PLEASANT AVENUE CORRIDOR STUDY

FAIRFIELD OHIO

MKSK

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Section 1
Existing Conditions

Study Introduction

The consultant team of MKSK and LJB were directed to study Pleasant Avenue between Nilles Road and Pleasant Run Creek. The study was to examine the possibilities for improving the safety and streetscape quality and function in the area. Concerns have been raised about the safety for both automobiles and pedestrians in this corridor due to a high number of curb cuts along both sides of Pleasant Avenue in this area.

Ultimately this study examined the current conditions of the study area (See Figure 1), conducted a traffic and safety analysis, and examined multiple scenarios for the corridor that offer different approaches to improving the safety and aesthetics of the corridor.

The study was conducted from November 2020 until March 2021.

The content presented in this study is a combination of analysis, ideas, and input from a project team consisting of:

- **MKSK:** Sean Hare and Andy Knight
- **LJB:** Dan Hoying and Veena Madineni
- **City of Fairfield:** Greg Kathman, Erin Donovan-Lynn, Ben Mann, and Nicholas Dill

The intersection of Pleasant Avenue and Patterson Drive.

Curb cuts on the east side of Pleasant Avenue.

Typical Section looking north on Pleasant Avenue.

Access drive from Townhomes & Apartments at Symmes.

Figure 1: Study Area Map

Study Area

Pleasant Avenue. (US 127) between the Nilles Road intersection and the bridge over Pleasant Run Creek is a 1,700' commercial corridor with an Urban Principal Arterial functional classification and is a Federal Aid Primary (FAP) route. The posted speed limit is 25 mph. For the purposes of this study, the northern limit of the corridor is the point north of the bridge at which Pleasant Avenue. becomes a 3-lane section with one lane in each direction and a two-way-left-turn-lane (TWLTL). It consists of a 4 to 6 lane pavement section crowned in the center of the pavement, generally on the double yellow line (with the exception of the west lane line of the southbound left turn lane at Patterson Drive). The city provided measurements from edge of pavement to edge of pavement consisting of the following at various points along the corridor:

- North of Nilles Road, 6 lane section: 65'
- South of Patterson Drive, 4 lane section: 41'
- North of Patterson Drive, 5 lane section: 53'
- Bridge, 3 lanes with shoulder: 51'

The pavement section includes a 21" combination curb and gutter section on both sides of the road with 5.5' wide concrete sidewalk immediately at the back of curb. There is no curb lawn along the corridor. The portion of the sidewalk that is adjacent to the parking stalls and commercial signs is often bounded on the property side by an additional curb that is integral to the sidewalk. The corridor provides full access to the 27 commercial driveways along the corridor.

The Nilles and Patterson intersections are signalized and coordinated with each other. Both signals include mast arm supports and pedestrian accommodations. Curb ramps appear to be ADA compliant.

UTILITIES

The Pleasant Avenue corridor includes both above ground and underground utilities serving residents and businesses along the corridor and in the area. Information observed or collected regarding each are summarized here:

Electric – Duke

- Transmission poles are present at the back of walk along the west side of the corridor. Metal bracket arms and cobra head light fixtures providing street lighting along the corridor are attached to these poles and are owned by Duke. The poles include additional attachments that appear to be telecommunications. Ownership of the attached lines was not clear during the field visit. These wood poles are scheduled for replacement by metal poles in 2023 per discussion by Greg Kathman with a Duke representative.
- Red utility markings on the west sidewalk were observed as well. Additional discussion with Duke is necessary to determine if underground facilities are also present on the west side. Businesses along the east side of the corridor are fed by underground and overhead facilities that appear to be serviced from the rear of the properties.
- Poles along the east side of the corridor include private lighting fed by overhead lines originating on the west side poles and telecommunications attachments. Ownership of these poles are not clear and additional investigation is required.

Telecommunications – Cincinnati Bell

- Potential overhead attachment information discussed in the electrical section above.
- Underground duct bank of 10 ducts between manholes and vaults at the northeast corner of the Nilles intersection, crossing to the east side of the southbound right turn lane at the intersection, and running north at a consistent offset from the centerline of the road to continue under the west side sidewalk to the Patterson

Drive intersection.

Gas – Duke

- The gas line along the corridor is marked as 12" Steel and is located under the sidewalk on the east side of the road, appearing to be located directly above the storm sewer trunk line.

Water – City of Fairfield

- See the city GIS utility map for the size and location of the waterline along the corridor. In general, it is located under the western curb line or within the westernmost lane of pavement.

Sanitary Sewer – City of Fairfield

- See the city GIS utility map for the size and location of the sanitary sewer along the corridor. In general, it is located on the lane line between the two southbound lanes.

Storm Sewer – City of Fairfield

- See the city GIS utility map for the size and location of the storm sewer along the corridor. In general, the trunk line is located under the eastern sidewalk. The outlets along the corridor include an outlet to Pleasant Run Creek as well as connection to the large diameter storm sewer that is located in Nilles Road beginning at the northwest quadrant of the intersection with Pleasant Ave.
- Private property storm sewers connect to the public storm system through a series of catch basins located in the parking lots.

STREETSCAPE AND AESTHETICS

The overall aesthetic character of the corridor has been defined by the automobile. There is an abundance of curb cuts and driveways, many of the buildings are separated from the street by a parking lot. There is minimal landscaping or streetscaping that could create a more pleasant environment or a stronger sense of place here.

Sidewalks are typically about 6' wide which is more than adequate however, they are not very friendly to pedestrians due to the high frequency of curb cuts that need to be crossed, the lack of landscaping, and the lack of a buffer separating pedestrians from passing traffic.

Buildings in the study area are mostly between 40-50 years old with a few modernized buildings and a handful of recently built structures. On the West Side of the corridor, some of the businesses on the corridor are in houses that have been converted to offices and service based businesses.

This is one of the older areas of the downtown of Fairfield and has not seen much recent investment on a comprehensive level.

Current Land Use

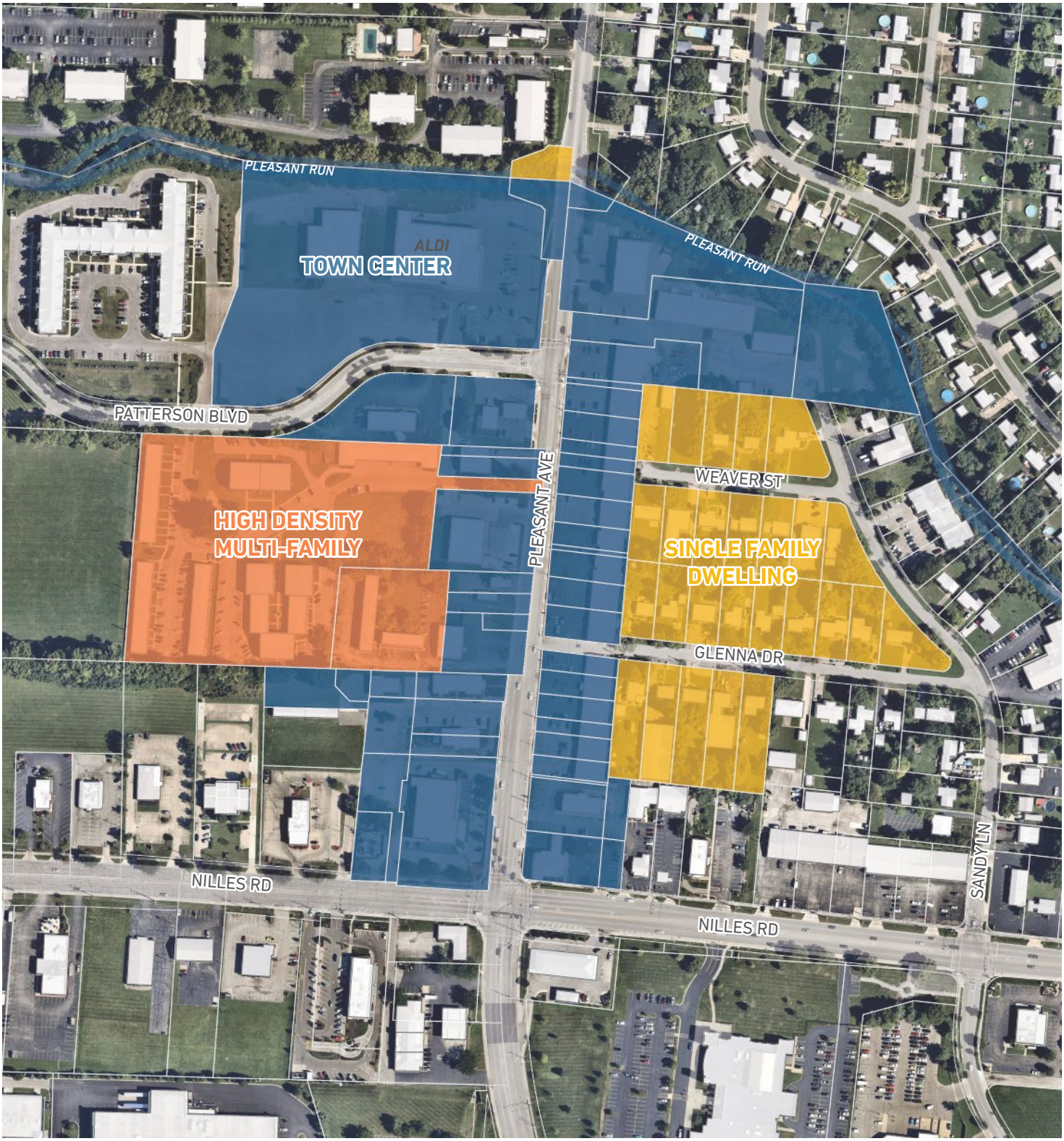
The current land use in the study area includes a mix of the Town Center Land Use (which in this study area is primarily commercial uses), Single Family Dwelling and High Density Multi-Family (see Figure 2).

TOWN CENTER (RETAIL COMMERCIAL)

HIGH-DENSITY MULTI-FAMILY

SINGLE FAMILY DWELLING

Figure 2: Current Land Use Map



Current Zoning

There are four distinct zoning districts occurring within the study area. They are Downtown District, Downtown District Modified, Central Business District, and Multi-Family Residence District (Figure 3). The Fairfield Forward Plan (2019) envisioned the east side of Pleasant Avenue in this area to eventually be redeveloped (see below).

'Key Recommendations - Town Center' from the Fairfield Forward Plan (2019)

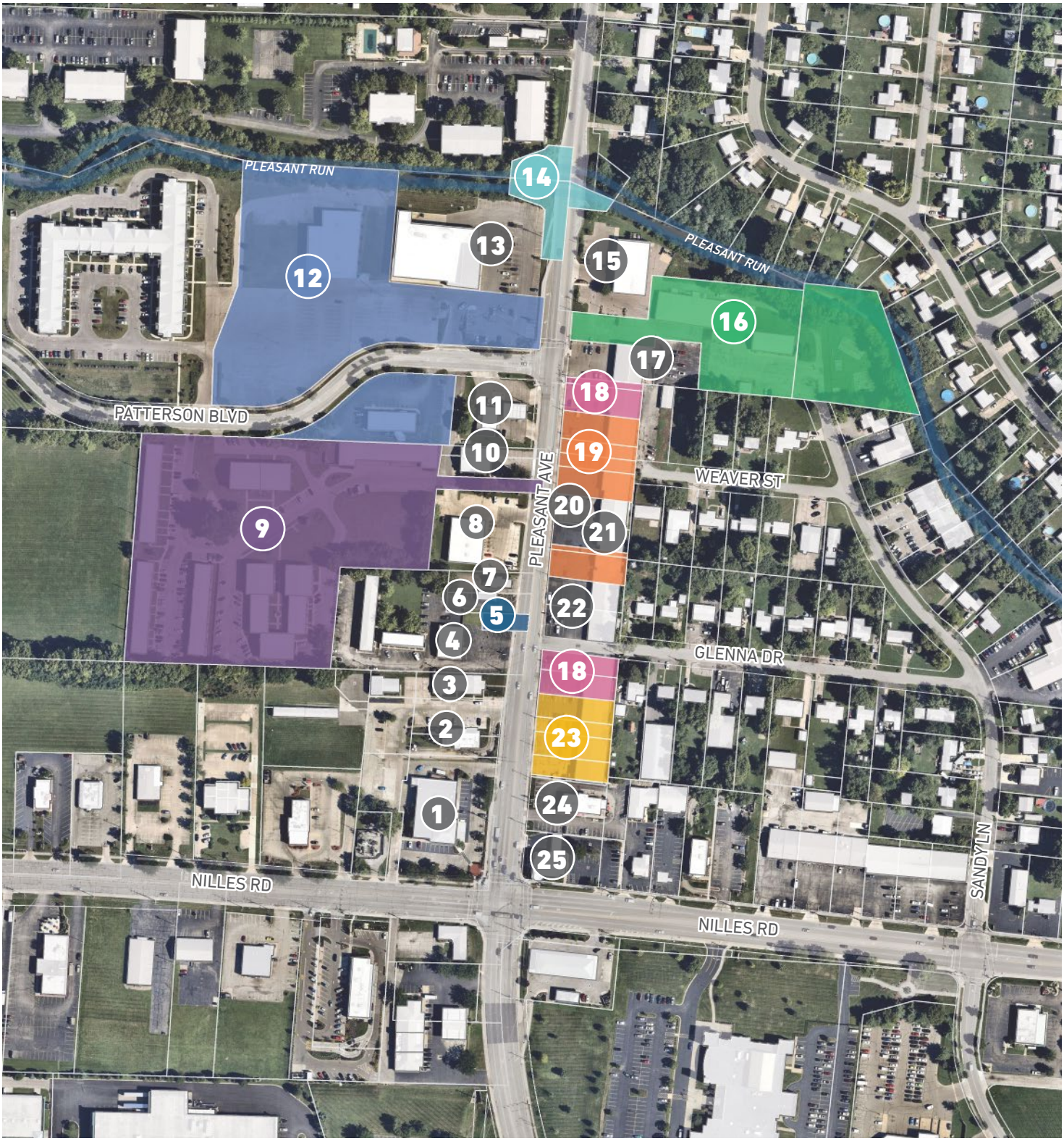
Figure 3: Current Zoning Map

Property Ownership

When looking at potential improvements to the safety and streetscape along Pleasant Avenue it is important to understand the property ownership along the study area, because recommendations will certainly impact the users and owners of private property in the area.

1. 771 Farmington LLC
2. Strump Joellen Rooks Succ Tr Etal
3. Sree LLC
4. Fragohbel LLC
5. City of Fairfield
6. Biondo Angelo J
7. Snyder Richard D & Julianna C
8. Autozone Inc
9. Symmes Ltd
10. Rodriquez Cassandra A & Ricardo A
11. Manya Properties LLC
12. Fair Plaza Center LLC
13. Aldi Inc Ohio
14. State of Ohio
15. Realty Income Properties 29 LLC
16. P & V Partners LLC
17. Cooper Michael Lee & Donna Marie
18. Beck Robyn & Mcnutt Randy
19. Pleasant Ave Investment Co
20. Lee Kam Yee & Yu Jing
21. Vidourek William C
22. Naslin Enterprises LLC
23. Suburban Realty LP
24. Terraza 7 LLC
25. JP Morgan Chase Bank

Figure 4: Current Property Ownership Map



Business Inventory (as of 4.1.21)

Identifying the types of businesses in operation in the study area is critical to creating an understanding of how customers, employees, and residents are moving through and spending time within the study area. For instance, office uses will certainly have a different need for parking and access than a retail shop or restaurant.

1. CVS
2. Burger King
3. Bradley Square
4. Vacant
5. Tony Biondo & Son Barber Shop
6. Dean Snyder Law
7. AutoZone Auto Parts
8. Offices
9. Rodriguez & Porter, Ltd.
10. U.S. Bank Branch
11. Fairfield Fuel Mart
12. ALDI
13. Family Dollar
14. God's Harvest Church
15. Lindenwald Station
16. National Computer
17. Cincy Vapors
18. Vacant
19. Rebound Chiropractic
20. Goodys Coin Laundry
21. Dixie Chicks Barber Shop
22. Nelson's Popcorn Land
23. Furry Tails Pet Grooming
24. Torre Fuerte
25. Transfan2's Shop 'N Look
26. Hooterville Sports Cards
27. Vacant
28. Lee's
29. Vacant
30. Robert Steele: Allstate Insurance
31. McKinley's Pub
32. Cell Phone Doctor
33. Donut Spot
34. Gene's Hair Salon
35. Pierce Brown - State Farm Insurance
36. The Driving School
37. VIP Wireless and Smoke Shop / Boost Mobile
38. Vacant
39. Nails 2000
40. Mother Earth Vitamins and More
41. MD Vape + Tobacco
42. Spice Bazaar
43. Verizon
44. Little Caesars Pizza
45. KFC
46. Chase Bank

Figure 5: Business Inventory Map (as of 4.1.21)

Safety Analysis

HISTORIC CRASH ANALYSIS:

Crash data was gathered for Pleasant Avenue from north of Nilles Road intersection to Patterson for the most recent 3 years (2017-2019). 21 crashes were recorded during the 3 years including 4 injury crashes. The primary focus of this safety analysis was to assess crashes involving driveways.

Driveway related: 13 crashes were driveway related, these crashes were primarily angle crashes and some left turn crashes. 3 crashes involved vehicles entering Pleasant Avenue from opposing driveways. Drivers exiting a driveway are looking for gaps in oncoming traffic on Pleasant Avenue, not necessarily other driveways on Pleasant Avenue.

- Multiple curb cuts exist on Pleasant Avenue in a 1100' section between Nilles Road and Patterson Drive, 13 curb cuts on the east side and 11 on the west side. The existing driveways are not aligned properly, result in multiple conflict points and increases the complexity of navigating through the corridor or property access along the corridor.
- An angle crash was associated with a driver exiting Glenna Drive that ran the stop sign and collided with a northbound vehicle on Pleasant Avenue.

Lane Drop Condition: 6 crashes were associated with lane changes in the northbound direction of Pleasant Avenue approaching Patterson Drive. These sideswipe-passing crashes were attributed to lane changes as the inside through lane terminates as a 'Left turn only' lane at Patterson Drive.

Pedestrian/Bicycle crashes: A pedestrian crash and a bicycle crash were documented during the 3-year study period.

- A pedestrian crash was recorded on September 9, 2019 during the 3 PM hour at Patterson Drive intersection, where a southbound right turn vehicle struck a pedestrian in the north crosswalk.
- On October 4, 2017, during the noon hour a vehicular driver was exiting CVS Pharmacy driveway to turn right onto Pleasant Avenue, a bicyclist traveling north on the sidewalk swerved to go around the vehicle in the front and was struck by the motor vehicle.

ACCESS DENSITY AND CRASH RATES:

A research report 'Impacts of Access Management Techniques' was published by Transportation Research Board. As part of the study, comprehensive safety analyses was performed and the relationship between access density and crash rates was identified. Figure 6 illustrates the relationship between crash rate and access density, including the impacts of traffic signal and unsignalized access points.

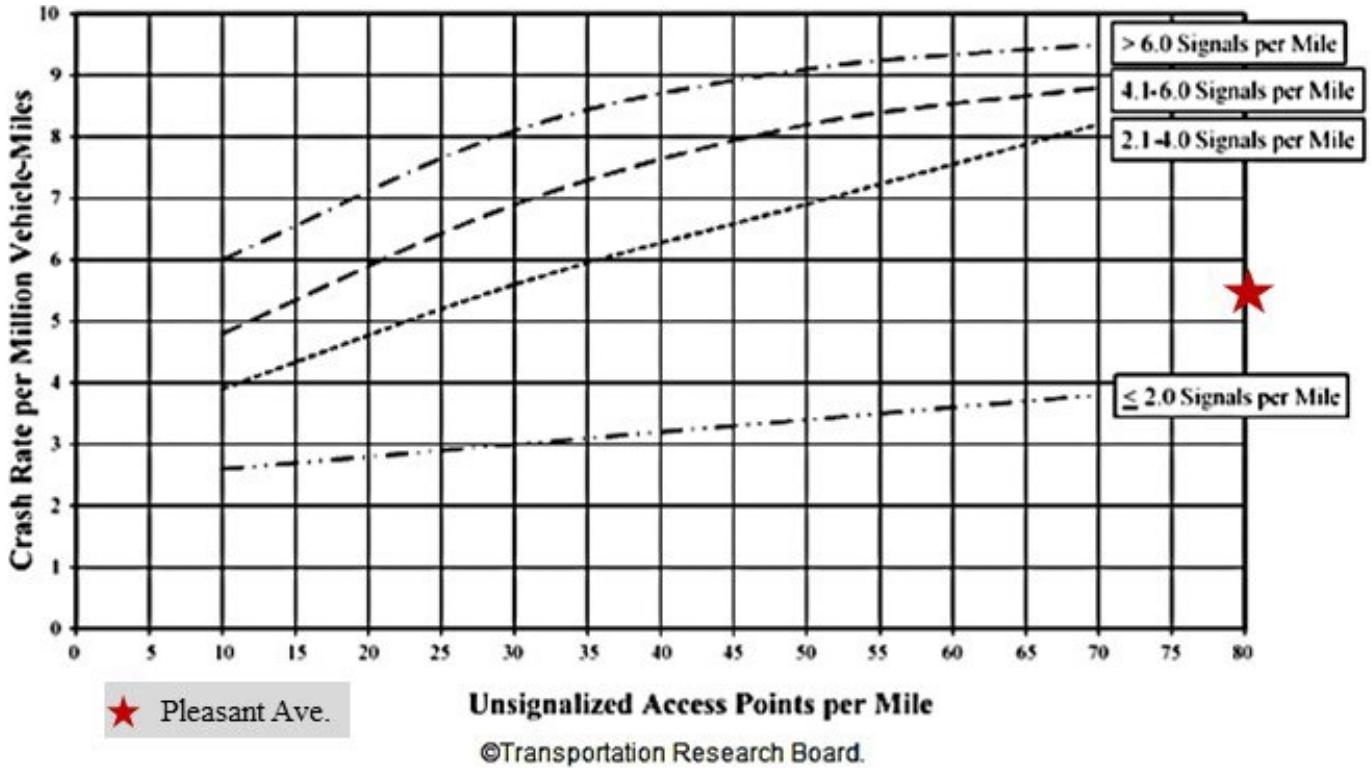
In general, as the density of access points increase and the signals are spaced closer, higher crash rates will be experienced.

The access study section of Pleasant Avenue includes 24 curb cuts over 1100 feet, equating to 115 access points per mile. The Annual average daily traffic (AADT) on Pleasant Avenue is 18,000 vehicles per day, and the traffic signal density is 6 per mile. The average crash rate for the study section between Nilles Road and Patterson Blvd. is 5.1 crashes per million vehicle-miles traveled (MVMT). Comparing results from the 'Access Management Techniques' report to Pleasant Avenue corridor characteristics, the Pleasant Avenue corridor has experienced a lower crash rate. This lower crash rate can be attributed to 'medium to light traffic' commercial/service land uses that translates to smaller proportion of turning traffic over through traffic, lower posted speed limit (25 MPH) along the corridor and driver familiarity of area.

The findings of this research study also show that for every unsignalized access point eliminated, crash rates decreased by 2 to 5 percent depending on the corridor speed, AADT and turnover of the traffic from the corresponding access point. As access density decreases, the opportunity for conflicts is lower and the available space for maneuvering increases.

In summary, the crash rate is lower than the research study findings for similar corridors, there are opportunities to reduce the Pleasant Avenue crash rate from 5.1 crashes per MVMT. In the city of Fairfield, the Pleasant Avenue corridor is the third highest crash corridor following Route 4 and South. Gilmore Road corridors. Managing access by discouraging direct property access and providing appropriate turning radii and spacing between driveways can improve traffic flow, reduce crashes and provide a better experience for users and adjacent businesses.

Figure 6: Crash Rates By Access Density & Signals Per Mile



Source: NCHRP 420, 'Impacts of Access Management Techniques'

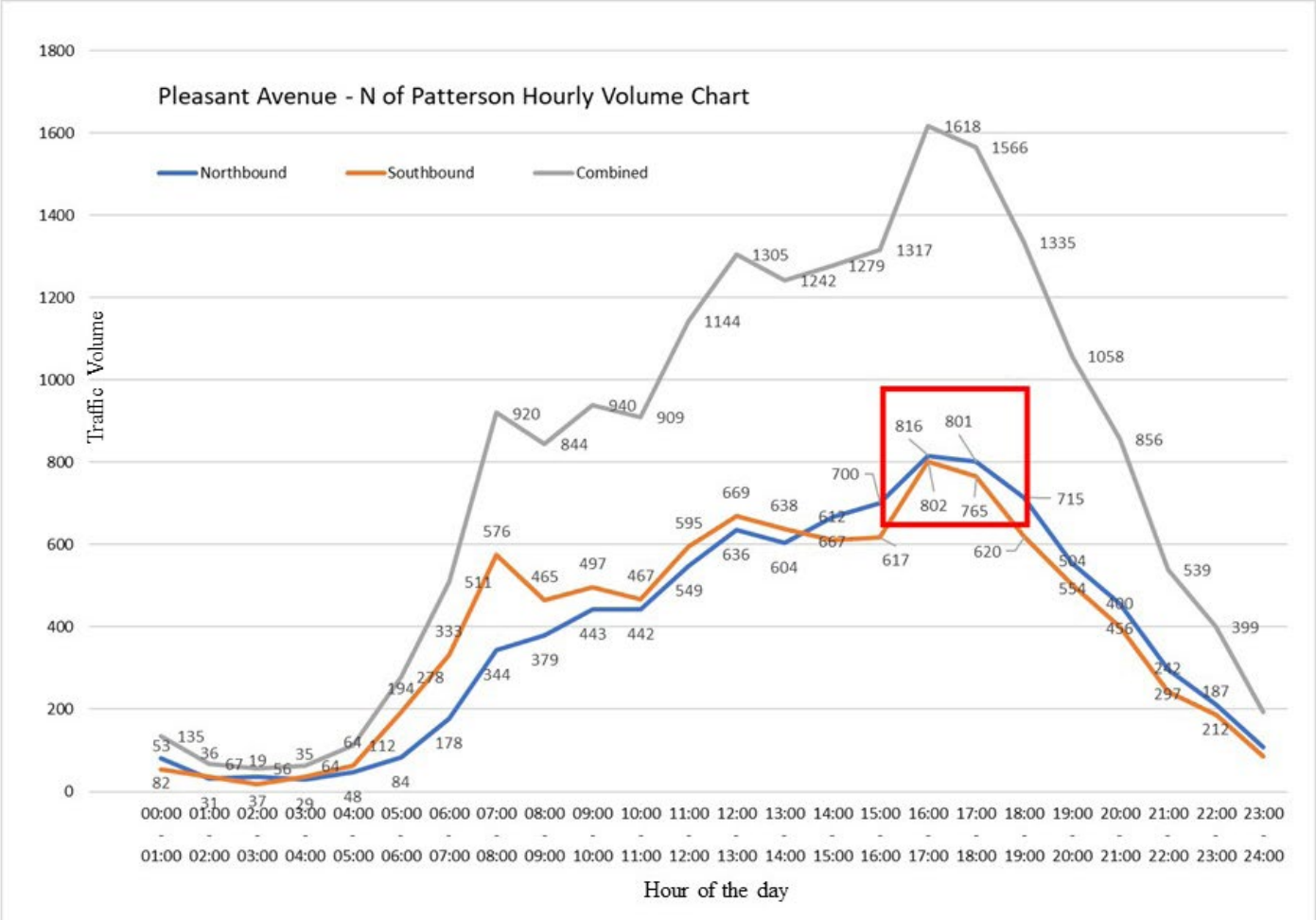
Safety Analysis

PLEASANT AVENUE - HOURLY VOLUME DISTRIBUTION

A traffic count collected in September 2020 on Pleasant Avenue, north of Patterson Blvd was obtained from ODOT's MS2 database. Hourly distribution of traffic volumes on Pleasant Avenue: directional and combined are shown on Figure 7 below.

- Combined: As shown, the PM peak between 4 PM and 6 PM is the highest peak in a 24-hour period. The AM peak is only about 60% of the PM peak. Traffic volumes during mid-day (noon-4 pm) are heavier than AM peak.
- Directional: During the AM peak, southbound Pleasant Avenue experiences more traffic than northbound direction. From mid-day through PM peak, traffic volumes are comparable in both directions. The 4 PM – 6 PM is the highest peak, and the adjacent peak hours are atleast 20% less than the highest peak.
- The PM peak hour traffic volumes may result in some congestion within study limits, however, outside the 4 PM – 6 PM count, congestion on Pleasant Avenue is less likely.

Figure 7: Hourly Distribution of Traffic - Pleasant Avenue Corridor



Section 2

Concept Alternatives

Introduction

The consultant team completed a corridor study including safety and operational analysis and an infrastructure assessment for Pleasant Avenue between Nilles Road and Patterson Drive. The corridor includes very high driveway densities, an inefficient allocation of the roadway pavement, and poor conditions for pedestrians. The study considered pavement and sidewalk configurations consisting of the existing four lane section, a three-lane section and a five-lane section.

This section of the plan presents access management solutions and changes to parking along the corridor and four alternatives for future improvements and reconfigurations or the road and public realm of the corridor. After the concept alternatives, there is a traffic capacity analysis for the four scenarios, followed by a summary of the opportunities and challenges of each alternative. At the end of this section, the consultant team presents their recommendations for the corridor going forward.

The four concept alternatives can be summarized as follows:

- Concept A1 - Existing Conditions with Access Management. This concept keeps the lane configuration of Pleasant Avenue the same as it currently is but incorporates reduced access points to the parking areas along the corridor to minimize potential conflicts.
- Concept A2 - Adjusted Lane Configuration. This alternative keeps existing curb lines and right of way dimensions, however, it re-stripes the road to minimize unnecessary and frequent lane changes. It creates a center turn lane and also incorporates the access management strategies from Concept A1.
- Concept B - 3-Lane Section. This concept narrows the curb-to-curb distance within the corridor, creates a consistent center turn lane, incorporates access management, and allows for improvements to streetscape character and aesthetics.
- Concept C - 5-Lane Section. This final concept proposes creating a 5 lane section with a center turn lane, in addition to incorporating access management. This concept would require acquiring additional right of way.

Access Points and Parking Configuration

One of the primary motivations of undertaking this study was a desire to create an improved access management system into the various parking areas along the corridor. The high volume of access points within this stretch creates many potential conflict points for automobiles and pedestrians. The current conditions have an access drive for essentially every business and property along the corridor.

As a result of reducing the number of access points into the parking areas in the corridor, the study also examined the layout of the large parking area on the east side of Pleasant Avenue in the Reigart Square Shopping Center. The study explored traditional head-in parking as well as an angeled parking option to maximize the number of spaces while limiting the access points. A comparison of the results can be found below. Figure 8 shows the current conditions. The two scenarios can be seen in Figure 9 and Figure 10 on the following pages.

Table 1: Access Points and Parking Lot Scenario Comparison

	Existing	Scenario 1: Head-In Parking	Scenario 2: Angeled Parkin
Access Points West Side	11	7	7
Access Points East Side	15	4	5
Parking Spaces East Side	232	182	195
Notes	• Individual access points for almost every property on both sides of the corridor. • Parking spaces are smaller than typical standards.	• Reduced east side access points by 73%, minimizing the opportunities for conflicts between cars and pedestrians. • New parking spaces meet standards within city for size. • Closes Glenna Drive as a connection from Pleasant to Sandy for cars, but allows for pedestrian connections. • Creates opportunities for streetscape improvements and more greenery along east side.	• Reduced east side access points by 66%. • Keeps Glenna Drive as an access point and through connection to neighborhood and Sandy Lane. • Creates opportunities for streetscape improvements and more greenery along east side.

Figure 8: Current Curb-Cut Locations and Existing Parking Layouts

Figure 9: Scenario 1: Head-In Parking with Glenna Closure and Access Management

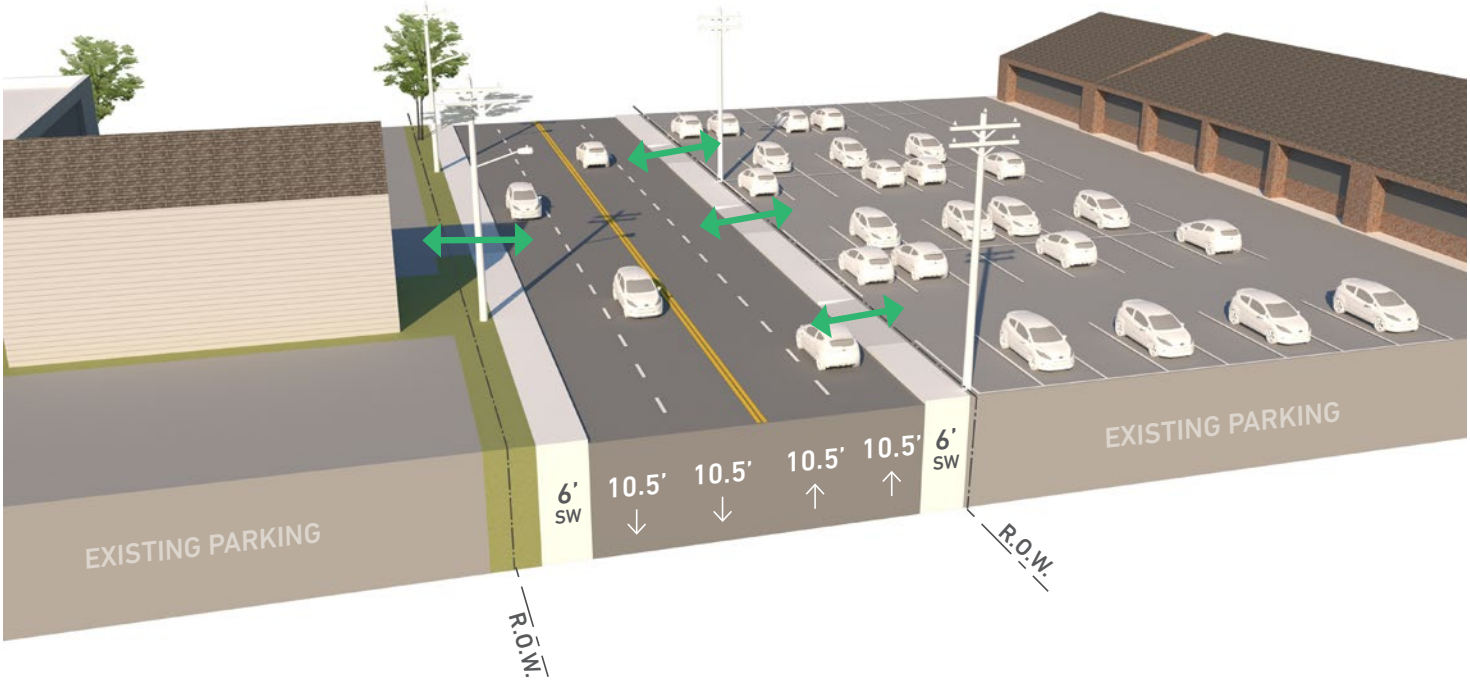
Figure 10: Scenario 2: Angeled Parking with Access Management

3D Street Section Alternatives

This study examined access management and improvements to the parking areas in the corridor as a first step at improving safety and function of the study area. Building off of those concepts, this study also looked at possible alternatives related to lane configuration and the impacts this could have on the streetscape, character, and traffic flow of the corridor. The following 3D street sections (Figures 11 -15) show a typical street section for the corridor.

Certain details of the corridor such as the distance between the existing curbs, sidewalk widths, and the lane configurations change throughout the corridor so this representation looks at the typical cross section of Pleasant Avenue. This typical section includes a 6' sidewalk on both sides and a four lane section with two lanes going in each direction. These section alternatives are meant to show the potential impacts of access management and changes in land configuration on the character and function of this corridor. The opportunities and challenges for each concept alternative are summarized in a table following the graphics.

Figure 11: Existing Conditions



3D Street Section Alternatives

Figure 12: Concept A1 - Access Management with Existing Conditions

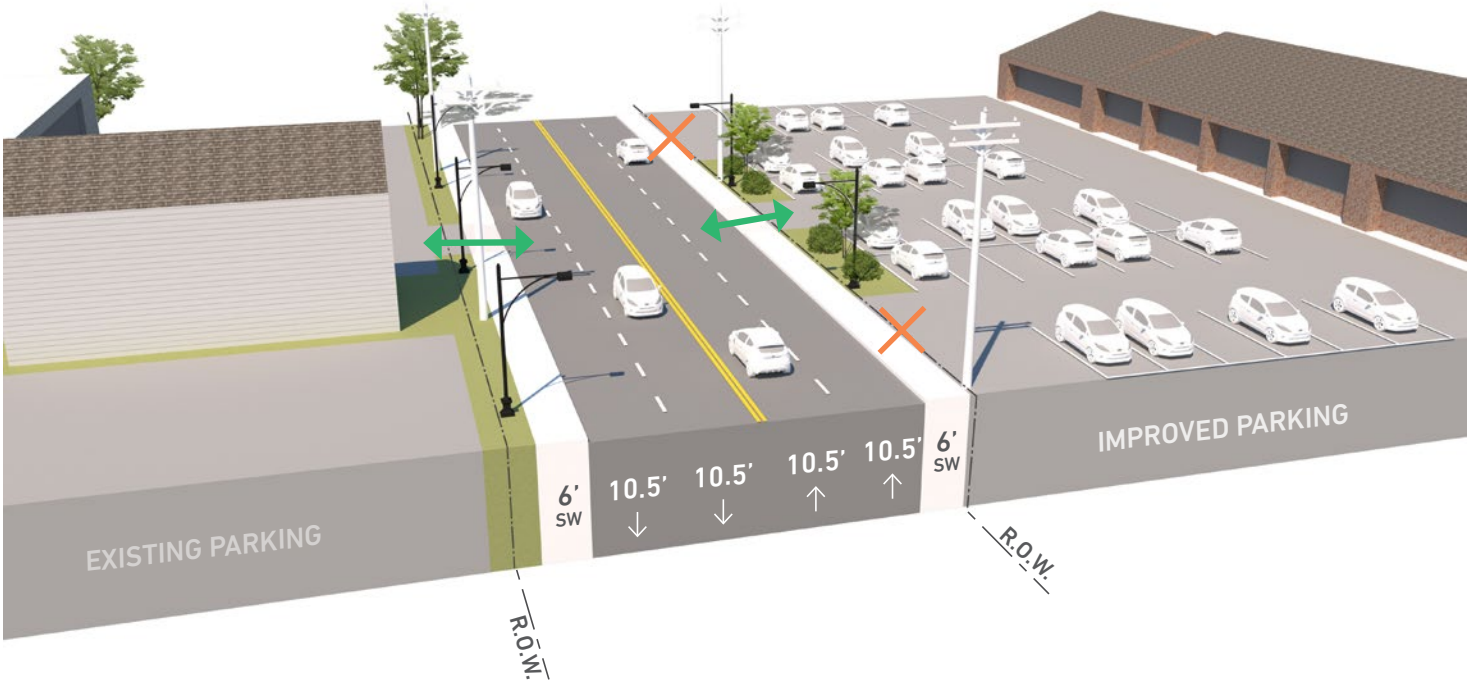


Figure 13: Concept A2 - Adjusted Lane Configuration

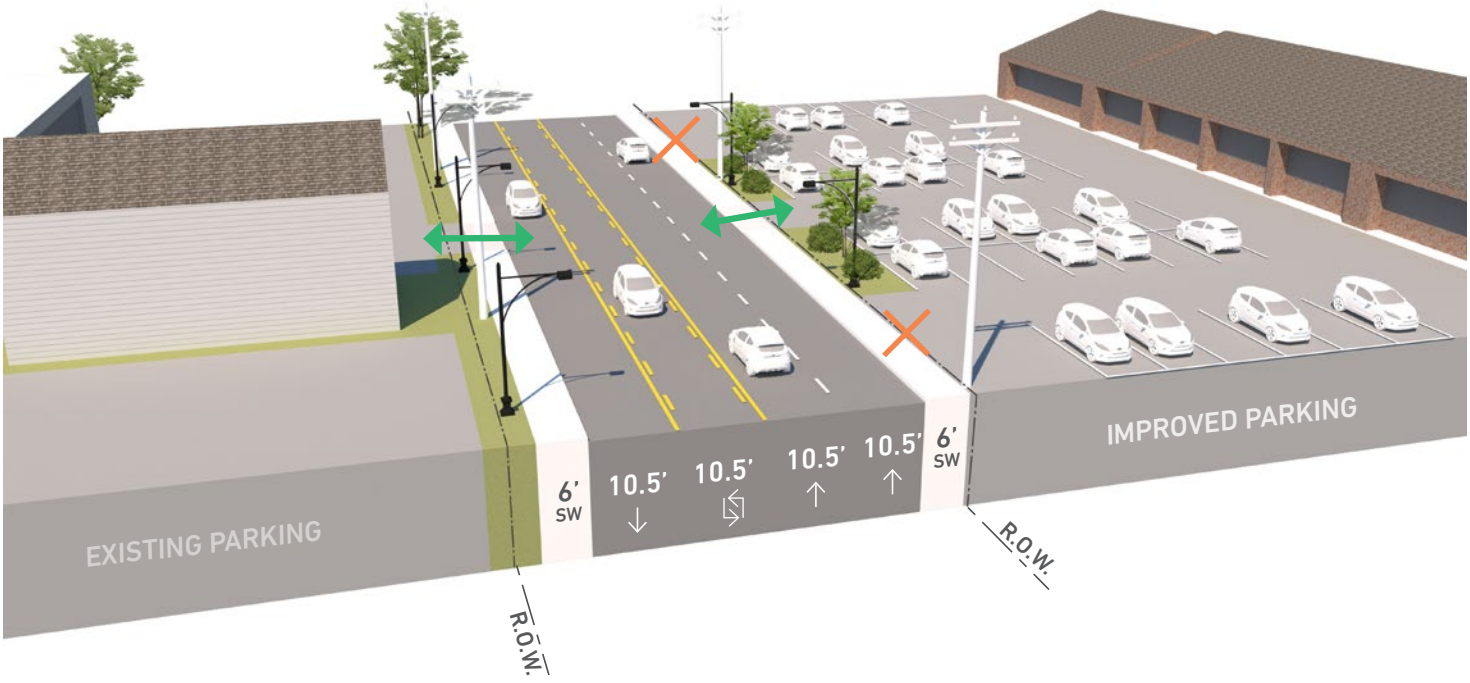


Figure 14: Concept B - 3-Lane Section

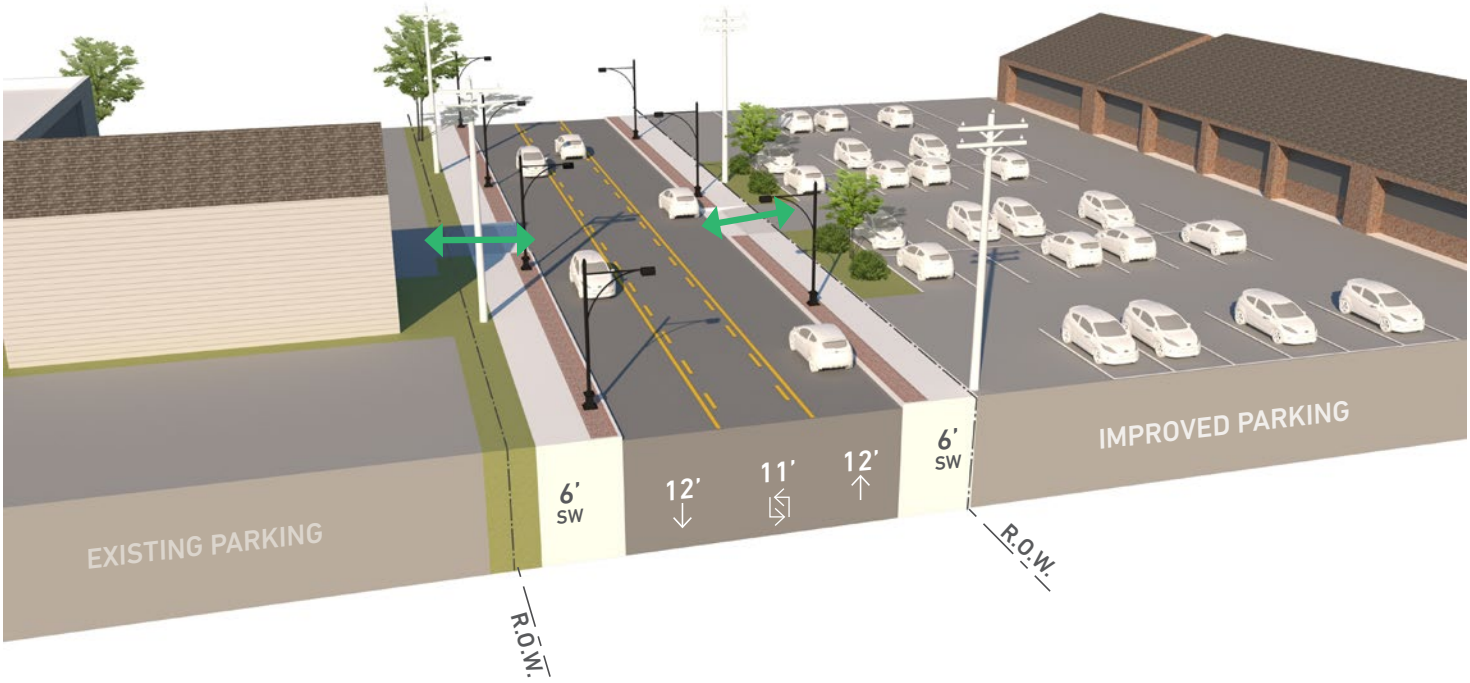
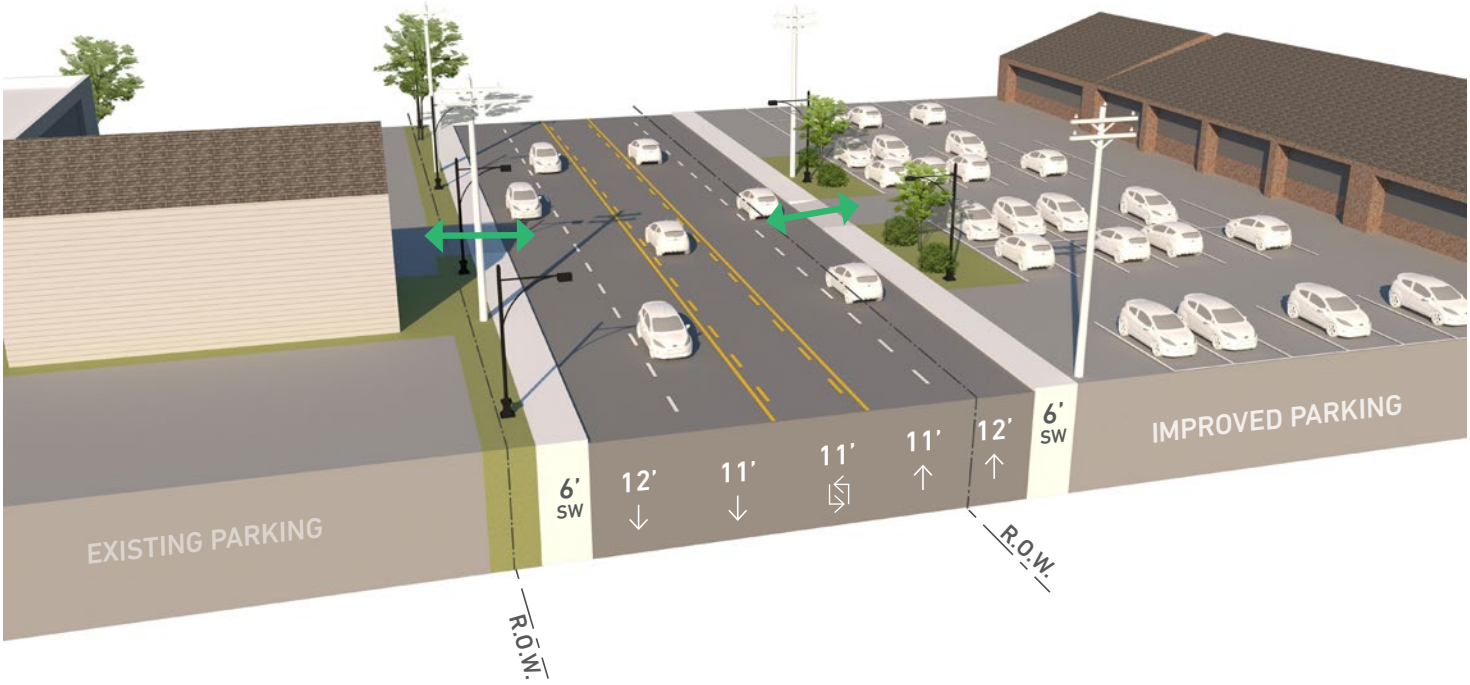


Figure 15: Concept C - 5-Lane Section



Capacity Analysis

Capacity analysis was performed for the two signalized intersections within study limits: Nilles Road and Patterson Blvd. intersections. The 2017 traffic counts were provided for the two intersections. Since 2017, an Aldi store has opened in the northwest quadrant of Pleasant Avenue and Patterson Blvd. intersection. Approach volumes on the east and west legs of Patterson Boulevard have been gathered in December 2020, and the intersection volumes have been updated.

The capacity analysis was performed using Synchro 10 software. The analysis utilized the adjusted 2017 traffic volumes and optimized signal timing. Four scenarios: a No-Build/Existing lane configuration (Concept A1) and three Build alternatives have been evaluated. Figure 4 provides Existing lane geometry and Figure 5 graphically shows the three Build concepts. The build alternatives include:

1. Build Concept A2: Repurpose existing pavement to include 2 northbound lanes, a center TWLTL and a southbound through lane.
2. Build Concept B: Revise the typical section of Pleasant Avenue to a 3-lane section near Patterson Blvd. intersection. The curbside northbound through lane would be dropped north of Nilles Road intersection. In the southbound direction, the second through lane would be developed further south approaching Nilles Road intersection.
3. Build Concept C: Widen Pleasant Avenue to include an additional through lane to convert from the existing 4-lane typical section to a 5-lane section with center TWLTL.

Figure 16: Existing Lane Configuration - Pleasant Avenue

Figure 17: Concept A2 Modified 4 Lane Section Lane Configuration

Figure 18: Concept B 3-Lane Section Lane Configuration

Figure 19: Concept C 5-Lane Section Lane Configuration

Capacity Analysis

A summary of the capacity analysis is included in Table 2 for Pleasant/Nilles intersection and Table 3 for Pleasant/Patterson intersection.

PLEASANT/NILLES ROAD INTERSECTION

As shown, the Nilles Road intersection operates at an acceptable LOS C or better during the AM and PM peaks in the existing conditions. The AM peak conditions under the three build scenarios is comparable to the existing operations.

- **Concept A2 (Imbalanced 4-lane section):** The intersection geometry under this alternative is similar to the existing configuration, hence the level of summary results and queue lengths during the PM peak are comparable to the existing conditions.
- **Build Concept B (3-lane):** During the PM peak, the overall intersection operates at LOS C, however, the early termination of the second northbound through lane causes a lane imbalance/longer queues in the inside through lane. The longer queues require more green time to be served, that would in turn increase delay for other movements (especially westbound) as they would wait longer for their green phase. The expected queues on the northbound and westbound approaches would be longer than existing (up to 150 feet, equivalent to 6 passenger car lengths).
- **Build Concept C (5-lane):** When compared with the existing conditions, the second northbound through lane terminates north of Patterson Blvd. The overall benefit to northbound through traffic is probably minimal, and helps more for an efficient lane termination than increase capacity significantly. The queues under this scenario are similar to existing conditions for all approaches.

PLEASANT/PATTERSON BLVD. INTERSECTION

As shown in Table 3, the Pleasant/Patterson intersection operates at LOS A during the AM peak and LOS B during the PM peak. The overall intersection LOS is similar under the existing and proposed conditions, the notable impact is to the southbound through movement, where the PM peak queues are expected to be longer under Concept A2 (4-lane imbalanced) and Concept B (3-lane section) scenarios as the southbound through lanes are reduced from two lanes to a single lane.

Table 2: Intersection LOS Summary - Pleasant/Nilles

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Overall Int
Existing/Concept A1 - AM													
Delay (secs)	16.2	35.4	5.4	20.6	23.3	2.2	18.6	27.5	5.5	16.5	24.1	4.2	
v/c ratio	0.21	0.77	0.40	0.44	0.24	0.17	0.39	0.36	0.19	0.46	0.40	0.12	
95th %ile Queue (ft)	135	285	185	105	135	50	110	175	65	125	150	60	**22.3/C**
Approach Delay/ LOS	**26.9/C**			**18.2/B**			**20.7/C**			**19.6/B**			
Concept A2 (Imbalanced 4-Lane Section) - AM													
Delay (secs)	16.2	35.4	5.4	20.6	23.3	2.2	18.6	27.5	5.5	16.6	22.8	3.0	
v/c ratio	0.21	0.77	0.40	0.44	0.24	0.17	0.39	0.36	0.19	0.46	0.40	0.12	
95th %ile Queue (ft)	150	265	190	100	130	50	110	185	70	135	140	60	**22.1/C**
Approach Delay/ LOS	**26.9/C**			**18.2/B**			**20.7/C**			**18.7/B**			
Concept B (3-Lane Section) - AM													
Delay (secs)	14.9	34.0	5.2	18.8	23.3	2.2	20.0	29.2	5.8	17.3	25.1	4.2	
v/c ratio	0.20	0.75	0.40	0.41	0.24	0.17	0.39	0.39	0.20	0.47	0.43	0.12	
95th %ile Queue (ft)	120	275	170	90	140	40	130	250	60	150	150	80	**22.3/C**
Approach Delay/ LOS	**25.9/C**			**17.8/B**			**22.0/C**			**20.4/C**			
Concept C (5-Lane Section) - AM													
Delay (secs)	14.9	34.0	5.2	18.8	23.3	2.2	20.0	29.2	5.8	18.9	26.6	7.7	
v/c ratio	0.20	0.75	0.40	0.41	0.24	0.17	0.39	0.39	0.20	0.41	0.3	0.44	
95th %ile Queue (ft)	130	270	195	105	135	45	105	170	55	140	155	60	**22.8/C**
Approach Delay/ LOS	**25.9/C**			**17.8/B**			**22.0/C**			**22.2/C**			
Existing/Concept A1 - PM													
Delay (secs)	32.5	33.9	11.0	28.6	36.7	13.4	28.3	36.8	6	36.6	28.3	8.7	
v/c ratio	0.69	0.54	0.30	0.72	0.78	0.44	0.72	0.77	0.23	0.75	0.66	0.23	
95th %ile Queue (ft)	155	195	85	245	290	150	190	260	105	190	250	175	**28.3/C**
Approach Delay/ LOS	**27.7/C**			**29.4/C**			**29.0/C**			**26.7/C**			
Concept A2 (Imbalanced 4-Lane Section) - AM													
Delay (secs)	35.4	40.1	9.0	32.9	44.7	14.5	24.6	35.4	5.3	29.0	29.5	7.4	
v/c ratio	0.68	0.59	0.30	0.74	0.83	0.45	0.67	0.71	0.22	0.67	0.59	0.21	
95th %ile Queue (ft)	150	205	90	255	310	175	180	285	135	165	230	190	**30.1/C**
Approach Delay/ LOS	**31.0/C**			**34.9/C**			**27.2/C**			**25.7/C**			
Concept B (3-Lane Section) - PM													
Delay (secs)	39.1	39.4	13.1	38.6	46.3	15.1	23.3	36.3	6.4	44.1	27.8	7.1	
v/c ratio	0.71	0.58	0.32	0.78	0.85	0.46	0.66	0.77	0.22	0.8	0.57	0.21	
95th %ile Queue (ft)	190	220	80	270	420	170	245	405	185	205	235	175	**31.6/C**
Approach Delay/ LOS	**32.4/C**			**37.2/D**			**27.6/C**			**27.6/C**			
Concept C (5-Lane Section) - PM													
Delay (secs)	37.8	33.9	11.6	33.7	38.4	14.2	28.1	34	5.6	32.8	30	8.6	
v/c ratio	0.71	0.54	0.31	0.75	0.8	0.45	0.73	0.74	0.23	0.73	0.6	0.22	
95th %ile Queue (ft)	170	215	85	240	310	160	205	210	70	150	220	160	**28.9/C**
Approach Delay/ LOS	**28.9/C**			**31.6/C**			**27.3/C**			**27.0/C**			

Capacity Analysis

Table 3: Intersection LOS Summary - Pleasant/Patterson

MOVEMENT	EBL	EBTR	WBL	WBTR	NBL	NBTR	SBL	SBT	SBR	Overall Int
Existing/Concept A1 - AM										
Delay(secs)	37.0	16.7	40.5	15.6	0.7	3.9	5.7	4.8	0.10	
v/c ratio	0.10	0.33	0.28	0.39	0.04	0.9	0.09	0.21	0.02	
95th %ile Queue (ft)	30	55	55	80	40	230	60	105	25	6.6/A
Approach Delay/ LOS	**19.8/B**		**22.8/C**		**3.8/A**		**4.7/A**			
Build Concept A2 (Imbalanced 3-lane)- AM										
Delay(secs)	37.0	16.7	40.5	15.6	2.4	6.7	5.7	6.8	0.10	
v/c ratio	0.08	0.29	0.23	0.35	0.04	0.39	0.10	0.41	0.02	
95th %ile Queue (ft)	30	50	55	70	40	230	75	200	45	8.5/A
Approach Delay/ LOS	**19.8/B**		**22.8/C**		**6.5/A**		**6.4/A**			
Build Concept B (3-lane)- AM										
Delay(secs)	37.0	16.7	40.5	15.6	0.9	4.0	5.7	6.8	0.10	
v/c ratio	0.08	0.29	0.23	0.35	0.04	0.39	0.10	0.41	0.02	
95th %ile Queue (ft)	30	55	60	70	40	115	70	185	35	7.4/A
Approach Delay/ LOS	**19.8/B**		**22.8/C**		**3.8/A**		**6.4/A**			
Build Concept B (5-lane)- PM										
Delay(secs)	37.0	16.7	40.5	15.6	1	0.9	5.7	4.8	0.10	
v/c ratio	0.08	0.29	0.23	0.35	0.04	0.21	0.10	0.21	0.02	
95th %ile Queue (ft)	30	55	60	75	40	115	55	100	25	5.4/A
Approach Delay/ LOS	**19.8/B**		**22.8/C**		**0.9/A**		**4.7/A**			
Existing/Concept A1 - PM										
Delay(secs)	45.8	19.4	39.2	30.2	2.6	9.4	7.1	7.8	1.6	
v/c ratio	0.44	0.49	0.19	0.21	0.13	0.71	0.05	0.34	0.07	
95th %ile Queue (ft)	85	105	40	70	70	300	45	130	60	10.9/B
Approach Delay/ LOS	**28.3/C**		**33.2/C**		**9.0/A**		**7.2/A**			
Build Concept A2 (Imbalanced 3-lane)- AM										
Delay(secs)	50.9	21.5	44.2	33.4	2.1	8.2	6.8	12.4	1.9	
v/c ratio	0.46	0.51	0.22	0.22	0.15	0.69	0.04	0.63	0.07	
95th %ile Queue (ft)	95	135	45	65	65	255	55	280	105	12.4/B
Approach Delay/ LOS	**31.5/C**		**37.0/D**		**7.8/A**		**11.4/B**			
Build Concept B (3-lane)- PM										
Delay(secs)	50.6	20.8	43.9	33.2	2.3	7.4	7	12.5	1.9	
v/c ratio	0.46	0.5	0.21	0.22	0.15	0.69	0.04	0.63	0.07	
95th %ile Queue (ft)	90	125	50	70	80	230	55	300	100	12.0/B
Approach Delay/ LOS	**30.8/C**		**36.7/D**		**7.1/A**		**11.5/B**			
Build Concept B (5-lane)- PM										
Delay(secs)	43.8	18.4	37.6	29.2	1.6	1.9	7.5	8.2	1.8	
v/c ratio	0.42	0.48	0.18	0.2	0.13	0.38	0.04	0.35	0.07	
95th %ile Queue (ft)	95	130	50	70	120	285	30	135	55	7.5/A
Approach Delay/ LOS	**27.0/C**		**32.0/C**		**1.8/A**		**7.6/A**			

Concept Evaluation

The table below outlines a high-level assessment of the alternatives shown in Figures 12-15. Following the table, LJB has provided a more detailed analysis including an evaluation of the impacts of lane configuration on stacking and traffic flow at the Nilles and Patterson intersections.

Table 4: Evaluation of Section Concepts

	Opportunities	Challenges
Concept A1: Existing Conditions with Access Management	• Reduce the number of access points on east and west sides, increasing safety by concentrating turning vehicles in fewer locations • New parking lot layouts (Reigert Square) allow for green space and added trees along the east side of the corridor	• Safety concerns remain as a result of left turn movements; middle northbound lane ends into a left turn at Patterson • Pedestrian safety concerns remain as sidewalk remains adjacent to roadway pavement • Securing cross access cooperation amongst property owners • Minimal decrease in available parking at Reigert Square
Concept A2: Adjusted Lane Configuration	• Reduce the number of access points on east and west sides, increasing safety by concentrating turning vehicles in fewer locations • New parking lot layouts (Reigert Square) allow for green space and added trees along the east side of the corridor • Offers an interim solution to test new lane configurations for Concept B • Minimizes left turn conflicts with the addition of a TWMLTL (Addition of a TWLTL increases safety) • Lane changes can be implemented with routine street maintenance, reducing cost	• Removes a southbound traffic lane • Minimal increase in SB road congestion/minimal decrease in Level of Service (LOS)

Concept Evaluation

	Opportunities	Challenges
Concept B: 3-Lane Section	• Improved pedestrian realm promotes walkability (increased safety due to sidewalk farther away from roadway) • Reduced number of lanes slows down traffic • Added streetscape elements increase the character of the corridor • Most desirable public realm for attracting future redevelopment interest	• A minimal increase in stacking will occur at intersections during the PM peak • Increased wait time • Still requires a merge of NB traffic, which leads to potential vehicular conflict • Perceived negatives for business owners and drivers due to reduced number of travel lanes from 4 to 2 • How will it affect the Nilles wait time with longer green light on Pleasant?
Concept C: 5-Lane Section	• Lower lengths of stacking at intersections • Road can accommodate a higher volume of traffic • Could provide set-up for future 5 lane road from I-275 in Hamilton County	• Significant reduction of parking on east side (Reigert Square) • High cost of easements and/or property on east side needed to encroach past the current right-of-way • Pedestrian safety concerns remain as sidewalk remains adjacent to roadway pavement; lack of walkability • Limited streetscape opportunities • More lanes may encourage speed over posted 25 MPH • Favors through traffic to the detriment of local traffic

Proposed Development

CORRIDOR REQUIREMENTS:
Future development of the Pleasant Avenue corridor will require at least one 12' wide through lane in each direction as a result of its Federal Aid Primary status. The city uses both ODOT Type 6 curb (6" wide) and ODOT Type 2 combination curb and gutter (30" wide) on current projects and both curb types are viable options. A 5' wide concrete sidewalk is required on both sides of the corridor to maintain ADA compliance without using driveway aprons as passing zones and state guidance recommends a 6' wide sidewalk on commercial corridors. A 6' wide sidewalk is recommended on both sides of the corridor.

LANING CONFIGURATION:
The MKSK/LJB team evaluated the opportunity for safety improvements in the form of access management along the corridor while being cognizant of impacts to capacity at the Nilles and Patterson intersections. Safety improvements and capacity constraints were evaluated for the existing 4-lane pavement section, 3-lane section, and 5-lane section. Typical sections of these laning configurations have been developed.

Capacity along the corridor and at the Patterson intersection suggests that two southbound through lanes are not necessary until vehicles approach the Nilles Road intersection. A road diet on the north side of the Patterson intersection offers an opportunity to reuse a portion of the west right of way to construct the proposed multi-use path that was identified in the Fairfield Connects Plan. This multi-use path connects the Sacred Heart Elementary School and the Town Center with a proposed multi-use path along Pleasant Avenue in the City of Hamilton.

Planning Level Cost Estimates

Planning level cost estimates were completed for the three alternatives. Budgetary level Construction estimates were prepared and used as the basis of the Engineering and Construction Engineering phases as well. Right of way and Utility estimates were developed from project experience along similar corridors in southwest Ohio.

Table 5: Roadway Improvement - Planning Level Costs

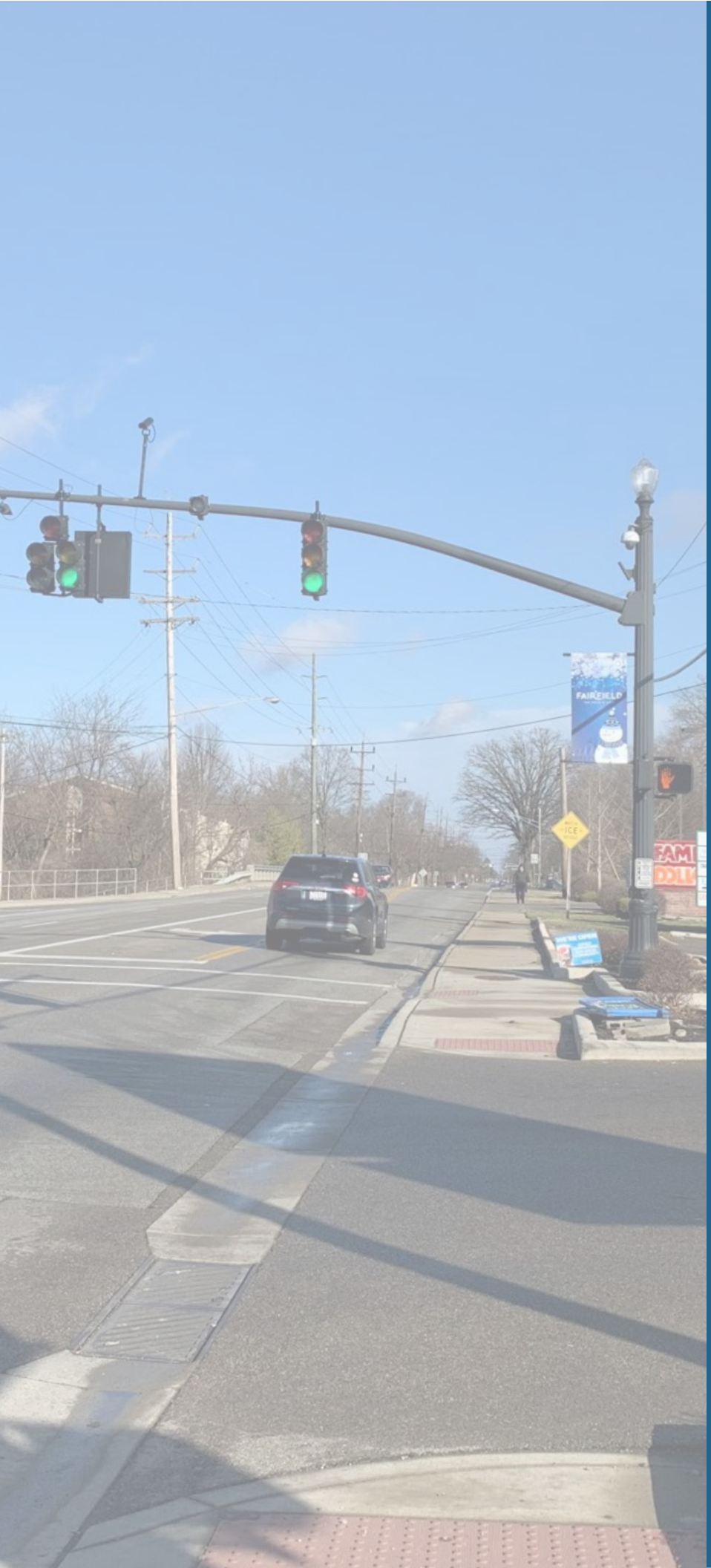
	Concept A	Concept A2	Concept B	Concept C
Development Agreements [4]	$170,000	$170,000	$170,000	$170,000
Engineering	$56,000	$80,000	$251,000	$346,000
Right of Way	-	-	-	$750,000
Utility Relocation	-	-	-	$200,000
Construction	$280,000	$340,000	$805,000	$1,200,000
Construction Engineering	$20,000	$30,000	$35,000	$55,000
Streetscape [3]	$250,000	$250,000	$750,000	$500,000
TOTAL	**$776,000**	**$876,000**	**$2,011,000**	**$3,221,000**

[1]Includes costs of implementing Concept A which is prerequisite to all other concepts.

[2]Engineering and Construction costs can be completed as part of routine maintenance under ODOT's Urban Paving Program, which funds 80% of pavement and markings. At this time, the City expects this to occur around 2026.

[3]Streetscape costs vary widely with scope and selected materials. Costs shown here only represent potential streetscape scope relative to the other concepts. Concept A and A2 would be expected to be minor landscaping improvements, while the reduced footprint of Concept B would provide more streetscape opportunities than Concept C.

[4]This includes anything needed to secure the agreement of individual property owners such as, but not limited to: surveying, legal services, recording of cross-access agreements, parking lot paving, signing, etc.



Section 3
Summary + Recommendations

Summary

Traffic safety and operational analysis and Civil/ infrastructure assessment was completed for Pleasant Avenue between Nilles Road and Patterson Blvd. to support the development of a Corridor Management Plan. Pleasant Ave. (US 127) between the Nilles Road intersection and the bridge over Pleasant Run is a 1,700' commercial corridor with an Urban Principal Arterial functional classification and is a Federal Aid Primary (FAP) route. The posted speed limit is 25 mph.

- The existing typical section of Pleasant Avenue is a 4-lane undivided section within study limits, and is a narrower typical section (3-lane section), north of Patterson Blvd. The typical section is a 5-lane section south of Nilles Road intersection.
- As drivers approach Patterson Blvd, a second southbound through lane begins. In the northbound direction, the second through lane (inside lane) terminates as a left turn only lane at Patterson Blvd. intersection. This lane drop condition in the northbound direction results in a lane imbalance condition at Nilles Road intersection, where there are two northbound through lanes. Fewer drivers chose the inside through lane as this lane terminates as the left turn only lane at the Patterson Blvd. intersection.
- Three build condition lane configuration alternatives were evaluated: imbalanced 4-lane section, a 3-lane section and a 5-lane section. The existing lane configuration and the three proposed (4-lane imbalanced, 3-lane or 5-lane section) configurations provide comparable results for the Patterson Blvd. intersection.
- Whereas for the Nilles Road intersection, the 3-lane section results in slightly longer queues on the northbound and westbound directions, primarily during the PM peak. While the longer queues may be a minor concern during the PM peak, the queues are considered to be comparable for all other peaks based on the observed volume data.

An example of similar streetscape improvements and features from Hartford, Connecticut.

Recommendations

Analysis of the opportunities for safety improvements for vehicles and pedestrians resulted in long term recommendations for Concept B. It includes reduction of the pavement width to a three-lane section, reduction of the number of driveways, and addition of tree lawns to both sides of the corridor to improve aesthetics and separation of pedestrians from vehicles. This configuration will have minor impacts on the capacity of the corridor resulting in minor increases in delay, particularly for the northbound and westbound approaches of the Nilles intersection during the PM peak hours. The benefits of the three-lane section will overcome these minor capacity impacts in the long run to help the city achieve its goals for the corridor. The conversion of the corridor to a three-lane section will require reconstruction of curbs and drainage infrastructure and may require several years to be programmed, funded, designed and constructed.

In the interim, the corridor will recognize operational and safety benefits from a modified version of the existing condition as Concept A. It includes the reassignment of the existing four lanes of pavement to an unbalanced four lane section. It will also benefit from consolidation of driveways wherever feasible and as redevelopment plans are submitted. The proposed laning configuration for most of the corridor should include two northbound through lanes, a two-way left turn lane (TWLTL), and a single southbound through lane. This configuration combines the improved capacity of the five-lane alternative at the Nilles intersection with the safety and traffic calming benefits of the TWLTL for the majority of the corridor. It does not substantially improve the pedestrian conditions. The next scheduled resurfacing of the pavement is an opportunity to implement these improvements for very limited additional capital improvement costs.

Concept B - 3-Lane Section