

Morrisville Parkway Access Management Study

From Davis Drive to NC 54 (Chapel Hill Road)

PREPARED FOR:



1 Fenton Main Street
Suite 201
Cary, NC 27511
984.542.3601



100 Town Hall Drive
Morrisville, NC 27560
919-463-6200

PREPARED BY:



940 Main Campus Drive
Suite 500
Raleigh, NC 27606
919.829.0328

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Morrisville Parkway West of Creek Park Drive

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1

Introduction

This report provides an in-depth analysis of traffic conditions, safety concerns, and pedestrian dynamics along Morrisville Parkway (SR 3060), extending from Davis Drive (SR 1613) to NC 54. Commissioned by the Capital Area Metropolitan Planning Organization (CAMPO) in collaboration with the Town of Morrisville, the study aims to enhance mobility and safety for vehicles, bicycles, and pedestrians along this key corridor. The report summarizes collected traffic volume data, crash data, community feedback, access management strategies, and traffic operations under existing (2023) and future (2050) conditions. The report addresses critical transportation issues and recommends improvements, informed by extensive community feedback and technical analyses.

Project Rationale

Morrisville Parkway has been identified as a high priority corridor in the Town of Morrisville's 2019 Comprehensive Transportation Plan (CTP) for improvements to address increasing traffic volumes, crash rates, and pedestrian activity. The roadway serves as an essential link between Cary and Morrisville, necessitating comprehensive planning to support sustainable growth and enhance overall corridor safety and efficiency.

Project Study Area

The study focused on Morrisville Parkway from NC 54 (Chapel Hill Road) to Davis Drive, encompassing various signalized and unsignalized intersections. The roadway is a four-lane divided arterial with a 35 mile per hour (mph) speed limit, and sidewalks on both sides which vary in proximity to vehicular lanes. Several land uses exist

alongside the corridor in the study area including commercial, institutional, recreational, and residential. Popular destinations along the corridor include Morrisville Elementary School, Morrisville Aquatics & Fitness Center (MAFC), and Park West Village Shopping Center.

Each intersection along Morrisville Parkway presents unique challenges that are addressed in the recommended improvements. For instance, the intersection at Davis Drive on the western end of the corridor and the intersection with NC 54 on the eastern end, are major nodes that experience significant vehicular volumes, leading to complex traffic phasing and longer crossing distances. Turn movement counts (TMCs) indicate high volumes of left-turn movements at both intersections in the AM and PM peak hours, contributing to delays and potential conflict points. Similarly, the intersections near retail centers along the eastern end of the corridor have some heavy turning movements, exacerbated by frequent stop-and-go traffic, which impacts overall traffic flow and can create difficult turning movements through queued traffic.

The two driveways for Morrisville Elementary are unsignalized and serve heavy amounts of carpool related traffic and pedestrian activity within a short period prior to the school's morning admission bell and at the afternoon dismissal period. The Duck Pond Circle and Creek Park Drive/Black Ridge Street intersections are located within or near a series of curves that limit sight distance and have contributed to the intersections experiencing higher numbers of crashes than the other unsignalized intersections along the corridor.

Process

This study examined median openings, access controls, signage, signalization, intersection operations, multimodal connectivity along and across the corridor, speed limits, and traffic calming

opportunities. The study was broken down into seven tasks to provide a thorough data driven analysis, but also aligning with community goals, plans, and policies.

The seven tasks were:

- **Task 1:** Project Management, Meetings, and Coordination
 - Project Management Team
 - Technical Steering Committee
- **Task 2:** Data Collection and Existing Plans Review
- **Task 3:** Existing Conditions Assessment
- **Task 4:** Recommendations to Address Morrisville Parkway
- **Task 5:** Implementation Strategies and Plan for Recommendations
- **Task 6:** Public Outreach and Engagement Strategy
- **Task 7:** Draft and Final Documentation

The schedule for the project extended for approximately one year as shown in **Figure 1**.

The Project Management Team (PMT) comprised of members of CAMPO, Town of Morrisville, and VHB and met bi-weekly throughout the project duration. The team discussed key process, schedule, public outreach, and recommendation outcomes. The Technical Steering Committee (TSC) involved a larger group of representatives from CAMPO, Town of Morrisville, NCDOT, Town of Cary, and Morrisville Elementary School to provide technical input and oversight over the course of the project. The group met in the early fall for a kick-off to help guide the study, at the midpoint of the study to help to examine preliminary recommendations, and in April to help review public comments and guide decisions relating to the final recommendations.

Figure 1 Project Schedule

Task	2023					2024					
	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Task 1: Project Mgmt, Mtgs, & Coord.											
Task 1.a: Project Coordination and Meetings											
CAMPO TCC/Executive Board Presentations											
Town of Morrisville Presentations											
Task 2: Data Collection & Plans Review											
Task 2.a: Obtain Available Data and Plans											
Task 2.b: Collect Traffic Count Data											
Task 2.c: Base Mapping											
Task 2.d: Crash Analysis											
Task 3: Existing Conditions Assessment											
Task 3.a: Volume Development											
Task 3.b: Traffic Capacity Analysis											
Task 3.c: Traffic Safety Analysis											
Task 3.d: Field Safety Assessment											
Task 4: Recommendations											
Task 4.a: Safety & Operational Strategies											
Task 4.b: Infrastructure Strategies											
Task 5: Implementation Strategies											
Task 5.a: Conceptual Roadway Designs											
Task 5.b: Estimate Probable Costs											
Task 5.c: Prepare Implementation Strategy											
Engagement											
Task 6.a: Develop Public Involvement Plan											
Task 6.a: Public Input Meeting											
Task 6.b: Online Survey/Recommendations											
Task 7: Draft and Final Documentation											
Task 7.a: Complete Plan and Report											
Task 7.b: Present Final Plan											

Data Collection Methods

A variety of distinct types of data were collected and reviewed to inform the project, including:

- **Traffic Data:** Collection of new turning movement counts during peak hours at key intersections.
- **Pedestrian Data:** Observations and counts at crosswalks, especially at critical points such as school zones and shopping centers.
- **Crash Data:** Analysis of crash data over a five-year period from available police reports via NCDOT's Traffic Engineering Accident Analysis System (TEAAS) and observation of existing conditions with a Field Safety Assessment where engineers and planners visited the site.
- **Plan Review:** Review of existing plans, including:
 - Morrisville 2019 CTP
 - CONNECT 2050
 - FS-1005B Feasibility Study – NC 54 & More
 - Western Corridor Rapid Bus Extension Study
 - Morrisville Smart Shuttle Data Summary (two on-demand transit stops along corridor)
 - Town of Morrisville Intersection Improvements Study
 - Area Traffic Impact Analyses (TIAs)
- **Community Engagement:** Feedback collected via an online survey and comment form during two phases of the project in addition to in person outreach events.

Methodology

- **Safety Analysis:** Detailed examination of crash locations and types as well as observations gathered during the Field Safety Assessment to determine prevalent safety issues and effective countermeasures.

- **Traffic Analysis:** Analysis of traffic operations using *Synchro Professional Version 11* under existing (2023) and future (2050) conditions to evaluate and determine potential short-term and long-term improvements.

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Existing (2023) Conditions

Evaluation of the traffic impacts associated with the proposed development requires a thorough understanding of the transportation network in the project study area. Existing conditions observed in the study area include roadway geometrics, traffic control devices, and peak hour traffic volumes. This chapter summarizes the existing conditions observed within the study area.

Morrisville Parkway is a four-lane divided arterial with a 35 mile per hour (mph) speed limit. Continuous sidewalks exist along both sides which have varying widths and are either located behind the back of curb or are offset behind the curb with a short planting strip. **Figure 2** below shows the typical cross-section for Morrisville Parkway within this study area.

Study Area

The study area was proposed by the Town of Morrisville to cover the portion of the roadway within the Town's limits. The intersections along Morrisville Parkway listed in the next column and shown in **Figure 3** were included in the study area and analyzed for existing and future conditions, where applicable.

- NC 54 (Chapel Hill Road) (signalized)
- Park West Village Shopping Center – East (unsignalized)
- Park West Village Shopping Center – West (unsignalized)
- Bristol Creek Drive (signalized)
- Crabtree Crossing Parkway (signalized)
- Fairwood Drive/Waltons Creek Road (unsignalized)
- Fairwood Drive (unsignalized)
- Waltons Creek Road (unsignalized)
- Black Ridge Street/Creek Park Drive (unsignalized)
- Duck Pond Circle (unsignalized)
- Morrisville Elementary East/Golden Horseshoe Circle (unsignalized)
- Morrisville Elementary West/Carriage Way Trail (unsignalized)
- Davis Drive (signalized)

The existing lane configurations and traffic control for the study area intersections are displayed in **Figure 4**.

Existing Roadway Volumes

VHB obtained historical and the most recent available (2021) annual average daily traffic (AADT) volumes from NCDOT for the study area roadways. The AADT along Morrisville Parkway was 14,500 vehicles per day (vpd) west of NC 54 (Chapel Hill Road) and 16,000 vpd east of Davis Drive.

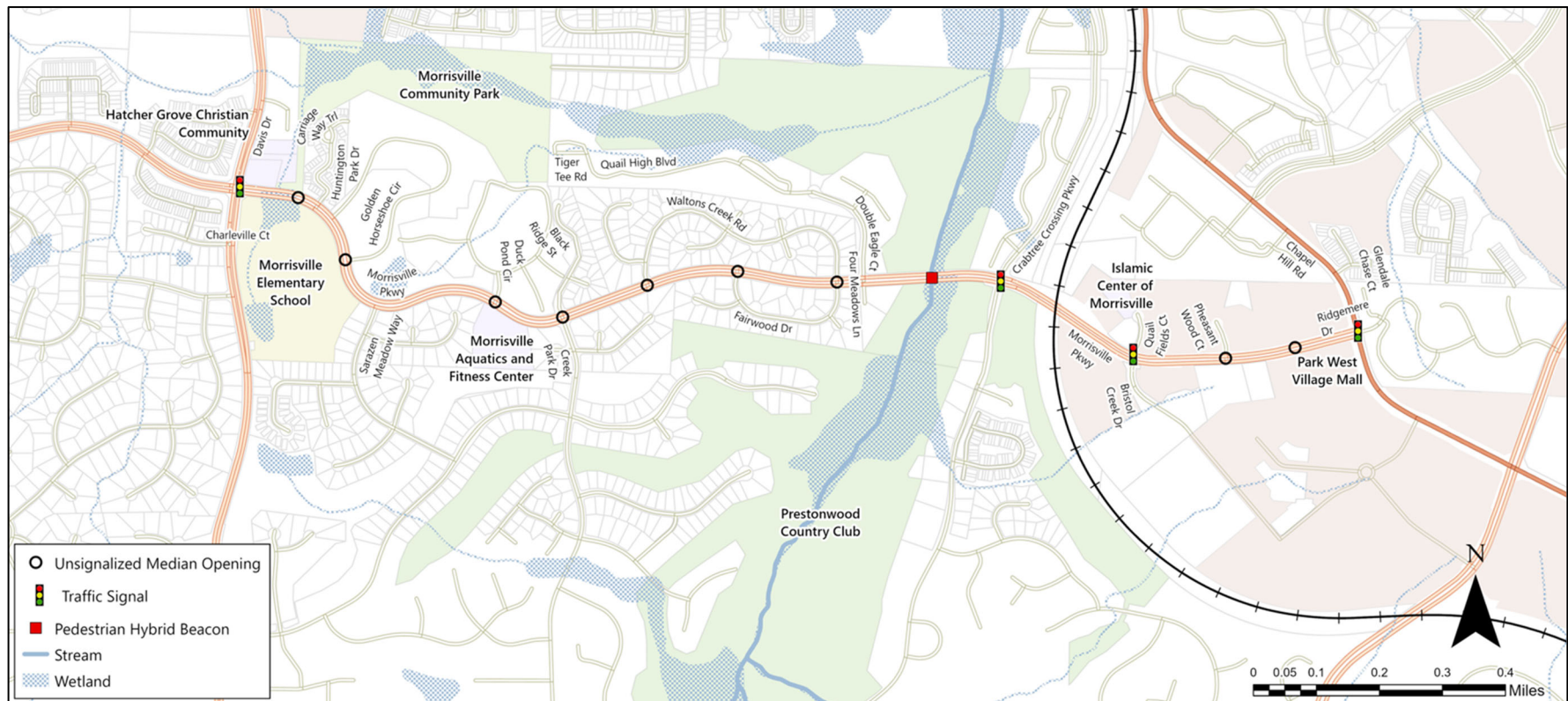
Figure 2 Morrisville Parkway Typical Section



Existing Turning Movement Data

To complete the traffic capacity analysis, VHB staff collected intersection turning movement counts from 7:00 AM – 9:00 AM and 4:00 PM – 6:00 PM on Tuesday, August 29th, 2023, while area schools were in session. The peak hour volumes are displayed in **Figure 5**, and the turning movement count reports for each study area intersection are included in Appendix A.

Figure 3 Vicinity Map



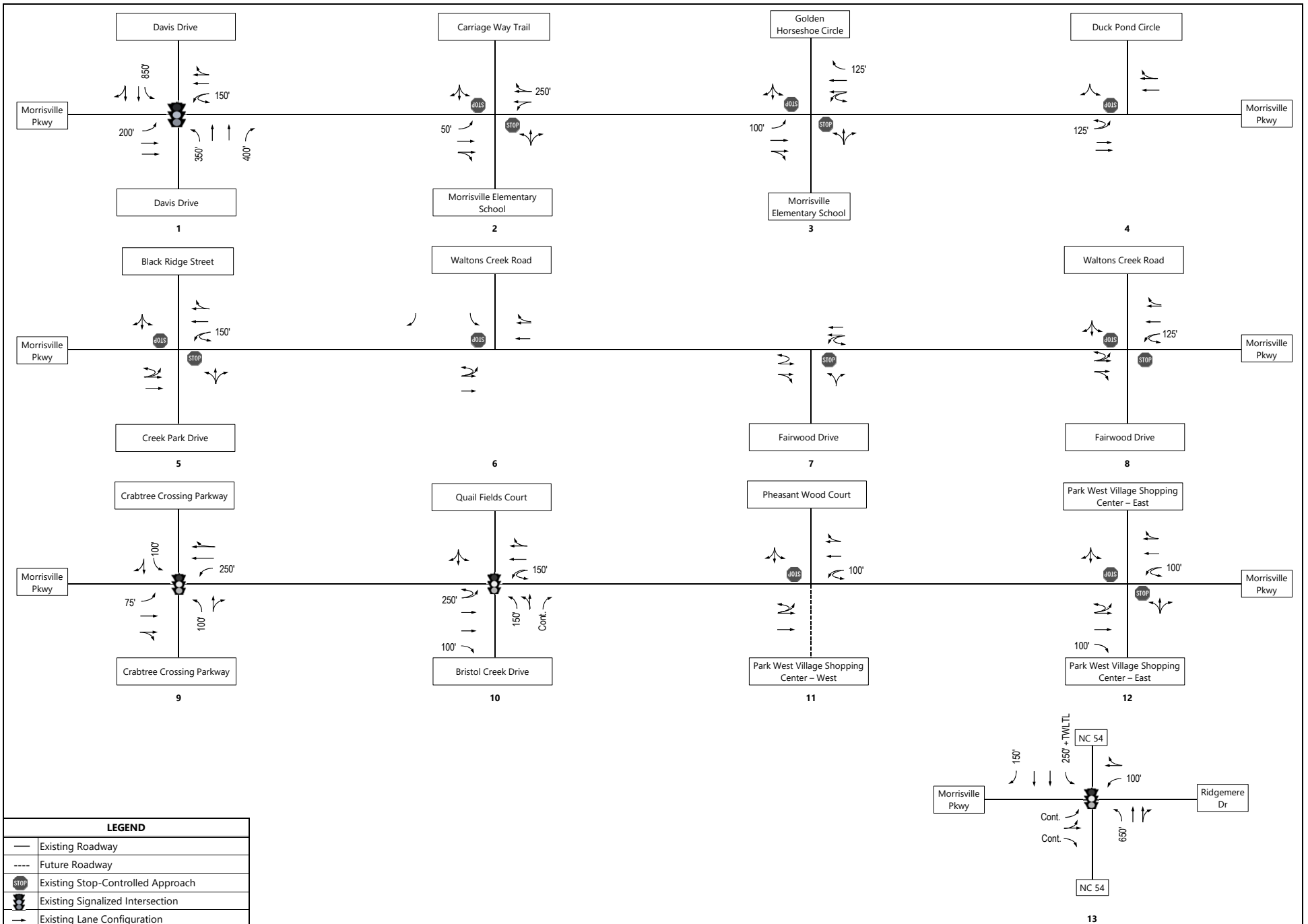


Figure 4
Existing (2023) AM and PM Peak Hour
Existing Lane Configurations and Traffic Control

Morrisville Parkway
Access Management Study



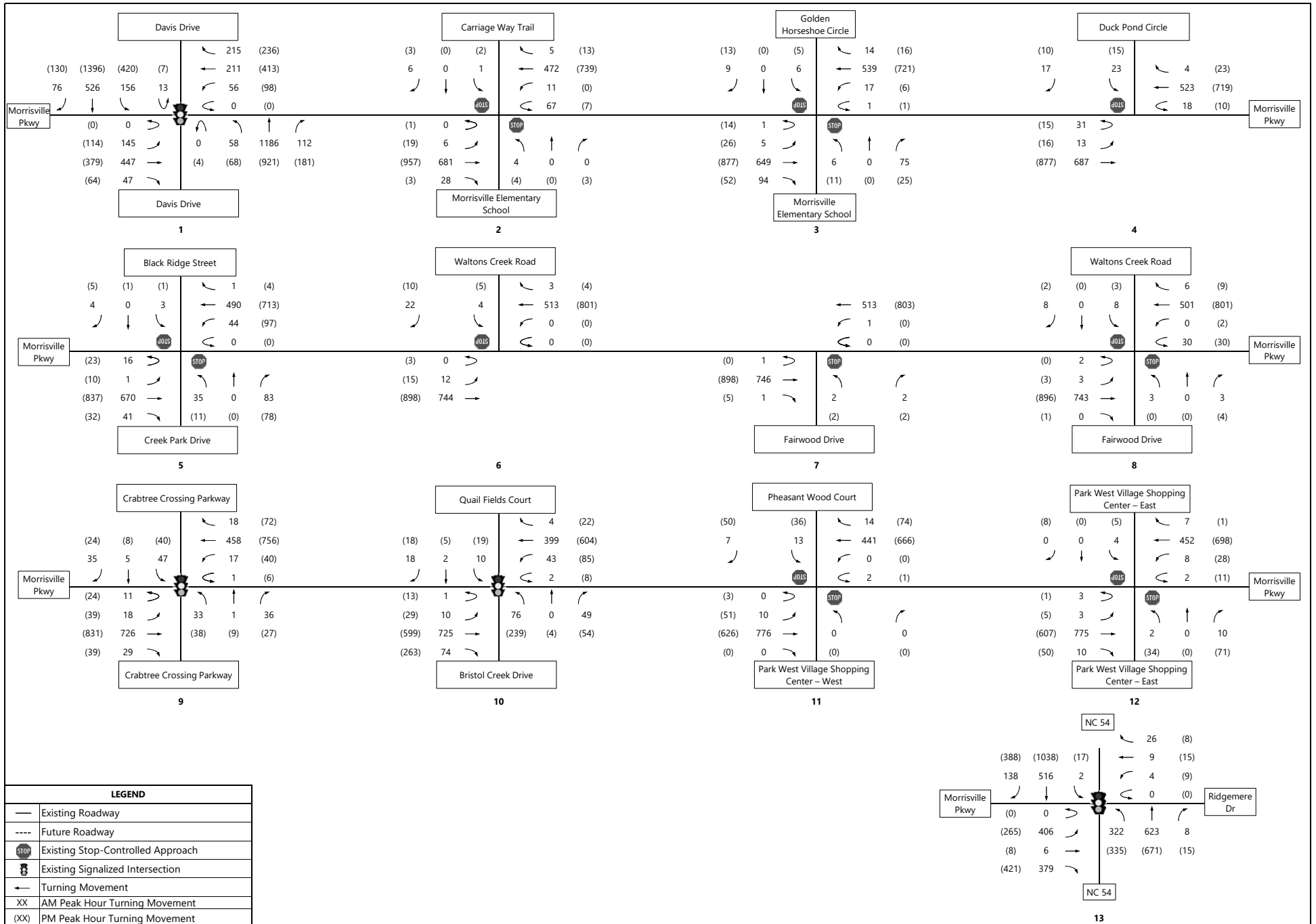


Figure 5
Existing (2023) AM and PM Peak Hour
Turning Movement Volumes

**Morrisville Parkway
Access Management Study**



Level of Service Criteria

Peak hour level of service (LOS) measures the adequacy of the intersection geometrics and traffic controls of a particular intersection or approach for the given turning volumes. Levels of service range from A through F, based on the average control delay experienced by vehicles traveling through the intersection during the peak hour. Control delay represents the portion of total delay attributed to traffic control devices (e.g., signals or stop signs).

The level of service designation is reported differently for signalized and unsignalized intersections (Table 1). For signalized intersections, the analysis considers the operation of all traffic entering the intersection and the LOS designation is for the overall condition at the intersection. For unsignalized intersections, the analysis assumes that through traffic on the mainline is not affected by traffic on the side streets. Thus, the LOS designations reported for unsignalized intersections are for the worst operating, stop-controlled approach and not for the overall intersection, except in the case of an all-way stop which is reported similarly to a signalized intersection.

Table 1 Level of Service Description for Intersections

Level of Service	Description	Signalized Intersection	Unsignalized Intersection
A	Little or no delay	<= 10 sec.	<= 10 sec.
B	Short traffic delay	10-20 sec.	10-15 sec.
C	Average traffic delay	20-35 sec.	15-25 sec.
D	Long traffic delay	35-55 sec.	25-35 sec.
E	Very long traffic delay	55-80 sec.	35-50 sec.
F	Unacceptable delay	> 80 sec.	> 50 sec.

Intersection levels of service analyses were performed for the typical weekday AM and PM peak hours using *Synchro Professional Version*

11, which is traffic software application used to design, model, optimize, simulate, and animate signalized and unsignalized intersections. The Existing (2023) scenario analysis utilized the existing signal information obtained from NCDOT, which are included in Appendix B. Signal timings were optimized within *Synchro* for all scenarios.

Existing (2023) Capacity Analysis

Existing (2023) conditions LOS and delay results are outlined in **Table 2** and full results are available in Appendix C.

As shown in **Table 2**, the signalized intersection of Morrisville Parkway and Davis Drive is operating at LOS D and LOS E during the AM and PM peak hour, respectively. The other signalized intersections are operating overall at LOS C or better during both peak hours. Quail Fields Court, the southbound approach, is operating at LOS F during both peak hours. The stop-controlled Morrisville Elementary School driveway across from Carriage Way Trail is operating at LOS E during both peak hours. All other stop-controlled approaches within the study area are operating at LOS D or better during both peak hours. While the analysis concentrated on the commuter peaks, there was also considerable congestion as Morrisville Elementary parents arrived prior to the school dismissal period and exceeded the available storage on site (photo below).



Queueing at Morrisville Elementary School During Afternoon Pick-Up

Table 2 Base Year (2023) No-Build LOS Results

#	Intersection and Approach	AM	PM
1	Morrisville Parkway at Davis Drive	D-39.6	E-74.1
	Eastbound	D-49.4	E-71.3
	Westbound	E-62.9	F-193.7
	Northbound	C-35.0	D-46.4
	Southbound	C-25.0	D-45.7
2	Morrisville Parkway at Carriage Way Trail/ Morrisville Elementary School	-	-
	Northbound	E-37.3	E-37.7
	Southbound	B-12.9	D-25.0
3	Morrisville Parkway at Golden Horseshoe Circle/Morrisville Elementary School	-	-
	Northbound	B-14.1	D-30.1
	Southbound	C-17.8	C-22.2
4	Morrisville Parkway at Duck Pond Circle	-	-
	Southbound	C-21.5	D-29.7
5	Morrisville Parkway at Black Ridge Street/ Creek Park Drive	-	-
	Northbound	D-26.5	D-29.3
	Southbound	C-19.2	D-34.4
6	Morrisville Parkway at Waltons Creek Road	-	-
	Southbound	B-12.1	C-20.7
7	Morrisville Parkway at Fairwood Drive	-	-
	Northbound	C-17.3	C-23.7
8	Morrisville Parkway at Fairwood Drive/Waltons Creek Road	-	-
	Northbound	C-22.1	B-12.0
	Southbound	C-19.2	E-35.6

X (XX.X): Overall signalized intersection LOS (delay), X-XX: Approach LOS and delay

Base Year (2023) No-Build LOS Results (Continued)

#	Intersection and Approach	AM	PM
9	Morrisville Parkway at Crabtree Crossing Parkway	A-8.8	B-17.6
	Eastbound	A-7.6	B-16.1
	Westbound	A-7.8	B-16.6
	Northbound	B-17.6	C-33.6
	Southbound	B-17.6	C-33.5
10	Morrisville Parkway at Bristol Creek Drive/Quail Fields Court	B-15.9	C-27.6
	Eastbound	B-11.0	B-17.3
	Westbound	A-8.8	B-19.9
	Northbound	D-51.8	D-54.1
	Southbound	F-106.0	F-192.2
11	Morrisville Parkway at Park West Village – West/Pheasant Wood Court	-	-
	Southbound	C-16.9	D-27.2
12	Morrisville Parkway at Park West Village – East	-	-
	Northbound	B-14.7	D-27.3
	Southbound	C-23.7	C-22.6
13	Morrisville Parkway at NC 54 (Chapel Hill Road)	C-24.7	C-31.4
	Eastbound	C-31.6	D-49.0
	Westbound	D-53.3	E-70.9
	Northbound	B-16.1	C-20.8
	Southbound	C-27.0	C-29.5

X (XX.X): Overall signalized intersection LOS (delay), X-XX: Approach LOS and delay

Existing Pedestrian Environment

Morrisville Parkway has sidewalks against the edge of the road or with a small buffer between the road and sidewalk. There are marked crosswalks across Morrisville Parkway at Carriage Way Trail, Golden Horseshoe Circle, Duck Pond Circle, and all signalized intersections within the study area. A marked crosswalk with a Pedestrian Hybrid Beacon (PHB) is present between Crabtree Crossing Parkway and Fairwood Drive that is utilized for the Prestonwood Country Club Golf Course and other general crossing activity. At Morrisville Elementary School, there is a crossing guard present at the main entrance to Morrisville Elementary school during arrival and dismissal time and they modify traffic patterns with cones for carpool (image below). On NC 54, near the intersection with Morrisville Parkway, there are bus stops shared between GoTriangle, GoCary, and the Morrisville Smart Shuttle (MSS). Additionally, the MSS has a stop on Morrisville Pkwy and one internal to MAFC as well as a terminal at Morrisville Community Park if there is any down time between ride requests.

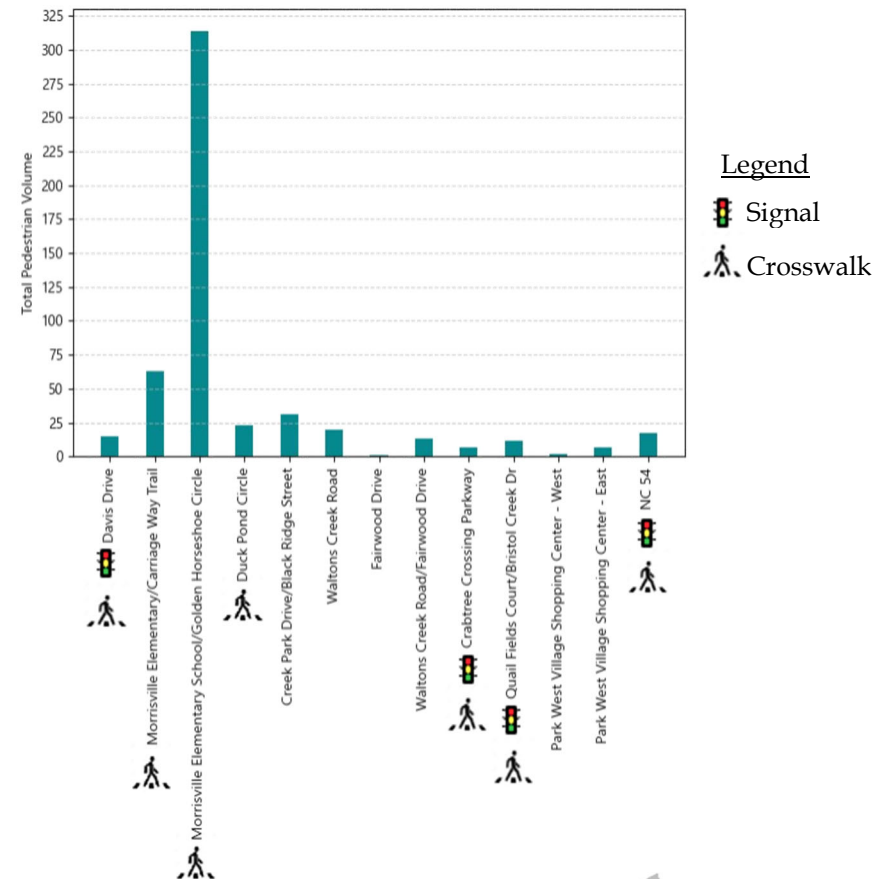


Morrisville Elementary School Students Crossing Morrisville Parkway in High-Visibility Crosswalk.

Based on the TMCs, Morrisville Elementary School/Golden Horseshoe Circle and Morrisville Elementary School/Carriage Way Trail had the most pedestrians during both four-hour periods (AM and PM) counted with a total of 314 and 63, respectively, due to students crossing during drop-off and pick-up times. The next intersections with the most pedestrians were Creek Park Drive/Black Ridge Street, Duck Pond Circle, and Waltons Creek Road with 31, 23, and 20

pedestrians, respectively, which are all near the MAFC. The intersections with the highest vehicular volumes, NC 54 (Chapel Hill Road) and Davis Drive intersections, had 17 and 15 pedestrians, respectively. The total pedestrians counted crossing any approach at each intersection are shown in **Figure 6**, and the symbology indicates whether the intersection is signalized and if crosswalks are present across Morrisville Parkway. Based on feedback from the community, walking across Morrisville Parkway is exceedingly difficult due to the high speeds and volume of traffic. Pedestrians avoid crossing altogether or cross mid-block between intersections in two stages using the median as a refuge.

Figure 6 Four-Hour Pedestrians Counts



Traffic Safety Analysis

Five years (5/1/2018 – 4/30/2023) of available crash data was obtained from the NCDOT for Morrisville Parkway from NC 54 (Chapel Hill Road) to Davis Drive. The full crash analysis report is available in Appendix D. **Table 3** compares crash rates for this segment of Morrisville Parkway against statewide averages for four-lane, divided, urban secondary routes.

As reported in **Table 3**, the fatal and night crash rates exceed the statewide average for similar facility types. Two (2) fatal crashes occurred during the study period. The first fatal crash occurred on 6/30/2021 and involved a vehicle crossing Morrisville Parkway from Creek Park Drive to Black Ridge Street while not yielding to a westbound vehicle. The other fatal crash occurred shortly after on 11/14/2021 in the curve to the west of Black Ridge Street/ Creek Park Drive. The crash involved a westbound vehicle crossing the center median while entering the curve at a high rate of speed. There were no reported crashes involving bicyclists, but there were two pedestrian crashes, one occurring at Crabtree Crossing Parkway and the other occurring at Black Ridge Street.

The total of each crash type observed within the study area during the five-year period is shown in **Table 4**. The predominant crash types were rear ends (28%), left turns (26%), and angle crashes (17%). The crashes by location type along the corridor are shown in **Table 5**.

The total of each crash type at each intersection and crossing within the study area is shown in **Table 6**, on the following page. Most crashes took place at the signalized intersections within the study area. The intersection of Morrisville Parkway and NC 54 (Chapel Hill Road) experienced the highest number of crashes during the study period (56).

The unsignalized intersection that experienced the most crashes was Morrisville Parkway at Black Ridge Street/Creek Park Drive with 9 total crashes including 3 left-turn crashes and 4 angle crashes.

Of the reported crashes, two involved pedestrians, one involved a golf cart, and none involved cyclists. At the Crabtree Crossing Parkway intersection, a rear end crash occurred involving a westbound right-turning vehicle that stopped for a pedestrian in the crosswalk along the SB approach at 7:19 PM on a Saturday in July 2021. At the Creek Park Drive intersection, a northbound vehicle struck a pedestrian crossing eastbound in the crosswalk at 3:29 PM on a Friday in May 2020 resulting in a minor (Type C) injury. At the crossing for the golf course between 4 Meadows Lane and Crabtree Crossing Parkway, a northbound golf cart in the crosswalk was struck by an eastbound vehicle at 2:08 PM on a Friday in October 2021. A vehicle in the right lane stopped for the golf cart, and the golf cart was struck by a vehicle in the left lane. An occupant of the golf cart was ejected, and the crash resulted in a moderate (Type B) injury.

The crashes are shown by type in **Figure 7** and injury crashes are shown by severity in **Figure 8**. Crash Severity is measured by fatal injury, severe injury (Type A), moderate injury (Type B), and minor injury (Type C).

Table 3 Morrisville Parkway Crash Rate Comparison

Rate	Crashes	Crashes per 100 Million Vehicle Miles Traveled	Statewide Crash Rate*
Total	205	326.27	364.00
Fatal	2	3.18	1.23
Non-Fatal Injury	41	65.25	98.67
Night	54	85.95	85.21
Wet	32	50.93	54.86

*2018-2022 statewide crash rate for urban four-lane divided secondary routes in North Carolina

Table 4 Morrisville Parkway Crash Types

Crash Type	Total Crashes	Percent
Rear End	57	28%
Left Turn	53	26%
Angle	34	17%
Sideswipe	27	13%
Ran Off Road	21	10%
Other	11	5%
Pedestrian	2	1%
Total	205	100%

Table 5 Morrisville Parkway Crash by Location Type

Location	Total Crashes	Percent
Signalized Full Access Intersection	137	67%
Unsignalized Full Access Intersection	38	19%
Right-In, Right-Out Intersection	16	8%
Midblock	14	7%
Total	205	100%

Table 6 Crashes by Type and Intersection (5/1/18–4/30/23)

Intersection/Location	Angle	Backing Up	Fixed Object	Left Turn	Moveable Object	Overturn	Ran Off Road	Right Turn	Rear End	Sideswipe	Pedestrian	Other	Total
NC 54 (Chapel Hill Rd) at Morrisville Pkwy	16	0	0	19	0	1	0	1	12	7	0	0	56
Median Break (Discount Furniture)	1	0	0	1	0	0	0	0	1	0	0	0	3
Pheasant Wood Ct	1	0	0	2	0	0	0	0	3	1	0	0	7
Quail Fields Court/Bristol Creek Dr	5	1	0	11	0	0	0	0	6	8	0	0	31
Crabtree Crossing Pkwy	1	0	0	1	0	0	0	0	8	0	1	0	11
Golf Cart Crossing	1	0	0	0	0	0	1	0	1	0	0	0	3
Double Eagle Ct	0	0	0	0	0	0	0	0	4	0	0	0	4
Fairwood Dr (E)/Waltons Creek Rd	0	0	0	0	0	0	2	0	2	0	0	0	4
Fairwood Dr (W)	0	0	0	0	0	0	1	0	0	0	0	0	1
Waltons Creek Rd	0	0	0	0	1	0	0	0	1	0	0	0	2
Black Ridge St/Creek Park Dr	4	0	0	3	0	0	0	0	0	1	1	0	9
Duck Pond Cir	0	0	1	0	0	0	5	0	1	1	0	1	9
Sarazen Meadow	0	0	0	0	0	0	3	0	0	2	0	0	5
Golden Horseshoe Cir (E)/Morrisville Elementary (E)	0	0	0	1	0	0	0	0	0	0	0	0	1
Golden Horseshoe Cir (W)	0	0	0	0	0	0	0	0	2	2	0	0	4
Huntington Park	0	0	0	0	0	0	0	0	3	0	0	0	3
Carriage Way Trl/Morrisville Elementary (W)	1	0	0	0	0	0	2	1	0	1	0	1	6
SR 1613 (Davis Dr)	4	0	0	15	0	0	1	2	10	2	0	1	35
Total	34	1	1	53	1	1	15	4	54	25	2	3	194

Note that darker green shading denotes higher crash frequencies

Field Safety Assessment

A walking field assessment was conducted with the identified technical steering committee on September 12th, 2023. The goal of the field assessment was to identify issues that may be present for vehicles, bicyclists, or pedestrians and identify countermeasures for issues identified.



Members of the PMT and/or TSC walking along the corridor during the field safety assessment

Figure 7 Crashes by Severity

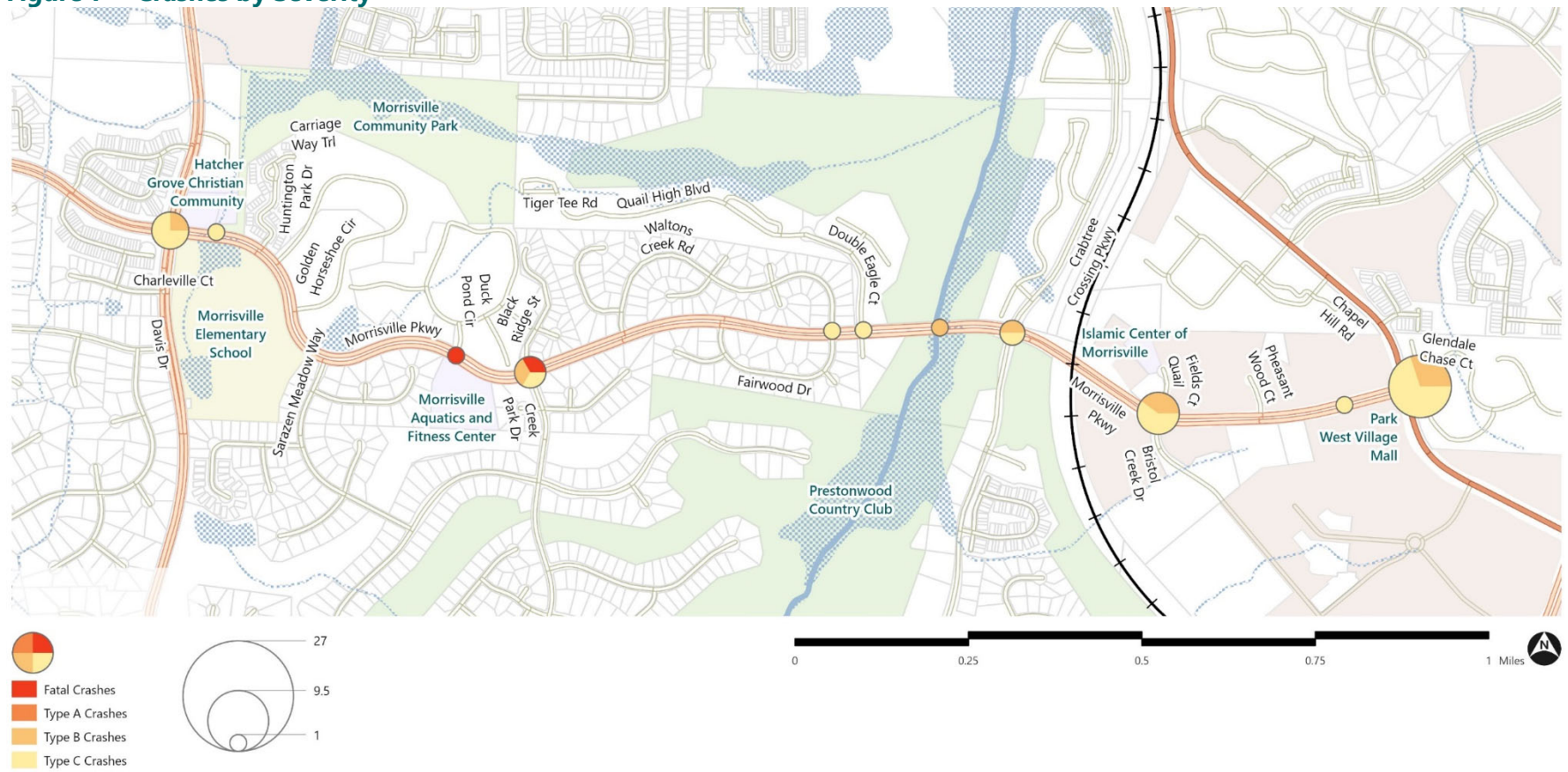


Figure 8 Crashes by Type



3

Public Outreach

The public involvement strategy for the Morrisville Parkway Access Management Study was executed in two primary phases, each designed to gather specific types of community feedback that would inform the development of an effective access management strategy. These phases incorporated various community events and detailed surveys to encourage comprehensive participation across different demographics and interest groups. This iterative engagement process not only captured the community's concerns and suggestions but also actively shaped the planning and decision-making framework, ensuring that the final recommendations aligned with feedback about local needs and expectations.

The Town of Morrisville maintained a project website throughout the duration of the project to provide pertinent details relating to the study such as the purpose, schedule, meetings, and recommendations. Public engagement opportunities were also promoted through the Town's Communication Department via a weekly e-newsletter, HOA newsletters, social media, and postings at MAFC as well as sharing with other stakeholders. Local apartment complexes were also provided a flyer for Phase 1 and sent an email for Phase 2 to share with residents. Information was also shared by study partners including CAMPO via their website, the Town of Cary, and Morrisville Elementary School to staff and families.

Phase 1: Document and Assess Existing Conditions

The first phase of public involvement kicked off with two major community events in addition to an online survey.

The "Trick-or-Treat the Trail" event on October 21, 2023, provided a relaxed environment for residents, especially families, to learn about the access management study and discuss Morrisville Parkway including concerns about existing conditions and suggestions for the future.



Residents Visiting Exhibition During "Trick-or-Treat the Trail" Event

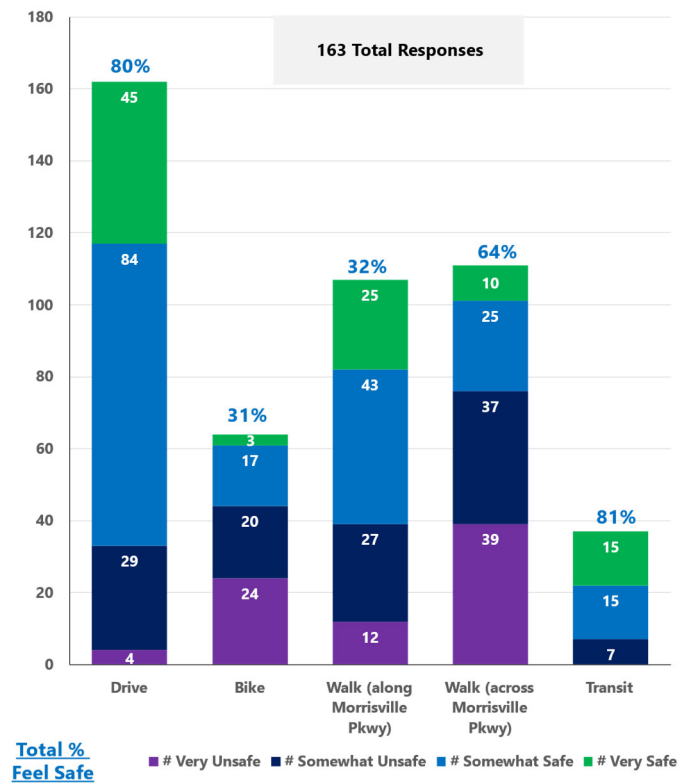
This event was followed by a pop-up event at the MAFC on November 7, 2023. Discussions during this event focused primarily on intersection safety and multimodal connectivity near the facility.

Additionally, an online survey conducted during this phase (October 20 – November 18, 2023) collected 163 responses, highlighting concerns and feedback about safety and traffic flow for all modes of transportation, particularly focusing on pedestrian and cyclist safety across the corridor. The Phase 1 survey responses relating to safety perception is illustrated in **Figure 9**.

Excessive vehicle speeds were a commonly cited concern by drivers, cyclists, and pedestrians in the survey responses, particularly at Morrisville Elementary School. Safer crossings, bike

lanes, more turn lanes, more traffic signals, and more traffic enforcement were also mentioned multiple times by survey participants as were concerns about the curves including a request for increased and more prominent signage. In addition to concerns about vehicle speeds, concerns regarding the risks for pedestrians included vehicles making right turns on red and left turns with flashing yellow arrows at signalized intersections. Queuing from Morrisville Elementary School spilling out onto Morrisville Parkway was also mentioned. Regarding the preliminary recommendations, concerns included the channelization of intersections and lack of bike lanes.

Figure 9 Public Perception of Safety



Phase 2: Develop Design Priorities and Design Concepts

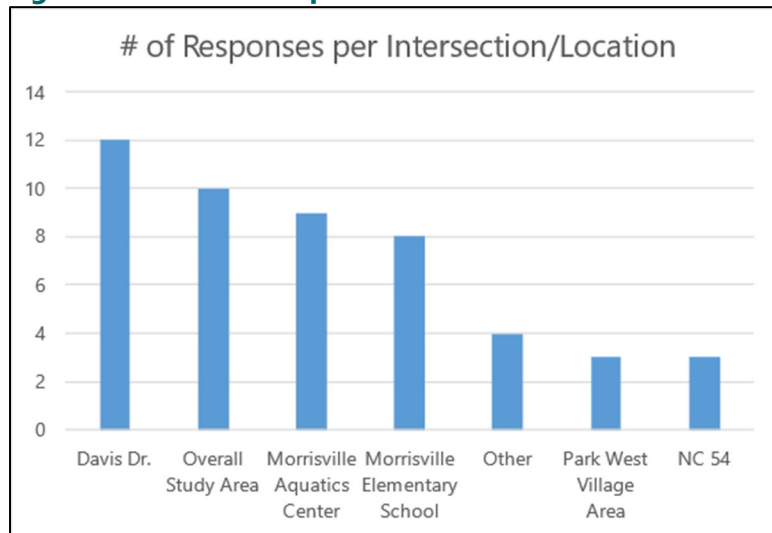
In the second phase, the preliminary recommendations were posted to the project website and additional community feedback was requested, including a digital link for providing input and comments for corridor-wide or area specific recommendations. The comment period was open between March 7th and April 7th, 2024, and garnered fifty-three responses from 35 individuals, with feedback concentrated on several key areas. The Davis Drive intersection received the most comments, followed by the MAFC, the overall study area and proposed cross-section, and Morrisville Elementary School.

The feedback was generally positive regarding the introduction of additional signals, crosswalks, and turn lanes intended to improve traffic flow and safety. However, several concerns were raised about pedestrian and cyclist safety, the channelization of intersections, and vehicle speeds. The feedback from this phase was visualized in a word cloud, shown in **Figure 10**, that emphasized key concerns and suggestions, reflecting the community's priorities for improvements along Morrisville Parkway. The concentration of comments by location is illustrated in **Figure 11**.

Figure 10 Word Cloud of Phase 2 Survey Responses



Figure 11 Public Response Areas of Interest



Summary of Comments and Challenges

The following summarizes the primary comments and concerns received throughout the public outreach period:

- Concerns about high vehicle speeds on Morrisville Parkway and the impacts on pedestrian and cyclist safety, particularly at Morrisville Elementary School.
- Concerns about the ability to safely cross Morrisville Parkway and the vehicles not properly yielding to pedestrians in crosswalk.
- Concerns about channelization of intersections creating additional U-turn movements along the corridor.
- Concerns about congestion and queueing at the Davis Drive intersection and Morrisville Elementary School.
- Provide more infrastructure on Morrisville Parkway oriented towards pedestrians and cyclists.
- Add turn lanes in the medians.
- Add high-visibility crosswalks and signalized pedestrian crossings.

The public involvement strategy and resident feedback was instrumental in highlighting key areas for improvement and helped prioritize actions that could effectively enhance the quality of life and safety along Morrisville Parkway. It provided insight into the community's priorities, such as enhancing safety features, improving multimodal connectivity, and managing traffic speeds more effectively. The engagement efforts showed a strong community interest in making Morrisville Parkway safer and more accessible, particularly emphasizing the need for improved pedestrian safety measures.

As a result of feedback, the recommendations for the Morrisville Elementary School/Golden Horseshoe Circle and Creek Park Drive/Black Ridge Street intersections with Morrisville Parkway were revised from channelization with restricted access to signalization with full access.

4

Future Conditions Analysis

This section reviews the results of the future conditions intersection capacity analysis and the development of roadway improvement recommendations.

Future Growth and Background Development

The Existing (2023) peak hour volumes were grown to Build (2050) based on a review of past AADT data and expectations of future growth. The growth rates were selected based on a review of available area forecasts, area TIAs, and growth projections contained in the latest Triangle Regional Model. Peak hour site trips in the study area from the Morrisville Mixed Use (MMU) Development are included in the future year volume calculations and shown in Appendix E alongside the MMU TIA. The site trips expected to be generated by the MMU Development are added to the grown peak hour volumes to develop the future No-Build (2050) peak hour volumes. The resulting No-Build (2050) peak hour traffic in the study area is shown in **Figure 12**. In addition, future roadway projects were reviewed and there were no funded improvements in the immediate area that would impact the study corridor.

No-Build (2050) Capacity Analysis

Under No-Build (2050) conditions, the vehicular level of service (LOS) and delay for the overall intersection and by intersection approach for each study area location is outlined in **Table 7**.

As shown in **Table 7**, the signalized intersection of Morrisville Parkway and Davis Drive is operating at LOS E and LOS F during the AM and PM peak hour, respectively. The two signalized intersections along the middle of the corridor are operating overall at LOS C or

better during both peak hours. However, the NC 54 intersection is operating at LOS D and LOS F during the AM and PM peak hour.

The stop-controlled Carriage Way Trail is operating at LOS E during the PM peak hour, and the stop-controlled Morrisville Elementary School driveway across from Carriage Way Trail is operating at LOS F during both peak hours. At the other Morrisville Elementary School driveway, the driveway and Golden Horseshoe Circle are operating at LOS F and LOS E, respectively, during the PM peak hour. The Park West Village Shopping Center intersections also experience LOS E or LOS F operations during at least one peak. All other stop-controlled approaches within the study area are operating at LOS D or better during both peak hours.



Morrisville Parkway looking east towards Duck Pond Circle

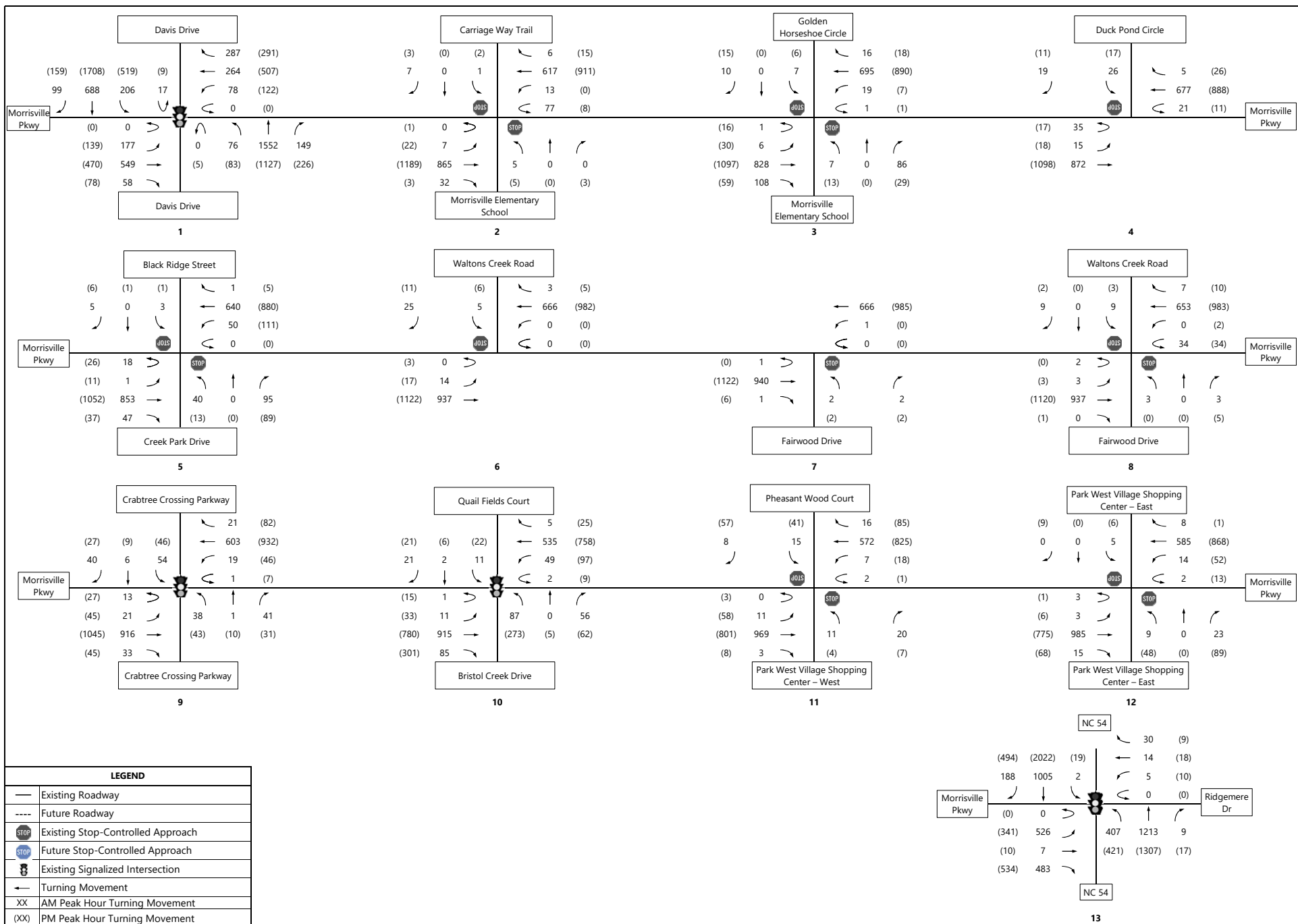


Figure 12
No-Build (2050) AM and PM Peak Hour
Turning Movement Volumes



Table 7 No-Build (2050) LOS Results

#	Intersection and Approach	AM	PM
1	Morrisville Parkway at Davis Drive	E-71.6	F-125.4
	Eastbound	F-96.5	F-86.7
	Westbound	F-95.8	F-160.3
	Northbound	E-67.0	F-96.3
	Southbound	D-45.1	F-140.5
2	Morrisville Parkway at Carriage Way Trail/ Morrisville Elementary School	-	-
	Northbound	F-69.8	F-72.5
	Southbound	C-15.7	E-38.5
3	Morrisville Parkway at Golden Horseshoe Circle/Morrisville Elementary	-	-
	Northbound	C-18.4	F-62.4
	Southbound	D-26.8	E-36.1
4	Morrisville Parkway at Duck Pond Circle	-	-
	Southbound	C-18.8	C-22.0
5	Morrisville Parkway at Black Ridge Street/ Creek Park Drive	-	-
	Northbound	D-25.5	D-25.2
	Southbound	C-16.5	D-31.8
6	Morrisville Parkway at Waltons Creek Road	-	-
	Southbound	B-14.7	C-17.9
7	Morrisville Parkway at Fairwood Drive	-	-
	Northbound	C-23.2	D-34.6
8	Morrisville Parkway at Fairwood Drive/Waltons Creek Road	-	-
	Northbound	D-34.2	B-13.4
	Southbound	D-29.0	F-62.6

X (XX.X): Overall signalized intersection LOS (delay), X-XX: Approach LOS and delay

No-Build (2050) LOS Results (Continued)

9	Morrisville Parkway at Crabtree Crossing Parkway	B-12.1	B-17.4
	Eastbound	A-9.2	B-13.3
	Westbound	A-2.7	B-11.1
	Northbound	E-59.9	F-85.4
	Southbound	E-62.9	F-85.3
10	Morrisville Parkway at Bristol Creek Drive/Quail Fields Court	B-11.6	C-25.3
	Eastbound	A-8.6	B-17.4
	Westbound	A-3.8	B-10.9
	Northbound	D-52.2	E-78.7
	Southbound	E-63.4	F-92.1
11	Morrisville Parkway at Park West Village – West/Pheasant Wood Court	-	-
	Northbound	D-28.5	A-0.0
	Southbound	D-29.5	F-97.4
12	Morrisville Parkway at Park West Village – East	-	-
	Northbound	D-25.8	F-57.2
	Southbound	E-37.3	D-34.9
13	Morrisville Parkway at NC 54 (Chapel Hill Road)	D-40.7	F-95.1
	Eastbound	C-34.8	F-91.5
	Westbound	E-66.0	F-83.4
	Northbound	C-32.1	E-76.1
	Southbound	E-56.6	F-109.7

X (XX.X): Overall signalized intersection LOS (delay), X-XX: Approach LOS and delay

5 Findings and Recommendations

Based on the feedback provided from community engagement, crash data analysis, and traffic analyses, several improvements are recommended to enhance safety and mobility along the corridor for pedestrians, cyclists, and drivers. The existing corridor cross-section is shown in **Figure 13** alongside the proposed corridor cross-section in **Figure 14**. The proposed cross-section includes the following:

- Multi-use path on both sides of road.
- Lane striping to visually narrow travel lanes and reduce speeds.
- Path width and separation may vary based on ROW availability.

Note that after considerable discussion with the PMT/TSC and review of field conditions, multi-use paths rather than exclusive protected bicycle lanes were selected to accommodate bicycle demand along

the corridor. The decision was based on existing right-of-way width, vehicle speeds, cost effectiveness of not moving curbs, balanced with interest of maintaining the tree-lined median character of the corridor.

Five specific locations along the corridor emerged as the primary areas in need of operational and/or safety improvements as shown in **Figure 15**. Issues/challenges and recommendations to improve pedestrian safety and reduce congestion at the study intersections are listed on the following pages including a series of aerial images overlayed with conceptual recommendations (**Figure 16 - Figure 20**). Note that each improvement was considered as short-term or long-term. The short-term improvements are ones that would ideally be implemented within the next five years based on available funding. The long-term improvements have a timeframe in the five-to-ten-year range.

Figure 13 Existing Corridor Cross-Section

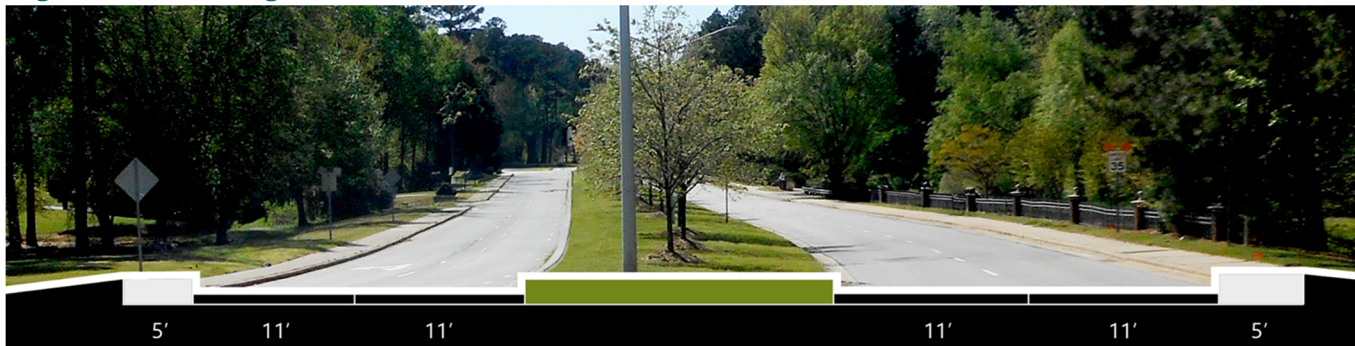


Figure 14 Proposed Corridor Cross-Section



Morrisville Parkway at Davis Drive

Issues/Challenges:

- Heavy traffic and delays during morning and afternoon peak travel periods.
- Extensive queuing for the southbound left-turn movement during the afternoon peak hour.
- A shared thru and right-turn lane currently exists on westbound Morrisville Parkway and there is no dedicated right-turn lane available for vehicles accessing northbound Davis Drive.
- Large intersection results in difficult crossings for pedestrians.
- High number of left-turn and rear end crashes.

Short-Term Improvements:

- Add a westbound right-turn lane.
- Add high-visibility crosswalk markings on all approaches.
- Add leading pedestrian intervals (LPIs) to signal.
- Convert left-turn phasing for northbound and southbound Davis Drive as well as eastbound Morrisville Parkway from protected-permitted to protected-only.
- Display red arrow for right-turn movements when the pedestrian signal is activated to draw more attention to pedestrians in the crosswalk.

Long-Term Improvement:

- Add a second southbound left-turn lane.

Morrisville Parkway at Morrisville Elementary School/Carriage Way Trail

Issues/Challenges:

- Vehicles not properly yielding to pedestrians in crosswalks.

- Extensive queuing present during the afternoon school pick-up for Morrisville Elementary School, resulting in stopped vehicles along Morrisville Parkway.
- Inadequate left-turn storage at western school driveway.
- Visibility concerns for crossing pedestrians and vehicles due to curves on Morrisville Parkway.

Short-Term Improvement:

- Add a Pedestrian Hybrid Beacon (PHB).
- Continue working with Wake County Public Schools and NCDOT to advance a study for expanding on-site queuing to alleviate stacking on the roadway.

Long-Term Improvement:

- Lengthen the eastbound left-turn lane.

Morrisville Parkway at Morrisville Elementary School/Golden Horseshoe Circle

Issues/Challenges:

- Very high pedestrian crossing volume associated with Morrisville Elementary arrival and dismissal periods.
- Vehicles not properly yielding to pedestrians in crosswalks.
- Extensive queuing present during the afternoon school pick-up for Morrisville Elementary School, resulting in stopped vehicles along Morrisville Parkway.
- Visibility concerns for crossing pedestrians and vehicles due to curves on Morrisville Parkway.
- Pedestrian crossings are difficult when the school crossing guard is not present.

Short-Term Improvements:

- Signalize the intersection.
- Add a westbound left-turn lane.
- Add a pedestrian refuge island.

- Add a crosswalk across the westbound approach.

There are no long-term improvements at this intersection.

A school operations study should also be conducted here to explore options to accommodate the full queue on site. Adding an eastbound right-turn lane along Morrisville Parkway at the school's eastern driveway was mentioned by the public and considered during this study. A right-turn lane would not handle the maximum afternoon queueing observed and would further widen the road to the detriment of pedestrians especially students and families. The turn lane would, however help minimize conflicts between through and right-turning vehicles and should be explored as part of a comprehensive study that reviews arrival/dismissal processes, ingress/egress, and accommodation of the maximum queue on-site. The elimination of queue spillback on Morrisville Parkway is needed to maximize the effectiveness of the other recommended improvements.

Morrisville Parkway at Duck Pond Circle

Issues/Challenges:

- The Duck Pond Circle and Black Ridge Street/Creek Park Drive locations experienced more crashes than most of the other unsignalized intersection along the corridor.
- Vehicles not properly yielding to pedestrians crossing Morrisville Parkway.
- Limited sight distance due to curve sections.

Short-Term Improvement:

- Add a westbound left-turn lane.

Long-Term Improvement:

- Consider adding median channelization island and signal.

Morrisville Parkway at Creek Park Drive/Black Ridge Street

Issues/Challenges:

- The Duck Pond Circle and Black Ridge Street/Creek Park Drive locations experienced the most crashes of any unsignalized intersection along the corridor.
- Crosswalks currently exist across Creek Park Drive and Black Ridge Street, however, crosswalks are not present across Morrisville Parkway in this location.
- There is no left-turn lane along Morrisville Parkway in the eastbound direction.
- Limited sight distance due to curve sections.

Short-Term Improvements:

- Signalize the intersection.
- Add an eastbound left-turn lane.
- Lengthen the westbound left-turn lane.
- Add pedestrian refuge islands.
- Add high-visibility crosswalk markings on all approaches.

There are no long-term improvements at this intersection.

Morrisville Parkway at Waltons Creek Road

Issues/Challenges:

- Conflicts between eastbound left-turning and through vehicles.

Short-Term Improvement:

- Add an eastbound left-turn lane.

There are no long-term improvements at this intersection.

Morrisville Parkway at Park West Village Shopping Center – West/Pheasant Wood Court

Issues/Challenges:

- A new westbound left-turn lane was constructed at the intersection; however, a left-turn lane is lacking in the eastbound direction.
- Providing raised median channelization islands would help prevent left turns from the side streets, which helps reduce potential for traffic collisions.

There are no short-term improvements at this intersection.

Long-term Improvements:

- Add a channelization island to restrict side streets to right-out only.
- Add an eastbound left-turn lane.

Morrisville Parkway at Park West Village Shopping Center – East

Issues/Challenges:

- Safety concerns with the Park West Village median opening, due to its proximity to the NC 54 (Chapel Hill Road) intersection which experiences routine congestion and queuing.
- A new westbound left-turn lane was constructed at the intersection; however, a left-turn lane is lacking in the eastbound direction.
- Providing raised median channelization islands would help prevent left turns from the side streets, which helps reduce potential for traffic collisions.

Short-Term Improvements:

- Add a channelization island to restrict side streets to right-out only.
- Add an eastbound left-turn lane.

There are no long-term improvements at this intersection.

Morrisville Parkway at NC 54 (Chapel Hill Road)

Issues/Challenges:

- Highest number of crashes along study corridor.
- Vehicles not properly yielding to pedestrians entering crosswalks.
- Crosswalk pavement markings are worn.
- Heavy northbound left-turn traffic from NC 54.
- Eastbound vehicles on Morrisville Parkway can back up to block prior intersection.
- Long queues on southbound approach of NC 54.

Short-Term Improvements:

- Add high-visibility crosswalk markings on all approaches.
- Add LPIs to signal.
- Consider additional measures to improve yield compliance such as overhead yield to pedestrian signs or displaying red arrow for right-turn movements when the pedestrian signal is activated to draw more attention to someone in the crosswalk.

Long-Term Improvement:

- Add a second northbound left-turn lane.

Morrisville Parkway Signing Suggestions

Westbound

- Approaching Quail Fields Court/Bristol Creek Drive signal
 - Remove "LEFT LANE MUST TURN LEFT" sign in median.
 - Since, the left-turn lane has not begun yet, the sign gives impression that the left travel lane is required to turn left.
 - Replace crossroad warning signs with 20 mph advisory speed plaques in median and on right shoulder with "Be Prepared to Stop" sign and flasher assemblies.
 - Tree canopy hinders visibility of signal heads.
 - Advisory speed plaques places unrealistic legal burden on through vehicles with green signal indication and may cause rear end crashes on this approach.
- Approaching Crabtree Crossing Parkway signal
 - Add "Crabtree Crossing Pkwy" beneath signal ahead warning sign.
- Approaching Black Ridge Street
 - Add 25 mph advisory speed plaque to winding road warning sign.
- Crosswalk just west of Duck Pond Circle
 - Add Ped crossing warning sign with angled down arrow in median and on right shoulder.
- Crosswalk at Morrisville Elementary School
 - Add School warning sign with angled down arrow in median. This is not necessary if intersection is signalized.
- Crosswalk just west of Park entrance
 - Add School warning sign with angled down arrow in median.

Eastbound

- Davis Drive
 - Add Keep Right sign to nose of median island.
- Between Davis Drive and Park Entrance
 - Add winding road warning sign with 25 mph advisory speed plaque to match westbound signing.
- Crosswalk just west of Park entrance
 - Add School warning sign with angled down arrow in median.
- Crosswalk at Morrisville Elementary School
 - Add School warning sign with angled down arrow in median.
- Crosswalk just west of Duck Pond Circle
 - Add Ped crossing warning sign with angled down arrow in median and on right shoulder.
- Approaching Crabtree Crossing Parkway signal
 - Remove the pedestrian warning sign with "Ahead" supplemental plaque. Not needed with pedestrian amenities at signal and not used elsewhere on the corridor.
 - Add "Crabtree Crossing Pkwy" beneath signal ahead warning sign.
- Approaching Quail Fields Court/Bristol Creek Drive signal
 - Add "Quail Fields Ct/Bristol Creek Dr" with appropriate arrows beneath signal ahead warning sign.

Post-Implementation Considerations

After implementation of the recommendations, next steps include identifying speed-related issues, verifying compliance with speed limits, analyzing crash data, and evaluating the need for further changes to traffic control measures. To monitor changes in speed and crashes after roadway recommendations are implemented, several methods may be employed such as:

- Collecting traffic data via pneumatic tubes, cameras, or radar guns which allow for the measurement of traffic speed and flow to identify significant trends.
- Conducting before-and-after studies of reported crash data to evaluate changes in crash frequency and severity.
- Gathering public feedback from drivers, residents, and local businesses through surveys or meetings to understand perceptions of roadway safety.

These approaches should provide valuable data that will help assess the effectiveness of the interventions and make necessary adjustments.

Build (2050) Capacity Analysis

The Build (2050) conditions applies the future projected volumes and incorporates the previously mentioned improvements. The resulting Build (2050) peak hour traffic in the study area is shown in **Figure 21** and reflects rerouting adjustments associated with some of the improvements. The vehicular level of service (LOS) and delay for the overall intersection and by intersection approach for each study area location is outlined in **Table 8**.

The signalized intersection of Morrisville Parkway and Davis Drive improves from a LOS E and LOS F to a LOS D and LOS E during the AM and PM peak hour periods respectively. The other signalized

intersections at Crabtree Crossing Parkway, Bristol Creek Drive/Quail Fields Court, and NC 54 (Chapel Hill Road) are operating overall at LOS D or better during both peak hours. The two new signalized intersections, at Golden Horseshoe Circle/Morrisville Elementary Access and at Creek Park Drive/Black Ridge Street, both operate at LOS B or better during both peak hour periods. These intersections also provide needed controlled crossing opportunities for pedestrians and bicyclists.

Figure 15 Improvement Emphasis Areas along Corridor

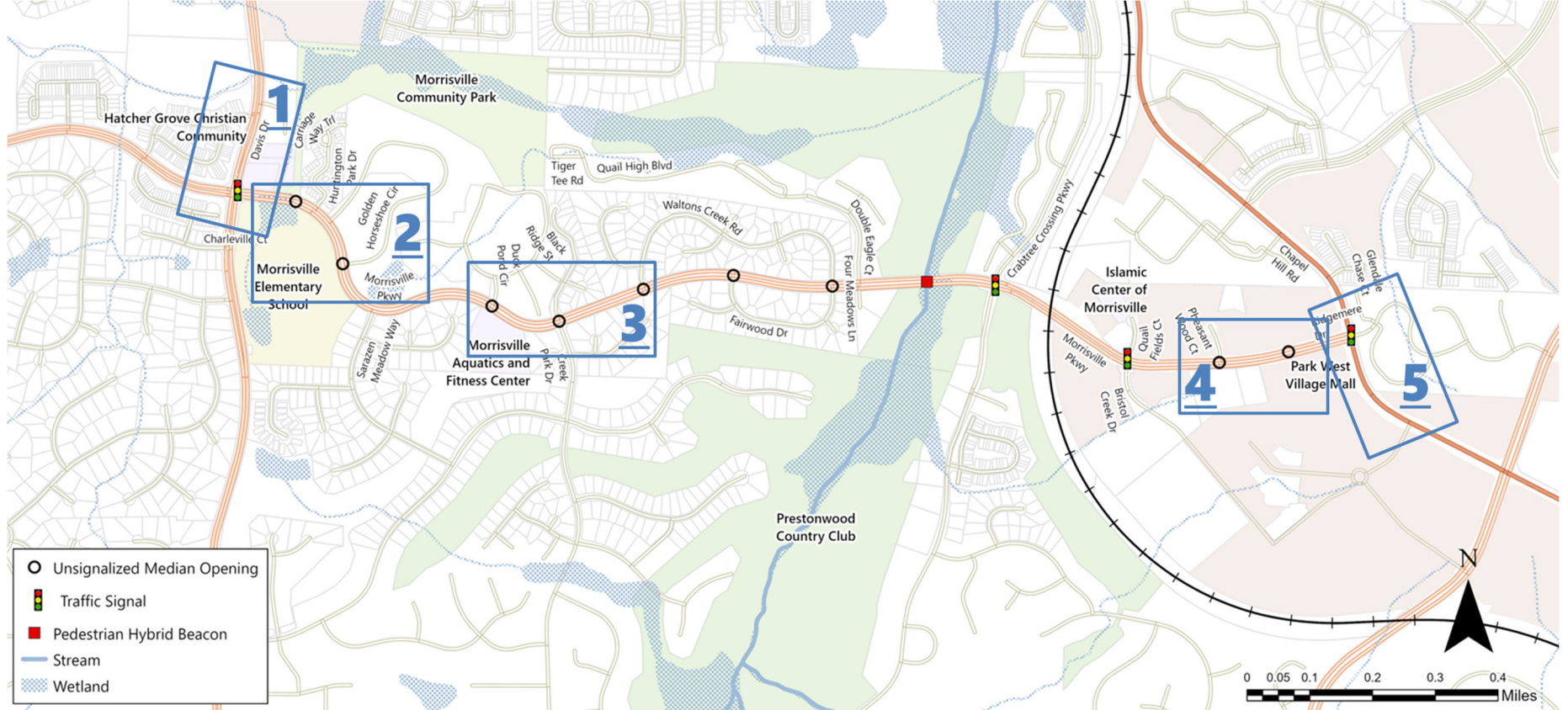


Figure 16 Davis Drive Area Recommendations

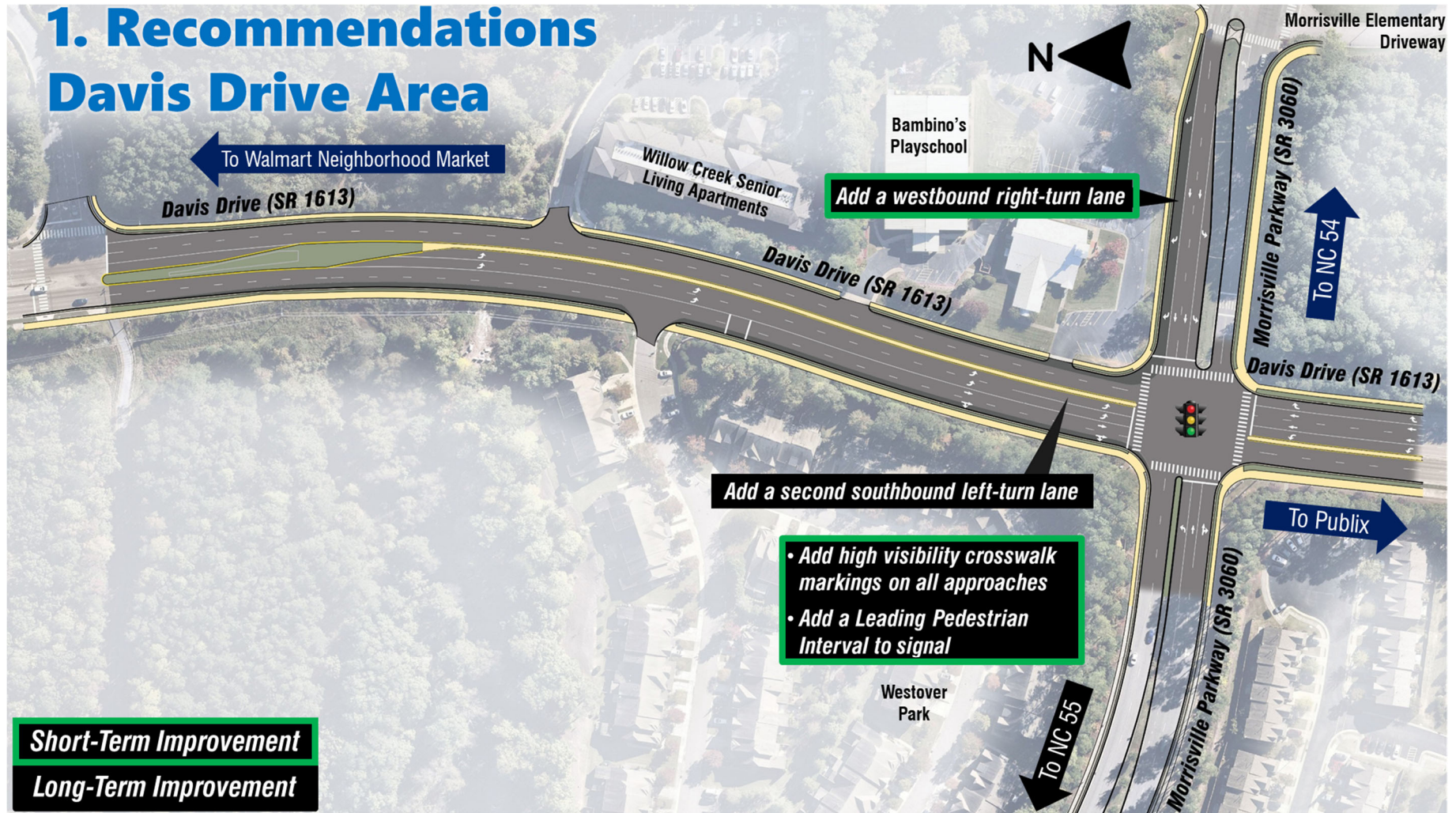


Figure 17 Morrisville Elementary School Area Recommendations

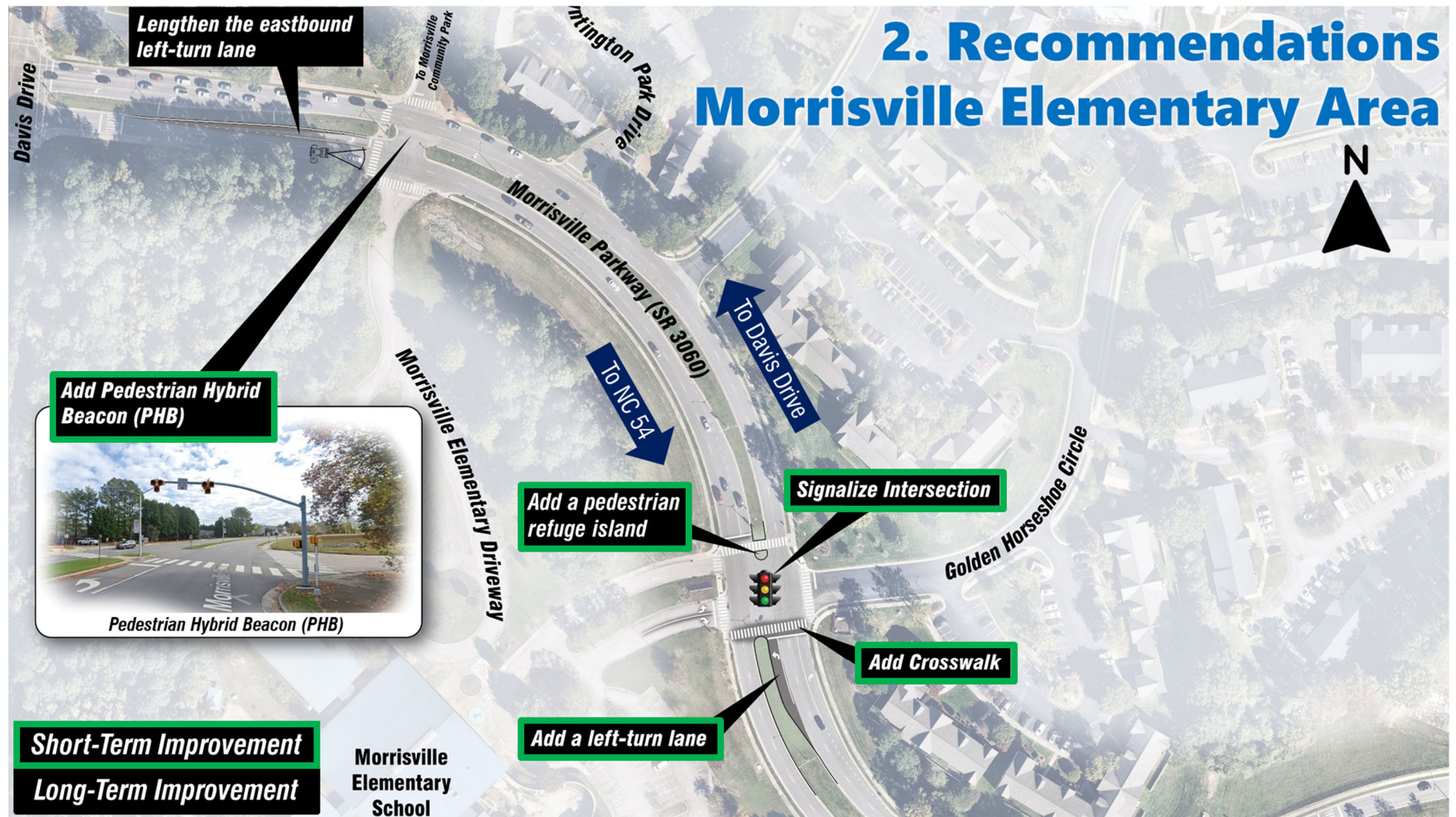


Figure 18 Morrisville Aquatics Area Recommendations



Figure 19 Park West Village Area Recommendations

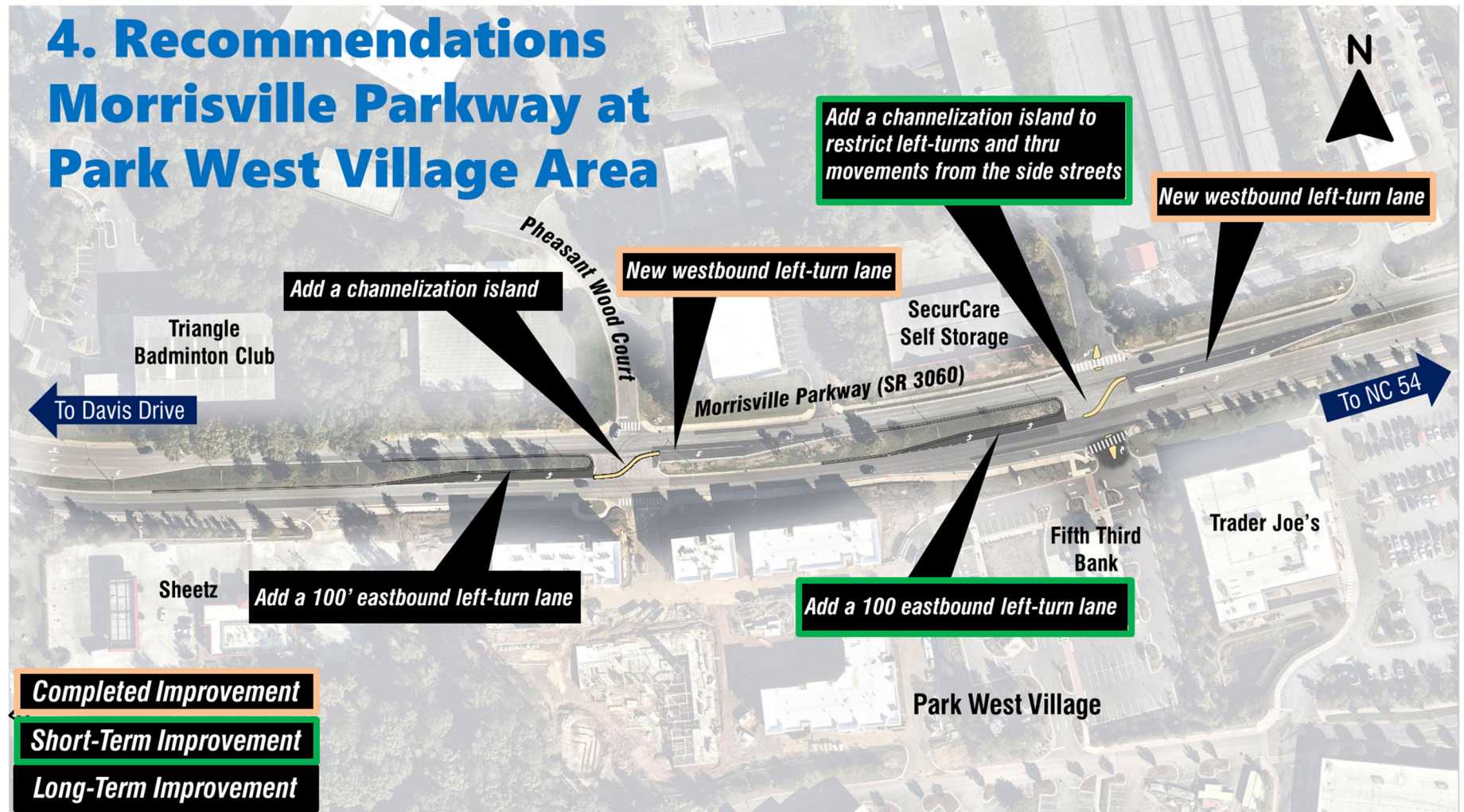
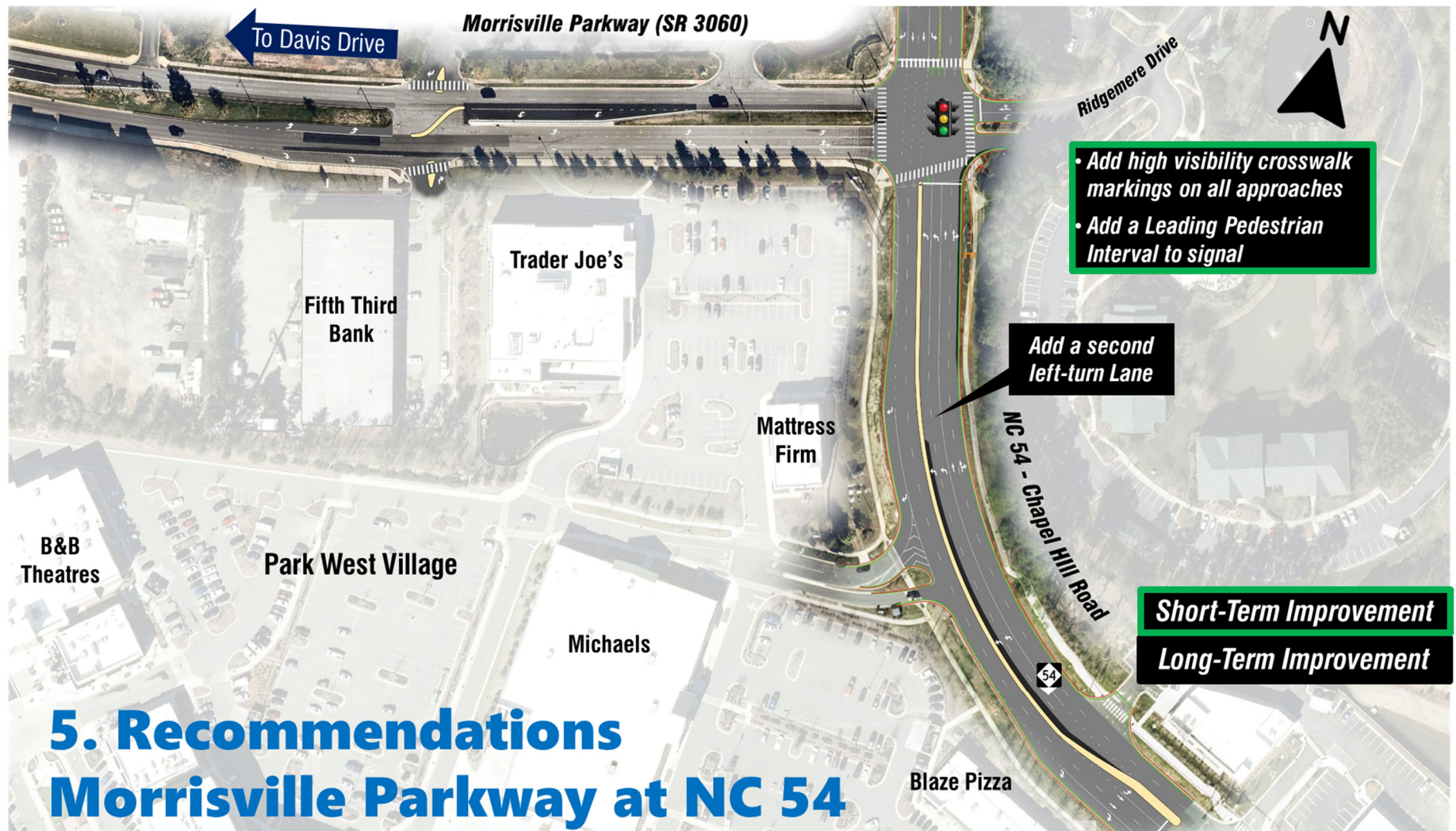


Figure 20 NC 54 (Chapel Hill Road) Area Recommendations



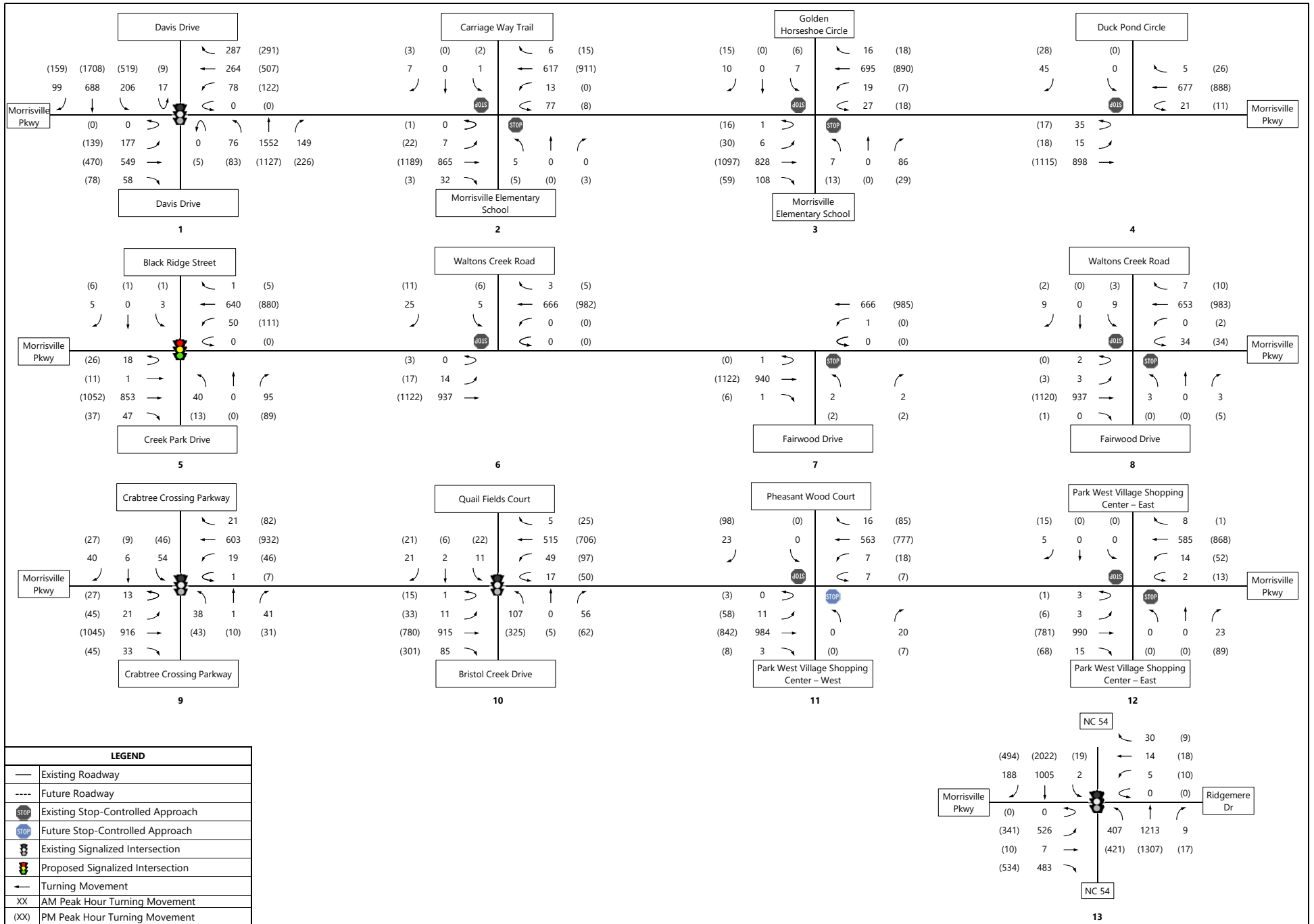


Figure 21
Build (2050) AM and PM Peak Hour
Turning Movement Volumes

Morrisville Parkway
Access Management Study



Table 8 Build (2050) LOS Results

#	Intersection and Approach	No-Build (2050)		Build (2050)	
		AM	PM	AM	PM
1	Davis Drive	E-71.6	F-125.4	D-52.2	E-73.5
	Eastbound	F-96.5	F-86.7	E-70.6	F-112.9
	Westbound	F-95.8	F-160.3	D-48.9	F-82.8
	Northbound	E-67.0	F-96.3	E-55.2	D-43.3
	Southbound	D-45.1	F-140.5	C-34.7	E-76.8
2	Carriage Way Trail/ Morrisville Elementary	-	-	-	-
	Northbound	F-69.8	F-72.5	F-84.5	F-76.6
	Southbound	C-15.7	E-38.5	C-16.2	E-39.1
3	Golden Horseshoe Circle/ Morrisville Elementary	-	-	B-17.5	B-10.7
	Northbound	C-18.4	F-62.4	B-11.2	B-14.2
	Southbound	D-26.8	E-36.1	A-9.4	B-14.0
4	Duck Pond Circle	-	-	-	-
	Southbound	C-18.8	C-22.0	B-11.3	B-12.5
5	Black Ridge Street/ Creek Park Drive	-	-	A-8.1	B-18.0
	Northbound	D-25.5	D-25.2	C-24.0	B-15.6
	Southbound	C-16.5	D-31.8	B-16.5	B-13.6
6	Waltons Creek Road	-	-	-	-
	Southbound	B-14.7	C-17.9	B-14.6	C-17.4
7	Fairwood Drive	-	-	-	-
	Northbound	C-23.2	D-34.6	C-23.2	E-35.6
8	Fairwood Drive/Waltons Creek Road	-	-	-	-
	Northbound	D-34.2	B-13.4	D-34.2	B-13.5
	Southbound	D-29.0	F-62.6	D-29.0	F-64.5

X (XX.X): Overall signalized intersection LOS (delay), X-XX: Approach LOS and delay

Build (2050) LOS Results (Continued)

#	Intersection and Approach	No-Build (2050)		Build (2050)	
		AM	PM	AM	PM
9	Crabtree Crossing Parkway	B-12.1	B-17.4	B-16.9	B-17.7
	Eastbound	A-9.2	B-13.3	A-8.8	B-16.5
	Westbound	A-2.7	B-11.1	B-16.7	B-16.8
	Northbound	E-59.9	F-85.4	E-59.9	C-31.3
	Southbound	E-62.9	F-85.3	E-62.9	C-31.3
10	Bristol Creek Drive/Quail Fields Court	B-11.6	C-25.3	D-36.1	B-17.7
	Eastbound	A-8.6	B-17.4	D-42.4	B-19.9
	Westbound	A-3.8	B-10.9	C-26.3	B-11.9
	Northbound	D-52.2	E-78.7	C-26.8	C-22.8
	Southbound	E-63.4	F-92.1	E-63.5	C-30.4
11	Park West Village – West/Pheasant Wood Court	-	-	-	-
	Northbound	D-28.5	A-0.0	B-12.9	B-11.8
	Southbound	D-29.5	F-97.4	B-10.6	B-13.5
12	Park West Village – East	-	-	-	-
	Northbound	D-25.8	F-57.2	B-12.9	B-12.6
	Southbound	E-37.3	D-34.9	B-10.5	B-12.0
13	NC 54 (Chapel Hill Road)	D-40.7	F-95.1	D-37.0	D-41.3
	Eastbound	C-34.8	F-91.5	D-51.0	E-72.5
	Westbound	E-66.0	F-83.4	E-66.0	E-68.1
	Northbound	C-32.1	E-76.1	C-32.3	C-34.8
	Southbound	E-56.6	F-109.7	C-30.5	C-34.5

X (XX.X): Overall signalized intersection LOS (delay), X-XX: Approach LOS and delay

Conceptual Construction Cost Estimate

A conceptual construction cost estimate was prepared based on preliminary quantity estimates using the latest NCDOT average costs indexed to current inflation. The estimates do not include right-of-way or utility costs. As shown in **Table 9**, the estimated construction cost for the short-term improvements was \$6,427,250 and the total cost for the long-term improvements was \$4,437,500. Details for the individual improvements are listed in **Table 10**.

Table 9 Conceptual Construction Cost Estimate Summary

	Combined	Short-Term	Long-Term
Construction Cost	\$5,096,050	\$3,014,650	\$2,081,400
Misc. ¹ & Mob ² (45%)	\$2,293,200	\$1,356,600	\$936,600
Contract Cost ³	\$7,389,250	\$4,371,250	\$3,018,000
Construction Inspection & Admin. Services (16%) ⁴	\$1,182,300	\$699,400	\$482,900
TOTAL Estimated Construction Cost	\$10,864,750	\$6,427,250	\$4,437,500

¹ Miscellaneous covers various indirect costs such as minor materials, small tools, safety equipment, temporary facilities, and other items needed for construction that are not directly related to specific tasks.

² Mobilization covers the initial setup costs of a construction project including transporting equipment and materials to site, setting up offices, securing the site, and performing other preparatory work necessary to start construction.

³ Contract Cost: Includes all pay items that the Contractor will be responsible for based on the plans and the proposal/contract documentation. This is the cost the contractor will state they can construct the project. The contract cost typically contains a contingency or Miscellaneous cost to cover unexpected construction costs.

⁴ The CEI (Construction Engineering and Inspections) costs are based on the Contract Cost. NCDOT is currently using 16% for CEI.

Table 10 Conceptual Construction Cost Estimate by Improvement

Location	Improvement	Cost	Phasing
Corridor-Wide	1 Multiuse Path (south)	\$956,400	Short-Term
	2 Multiuse Path (north)	\$956,400	Long-Term
	3 Yellow inside lane lines	\$15,150	Short-Term
	4 White outside lane lines	\$15,150	Short-Term
	5 Add high vis crosswalks to side streets	\$79,200	Short-Term
Morrisville Parkway at Davis Drive	6 Add second SB left-turn lane	\$292,500	Long-Term
	7 Add westbound right-turn lane	\$247,500	Short-Term
	8 Add high vis crosswalk markings to all	\$7,500	Short-Term
	9 Protected phasing and LPI to signal	\$100,000	Short-Term
Morrisville Parkway at Community	10 Pedestrian Hybrid Beacon	\$100,000	Short-Term
	11 Extend EB left-turn lane	\$45,000	Long-Term
Morrisville Parkway at Southern School Access	12 Signalize intersection	\$200,000	Short-Term
	13 Add pedestrian refuge island	\$3,750	Short-Term
	14 Add westbound left-turn lane	\$157,500	Short-Term
	15 Add stop bars and other markings	\$7,500	Short-Term
Morrisville Parkway at Duck Pond Circle	16 Add median channelization island	\$7,500	Long-Term
	17 Add westbound left-turn lane	\$157,500	Short-Term
	18 Signalize intersection	\$200,000	Long-Term
Morrisville Parkway at Morrisville Aquatics Center	19 Lengthen westbound left-turn lane	\$180,000	Short-Term
	20 Add eastbound left-turn lane	\$157,500	Short-Term
	21 Signalize intersection	\$200,000	Short-Term
	22 Add high vis crosswalks	\$7,500	Short-Term
Morrisville Parkway at Waltons Creek	23 Add eastbound left-turn lane	\$157,500	Short-Term
Morrisville Parkway at Pheasant Wood Ct	24 Add eastbound left-turn lane	\$157,500	Long-Term
Morrisville Parkway at Park West Village	25 Add median channelization island	\$7,500	Long-Term
	26 Add eastbound left-turn lane	\$157,500	Short-Term
Morrisville Parkway at NC 54	27 Add median channelization island	\$7,500	Short-Term
	28 Add second NB left-turn lane	\$382,500	Long-Term
	29 Add high vis crosswalks	\$7,500	Long-Term
	30 Add Leading Pedestrian Interval	\$25,000	Long-Term

Funding Opportunities

There are a wide range of potential funding sources available for transportation improvements. These include Federal grant programs, state-managed programs, local/regional programs as well as private options. There is typically a prioritization or application process to assess need and compare projects. More details on each of these funding opportunities can be found in Appendix F.