Somerset County Roadway Safety Study
Subregional Project

ROAD SAFETY AUDIT REPORT

FRANKLIN BOULEVARD IN FRANKLIN TOWNSHIP

NJTPA

SOMERSET COUNTY

November 2021

Executive Summary

As part of the North Jersey Transportation Planning Authority (NJTPA)'s subregional studies grant program, Somerset County (the County) has conducted the Somerset County Roadway Corridor Safety Analysis study. The study will advance the County's efforts to address pedestrian, bicycle, and intersection safety. Five (5) County roadway corridors have been selected to go through a comprehensive safety analysis following the Federal Highway Administration's Road Safety Audit (RSA) process to identify vehicle, pedestrian, and bicyclist safety issues and to develop safety improvement recommendations. This RSA report has been prepared for the Franklin Boulevard corridor (Somerset County Route 617, CR 617), from New Jersey State Route 27 (Route 27) at MP 0.0 to Belmar Street at MP 1.0, in Franklin Township. According to the compiled crash data, 214 crashes occurred on the 1-mile segment analysis area during the 3-year vehicle and 5-year pedestrian crash analysis period.

The pre-audit meeting was held at 10:00 AM via video conferencing on Thursday, March 25th, 2021, on the morning of the in-field review meeting to introduce the audit team, cover the activities to complete the RSA, define the RSA process, cover existing conditions data, present safety measures under consideration, summarize crash data collected for the corridor, and go over ground rules for conducting the in-field portion of the audit safely. The in-field component of the RSA was conducted at 2:00 PM on the same day as the pre-audit meeting. Participants were paired off with each other to walk halves of the corridor. Utilizing aerial mapping, prompt lists, photography, and video, participants recorded their observations of the corridor, as well as safety measures to address potential safety concerns. On the following day (Friday, March 26th, 2021), the RSA team reconvened via video conferencing to view photos gathered during the in-field audit to discuss each potential safety concern, elaborate on potential ideas to mitigate, cover questions on travel pertaining to the overall corridor, and summarize next steps for this study.

Discussions from the RSA process helped to form the basis of the Implementation Matrix in the **Identified Issues & Observations** section of this report, which serves as a record of items discussed during the post-audit meeting. Major findings (or recommendations) from these discussions included:

- Mountable curbs at Route 27 and Hamilton Street intersections to balance ped safety and truck usage;
- Implementation of sidewalk/lighting from Route 27 to Fuller Street for improved pedestrian connections;
- New sidewalks, with narrowing of curb cuts, on east side of corridor from Frank Street to Hamilton Street;
- Speed humps on Ellen Street to discourage cut-through traffic around Hamilton Street intersection;
- Changes to lane alignments, setbacks, and signal/utility poles at Hamilton Street intersection;
- Additional striping on the existing bike lane (buffer/text) north of Hamilton Street; and,
- Refresh of striping/signing/crossings and improved sidewalks on approach to Hillcrest Elementary.

A key recommendation from this RSA was to investigate the feasibility of a road diet with bike lanes on Franklin Boulevard from Route 27 to Hamilton Street, as recommended by prior County studies. Since Franklin Boulevard has an AADT of 16,000, thorough intersection-by-intersection capacity analysis, design, administrative approval, and public vetting is needed to ensure the efficacy and success of the road diet. Since the curb-to-curb cartway width is limited at approximately 44' to 46', bike lanes would not be able to have a buffer and could be of substandard width. An alternate option to dedicating shoulder width available from the road diet to bicycle travel would be to restrict use of shoulders by parked vehicles and to provide curb extensions (in line with shoulder widths) at intersections to reduce pedestrian crossing distance.

Please note that recommendations cited in the Implementation Matrix are to reflect feedback received during the RSA process and are meant to be a record of ideas discussed. As these recommendations are considered for advancement into either a Concept Development (CD) study, or incorporation into an overlapping County or municipal project, the recommendations herein should be thoroughly evaluated for feasibility and practicability and designed as appropriate by the roadway owner and/or a professional engineer for conformance to all applicable codes, standards, and best practices.

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I. Introduction

As part of the North Jersey Transportation Planning Authority (NJTPA)'s subregional studies grant program, Somerset County (the County) has conducted the Somerset County Roadway Corridor Safety Analysis study. The study will advance New Jersey's efforts to address pedestrian/bicycle and intersection safety. Five (5) County roadway corridors have been selected to go through a comprehensive safety analysis following the Federal Highway Administration's Road Safety Audit (RSA) process to identify vehicle, pedestrian, and bicyclist safety issues and to develop safety improvement recommendations. One of the locations that have been selected is the Franklin Boulevard corridor (Somerset County Route 617, CR 617), from New Jersey State Route 27 (Route 27) at MP 0.0 to Belmar Street at MP 1.0, in Franklin Township.

The purpose of this RSA Report is to detail the site selection, road/multimodal inventory, land use investigation, crash data collection, crash analysis efforts, post/pre-audit meetings, and in-field RSA investigation conducted for the Franklin Boulevard corridor. Flowing from this RSA is a list of potential recommendations proposed to improve safety. These recommendations were based on the investigated crash data, as well as recommendations made during the in-field RSA and post-audit meeting. This introduction serves to provide background on selection of the investigated corridor and covers the logistics of the RSA process that was performed. This RSA report also seeks to provide sample figures of improvements and crash countermeasures that could be considered as the County, or municipality, seeks to move forward on its Concept Development (CD) and/or Local Safety Program grant (or other funding) application. Please note, in applying these ideas to the corridor, design of such improvements, conceptual or otherwise, is the responsibility of the designated jurisdiction as is standard RSA practice.

A. Site Selection

Selection of the Franklin Boulevard corridor was based on a rigorous process which started with a list of top crash segments for the County from NJTPA's Network Screening Lists (NSL)[1] and used supporting collision data, equity data, recommendations from prior studies, and public/stakeholder input to develop a shortlist of top crash segments. Segments with recently constructed safety improvements or locations undergoing study/design were identified through discussions with County Engineering and removed from this shortlist to target segments not currently being considered. The remaining locations were further prioritized and ranked with more recent crash severity and frequency data (old crash data from NSL superseded with more recent crash data from Safety Voyager), traffic volume data from NJTPA's regional travel demand model (NJRTM-E), and environmental justice data from NJTPA.

Input on these top crash locations was obtained through the Public Involvement Plan for this project, which included gathering information from the public via a virtual mapping tool and project email address and gathering information from a Technical Advisory Committee (TAC)[2] via an initial virtual meeting conducted in August 2020. Based upon public and stakeholder input, the following (5) segment locations (including the segment being studied in this report) were selected to be advanced for RSA review:

1. Finderne Avenue/Main Street (CR 533) in Bridgewater Township, MP 29.60-30.60
2. Franklin Boulevard (CR 617) in Franklin Township, MP 0.00-1.00
3. Somerset Street (CR 626) in Raritan Borough, MP 0.00-0.67
4. Greenbrook Road (CR 636) in North Plainfield Borough, MP 0.70-1.97
5. Main Street (CR 533) in Millstone Borough, MP 25.14-25.87

Franklin Boulevard was selected based on the relatively high crash frequency on this corridor, equity data, and pedestrian/cyclist crash frequency. Furthermore, this location was identified within the *Supporting Priority*

[1] https://www.njtpa.org/Projects-Programs/Local-Programs/Local-Safety-Rural-Roads/Local-Safety-Program/Network-Screening-Lists.aspx Top crash segment lists on this webpage are based upon a programmatic analysis of statewide locations utilizing 2014-2018 crash data.
[2] Stakeholders on the TAC include NJDOT, NJ TRANSIT, FHWA, RideWise, AARP, Vorhees Transportation Center, and various County advocates.

Investment in Somerset County, Phase III (2017) study, which proposed a road diet and/or speed reduction on Franklin Boulevard between Route 27 and Lewis Avenue. **Table 1** shows the selected segment, or intersections, that qualified as one of the top 100 crash locations[1] in the County based on either overall crash data for the years of 2016 through 2018 or pedestrian/cyclist crash data for the years of 2014 through 2018 as listed on the NSLs.

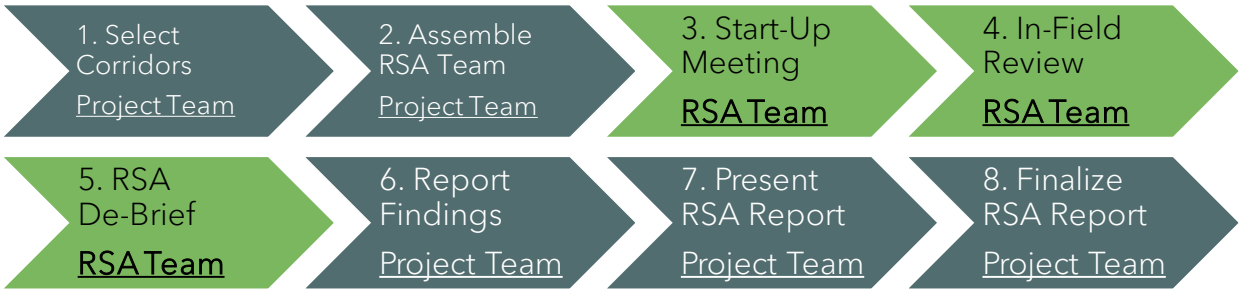
Table 1 – Franklin Boulevard NJTPA 2019 NSL Rankings for Somerset County

Corridor Segments Overall Crash Data	Corridor Segments Ped/Bike Crash Data	Intersection Locations Overall Crash Data	Intersection Locations Ped/Bike Crash Data
#11, MP 0.0-1.0	#34, MP 0.2-1.2	Hamilton St (#7)	Hamilton St (#13)
		Fuller St (#46)	Norma Avenue (#36)
		Pine St (#85)	Viking Avenue (#76)

B. What is a Road Safety Audit (RSA)?

An RSA is a formal safety performance examination of an existing or future road or intersection by a multi-disciplinary audit team, including public works, law enforcement, emergency medical services, engineering, planning, and advocacy staff. It qualitatively estimates and reports on existing and potential road safety issues and identifies opportunities for improvements in safety for all road users. RSAs can be used on any size project, from minor maintenance to mega-projects, and can be conducted on facilities with a history of crashes during the design phase of a new roadway or planned upgrade. RSAs consider all road users, account for human factors and road user capabilities, are documented in a formal report, and require a formal response from the road owner. **Figure 1** shows the steps employed by the County to complete the RSA, as informed by the Federal Highway Administration's (FHWA's) RSA process. The steps that traditionally consist of an in-field review of conditions with an RSA team are highlighted in green in **Figure 1**.

Figure 1 – Eight-Step RSA Process as Adopted from FHWA RSA Process



The RSA program is conducted to identify potential countermeasures for roadway segments demonstrating a history of, or potential for, a high frequency of crashes, or an identifiable pattern of crash types. Recommendations range from low-cost, quick-turnaround safety improvements to more complex strategies, which are all codified in this report within an Implementation Matrix, categorizing improvements by timeline, cost, and jurisdiction. Implementation of improvement strategies identified through this process may be eligible for Local Federal Aid Safety Funds. Because the RSA process is adaptable to local needs and conditions, recommendations can be implemented incrementally as time and resources permit. Please note that the RSA process does not include the design or thorough evaluation of improvements that are being considered, conceptual or otherwise. Following the eighth and final step of the RSA process, it will be incumbent for the designated jurisdiction to start to evaluate and design the potential improvements presented herein, as is standard RSA practice.

At the request of NJTPA, RSAs originally planned for Fall 2020 were postponed to Spring 2021 due to the COVID-19 pandemic. In addition to postponement, the County took additional steps to safely conduct this

RSA. Both the start-up meeting and RSA de-brief (steps #3 and #5 shown in **Figure 1**), which are traditionally conducted in-person, were conducted virtually via video conferencing to reduce the exposure and potential risk of disease transmission. Furthermore, the essential step of in-field review was conducted in a socially distanced manner with participants paired off in groups spaced more than six feet apart from each other. All in-field RSA participants were masked for the entire duration of the field visit to further reduce the risk of disease transmission. Through this process, the post-audit "de-brief" meeting benefitted from being held virtually after the day on which the in-field review was conducted.

Some notable benefits produced by a virtual post-audit included:

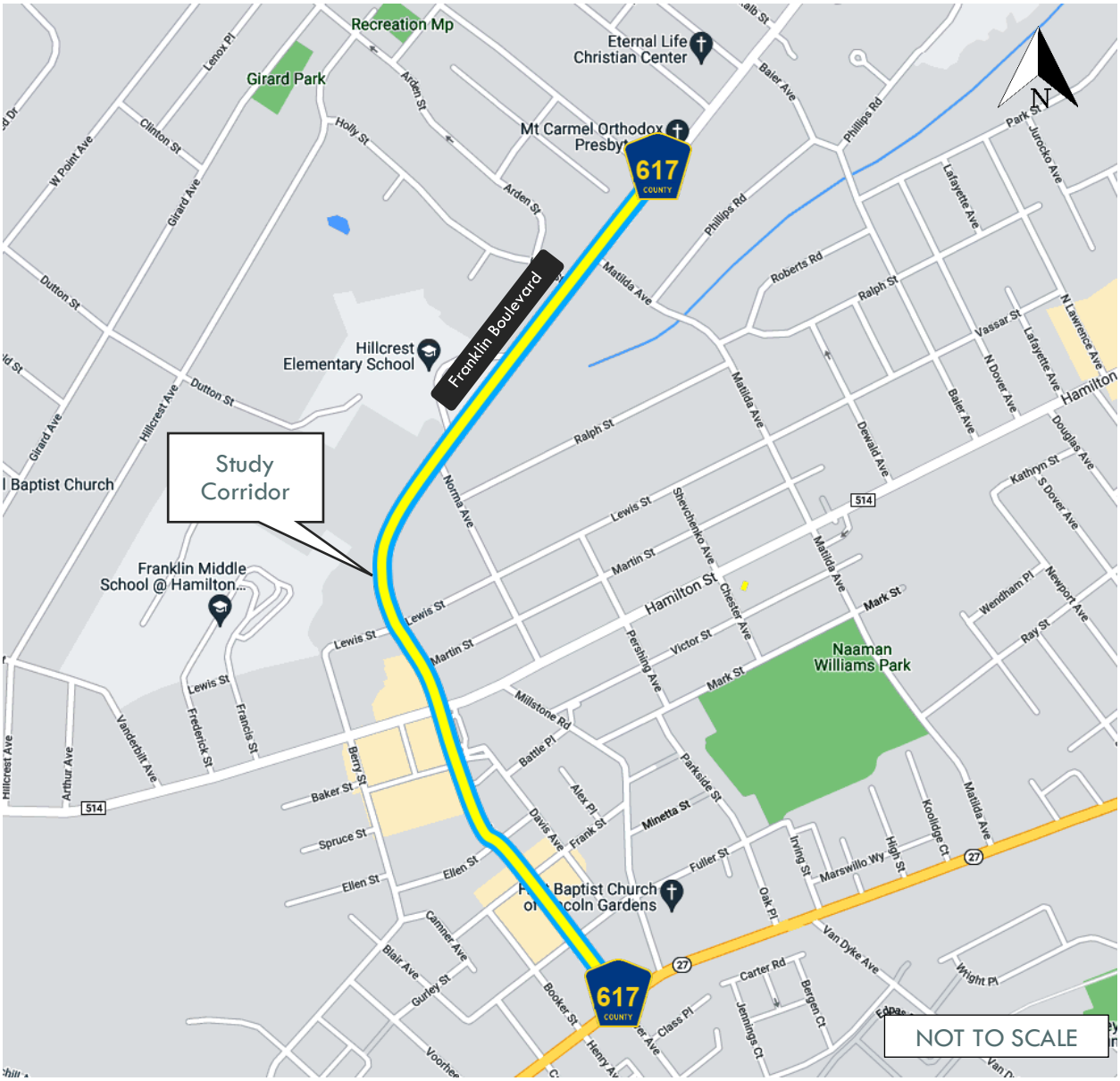
- Additional time for participants to share photos, videos, and scans of their observations;
- Available screensharing for quick review and consensus of RSA observations;
- An involved discussion of the observations and recommendations was well established by the wide audience of stakeholders;
- Additional time for participants to process their observations and organize their thoughts for discussion.

II. Corridor Description & Analysis

A. Study Location

The study area consists of one mile of CR 617 (Franklin Boulevard) extending from the municipal/County border with New Brunswick City/Middlesex County at the intersection with Route 27 at MP 0.0 to a few hundred feet south of the intersection with Belmar Street at MP 1.0 (**Figure 2**). A straight line diagram of the corridor is provided in **Appendix A**. The identified segment is in the Township of Franklin in the County of Somerset. Franklin Boulevard transitions from a more urban land use context with dense mixed-use zoning and commercial zoning on the southern end to a more suburban land use context with apartment complexes, single-family detached housing, churches, and schools on the northern end.

Figure 2 – Study Area Location Map



Major vehicle and pedestrian trip generators on this corridor include Hillcrest Elementary School and The Arbors at Franklin Township at the northern end of the corridor and the DeForest B. Soaries Jr. Senior

Complex, strip malls, and mixed-use residential housing (including Franklin Boulevard Commons) at the southern end of the corridor. Of note, the section of Franklin Boulevard that intersects Hamilton Street is part of the Hamilton Street Special Improvement District (SID) and has been identified as a Priority Growth Investment Area (PGIA) by the County. Hamilton Street (CR 514), from Franklin Boulevard to the border with the City of New Brunswick is also part of a NJTPA Local Safety Program grant currently under design.

B. Roadway and Intersection Characteristics

Franklin Boulevard is classified by the New Jersey Department of Transportation (NJDOT) as an urban minor arterial and has a posted speed of 40 mph with an advisory school posted speed signing of 25 mph in the vicinity of Hillcrest Elementary School, which flashes when school is in session. The corridor study section between Route 27 and Hamilton Street generally consists of four 10'-11' travel lanes (two in each direction) undivided with no shoulders on either side. From Hamilton Street to the north, the road generally consists of two 11' travel lanes (one in each direction) with a 9' shoulder in each direction signed for bicycle usage. There is no on-street parking provided. There are two signalized and twelve unsignalized intersections along the corridor.

C. Existing Bicycle/Pedestrian Accommodations

For the most part, sidewalks are generally available along at least one side of the road and consist of both bituminous and concrete paving and greatly vary in width. One gap in sidewalk continuity on both sides of the road was noted to exist between Route 27 and Fuller Street on the southernmost block of the corridor; worn paths along the side of the road here indicate pedestrian and cyclist traffic here. Just north of this block, there are both coverage and gaps in the sidewalk on the east and west sides of the road; however, Franklin Boulevard lacks crosswalks and curb ramps to facilitate continuity of ADA-compliant paths. Sidewalk south of Hamilton Street is also interrupted by numerous wide driveway curb cuts, which increase pedestrian exposure to potential vehicle conflicts.

North of Hamilton Street, better sidewalk continuity, more frequent pedestrian curb ramps, and more frequent side/main street crosswalks are provided. Furthermore, a 9' shoulder is signed to allow bicycle usage. Despite this, the lack of street space provided for cyclists south of Hamilton Street and the relatively high travel speeds and traffic volumes on the road in general, Franklin Boulevard was classified in the recent *WalkBikeHike* (2019) study as having a Bicycle Level of Traffic Stress of 4, which is representative of cycling travel conditions that are comfortable to the most risk-tolerant riders.

Traffic signs alert drivers to potential school crossings during school arrival and dismissal times. A review of Google Streetview images from September 2019 shows vegetative overgrowth on sidewalks on the east side of the road in the vicinity of Norma Avenue, greatly narrowing the traversable width of the sidewalk. Sidewalk coverage is provided on the west side of the road north of Norma Avenue, which then switches over to the east side of the road at the Holly Street intersection via a signed striped continental crosswalk. Sidewalk coverage on the east side of the road continues to the northern end of the segment.

D. Traffic Volumes

According to traffic data available from NJDOT[3] count stations #111815 and 111816, Average Annual Daily Traffic (AADT) on Franklin Boulevard can range from approximately 12,000 to 16,000 vehicles per day. Supporting count data from NJDOT is provided in **Appendix B**. This figure is supported by traffic volume estimates from NJTPA's NJRTM-E travel demand model, which provides an AADT estimate of 15,000 based upon 2020 pre-COVID-19 conditions.

[3] AADT data obtained from https://www.njtms.org/map/.

E. Transit Service[4]

There are no transit services on this section of Franklin Boulevard. The NJ TRANSIT Jersey Avenue Train Station with Northeast Corridor Line service is located approximately one mile southeast of the Franklin Boulevard corridor. The corridor is more directly served by the County's CAT 1R bus service (which runs from New Brunswick to Branchburg/Raritan Valley Community College, while also running through Somerville, Bound Brook, South Bound Brook, and Franklin) near the Hamilton Street intersection via a bus stop at the Franklin Court strip mall located in the southwest quadrant of the Hamilton Street intersection (MP 0.34).

Although a nearside (that is, in advance of the intersection) bus stop with shelter and trash can amenities is located on the eastbound side of Hamilton Street at the intersection with Franklin Boulevard and is signed as having Suburban Transit bus service, current Suburban Transit bus service schedules and Google Maps transit data show that this bus service has relocated from the Hamilton Street corridor to the Route 27 (Somerset Street) corridor. Suburban Transit bus service on Route 27 has an inbound (that is, bound for New York City) nearside bus stop located at its intersection with Franklin Street, with the corresponding outbound bus stop located approximately one block (400') to the east. Suburban Transit Line 100 services these bus stops with weekday service between Princeton and the Port Authority Bus Terminal in New York City with hourly headways during AM and PM peak periods. The New Brunswick Park and Ride, located approximately ¼-mile to the east along Route 27 near Matilda Avenue, has additional Suburban Transit service, including Lines 100, 500, and 600, all providing service to different commuter destinations throughout New York City.

F. Community Profile

Population and income characteristics from the American Community Survey (ACS), an update to the 2010 Census performed by the U.S. Census Bureau, were used to identify Environmental Justice populations. The latest ACS for this study area is a five-year estimate from 2015 through 2019 for County Census Tracts 532 and 533. A summary of the demographics is listed in **Table 2**. The Equity Analysis conducted for the Somerset County Roadway Corridor Safety Analysis highlighted this corridor as an Environmental Justice focus area based upon the share of minority residents living within a ¼-mile buffer of the corridor.

Table 2 – Franklin Boulevard RSA Study Area Demographics

Characteristic		Census Tract Average	County Average
Below Poverty Level[5]		15.2%	5.1%
Race/ Ethnicity[6]	White	30.6%	66.3%
	Asian American	8.1%	17.7%
	Black or African American	46.4%	9.7%
	American Indian/Alaskan	1.0%	0.3%
	Other	13.9%	6.0%
	Hispanic/Latino (Ethnicity)	32.1%	14.7%
Limited English Proficiency (LEP)[7]		2.8%	4.4%
Use Public Transportation[8]		4.9%	5.3%
Zero Vehicle Households[7]		2.0%	2.1%

Although nearby transit service is available, the study area population is very car-dependent compared to the County average due to limited nearby transit service. Furthermore, lack of sidewalk connectivity towards the southern end of the corridor to Route 27 may discourage access to available transit to New York City.

[4] Information as of Winter 2020.
[5] 2019: ACS 5-Year Estimates Data Profiles, TableID S1701, "Poverty Status in the Last 12 Months"
[6] 2019: ACS 5-Year Estimates Data Profiles, TableID DP05, "ACS Demographic and Housing Estimates"
[7] 2019: ACS 5-Year Estimates Data Profiles, TableID S1602, "Limited English-Speaking Households"
[8] 2019: ACS 5-Year Estimates Data Profiles, TableID S0802, "Means of Transportation to Work by Selected Characteristics"

G. Redevelopment

Franklin Boulevard travels through the Hamilton Street Special Improvement District, identified by the County as a Priority Growth Investment Area (PGIA) in the *Supporting Priority Investment in Somerset County Phase III Study* dated June 2017. The goal of this study was to identify land use and transportation improvements to support redevelopment and targeted growth. The study identified, screened, and evaluated candidate locations and proposed a series of pilot sites to serve as templates for the redevelopment of other sites.
Properties on the segment of Franklin Boulevard within the PGIA (between Route 27 and Norma Avenue) are anticipated to be redeveloped to include more mixed-use, multi-story buildings. Due to its proximity and convenient access to New Brunswick, the transportation improvements in the Phase III Study focused on multimodal mobility, such as expanded bus service and enhanced pedestrian and bicyclist connectivity. Significant applications for the redevelopment of land on this section of Franklin Boulevard in the PGIA include the following:

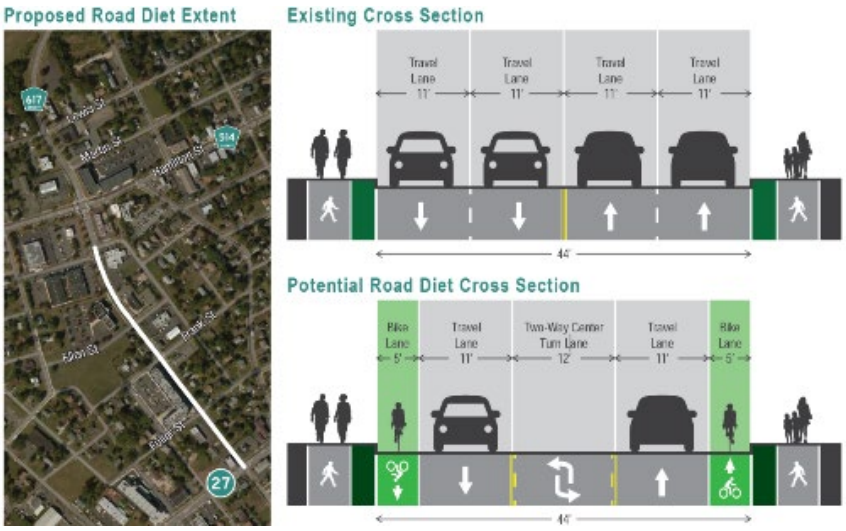
- 52 Norma Avenue (Block 234, Lots 2 and 8) – Two-story apartment building with eight one-bedroom units – approved by County Planning
- 610 Franklin Boulevard (Block 233, Various Lots) – Four-story mixed-use building to include eight one-bedroom and six two-bedroom units and 23,000 SF of office space – approved by County Planning
- 602 Franklin Boulevard/515 Lewis Avenue (Blocks 233/234, Various Lots) – Conversion of former a post office building to a school property – application is on hold
- 600 Franklin Boulevard (Block 234, Lot 1) – Repopulation of abandoned office space with medical office/research space – approved by County Planning
- Southeast corner of Norma & Franklin intersection (Block 234, Lots 3 through 7) – Proposed major residential subdivision – approved by County Planning

Located along Franklin Boulevard to the north of the PGIA, there are also two residential redevelopment applications, including a subdivided lot at the Mt. Carmel Orthodox Presbyterian Church (350 Franklin Boulevard, approved by County Planning) and a 28-unit townhouse complex (453-455 Franklin Boulevard, approval withheld).

H. Proposed Improvements from Previous Studies

The *WalkBikeHike* (2019) and *Supporting Priority Investment in Somerset County Phase III Study* (2017) studies recommend implementing a road diet on Franklin Boulevard between Route 27 and Lewis Avenue (**Figure 3**) to reduce vehicle speeds and minimize pedestrian-vehicle conflict exposure. A high-level investigation of the road diet concept was made within the Phase III study with initial capacity analysis showing that existing Levels of service could be maintained with signal timing adjustments. The intersection at Hamilton Street would maintain the existing configuration with a northbound left-turn lane extending approximately to Field Street. At Route 27, the southbound left-turn lane would extend at least 150' to accommodate typical vehicle queues. However, the study recommended that further investigation be performed in coordination with the municipality, local stakeholders, and NJDOT.

Figure 3 – Franklin Boulevard Road Diet Concept from Phase III Study



Other improvement considerations on Franklin Boulevard from the Phase III Study included the following:

- Investigate lowering the speed limit between Route 27 and Lewis Avenue (currently 40 mph); and,
- Fill sidewalk gaps between Ellen Street and Frank Street and between Fuller Street and Route 27.

Furthermore, the study also proposed a bicycle boulevard along Lewis Street, which would run parallel to Hamilton Street and would intersect Franklin Boulevard with improved pedestrian crossings, wider sidewalks, and enhanced streetscaping. Pertinent excerpts from these studies, and associated improvements, are provided in **Appendix C**.

I. Public Meeting #1

On Thursday, November 12, 2020, the first public meeting for this project was held via Zoom conferencing to obtain feedback for the five locations selected for RSA review. Email blasts, advertisements, and social media notifications were provided in advance of the meeting. This meeting introduced the project team, who provided an overview of the study, stating the purpose and need. Crash statistics on County jurisdiction roadways were reviewed, showing a steady increase of crashes over the past ten years. The Consultant Team explained the RSA process and the technical analysis used in the development of the shortlist of corridors. Due to the pandemic, virtual or socially distanced options for conducting the RSA process were discussed.

The Consultant Team explained the study's Public Involvement Plan (PIP), an iterative process designed to collect feedback and input. The opportunities to collaborate on the PIP were virtual, including public meetings and comments received through the project website and project email. The Consultant Team then discussed the process of selecting the five corridors. The selection process was based on screenings for top crash locations, evaluation of equity data, and public/stakeholder input obtained from the initial virtual mapping outreach conducted in Fall 2020. The virtual mapping tool allowed users to pin comments on areas of concern on a virtual map.

As part of the PIP, the public meeting included an opportunity to hear from attendees on comments specific to each corridor selected for RSA review by splitting the overall meeting into breakout rooms. The group in the Franklin Boulevard breakout room discussed various concerns and suggestions regarding traffic calming and pedestrian safety. Comments received were as follows:

- The intersection of Franklin Boulevard and Belmar Street needs pedestrian crossing control for church access as the roadway is busy during peak times.
    - Traffic control and a pedestrian signal crossing is needed at the intersection of Franklin Boulevard and Matilda Avenue.
    - Concern with bike lane as it is a challenge to incorporate with existing left turning lanes
- At the intersection of Hamilton Street and Franklin Boulevard:
    - Vehicles moving southbound are aggressive, and there is heavy traffic from the parking lots servicing the shopping center.
    - Cars are not adhering to traffic signals by using the connecting Lewis Street to avoid the signal at Hamilton Street.
    - Tractor-trailers and other heavy vehicles turning onto Hamilton Street make passenger vehicular movement difficult.
    - Suggestion to pull left-turn bay back to make more room for right-turning vehicles
- Vehicles are slower, making it easier to exit from the Walgreens parking lot; drivers moving eastbound give way to vehicles wanting to go westbound on Hamilton Street. However, the queue from eastbound traffic blocks drivers' views as they are trying to make a left onto Hamilton Street
- On Berry Street, there is a speed issue; there is easier access for exiting, but there are faster moving vehicles on Hamilton Street.
- Vehicles are using Berry Street to bypass traffic signals.
- The intersection of Franklin Boulevard and Frank Street is missing a crosswalk, and there is heavy foot traffic at the intersection, with fast-moving vehicles.
- At the intersection of Franklin Boulevard and Rt. 27:
    - The southbound Franklin Boulevard left-turn bay does not provide enough room for westbound right-turning trucks.
    - For all approaches, a right-turn on the red restriction should be evaluated.

J. Technical Advisory Committee Meeting #2

Following an August 2020 meeting with the TAC (Technical Advisory Committee) to select the five corridor locations for further review the County held the second TAC meeting in February 2021. This meeting consisted of a 45-minute presentation followed by interactive breakout rooms with discussion centered around the corridors selected for further review. The presentation included the following topics: project background, summary of selected corridors, description of potential safety measures, and a discussion of demonstration projects.

A breakout room was dedicated solely to the discussion of potential safety measures to be implemented in response to potential safety concerns on the Franklin Boulevard corridor in Franklin Township Participants were asked to review the ten safety measures discussed during the presentation. They were then asked to rate the effectiveness and ease of implementation of each safety measure based on their own opinion/perspective. Participants were also asked to identify specific areas within each corridor that were areas of concern.

Table 3 contains a summary of those ratings and discussions for each safety measure, along with additional comments made toward each safety measure.

Table 3 – Perceived Effectiveness and Ease of Implementation for Various Safety Measures

Safety Measure	Effectiveness (1= not effective; 10= very effective)	Ease of Implementation (1=easy; 10= hard)
Lighting	8	3
Curb Extensions/Bus Bulbs	10	10
Daylighting[9] and Crosswalks	10	1
Walkways for Sidewalk Gaps	10	3
Dedicated Turn Lanes	10	5
Leading Pedestrian Intervals (LPI)	10	1
High Visibility Crosswalks	10	1
Turn Restrictions	5	5
Bike Lanes	0	1
Lane Width Reduction/Road Diet	10	1

Breakout Group Additional Comments:

- Lighting:
  - Participants agree that illuminated crosswalks help prevent crashes.
  - Lighting can be a maintenance issue. Participants did not see an issue with adding more lighting, in addition to residential windows facing roadway and commercial property lighting, to improve security along the corridor.
- Curb Extensions/Bus Bulbs:
  - Curb extensions are hard to implement and would need to be strategic to reap benefits.
- Walkways for Sidewalks Gaps:
  - Heavily traveled corridors should have consistent sidewalks.
  - ADA compliance is key.
  - There are some sidewalk gaps noticed from aerial views.
- High Visibility Crosswalks:
  - The corridor does have some intersections without crosswalks.
  - There may be issues with adding crosswalks in this area (i.e., County feels intersection is unsafe to implement a crossing).
- Dedicated Turn Lanes:
  - Dedicated turn lanes already exist at the two major intersections of this corridor.
  - Feasibility is also contingent upon ROW.
  - Signal phasing for dedicated turn lanes, in addition to LPIs, takes time away from through vehicles.
- Leading Pedestrian Intervals (LPI):
  - The County is willing to consider use of LPIs if vehicles delay, and queuing does not significantly increase.
  - LPIs are beneficial for school crossings.
- High Visibility Crosswalks:
  - High visibility crosswalk retroreflective paint is more costly than regular paint.
  - Maintenance is an issue.
- Turn Restrictions:
  - No turn on red restrictions is effective.
  - There does not seem to be places to divert traffic for left turns prohibitions along the corridor.
  - There could be pushback with diverting traffic near Route 27. Limiting movements onto state roadways requires NJDOT coordination. State would also need to control signing.

[9] Daylighting is the act of restricting parked or standing vehicles through striping or curbing to improve sight distance at crosswalks or intersections.

- Bike Lanes:
  - Participants believed if there are cyclists, as well as room for lanes, a road diet with bike lanes can be effective.
  - Since the AADT is relatively high on the corridor, it is viewed that a bike buffer would need to be accommodated.
- Lane Width Reduction/ Road Diet:
  - Road diets are hard to implement given the AADT.
  - Road diet improvement plans are under design for the intersecting Route 27 (Somerset Street) corridor.

K. Technical Advisory Committee Meeting #3

Following the RSAs in Spring 2021 and authoring of the draft RSA reports and accompanying recommendations soon thereafter, the County held the third and final TAC meeting for the study in August 2021. The virtual meeting format consisted of a 45-minute presentation with interactive breakout rooms. The presentation included the following topics: project background, project status, identification of needs, and proposed safety measures by corridor.

The meeting was then divided into five breakout rooms, one for each of the selected corridors. Each breakout room discussed a specific set of recommendations pertaining to that corridor. Participants were asked to provide their general reactions to the proposed recommendations and whether they would accomplish the goals of the study. Potential barriers or other ways to accomplish study goals were also discussed. The topic of discussion for the breakout room specific to the Franklin Township RSA was the road diet proposed for the Franklin Boulevard corridor, between Route 27 and Hamilton Street. Provided below is participant feedback received on this specific proposed safety measure:

- All participants seemed to support the idea of a road diet between Route 27 and Hamilton Street.
- Capacity analysis is key to testing the feasibility of the road diet. In particular, queueing lengths at intersections will be important to designing appropriate turning bay lengths.
- NJDOT participant noted that the nearby Concept Development study is exploring road diet options on Route 27. Same participant noted the improvement is connected to a Crash Modification Factor proven to tie the benefit to a specific reduction in crashes.
- Truck turning movements at the intersections on either end of the road diet should be evaluated so that the realignment of lanes as part of the road diet can be positioned to minimize the occurrence of trucks driving over the nearby intersection corners, as is happening now.
- If this road diet results in bike lanes, connections to bike lanes north of Hamilton Street and other biking facilities/roadways via sharrows and/or bike lanes must be designed and could need to be accommodated via travel lane realignment.
- As part of the road diet project, sidewalk rehabilitation and sidewalk gaps should be addressed.
- How the road diet, and two-way left-turn lanes, ties into existing business on either side of the road should be considered.

Additional comments were received during the breakout room (not pertaining to the road diet):

- Lighting just north of the Route 27 intersection was noted to be relatively dim.
- Other improvements that could be implemented along with the road diet include curb extensions, refuge islands, etc., which can be accomplished by implementing the road diet.

L. Public Meeting #2

On Wednesday, September 29, 2021, from 7:00 PM to 9:00 PM, Somerset County held the second and final public meeting for the study. The virtual meeting format consisted of a 45-minute presentation touching on the following topics: project background, project status, identification of needs, and proposed safety measures by corridor.

The meeting was then divided into seven breakout rooms, one for each of the selected corridors, one for county-wide general transportation comments and suggestions, and one for Spanish speakers. Much like at the third TAC meeting, participants were asked to provide their general reactions to the proposed road diet recommendations and whether they would accomplish the goals of the study. Potential barriers or other ways to accomplish study goals were also discussed. Provided below is participant feedback received on this specific proposed safety measure:

- In general, participants supported the idea of implementing a road diet south of Hamilton Street.
- Participants agreed that corridor speeds would benefit from a road diet.
- Concerns were expressed to address same issues experienced south of Hamilton Street for the northern end of the corridor.

Additional comments were received during the breakout room (not pertaining to the particular road diet in question):

- Speeding between Hamilton Street and Hillcrest Elementary comprised the bulk of discussion.
- Participants shared ideas to address the speeding issues north of Hamilton Street (e.g., feedback signs, curb extensions, etc.).
- Participants perceive that Franklin Boulevard carries a relatively high volume of truck traffic.

III. Crash Findings

The analysis used to support the RSA process incorporated a data-driven effort to utilize reportable crash information resulting in any combination of fatality, injury, or property damage. The datasets used for this analysis are sourced from local law enforcement responses to reported vehicular crashes. These on-scene responses subsequently translate to official law enforcement generated reports. Concurrently, the individual reports are aggregated to render serviceable crash information. To be entirely inclusive in obtaining complete crash information, the data was accumulated using three distinct resources: NJDOT's Safety Voyager[10], New Jersey Division of Highway Traffic Safety (NJDHTS) Numetrics[11], and the NJDOT raw crash tables[12]. The three sources were compared against each of the other obtained sources to allow for duplicate records to be discarded and all distinct records to be included with the goal of producing a complete and comprehensive representation of the crashes within the extents of the corridor.

The datasets were obtained for a three-year analysis period from the beginning of January 2016 through the end of December 2018 for vehicle-vehicle crash incidents and from the beginning of January 2014 through the end of December 2018 for vehicle-pedestrian/cyclist crash incidents. According to the compiled crash data, 214 crashes occurred within the one-mile segment analysis area during the analysis period. The following evaluation breaks down crash attributes as a percentage of the total crashes to achieve a stronger understanding of the localized trends compared to County roadway systems crash performance. Furthermore, all crashes along this segment were mapped onto collision diagrams, which can be found in **Appendix D**, providing a quick spatial overview of crash clustering patterns.

In reviewing the crash data, the following crash clusters and prevailing safety issues were noted:

- At the Somerset Street intersection
  - Numerous fixed object collisions on NW intersection corner with pedestrian signal pole
  - Numerous sideswipe collisions on SB narrow lanes approach to intersection
  - Crashes on SB Route 27 including rear ends and crashes with left turn and cross-street traffic
- Crashes between NB traffic and traffic trying to turn on from Fuller Street
- At the Hamilton Street intersection
  - Heavy volume of rear end collisions on EB approach to intersection
  - Crashes between EB queue to intersection and vehicles looking to turn out of strip mall
  - Significant amount of right angle and left-turn collisions involving EB traffic
  - Numerous crashes at this intersection involving pedestrian and cyclist traffic (half on east crosswalk)
  - Numerous fixed object collisions with signal pole on SE intersection corner
  - Numerous sideswipe collisions just south of intersection, both same and opposite directions
- NB and SB rear end collisions and cyclist crash clustered in front of Hillcrest Elementary driveway
- Numerous struck parked vehicle and fixed object collisions at Matilda Avenue intersection

A. Temporal Trends

Sorting the crashes by month reveals that the study segment experiences increased crashes during the Fall/Winter month from October thru February. The Spring/Summer months from March thru September show lower frequencies. During the seven (7) months of January, February, March, May, June, October, and November, the study corridor experiences higher crash frequencies than the County-wide average. Notably, February experiences more crashes than the County-wide average (7.0% vs. 11.0%), as shown highlighted in yellow in **Figure 4**. **Figure 5** highlights the crash percent distributions by day of the week. Midday, between 12:00 PM and 2:00 PM, reveals higher crash percentages than the County-wide average, as shown

[10] https://www.njvoyager.org/App/
[11] https://www.numetric.com/
[12] https://www.state.nj.us/transportation/refdata/accident/rawdata01-current.shtm

highlighted in yellow in **Figure 6**. More specifically, the 2:00 PM hour has crash frequencies almost double the County-wide average, 10.6% local distribution versus a 6.4% County-wide distribution. This higher percentage can relate to the presence of schools along the study corridor, most notably the Hillcrest Elementary School at the northern end of the corridor. A closer look at the crash data reveals that ten crashes occurred near this school, with three crashes specifically involving vehicles entering/exiting the school driveway.

Figure 4 – Vehicular Crashes, Percent Distribution by Month

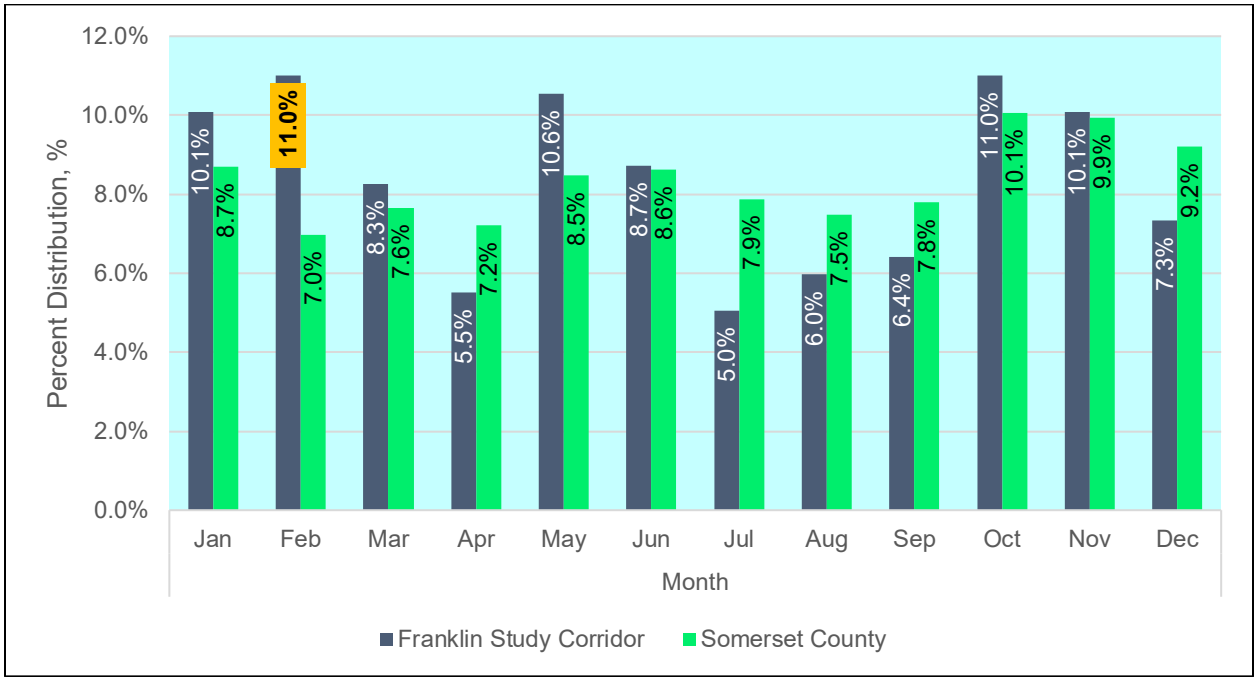


Figure 5 – Vehicular Crashes, Percent Distribution by Day

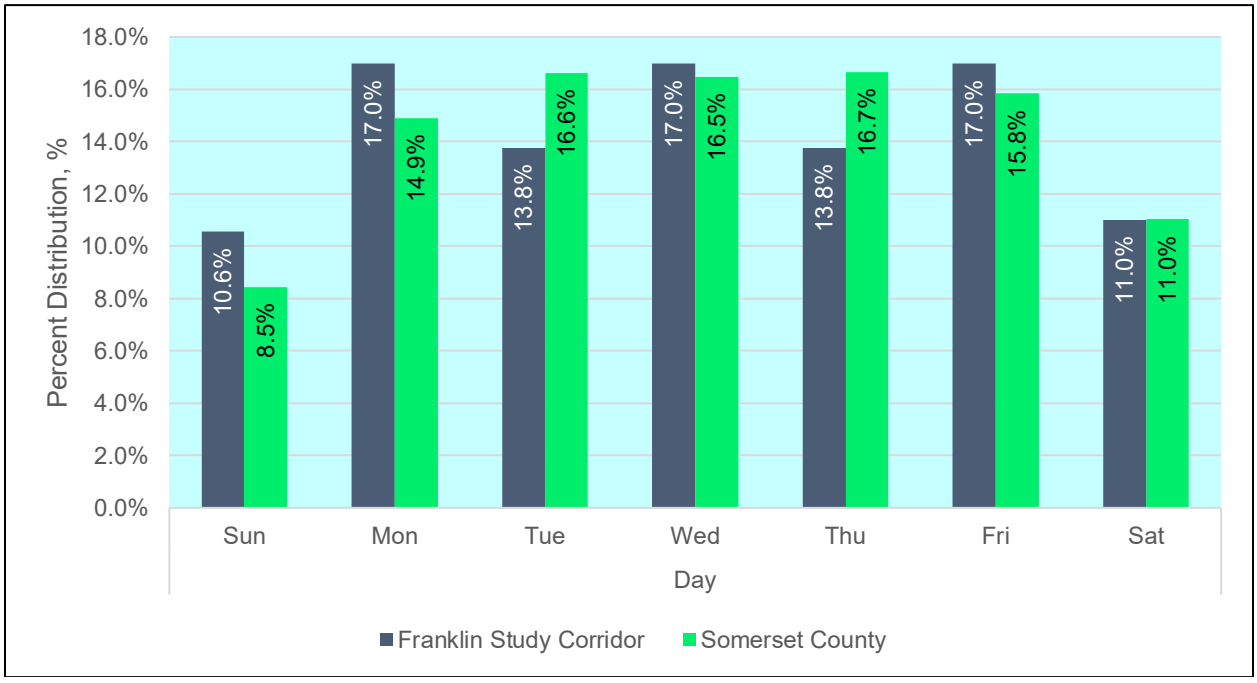
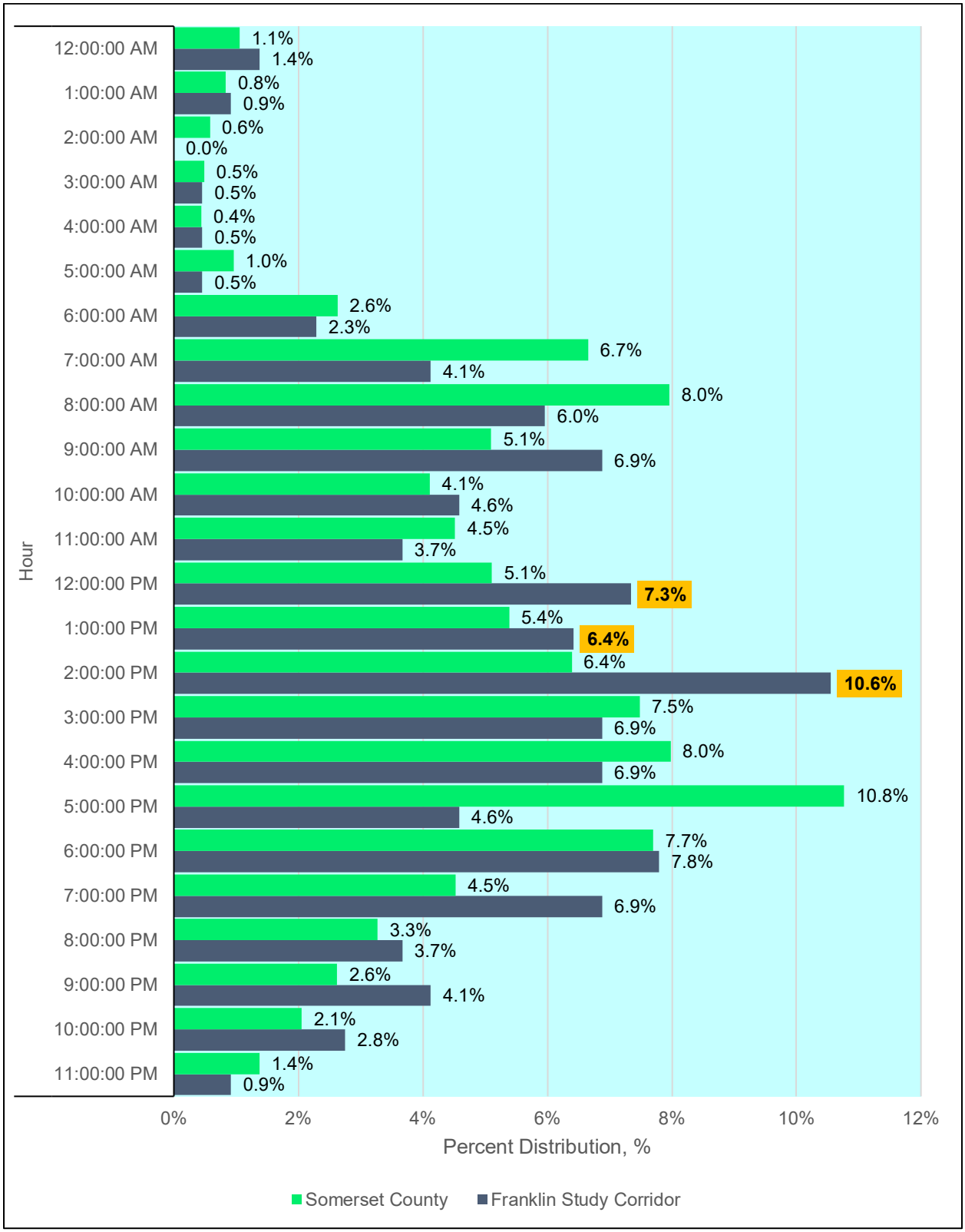


Figure 6 – Vehicular Crashes, Percent Distribution by Hour



B. Collision Types

Fifty-six rear end and 60 right angle crashes make up more than 53% of the crash distribution along the study segment, shown highlighted in yellow in **Figure 7**. Rear end crashes on the corridor occur approximately 10% less frequently than County-wide rear end crashes. Right angle crashes, however, are more frequent within the study segment than the County. Pedestrian-involved crashes on the study segment occur at a considerably higher frequency than the County, almost four times as frequent (0.8% County-wide vs. 4.1% CR 617) highlighted in yellow in **Figure 7**. This is perhaps correlated to the fact that the study segment lies in a more heavily urbanized area. **Figure 7**, and **Table 4**, provide a breakdown of crash types for the study segment.

Figure 7 – Vehicular Crashes, Percent Distribution by Crash Type

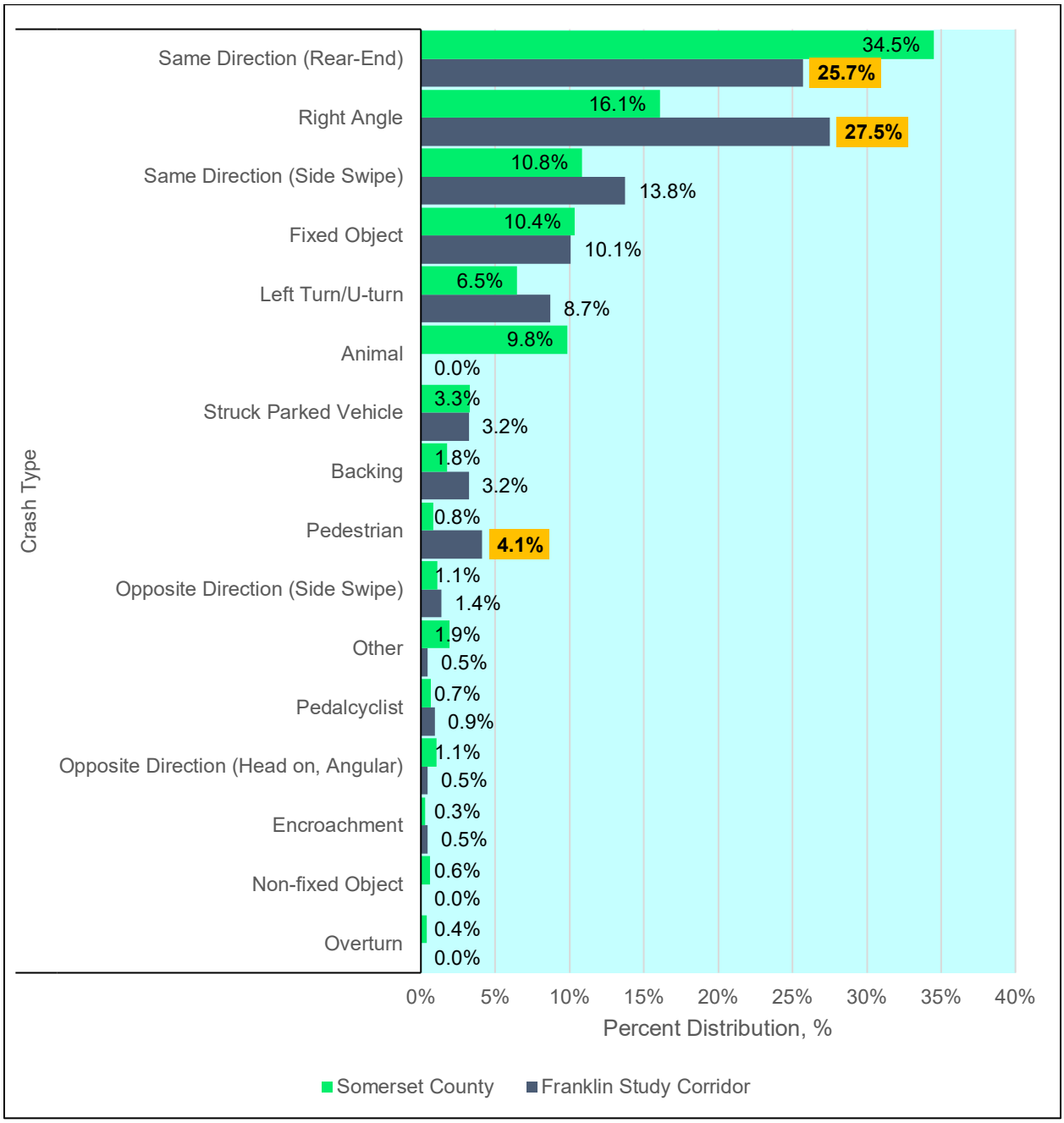


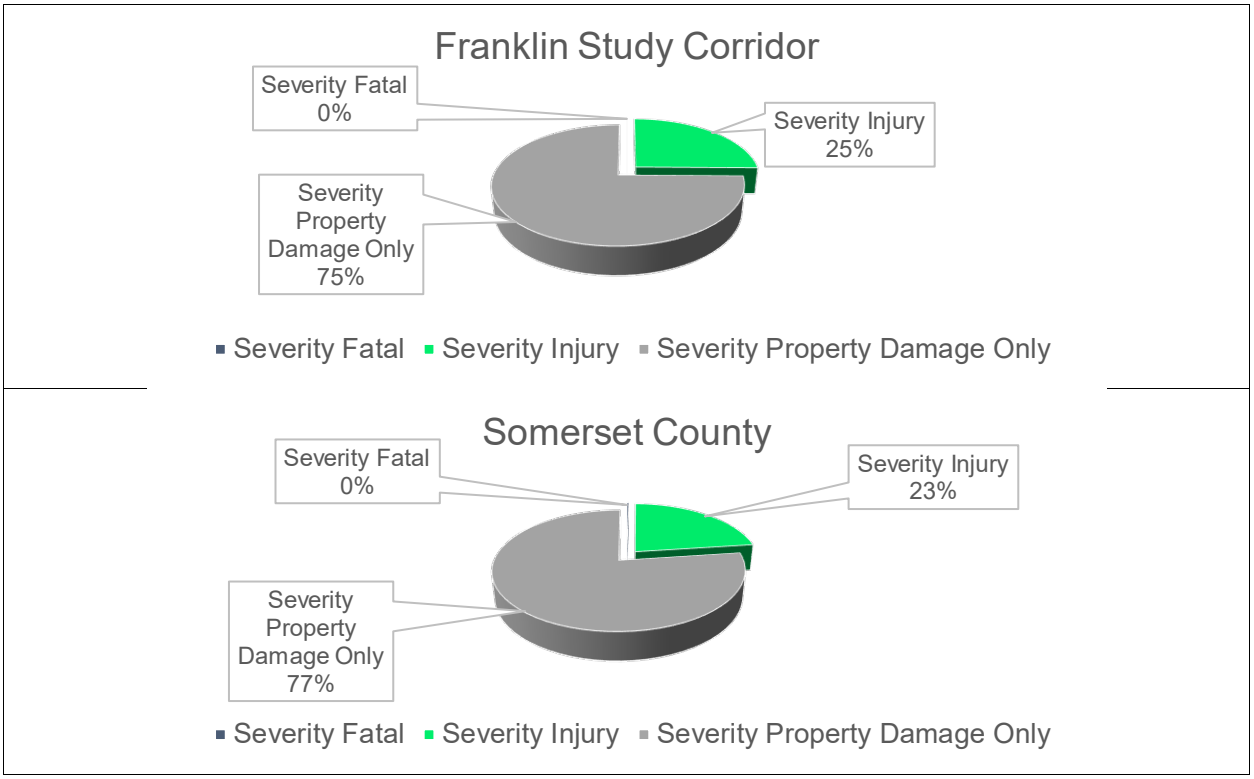
Table 4 – Vehicular Crashes by Type

Crash Type	Total
Backing	7
Encroachment	1
Fixed Object	22
Left Turn/U-turn	19
Opposite Direction (Head on, Angular)	1
Opposite Direction (Side Swipe)	3
Other	1
Pedalcyclist	2
Pedestrians	5
Right Angle	60
Same Direction (Rear-End)	56
Same Direction (Side Swipe)	30
Struck Parked Vehicle	7
Total	214

C. *Crash Severity*

The study segment generally conforms to the County's trends when considering the percent distribution of crash severity. However, data shows a slight increase in crashes resulting in injuries rather than property damage only when compared to the County. The analysis period saw no fatalities along the selected roadway study segment (**Figure 8**).

Figure 8 – Crash Severity



D. Roadway Surface & Light Condition

Crashes occurred more frequently during wet driving conditions on the study segment than the County-wide average. Wet road-related crashes are the second most overrepresented roadway surface condition during crashes, 21.6%, approximately 5% more as frequent as the County-wide average, 16.1% (highlighted in yellow in **Figure 9**).

Figure 9 – Vehicular Crashes, Percent Distribution by Surface Condition

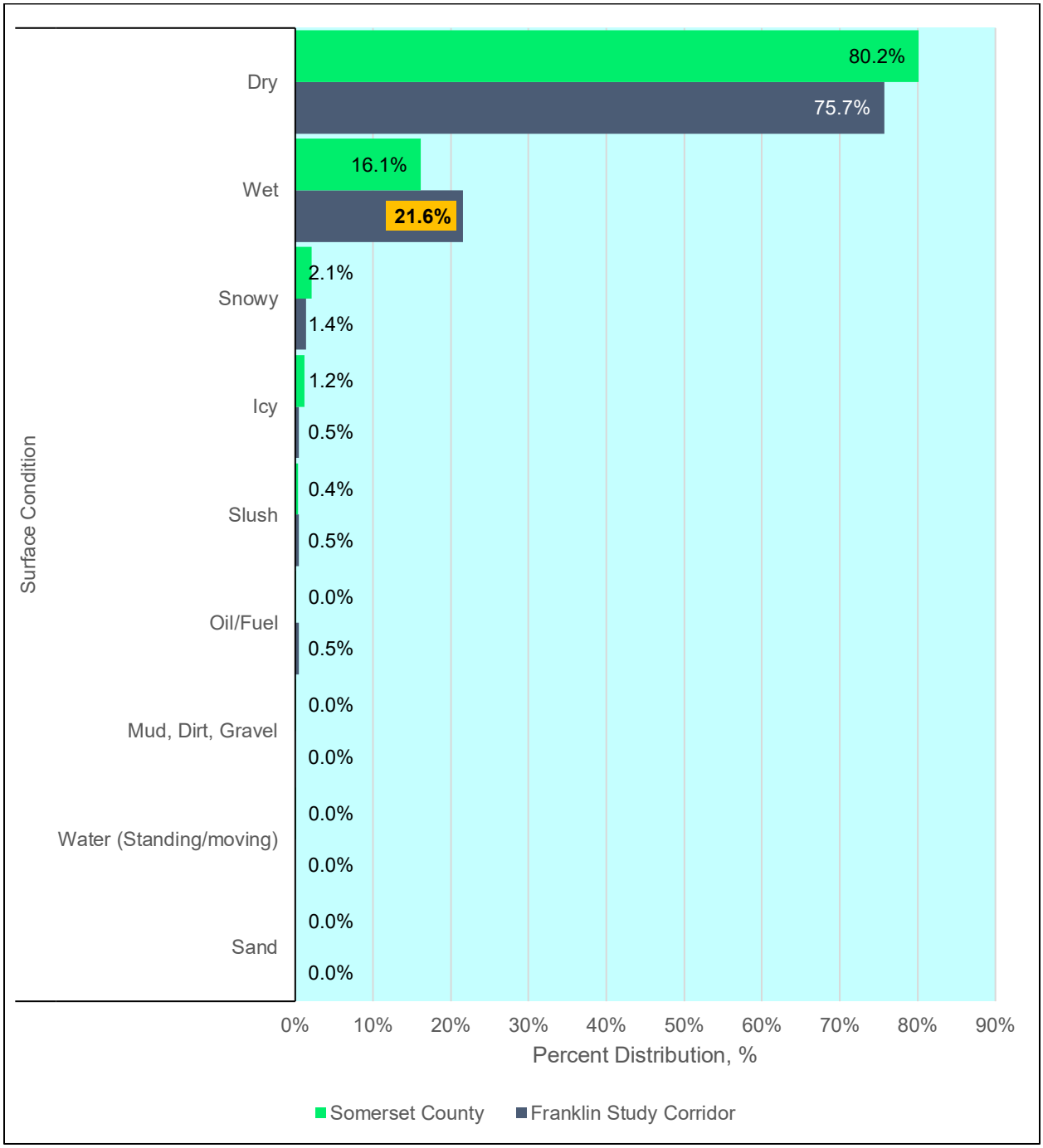
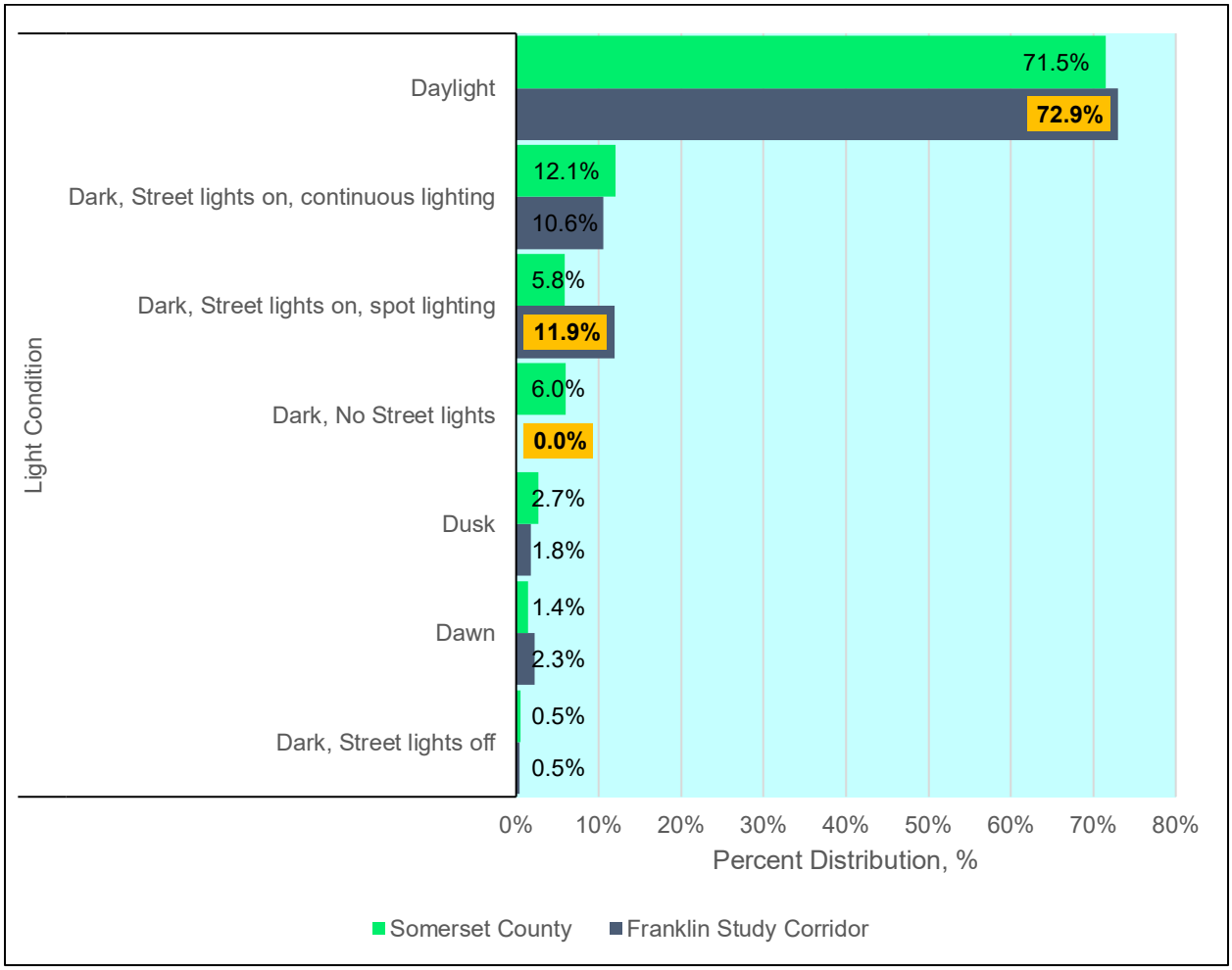


Figure 10 – Vehicular Crashes, Percent Distribution by Light Condition



Approximately 72.9% of crashes on the study segment occurred during daylight conditions. This is slightly higher than the County-wide average of 71.5%. Crashes occurring during "dark, street lights on, spot lighting" is noticeably higher than the County average, occurring more than double the frequency of 11.9% on the study segment corridor versus the 5.8% for the County. This may be due to the relatively-lit/developed nature of the study segment's streetscape, as evidenced by a 0% for "dark, no streetlights" (shown highlighted in yellow in **Figure 10**).

E. Location

Crash visualization using the histogram, grouped in 0.01-mile segments, is provided in **Figure 11**. This chart indicates that the signalized intersections of Somerset Street and Hamilton Street experience the highest recurrence rate of crashes along the study segment (as shown highlighted in yellow in **Figure 11**). The crashes at these two locations account for 50% of all crashes. Fuller & Matilda Streets equally present the highest crash totals at unsignalized intersections with fourteen (14) crashes at each location (as shown highlighted in yellow in **Figure 11**). A three-dimensional representation of this crash histogram for the 2016 through 2020 timeframe, imposed onto a map of the study area, is shown on **Figure 12**.

Figure 11 – Vehicular Crashes by Milepost

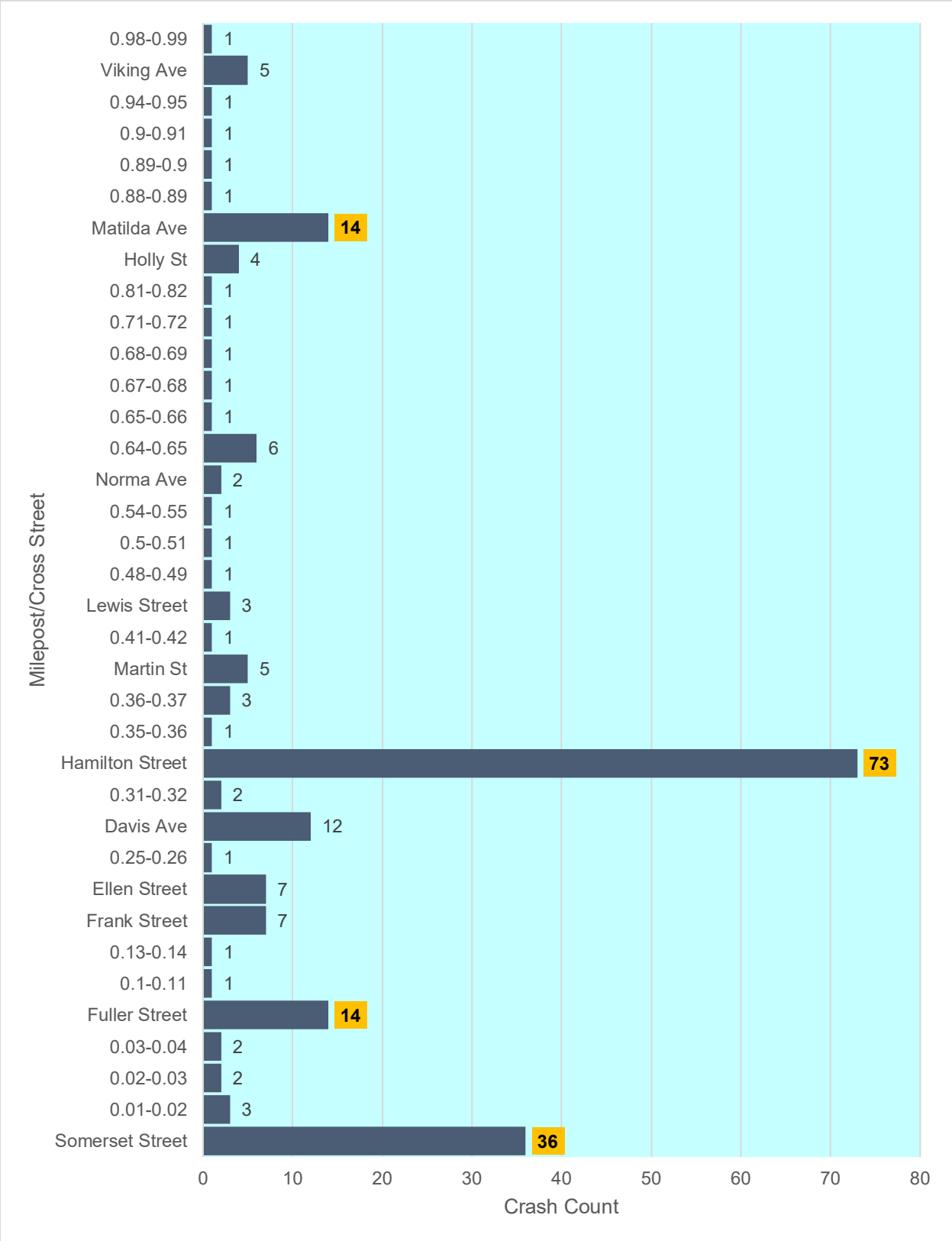
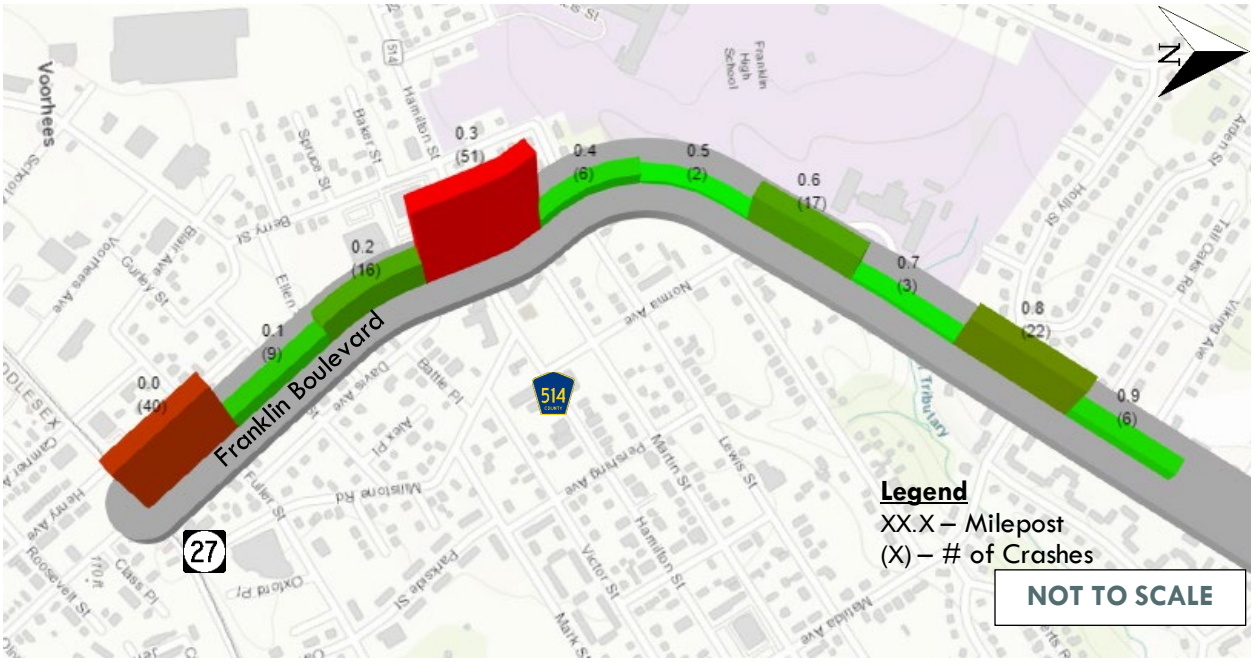


Figure 12 – Visual Estimation of 5-Year (2016 - 2020) Crash History Obtained from Safety Voyager [13]



F. Age of Those Involved

Driver-, occupant-, and pedestrian-involved data was also accessible from the NJDOT crash tables. A normal distribution table was developed (**Figure 13**) utilizing the age data provided by NJDOT. Amongst the 196 crashes reported, the average person(s) involved age was determined to be approximately 37 years old. Approximately 68% of person(s) involved were between the ages of 19 and 55 years old. **Table 5** outlines the percent distribution of the age(s) of those involved in the vehicular crashes, grouped by ten years of age. Data from the table indicates that crashes with drivers between the ages of 16 and 45 years old occur with a higher frequency on the study segment than the County average for the same age groups. Ages 16-25 account for the highest frequency of those involved at 24.4%, marginally higher than the County average of 23.1%.

[13] Five-year crash totals shown on histogram from Safety Voyager may vary from crash report data obtained from municipality's police department and do not include crashes recorded as occurring on side street approaches, which are included in the record of analyzed collected crash data.

Figure 13 – Histogram of Age(s) Involved

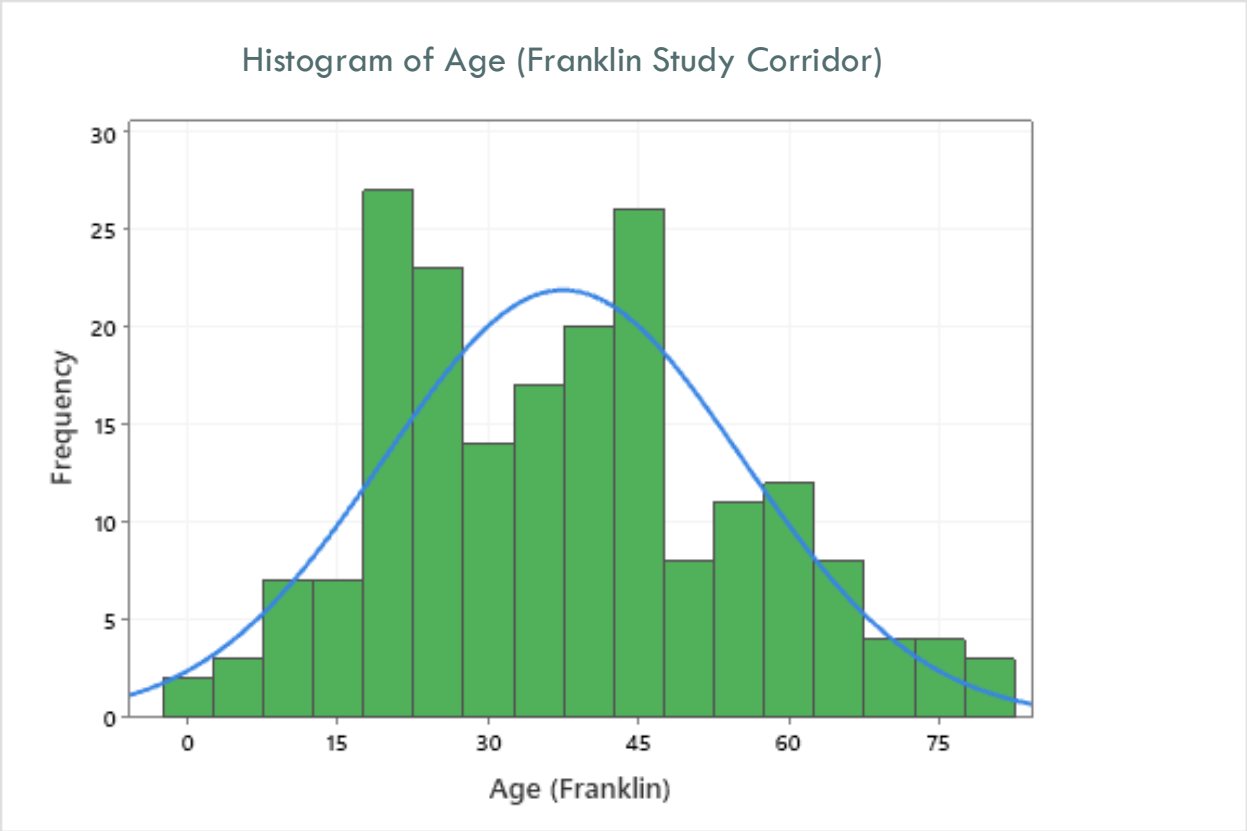


Table 5 – Age(s) Involved, percent distribution

Age Involved	Franklin Township Study Corridor	Somerset County
Under 16	6.6%	7.9%
16-25	24.4%	23.1%
26-35	17.3%	16.9%
36-45	19.3%	15.8%
46-55	14.7%	16.7%
56-65	11.7%	11.3%
66-75	4.1%	5.1%
76-85	2.0%	2.5%
86-95	0.0%	0.7%
96-105	0.0%	0.0%
106-116	0.0%	0.0%

IV. RSA Logistics

All data previously discussed in this report was used to inform the RSA conducted on this corridor. All participants involved in this RSA, whether in attendance during the pre-audit meeting, in-field review, and/or post-audit meeting, are listed in **Appendix E**. The pre-audit meeting was held at 10:00 AM via video conferencing on Thursday, March 25th, 2021, on the morning of the in-field review meeting to introduce the audit team, cover the activities to complete the RSA, define the RSA process, cover existing conditions data, present safety measures under consideration, summarize crash data collected for the corridor, and go over ground rules for conducting the in-field portion of the audit safely. The PowerPoint used to facilitate this discussion is provided in **Appendix F**.

The in-field component of the RSA was conducted at 2:00 PM on the same day as the pre-audit meeting. The audit team met in a social-distanced manner, while masked, in the parking lot behind Somerset County Social Services building for a flipbook RSA orientation presentation to reiterate the ground rules of the audit. Upon conclusion of the orientation, participants were paired off with each other to walk halves of the corridor, seeking to pair each Somerset County Roadway Safety Study project team member (whether with the County or Consultant team) with each of the stakeholders. Utilizing aerial mapping, prompt lists, photography, and video, participants recorded their observations of the corridor, as well as potential safety measures to address potential safety concerns. After walking the corridor, the RSA team met back in the parking lot to share overall thoughts on the corridor and fill out a survey on corridor identity, crossings, pedestrian-vehicle interactions, sidewalk and roadway conditions, and streetscape amenities, the answers of which were compiled and are averaged in **Appendix G**. Based on survey results, the corridor had the following perceived concerns:

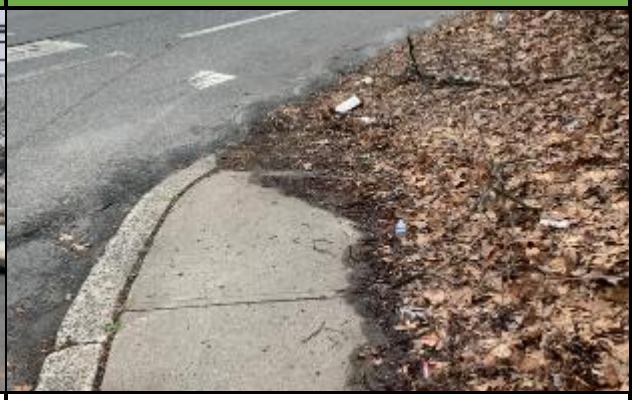
- Faded or missing crosswalk
- Lack of curb ramps for strollers/wheelchairs

On the following day (Friday, March 26th, 2021), the RSA team reconvened via video conferencing to view photos gathered during the in-field audit, some of which are presented in the following section, to discuss each observation, elaborate on potential ideas to mitigate, cover questions on travel pertaining to the overall corridor, and summarize next steps for this study. This discussion helped to form the basis of the Implementation Matrix in the **Identified Issues & Observations** section of this report. The PowerPoint used to facilitate this discussion is provided in **Appendix H**.

V. Identified Issues & Observations

This section depicts a sampling of overall issues identified during the RSA. Please refer to the Implementation Matrix in the following section of the report for a comprehensive list of identified corridor issues.

Pedestrian & Cyclist	Pedestrian & Cyclist
	
Crossing at Viking Avenue lacks pedestrian curb ramps	Crossing at Hillcrest Elementary requires ADA-compliance upgrades
	
Discontinuous sidewalk near Matilda Avenue	Sparsely located bike lane signing and striping, bike lane mistaken as vehiciular shoulder
	
Sidewalk south of Franklin Boulevard often interrupted by wide asphalt curb cuts and parked/standing vehicles encroaching on pedestrian paths of travel	Pedestrian crossing signage may need upgrade to fluorescent style. Sign positioning also obstructs bike lane signage

Operations & Visibility	Maintenance
	
Heavy vehicles are forced to make wide right turns onto Somerset Street due to close proximity of corner building thus encroaching onto Somerset Street left turn lane onto Franklin Boulevard	Sidewalk near Norma Avenue requires maintenance due to overgrowth and sediment runoff covering close to 30% of the pedestrian space.
	
Trees near Matilda Avenue limit sight distance of approaching vehicles for vehicles exiting apartment complex	Ponding occuring near Ellen Street. Crossing is also lacking curb ramps and ADA-compliance
	
Worn pedestrian signing at the Franklin Boulevard and Hamilton Street intersection. Pedestrian push button at the NE corner is not functioning	Uneven sidewalk pose pedestrian tripping hazards. Sidewalk needs replacement

VI. Findings & Recommendations

This section summarizes the site-specific and corridor-wide safety issues, potential strategies, and recommendations to improve safety. An Implementation Matrix is provided that summarizes the recommendations and provides qualitative information on time frame, cost, and responsible jurisdiction. Please note that recommendations cited in the Implementation Matrix are to reflect feedback received during the RSA process and are meant to be a record of ideas discussed. Symbols used in the Implementation Matrix are defined in **Table 6** as follows:

Table 6 – Legend of Symbols in Implementation Matrix

Symbol	Meaning	Definition
$	Low cost	Could be accomplished through maintenance
$$	Medium cost	May require some engineering or design and funding may be readily available
$$$	High cost	Longer term; may require full engineering, ROW acquisition, and new funding
🕐	Short term	Could be accomplished within 1 year
🕐🕐	Medium term	Could be accomplished in 1 to 3 years; may require some engineering
🕐🕐🕐	Long term	Could be accomplished in 3 years or more; may require full engineering

A. Implementation Matrix

The following represents the specific findings and recommendations made by the interdisciplinary RSA team, which were subsequently evaluated via discussions with County Engineering on Wednesday, June 2nd, 2021, and Thursday, June 3rd, 2021. As these recommendations are considered for advancement into either a CD study, or incorporation into an overlapping County or municipal project, the recommendations herein should be thoroughly evaluated for feasibility and practicability and designed as appropriate by the roadway owner and/or a professional engineer for conformance to all applicable codes, standards, and best practices. Corridor-wide recommendations, requiring a review of all important applicable infrastructure along the corridor pertinent to these specific topics, are provided in **Table 7**. Further defined recommendations at specific intersection or mid-block locations are provided in **Table 8**. **Recommendations bolded within the Implementation Matrix below feature one of the twenty Proven Safety Countermeasures from the FHWA[14], which means that the recommendation is shown to have a significant safety benefit as proven by substantial traffic safety research.** These recommendations are tied to Crash Modification Factors (CMFs) showing a substantial reduction in crashes, as well as research documented on the Crash Modification Factor Clearinghouse website that has a high-quality ranking. This high ranking indicates the quality of study design, sample size, statistical methodology, statistical significance, etc. for the research backing each CMF. Mapping of location-specific proposed recommendations is provided in **Appendix I**.

Table 7 – Corridor-Wide Recommendations

No.	Recommendation	Cost	Time Frame	Jurisdiction
Bicycle				
1	**Install bike lane pavement markings to supplement signs.**	$$	🕐	County
2	Determine if inlets have bicycle-safe grates and replace if necessary.	$	🕐🕐	County

[14] https://safety.fhwa.dot.gov/provencountermeasures/

No.	Recommendation	Cost	Time Frame	Jurisdiction
3	Consider Biking Bus event to incentivize the use of improved cycling facilities on the corridor. See Biking Bus discussion under **Demonstration Project** section of this chapter.	$	🕐	Municipality/ School District
Operations				
4	**Stripe crosswalks and stop bars on side streets to connect pedestrian ROW. Evaluate sight distance at all side street approaches and use easements/trimming to improve sight lines if necessary.**	$	🕐	County/ Municipality
Pedestrian				
5	**Conduct a sidewalk assessment to determine the extent of sidewalk that needs to be replaced, repaired, and constructed.**	$$	🕐	Municipality
6	**Perform curb ramp assessment to determine the number of curb ramps that need to be replaced, repaired, and constructed.**	$$	🕐	County/ Municipality
7	**Consider RRFB at School crossings on Franklin Boulevard to facilitate students walking along key travel routes**	$$	🕐	Municipality
8	Consider implementing messages striped on the pavement, like "SCHOOL" and "SLOW" to better catch the cone of vision for drivers passing the school.	$	🕐	County
9	**Consider wider crosswalk bars to better alert drivers to potential crossing pedestrian traffic.**	$	🕐	County
Maintenance				
10	Perform maintenance to clear overgrowth and debris on sidewalks and curb ramps.	$	🕐	Municipality

Table 8 – Location-Specific Recommendations

No.	Recommendation	Cost	Time Frame	Jurisdiction
KEY STUDY RECOMMENDATION – Road Diet between Somerset Street and Hamilton Street				
11	**Investigate design and implementation of a road diet. Options include 1) bike lanes and one travel lane in each direction with a median two-way left turn lane or 2) shoulders (with parking restricted) and one travel lane in each direction with a median two-way left turn lane. It should be noted that other studies have determined a road diet to be feasible.**	$$	🕐🕐🕐	County
Somerset Street/NJ 27				
12	**Coordinate with NJDOT during Route 27 road diet concept development study to recommend County-proposed improvements at intersection, including potential road diet on Franklin Blvd approach. These improvements could include LPIs, NO TURN ON RED signage on all approaches, high-visibility crosswalks, and new lighting.**	$	🕐🕐	State
13	Recommend GSI treatments in NE quadrant of intersection if travel lanes are realigned and curb extensions installed during the road diet.	$	🕐🕐	State
14	**Recommend increasing intersection corner curb radii to accommodate truck turning movements. Realignment of SB**	$	🕐🕐	State

No.	Recommendation	Cost	Time Frame	Jurisdiction
	Franklin Boulevard travel lanes towards the center of the roadway via a road diet would also better accommodate SB truck turning movements.			
15	**Access to/from property on NW corner of intersection should be reevaluated when property is redeveloped.**	$	🕐🕐🕐	State
16	Consider incorporating concrete mountable curbs to accommodate the large sweeping truck turning movements, mitigating the instances of pedestrian space encroachment and encroachment into the opposing lane of travel.	$$	🕐🕐	State
Between Somerset Street and Fuller Street				
17	**Construct sidewalk on SB side of roadway as part of nearby redevelopment.**	$$$	🕐🕐🕐	Municipality/ Utility companies
18	Consider coordinating with utility company to install more utility pole-mounted lighting.	$	🕐	Municipality
19	Clear overgrowth obstructing speed limit sign.	$	🕐	County
Fuller Street				
20	**Consider restricting left turns to reduce number of left turn collisions at this intersection**	$	🕐	County/ Municipality
Between Fuller Street and Frank Street				
21	Add street furniture on the west sidewalk for Franklin Boulevard. Also, Township should put policies into place to incentivize occupancy of first floor businesses at 727 Franklin Boulevard to improve the appearance of side street land uses and create more of a downtown feel.	$	🕐🕐	Municipality
Frank Street				
22	Relocate ONE WAY sign on NW corner to make more visible to NB traffic.	$	🕐	County
23	Consider reducing curb radii to shorten crossing on east side.	$$	🕐🕐	County
24	**Stripe crosswalk across Franklin Blvd to connect SW and SE corners and provide continuous pedestrian ROW on southern end (only end with sidewalk on both sides)**	$$	🕐🕐	County
Ellen Street				
25	Consider installing speed humps or tables to slow down cut-through traffic from Berry Street	$$	🕐	Municipality
26	**Stripe stop bar.**	$	🕐	Municipality
27	**Stripe crosswalks and construct curb ramps.**	$	🕐	Municipality
28	**Investigate completing missing sidewalk south of the intersection.**	$$$	🕐🕐🕐	County
Between Ellen Street and Hamilton Street				
29	**Restrict parking in sidewalk areas.**	$	🕐	Municipality
30	**Coordinate with gas station property owner to construct a buffer between pumps and curb, such as landscaping, to provide a separation between vehicle usage and pedestrian ROW.**	$	🕐🕐	Municipality/ Property owner
31	**Coordinate with car wash property owner to construct ADA-compliant sidewalk through steep driveway apron.**	$	🕐🕐	Municipality/ Property owner

No.	Recommendation	Cost	Time Frame	Jurisdiction
32	**Construct and/or redefine sidewalk on NB side of roadway.**	$$	🕐🕐	Municipality
33	**Explore restricting left turns out of car wash driveway due to roadway curvature.**	$$	🕐🕐	County
Field Street				
34	**Stripe stop bar.**	$	🕐	Municipality
35	**Stripe crosswalks and construct curb ramps.**	$	🕐	County/ Municipality
Between Field Street and Hamilton Street				
36	**Investigate the feasibility of installing a mid-block crossing to the shopping center as part of the road diet (Location TBD).**	$$	🕐🕐🕐	County
Hamilton Street				
37	Conduct a traffic study to determine capacity issues, evaluate if they can be mitigated through signal retiming and rephasing.	$$	🕐🕐	County
38	**Evaluate existing signal timing to determine if LPIs can be accommodated with changes in signal phasing, if flashing don't walk time accommodates 3.5 ft/s[15], and if turns on red can be restricted. Hamilton Street Local Safety grant awarded. Project scheduled for 2022.**	$$	🕐🕐🕐	County
39	Consider increasing all corner curb radii to at least 30' for trucks. Hamilton Street Local Safety grant awarded. Project scheduled for 2022.	$$$	🕐🕐🕐	County
40	Since many children cross at this intersection to get to school, consider applying for Safe Routes to School funding to make necessary safety improvements. Hamilton Street Local Safety grant awarded. Project scheduled for 2022.	$$	🕐🕐🕐	RideWise
41	Install missing lane use sign on NB approach.	$	🕐	County
42	Install missing overhead Hamilton Street mast arm sign.	$	🕐	County
43	Install SPEED LIMIT sign in the SB direction.	$	🕐	County
44	**Upgrade all push buttons. Hamilton Street Local Safety grant awarded. Project scheduled for 2022.**	$	🕐🕐🕐	County
45	**Evaluate if left turn lane stop bars can be pushed back to accommodate truck right turns on all approaches. Hamilton Street Local Safety grant awarded. Project scheduled for 2022.**	$	🕐🕐🕐	County
46	**Realign WB approach lanes to make receiving lanes narrower.**	$	🕐🕐🕐	County
47	**Install backplates on signal heads if traffic signal poles and mast arms will be replaced with steel equipment. Hamilton Street Local Safety grant awarded. Project scheduled for 2022.**	$	🕐🕐🕐	County
48	Coordinate with utility companies to relocate utility pole on SW corner. Hamilton Street Local Safety grant awarded. Project scheduled for 2022.	$$$	🕐🕐🕐	Municipality/ Utility companies

[15] 3.5 ft/s (3.5 feet per second) refers to the typical pedestrian walking pace/speed

No.	Recommendation	Cost	Time Frame	Jurisdiction
49	Install "DO NOT BLOCK THE BOX" at Shopping Center Driveway. Hamilton Street Local Safety grant awarded. Project scheduled for 2022.	$	🕐🕐🕐	County
50	Relocate or construct new signal poles on SE/SW quadrants of intersection due to collisions with trucks. Hamilton Street Local Safety grant awarded. Project scheduled for 2022.	$$$	🕐🕐🕐	County
51	Coordinate with gas station property owner to evaluate if access can be modified. Hamilton Street Local Safety grant awarded. Project scheduled for 2022.	$$	🕐🕐🕐	County
Between Martin Street and Lewis Street				
52	**Formalize striping for bike lane with 3' buffer. Bike lanes should also have bike symbols spaced at least 200' apart**	$$	🕐	County
53	Reconstruct curb in northbound direction.	$$	🕐🕐	County
54	Explore why trucks encroach on double yellow striping.	$$	🕐🕐	County
55	Remove redundant NO PARKING sign.	$	🕐🕐	County
Lewis Street				
56	**Construct RRFB (Rectangular Rapid Flashing Beason) crossing at Lewis to accommodate pedestrian activity**	$$	🕐🕐	County/ Municipality
Curve between Lewis Street and Norma Avenue				
57	Add wayfinding to path that goes to high school.	$	🕐	County/ Municipality
58	Investigate if guy wire on SB sidewalk is conflicting with pedestrian space and consider coordinating with utility company to relocate it.	$$	🕐🕐	Municipality
59	Replace old school crossing sign with new fluorescent yellow-green sign and add AHEAD plaque underneath.	$	🕐	County
60	Explore options to install a timer or remote control on flashing school signal.	$	🕐🕐	Municipality
61	Install wayfinding signage for elementary school.	$	🕐	County
62	Township should permanently remove weed intrusion issues by reconstructing NB sidewalk and adding buffer grass strip.	$$	🕐🕐	Municipality
Norma Avenue				
63	**Consider installing an RRFB (per NJDOT). RRFB would require Township maintenance.**	$$$	🕐🕐🕐	County/ Municipality
64	Clear overgrowth and debris from sidewalk and curb ramps.	$	🕐	Municipality
65	**Investigate relocating the crosswalk or use daylighting to add traffic calming and pedestrian visibility.**	$	🕐	County
66	**Explore ways to mitigate limited intersection sight distance. Consider clearing overgrowth on SE corner.**	$	🕐	County
67	Install fluorescent yellow-green school crossing sign (S1-1) with a diagonal downward-pointing arrow plaque on left side of roadway in SB direction.	$	🕐	County
68	Remove existing NB school crossing signs. Install new fluorescent yellow-green S1-1 signs with diagonal downward-pointing arrow plaques on new posts before crosswalk in the NB direction.	$	🕐	County
69	Remove existing SB school crossing sign on right side of roadway and replace with new fluorescent yellow-green S1-1 sign with a diagonal downward-pointing arrow.	$	🕐	County

No.	Recommendation	Cost	Time Frame	Jurisdiction
70	**Consider lengthening crosswalk stripes and adding pedestrian paddle(s), increasing the prominence of the crosswalk.**	$	🕐	County/ Municipality
Hillcrest School				
71	Replace curb ramps at driveways to eliminate ponding issue.	$	🕐	Municipality
72	**Explore ways to reduce crossing lengths at driveways. This could include short-term striped curb extensions and/or long-term driveway realignment.**	$$	🕐🕐	County/ Municipality
73	Replace STOP sign and other signs within vicinity of school driveway on a breakaway post and at least 84" above ground level.	$	🕐	County/ Municipality
74	Explore ways to keep buses from driving over curb, including daylighting and/or striped curb extensions.	$$	🕐🕐	County/ Municipality
75	Replace post-mounted SCHOOL SPEED LIMIT sign on SB approach to driveway.	$	🕐	County
76	**Perform a speed study along Franklin Boulevard through this area when speed advisory signs are lit as well as unlit.**	$$	🕐	County
Holly Street				
77	Replace school crossing signs (S1-1) with new fluorescent yellow-green signs and diagonal downward-pointing arrows.	$	🕐	County
78	**Consider daylighting and/or additional lighting for this crosswalk.**	$$	🕐🕐	County/ Municipality
Between Holly Street and Matilda Avenue				
79	**Remove trees that pose continuous sidewalk heaving problems and that block sight distance at apartment complex driveway.**	$$	🕐🕐	County/ Municipality
80	**Construct sidewalk on SB side of roadway to complete pedestrian connections.**	$$	🕐🕐	Municipality
Matilda Avenue				
81	**Install an RRFB to provide crossing opportunities when traffic volume is high, especially during times when there is high church activity.**	$$$	🕐🕐🕐	County/ Municipality
82	Consider installing advance S1-1 signs for crosswalks at locations where trees compromise visibility.	$	🕐	County
83	Post R4-11 "BIKE MAY USE FULL LANE" sign on Franklin Boulevard NB where bike lane drops off.	$	🕐	County

B. Road Owner Response

An essential final step of the RSA process (see **Figure 1**) is a response from the roadway owner, which provides accountability between the funding body and the participating jurisdiction who acknowledges the findings within the RSA and their planned steps to improve safety. In responding to the RSA's findings, the road owner, in this case the County, must weigh the safety benefits posed by the recommendations within this report against the available resources to implement such improvements to make an informed decision. Because the audit process generated a long and wide-ranging list of improvements, the road owner is expected to implement these recommended improvements as time and funds allow in coordination with other projects and priorities.

Somerset County delivered their response following the finalization of the findings and recommendations table (see **Appendix J**). While the County has overseen this RSA process, by no means should this report be

considered as a commitment to address some or all concerns and implement some or all improvements listed within this report. All potential recommendations must be fully studied. It is acknowledged that some recommendations may not be feasible.

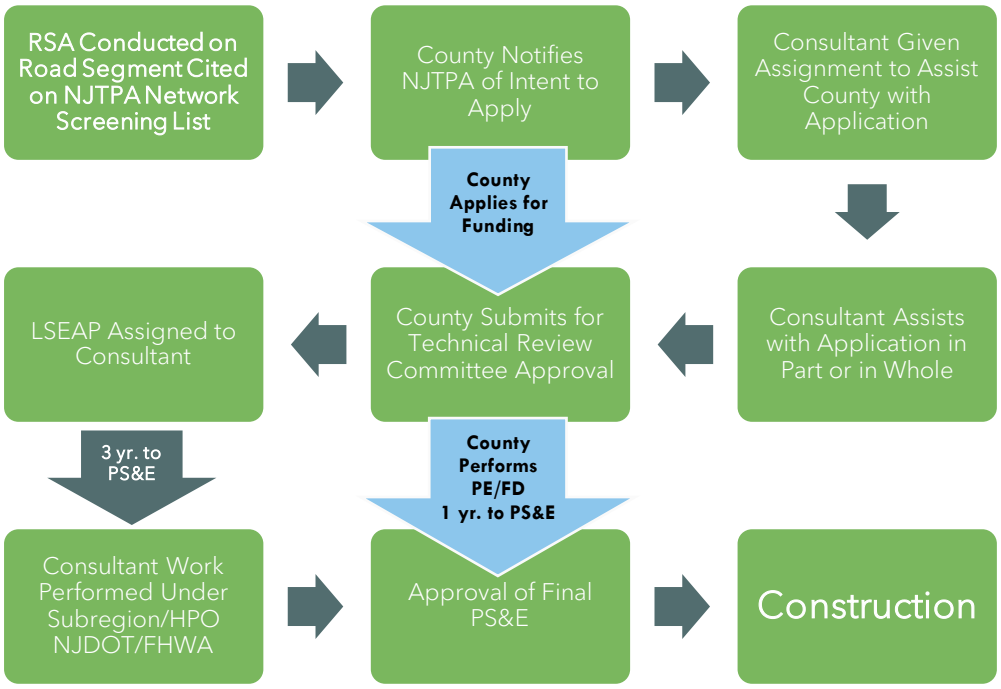
C. *Potential External Funding Sources*

Local Safety Program

The County has previously used RSAs as a "launching pad" for pursuing funding for corridor safety improvement projects, such as Main Street in Manville and Hamilton Street in Franklin, via the Local Safety Program (LSP) offered through NJTPA. Should the County desire to pursue funding of safety improvements on this corridor, the RSA can help to scope the specific safety improvements to be conceptualized and designed for eventual funding and construction. A simplified flowchart of the LSP application process from RSA to construction is shown in **Figure 14**.

The RSA can also be appended to Section 4 of the funding application[16] submitted to NJTPA as a further substantiation and documentation of the understanding of the existing concerns and proposed safety measures. This application, which also requests information on scope, location ranking, HSM analyses, estimated costs, and environmental impacts, may be filled out by the County itself or with assistance from a consultant designated by NJTPA. Pending determination of eligibility by NJTPA's Technical Review Committee, the County can choose to either perform the Preliminary Engineering and Final Design work in-house or obtain assistance for such work through NJTPA's Local Safety Engineering Assistance Program. It should be noted that implementation of improvements through the LSP often takes around five to six years from corridor selection to construction. If faster implementation is desired, County, and municipal operating and capital budgets could be relied upon if internal funding is available.

Figure 14 – Project Development Process for Local Safety Program after RSA Completion



Transportation Alternatives Program

[16] Application for FY 2020 provided here: https://www.njtpa.org/NJTPA/media/Documents/Projects-Programs/Local-Programs/Local-Safety-Rural-Roads/FY-2020-LSHRRRP-Application-Rev_191003.doc?ext=.doc

The purpose of the Transportation Alternatives Set-Aside Program (TA Set-Aside) federal grant initiative is to support the construction of "non-traditional" surface transportation projects, which typically involves the designing of infrastructure for active modes such as pedestrians, cyclists, and other non-motorized forms of travel. Supported projects can also have elements that bolster the recreational, historic, cultural, or environmental assets of the project area. Grant funding for a given project can range from $150,000 to $1,000,000. The amount of funding is determined on a project-by-project basis with award of prior grant money, and successful execution of prior funded projects, playing a factor. The County would not be prohibited from applying for both Safe Routes to School and TA Set-Aside funding at the same time.

TA Set-Aside lists the following activities that are eligible for funding under its "Pedestrian/Bicycle Facilities" and "Community Improvement" categories:

- New/reconstructed sidewalks/curb ramps;
- Bike lane striping;
- Wide paved shoulders;
- Bike parking and bus racks;
- New or reconstructed off-road trails;
- Bike/pedestrian bridges and underpasses;
- Lighting;
- Historic sidewalk paving;
- Benches;
- Planting containers;
- Decorative walls; and,
- Walkways.

The recommendations within the Implementation Matrix touch on many of the prior elements listed. To best position itself to attain approval for funding, the applying jurisdiction, whether County or municipal, should pass a resolution of support showing the commitment of maintenance of the proposed complete streets elements. Furthermore, the applicant should have data supporting that the implementation of similar improvements elsewhere within its jurisdiction has resulted in the increase of non-motorized transportation, the stimulus of economic activity, and the improvement in quality of life. A handbook summarizing the process of applying for these funds can be found at NJDOT Local Aid website[17].

Safe Routes to School (SRTS)

SRTS is a federally funded application program established to assist County, municipalities, school districts, and individual schools with programmed reimbursements for the implementation of improvements that would:

- Enable/encourage children in grades K-8, including those with disabilities, to walk/bicycle to school;
- Make bicycling and walking to school a safer and more appealing transportation alternative, thereby encouraging a healthy and active lifestyle from an early age; and,
- Facilitate the planning, development and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption and air pollution in the vicinity of schools.

Such improvements can include the construction of hard infrastructure, such as bridging sidewalk gaps, providing new crosswalks, specifying traffic control for new school crossing movements (signals, RRFBs, etc.), proposing new traffic calming devices, and implementing bike lanes or other bike facilities to encourage alternate modes of travel to school. Design assistance programs are also provided for the applicant to work with a NJDOT-selected consultant to design such infrastructure improvements. Funding can also be used for non-infrastructure events and services, such as walking school buses, traffic safety lessons, increased enforcement, etc. A handbook specifying the application process for SRTS FY 2022 funding can be found on NJDOT's SRTS website[18]. Webinars are also available to learn more about the program.

D. Demonstration Project

Demonstration projects are where an example improvement is completed for a selected corridor with foresight to prepare for larger rollouts. The improvement(s) should highlight the concept and illustrate the benefits of RSAs and how RSAs may improve the overall level of safety for the road users. The selected

[17] https://njdotlocalaidrc.com/perch/resources/Uploads/2020-ta-set-aside-handbook-8-12-20.pdf
[18] https://www.njdotlocalaidrc.com/perch/resources/Uploads/2022-srts-handbook-06-10-2021.pdf

demonstration projects should be of strategic importance, and which is representative of the general safety theme suggested for the selected corridor.

To incentivize the use of improved cycling facilities on the corridor, especially by those attending school, it is recommended that aforementioned upgrades be followed by a Biking Bus event. Hillcrest Elementary School and Franklin Middle School would organize a one-day Biking Bus event overseen by local law enforcement to encourage students and parents alike to ride their bike to school on seasonable days. A similar successful event was organized in Ocean City and is depicted in **Figure 15**.

Figure 15 – Biking Bus Event in Ocean City, New Jersey[19]

Provided in this section of the report are visualizations of some of the larger reaching proposed safety measures on the corridor in the Implementation Matrix (**Table 7** and **Table 8**). Visualizations of these safety measures, along with accompanying descriptions on how these ideas seek to improve safety for vehicular, pedestrian, and cyclist travel, are adapted from the following publications:

- *New Jersey Pedestrian and Bicycle Resource Center* video library, 2021[20]
- *Cross County Connection TMA* video library, 2021[21]
- *NJDOT Technology Transfer* video library, 2021[22]
- *NJDOT Safe Routes to School* video library, 2021[23]
- *2017 State of New Jersey Complete Streets Design Guide*, NJDOT, 2017
- *Proven Safety Countermeasures*, FHWA, 2017
- *Small Town and Rural Multimodal Networks*, FHWA, 2016
- *Separated Bike Lane Planning and Design Guide*, FHWA, 2015
- *New Jersey School Zone Design Guide*, NJDOT, 2014
- *Urban Bikeway Design Guide 2nd Edition*, National Association of City Transportation Officials, 2014
- *Urban Street Design Guide*, National Association of City Transportation Officials, 2012

Key Study Recommendation – Road Diet, from Route 27 to Hamilton Street
As recommended in the *WalkBikeHike* (2019) and *Supporting Priority Investment in Somerset County Phase III Study* (2017, **Figure 3**), the County could consider a redesign of Franklin Boulevard from two travel lanes in each direction to one travel lane and one bike lane in each direction with a two-way left turn lane. Since Franklin Boulevard has an AADT of 16,000, thorough intersection-by-intersection capacity analysis, design, administrative approval, and public vetting is needed to ensure the efficacy and success of the road diet. A four-lane to three-lane road diet, where properly implemented, could result in a 19-47%[24] reduction in total

[19] Safe Routes NJ. (2018). Ocean City Biking School Bus. YouTube. Civic Eye Collaborative. https://www.youtube.com/watch?v=Cb_4bWYFR9s.
[20] https://www.youtube.com/channel/UCMsSU487ZPfaOAjcC7K8_SQ
[21] https://www.youtube.com/channel/UC5C0fODzuDqT9ycKMYv0C3Q
[22] https://www.youtube.com/channel/UC-L3YfqzFHcuDw6aI7wDrJQ
[23] https://www.youtube.com/channel/UCjlvrPjwNZ97MkX5IRol4ow
[24] FHWA. (2017). Proven Safety Countermeasures. https://safety.fhwa.dot.gov/provencountermeasures/.

crashes. Standard types of crashes on a four-lane section of roadway such as Franklin Boulevard include "ghosting" right angle crashes (where left turn vehicles cannot see an approaching vehicle in the right lane due to a stopped opposing left turn vehicle) and "lane shopping" crashes where vehicles jump from left lane to right lane and back to aggressively pass slower vehicles. A similar improvement designed within a similar roadway width is depicted in **Figure 16**.

Since the curb-to-curb cartway width is limited at approximately 44' to 46', bike lanes would not be able to have a buffer and could be of substandard width. An alternate option to dedicating shoulder width available from the road diet to bicycle travel would be to restrict use of shoulders by parked vehicles and to provide curb extensions (in line with shoulder widths) at intersections to reduce pedestrian crossing distance, as depicted in
Figure 17.

Figure 16 – Passaic County Road Diet in Wayne Township[25]

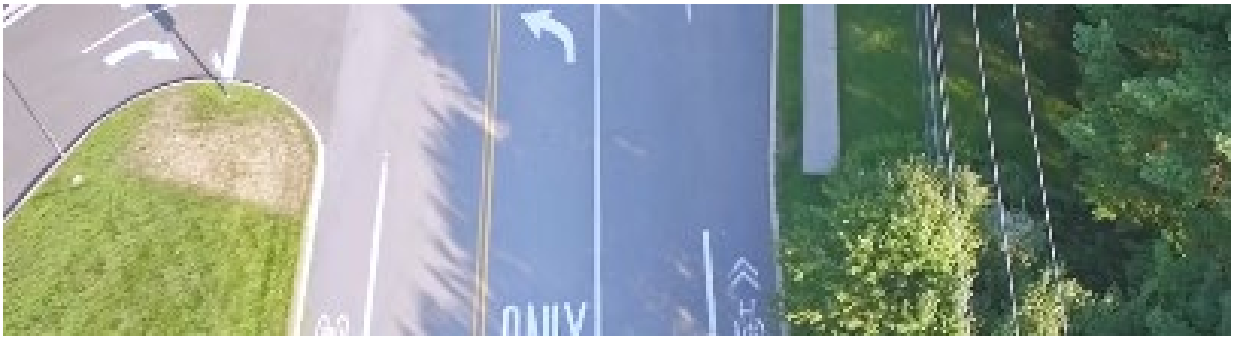
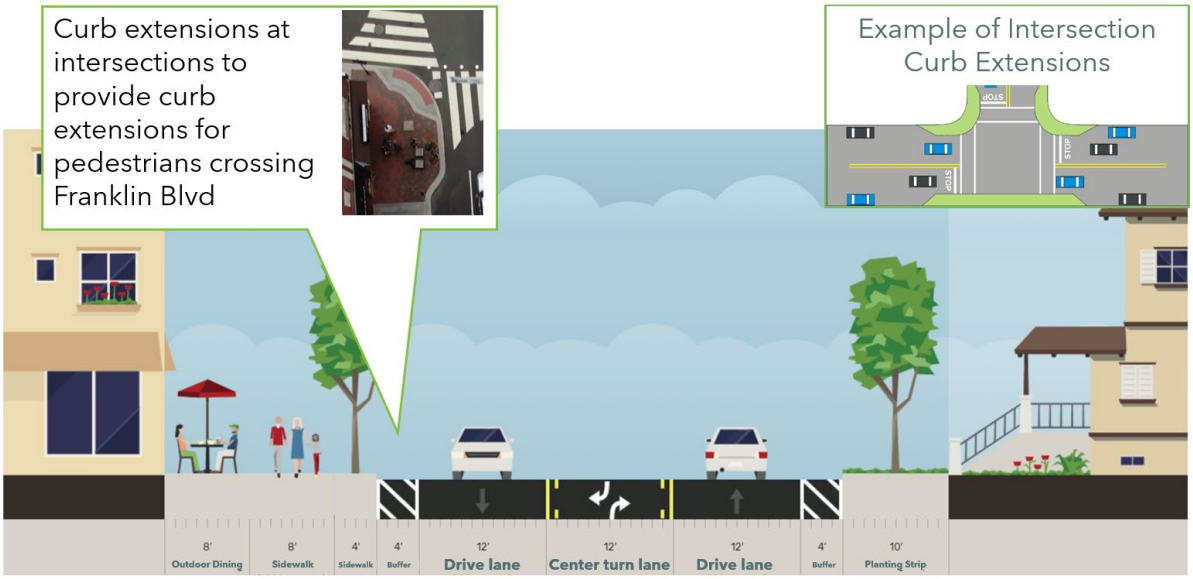


Figure 17 – Alternate Road Diet Option with Shoulders Transitioning to Curb Extensions at Intersections



Alternate Road Diet Option without Bike Lane, Facing North between Frank Street and Fuller Street

[25] NJDOT / FHWA / Rutgers. (2015). 2015 CS Passaic County. YouTube. Civic Eye Collaborative. https://www.youtube.com/watch?v=_BAqvIRwjfM.

North of Hamilton Street, a bike lane is provided on Franklin Boulevard, albeit with limited signing and no striping indicating bicycle usage only. It is proposed that striping be made more prominent with bicycle text striped at regular intervals and intersection locations (**Figure 18** – Buffered Bicycle Lanes in the City of Camden
). During the RSA, it was also noted that, just past the northern limit of the study corridor at Belmar Street, the bike lanes in each direction dropped off for the roadway to accommodate a two-way left turn lane within the cartway width. To provide continuity of bicycle travel, it is recommended that a "BIKE MAY USE FULL LANE" sign be posted on Franklin Boulevard on segments where the bike lane ends (**Figure 19**).

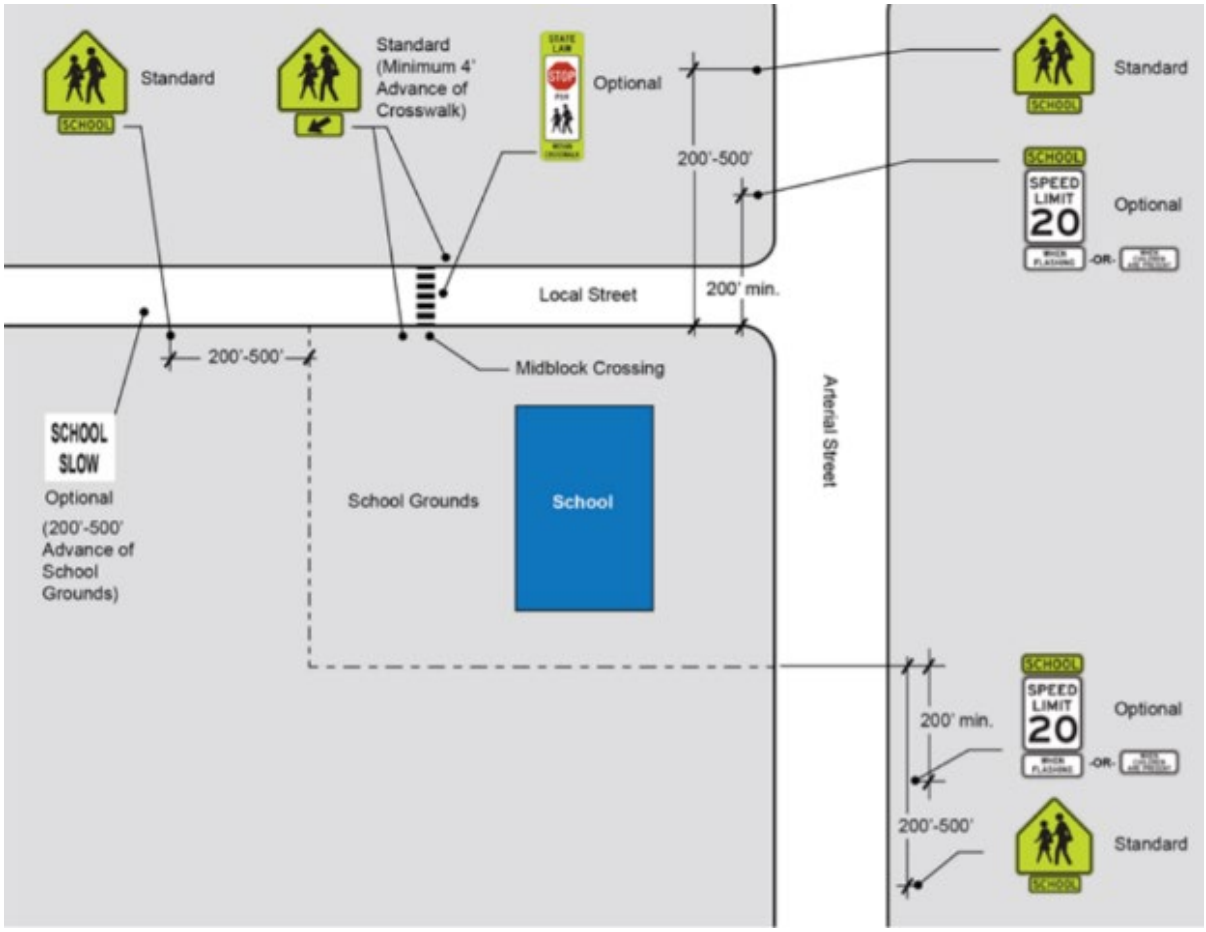
Figure 18 – Buffered Bicycle Lanes in the City of Camden[26]

Figure 19 – MUTCD Sign R4-11

School signing and striping on Franklin Boulevard on approach to Hillcrest Elementary School, and on the school grounds itself needs upgrade to MUTCD standards (sign mounting height, fluorescent yellow-green signing, etc.) and state signing practices. While the overhead flashing beacon provided for both directions of travel helps alert roadway users on Franklin Boulevard of crosswalk traffic during school arrival and dismissal periods, more clear and consistent messaging is needed at street-level. Although not current typical County practice, optional messages striped on the pavement, like "SCHOOL" and "SLOW," could be considered to better catch the cone of vision for drivers passing the school. Wider crosswalk bars also better alert drivers to potential crossing pedestrian traffic. For the re-signing and re-striping of school advisory messages on Franklin Boulevard, the designer should refer to NJDOT's *New Jersey School Zone Design Guide* (2014, key figure shown on **Figure 20**) and the MUTCD for best practices.

[26] NJDOT / FHWA / Rutgers. (2015). 2015 CS Camden. YouTube. Civic Eye Collaborative. https://www.youtube.com/watch?v=lo1oB6vrIRE.

Figure 20 – Figure from New Jersey School Zone Design Guide Showing Signing Placement



Mountable Curbs at Intersections with Route 27 and Hamilton Street

Conceptual design of improvements at Franklin Boulevard intersections with Route 27 and Hamilton Street are underway with NJDOT redesigning the Route 27 (Somerset Street) corridor for a road diet and the County redesigning Hamilton Street, incorporating various safety improvements. In addition to these improvement projects, due to the heavy truck turning movements at these intersections and numerous curb overruns (especially in the northwest corner of both intersections), it is recommended that concrete mountable curbs (**Figure 21**) be considered for the redesigns of both intersections to accommodate the large sweeping truck turning movements at these heavily traveled intersections, mitigating the instances of pedestrian space encroachment and encroachment into the opposing lane of travel. These curbs also allow the designer to tighten turning radii for general passenger car traffic, slowing turning speeds and mitigating the risk of pedestrian-vehicle conflicts and collisions. Should a road diet be achieved at the intersection with Route 27, the additional lateral space provided between the curb and southbound travel lane via the bike lane would mitigate the occurrence of pedestrian space and opposing traffic encroachments for the truck turning movements from Franklin Boulevard southbound onto Route 27 southbound.

Figure 21 – Mountable Concrete Curbs in Portland Oregon[27]

Street Furniture for Store Front Sidewalks

New development projects within this Priority Growth Investment Area (see Phase III study) on the southern end of the corridor, such as 727 Franklin Boulevard between Fuller Street and Frank Street, should specify the design of similar buildings with parking provided behind storefront areas and storefront areas adjacent to the street and sidewalk, which helps drivers to slow vehicle speeds with visual queues of a downtown neighborhood feel. It was noticed, however, that many businesses at 727 Franklin Boulevard were empty and lacked street furniture outside the store front, which made the businesses feel less "engaging" with the street traffic. The Township should consider the addition of street furniture (**Figure 22**) in front of this and other new developments to help provide more of a downtown street feel on Franklin Boulevard. Additional striped crossing locations traversing Franklin Boulevard unlocked by a potential road diet would also help achieve this traffic calming effect.

Figure 22 – Street Furniture in Downtown Haddonfield

Speed Humps on Berry Street and Ellen Street

Cut-through traffic was observed to occur on Berry Street and Ellen Street, with vehicles bypassing peak hour congestion at the intersection with Hamilton Street to the southwest. Speed humps (
Figure 23), combined with turning restrictions could help to discourage this cut-through traffic activity. Speed humps can be designed to slow an average vehicle's wheelbase width yet can also allow for bicyclists and larger emergency vehicles, such as firetrucks, to move along the street unimpeded.

[27] NJDOT. (2017). *2017 State of New Jersey Complete Streets Design Guide.*

Figure 23 – Sample Speed Humps from NACTO[28]

[28] Figure from National Association of City Transportation Officials. (2012). *Urban Street Design Guide*.

VII. Conclusion

This RSA Report seeks to describe the process undertaken by the County to investigate potential traffic safety issues along the Franklin Boulevard corridor, extending from the municipal/County border with New Brunswick City/Middlesex County at the intersection with Route 27 at MP 0.0 to a few hundred feet south of the intersection with Belmar Street at MP 1.0, located in Franklin Township. From survey of prior County, municipal, or regional studies to public and stakeholder outreach conducted as part of this study to the crash data that was reviewed report-by-report to the observations made during in-field audits, potential concerns were observed and recorded, not only for corridor-wide issues, but for location-specific issues.

In order to address these potential concerns, discussions were held with the RSA team and County Engineering to develop a list of tasks to improve traffic safety on the corridor, which are codified in the Implementation Matrix (Chapter VI, Subsection A) in this report. To assist the responsible jurisdictions (whether municipal, County, or separate agency) to schedule and prioritize these improvements, such were classified by anticipated timeline and cost magnitude. It is encouraged that the improvement recommendations are shared with all responsible jurisdictions to increase the benefits to be seen from the recommendations in this report.

While the recommendations in the Implementation Matrix are centered around the engineering (and associated maintenance) of roadway features, changes to hard infrastructure alone will fall shy of the benefit that would be seen by implementing the 5E's of highway safety[29]:

- Engineering: highway design, traffic, maintenance, operations, and planning professionals;
- Enforcement: State and local law enforcement agencies;
- Education: communication professionals, educators, and citizen advocacy groups;
- Emergency response: first responders, paramedics, fire, and rescue; and,
- Equity: prioritizing the safety of vulnerable roadway users.

This approach recognizes a shared responsibility across numerous professions to see improved benefits in corridor crash performance, beyond the anticipated reduction in crashes with the implementation of proven crash countermeasures. RideWise (the County's TMA), law enforcement, and EMS are encouraged to continue their efforts in educating the local driving population, holding driving behaviors accountable to Title 39, improving the response times to severe crash incidents, and reaching underserved communities with these safety strategies.

[29] Adapted from FHWA, https://safety.fhwa.dot.gov/hsip/resources/fhwasa1102/flyr3_in.cfm