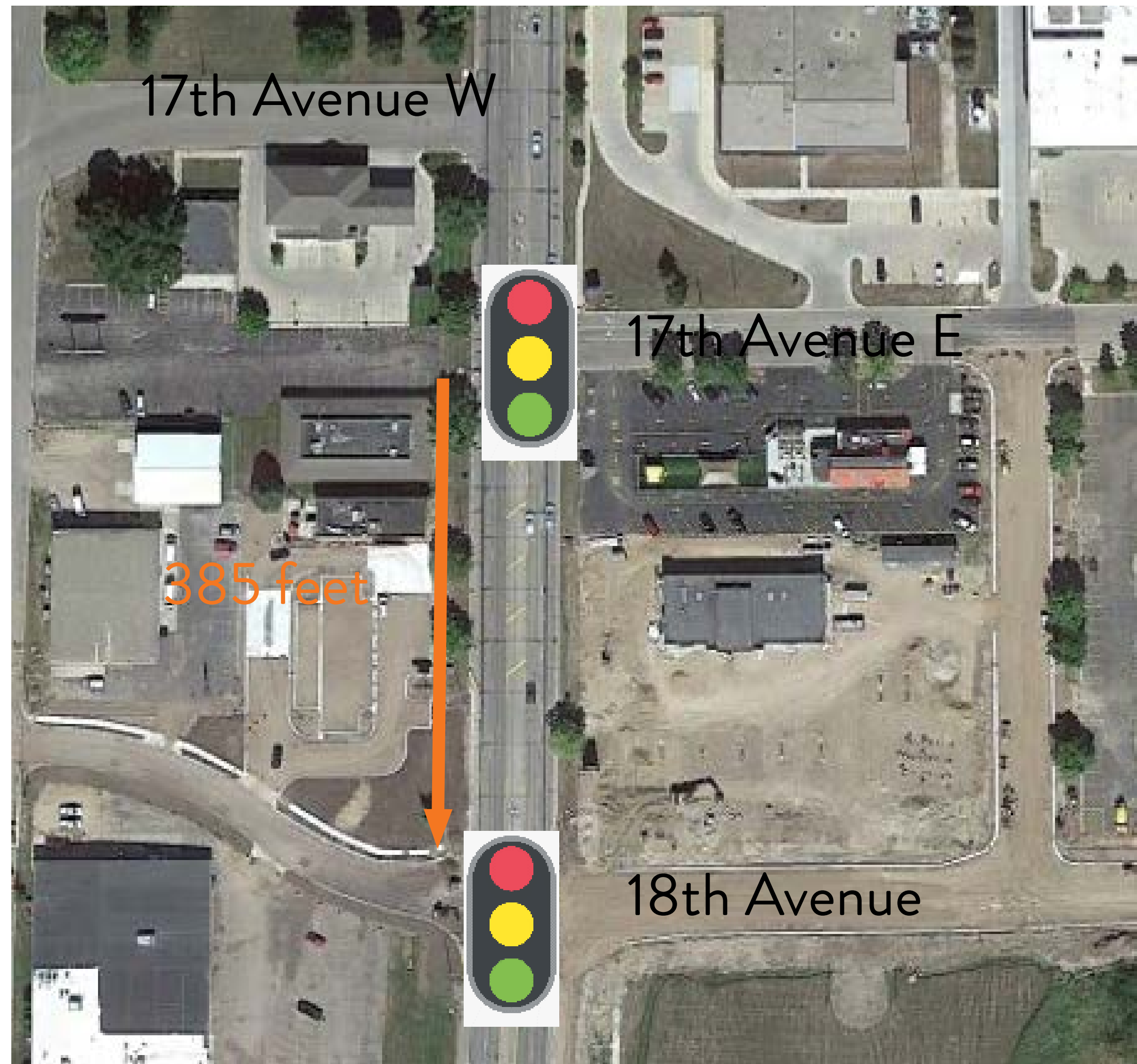


- Signal warrants not met
- Candidate for removal
- Removing unwarranted signals improves safety
- Reduces all crash types up to 24 percent
- Decreases injury crashes up to 53 percent
- Decrease rear end crashes up to 20 percent

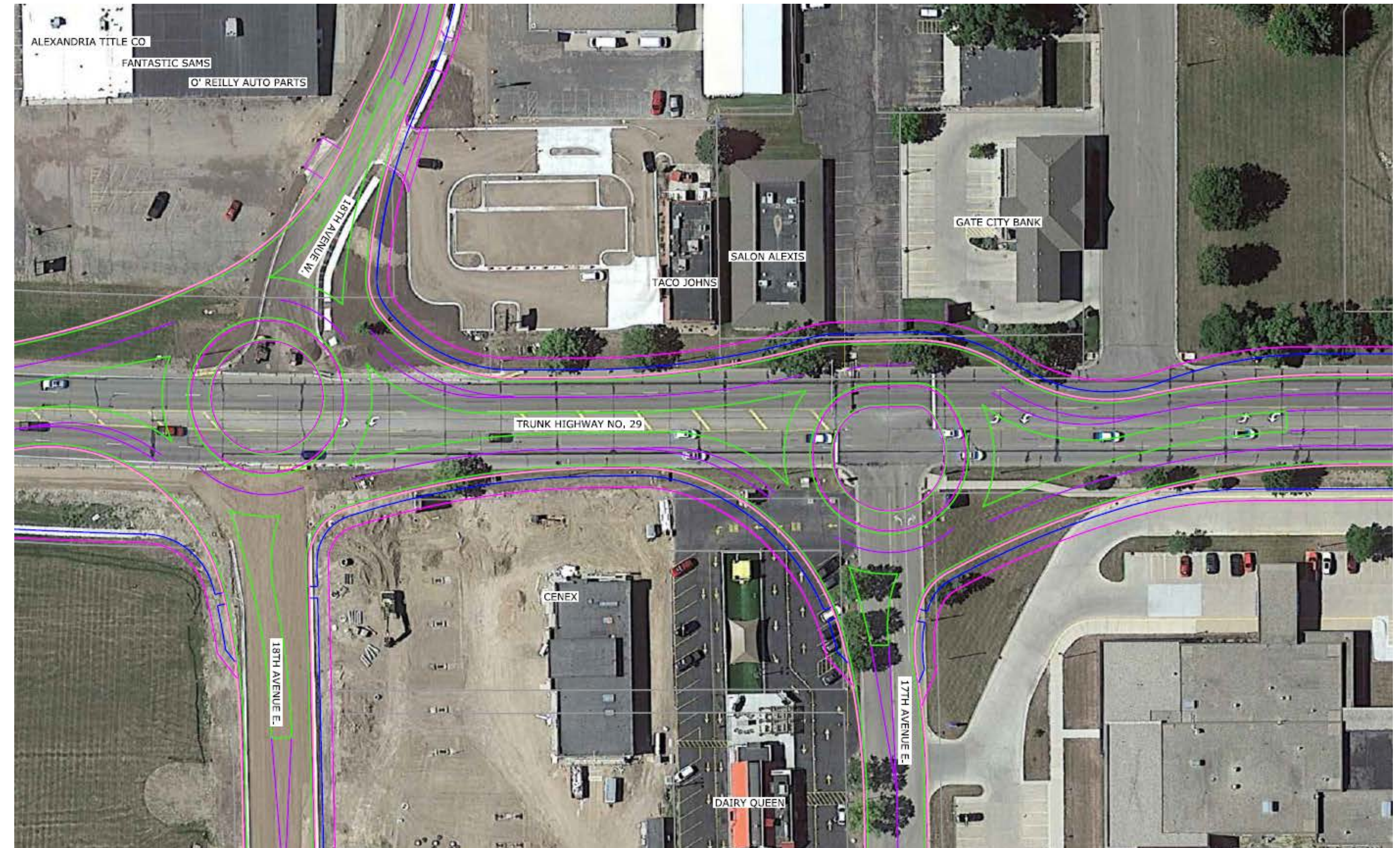


17TH AND 18TH

BOTH SIGNALS



BOTH ROUNDABOUTS



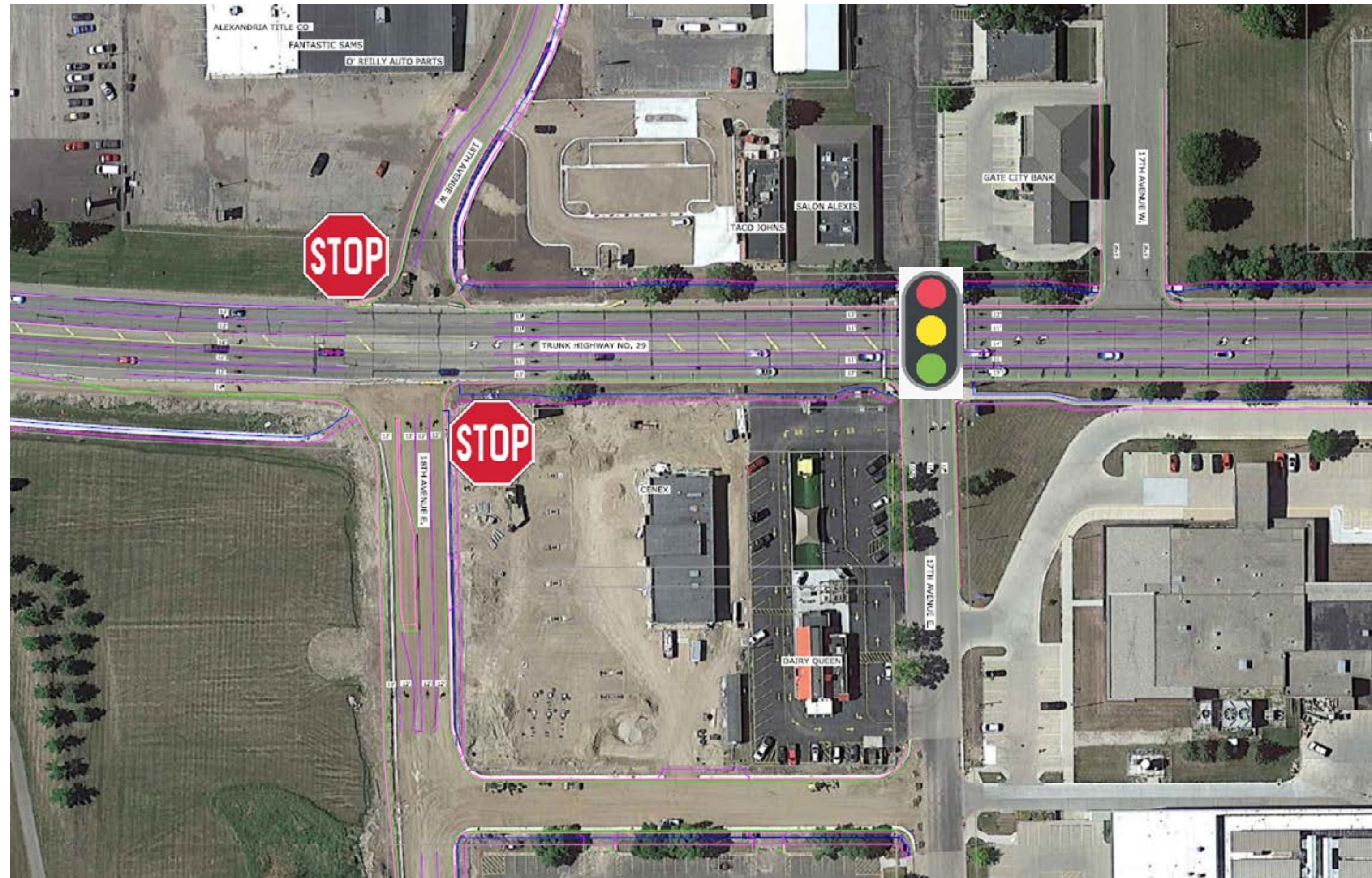
- Does not meet MnDOT signal spacing guidelines
- Two signals are not necessary for acceptable operations
- Unnecessary signals decrease safety

- Significant property impacts
- Capacity far exceeds the need
- Level of Service A+
- Increased crash rate
- High Cost



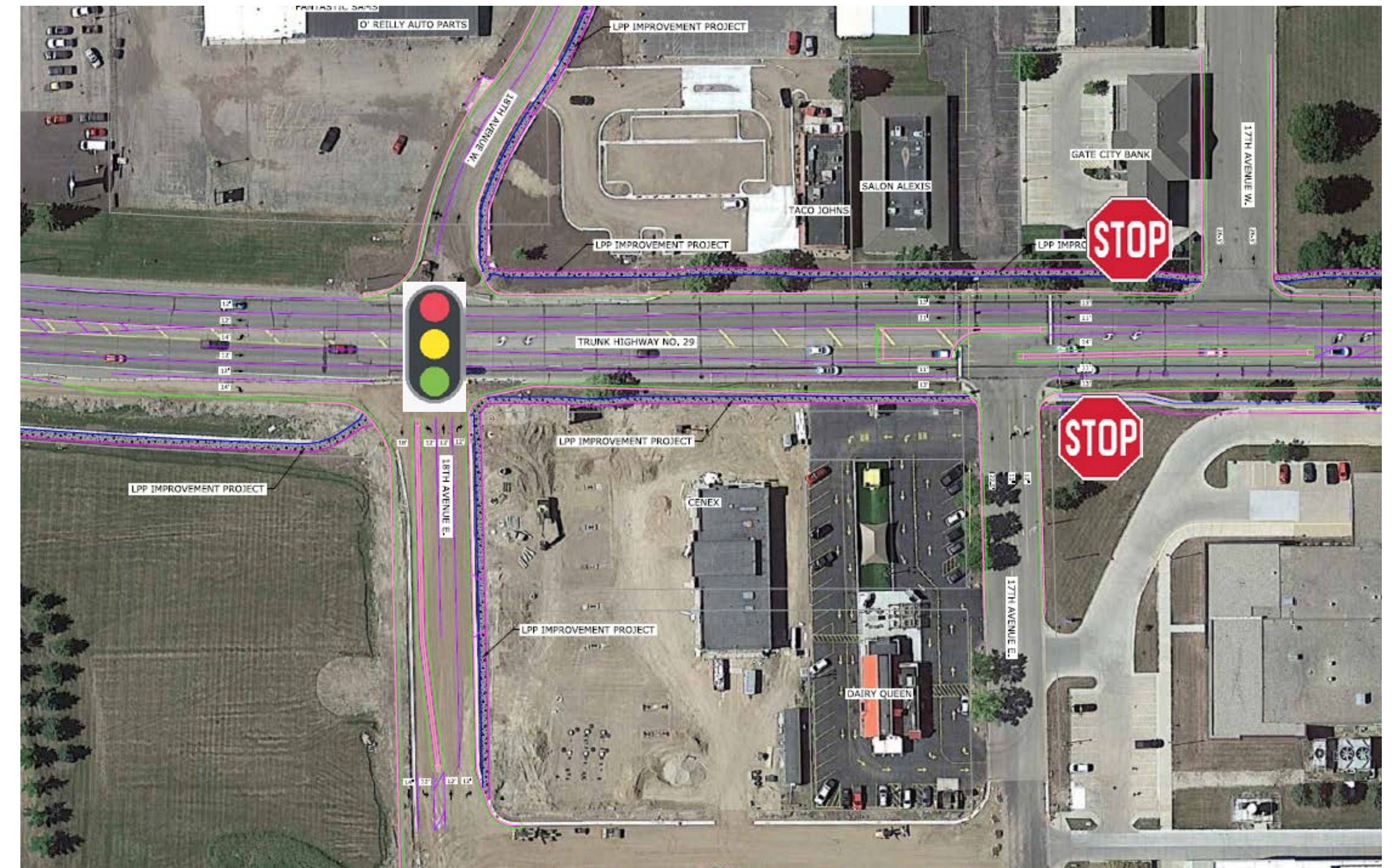
17TH AND 18TH

TWO-WAY STOP AT 18TH / SIGNAL AT 17TH



- Existing Condition
- Two-way stop does not accommodate traffic
 - Eastbound Left is Level of Service E
 - Eastbound Thru / Westbound Left / Westbound Thru / Westbound Right are Level of Service F
- Safety concerns at 18th
- Westbound left turn traffic may utilize 17th
- 17th operates acceptably

SIGNAL AT 18TH / 3/4 ACCESS AT 17TH



- Level of service
 - Westbound Left Level of Service C at 18th
- Provides full access from Hwy 29
- 18th Ave signal will accommodate 17th Ave left turn traffic
- Requires further study to account for Cenex and Taco John's



17TH AND 18TH

	Level of Service	Safety	Cost	Right of Way Impacts	Viability
17th and 18th Multi-Lane RAB, Signal at 15th	★★★★	★★	\$\$\$\$	★	★
Signal at 18th ¾ access at 17th	????	★★★	\$\$	★★★★	★★★★
Stop control 18th Signal 17th	??	★	\$	★★★★	★★
Signal at 17th Signal at 18th	???	★★	\$\$	★★★★	★

