
Traffic Calming Plan

Sunset Heights Neighborhood

Prepared by the City of Harrisonburg
Department of Public Works

January 10, 2019



EXECUTIVE SUMMARY

This Traffic Calming Plan was created in response to citizen concerns in the Sunset Heights neighborhood about the high volume of cut-through traffic using neighborhood streets in the general vicinity south of W. Market Street and west of S. High Street. The Sunset Heights neighborhood was formally enrolled in the City's Neighborhood Traffic Calming Program (NTCP) in June, 2018, after completing a number of prerequisite steps for enrollment. The City of Harrisonburg Department of Public Works led the development of the plan, in partnership with the Harrisonburg Police Department and neighborhood residents.

The plan below describes the step-by-step process the neighborhood went through to reach enrollment in the NTCP, identifies traffic calming measures that may be implemented in the neighborhood, as well as the phases, or order, in which they will be implemented. Finally, the plan discusses the evaluation process that will occur after each phase, to determine whether additional phases are needed.

The proposed locations for the traffic calming practices can be found in Appendix A, and representative pictures of the practices can be found in Appendix B. Phase I includes changes to the intersections of High Street at W. Market Street that seek to reduce the tendency for drivers to use S. Dogwood or S. Willow Street to avoid the traffic signal at this intersection. Minor signal timing changes at the High Street/Maryland Avenue signal will improve pedestrian safety. A digital speed radar sign will be installed on Maryland Avenue to display the driver's speed to the driver. Stop bars will be installed at all stop signs in the neighborhood in Phase I.

Phase II of the plan, if needed, focuses on strategies to reduce speeds on S. Dogwood Drive and Maryland Avenue. Changes to on-street parking, as well as the addition of bike lanes to S. Dogwood will narrow the driving lanes to make speeding less comfortable between Maryland Avenue and W. Water Street. A speed hump is proposed for Maryland Avenue, if Phase I fails bring speeds down sufficiently.

Phase III of the plan, if needed, includes a treatment at the intersection of S. Dogwood and Maryland Avenue to reduce speeds. This would be either a mini-roundabout or a raised intersection. Additionally, a mini-roundabout at the three-legged intersection of S. Willow Street, Chestnut Drive, and W. Grace Street is proposed. Finally, when S. Willow Street is next paved, pavement markings will be modified slightly to remove any unintended indication to drivers that the street is intended for through traffic.

INTRODUCTION

The concerns of speeding and cut-through traffic in the Sunset Heights neighborhood have been persistent over the years. Citizens have been in contact with Public Works Department various times since as early as 2007 about drivers using Dogwood Drive and Chestnut Avenue as a way to avoid S. High Street, as well as drivers illegally passing vehicles driving the speed limit and stopped school buses. The latest effort to seek improvements to these conditions began in the Spring of 2015. Staff concluded that the most appropriate way to comprehensively address the traffic issues was for the neighborhood to work toward enrollment in the City's Neighborhood Traffic Calming Program, which exists to address

such issues. In June, 2018, City Council formally enrolled the neighborhood in the program, following the completion of prerequisite steps. These steps are described below.

NEIGHBORHOOD TRAFFIC CALMING PROGRAM

The Neighborhood Traffic Calming Program (NTCP) is a partnership between the residents of the affected neighborhood, the Harrisonburg Police Department, and the Department of Public Works. The purpose of traffic calming is to address problems related to speeding and cut-through traffic conditions in residential neighborhoods, on local or residential streets. Traffic Calming focuses on slowing traffic without restricting movement. The program is based on the “5 E’s” often referred to in improving traffic safety. The five E’s are a progressive set of strategies that can be used to calm traffic to a safer and more tolerable condition by changing the behavior of drivers. They begin with passive, inexpensive strategies, and progress to physical strategies that require more resources to implement, and rely more on physical geometry of the street to slow traffic, rather than driver self-control. The five E’s are listed below, and are implemented in the order they appear. If traffic has calmed as a result of efforts made in the earlier stages, the neighborhood does not proceed to the next phase.

- Education – education of residents and other drivers in the neighborhood to create awareness that there is a problem with speeding, cut-through traffic, and/or other traffic issues in the neighborhood that are adversely affecting residents. In this initial phase, neighbors begin communicating with each other about the problem and participate in the Team Up to Slow Down campaign.
- Encouragement – neighbors encourage each other to obey traffic controls and be respectful of the neighborhood setting, which often includes children’s safety, when navigating the neighborhood. Education and encouragement occur at the same time, during the same activities listed under education. The Harrisonburg Police Department also uses its portable radar unit in neighborhoods to make drivers aware of their speed, and promote self-regulation of the speed limit.
- Enforcement – the neighborhood requests increased enforcement with traffic controls, including speeding, obeying speed limits, and other driving laws.
- Engineering – the neighborhood works with the Department of Public Works during this phase to identify appropriate physical practices to implement that change the geometry of the street, causing drivers to slow down to a speed that feels more comfortable and safe in a more restricted environment. A traffic study, petition of the neighborhood, and City Council approval are required before progressing to this phase. Engineering practices are implemented in phases, so that no more than the minimum amount of traffic flow restriction necessary to address the issues is imposed upon the neighborhood.
- Evaluation – after each phase of traffic calming implementation, an evaluation occurs to determine whether the issues have been addressed satisfactorily. Evaluation includes neighborhood feedback, and traffic studies following each phase of engineered practice implementation.

PROGRAM PROCESS

The Sunset Heights neighborhood conducted the education, encouragement, and enforcement activities on the dates listed below. The neighborhood is now beginning the engineering phase. Upon completion of this plan, and endorsement by City Council, the Department of Public Works will begin implementing this plan, and evaluating effectiveness after each phase.

TRAFFIC CALMING PHASE/ACTIVITY	TIMEFRAME
• Education & encouragement	March – May 2015
• Increased enforcement	March 2015
• Neighborhood meeting with Harrisonburg Police Department & Public Works	June 2015
• Traffic study of neighborhood (approved by City Council)	Fall 2015
• Petition of neighborhood	Winter 2015 – Spring 2018
• Enrollment approved by City Council	June 2018
• Neighborhood representative meeting with Public Works (initial plan development)	August 2018
• Neighborhood open-house meeting (open to public) to review and provide feedback on the draft Traffic Calming Plan	January 2019 (future)
• Presentation of Plan to Transportation Safety & Advisory Commission	February 13, 2019 (future)
• Endorsement of Plan by City Council	March 2019 (future)
• Begin implementation of Plan	Spring 2019 (future)

TRAFFIC STUDY OF THE NEIGHBORHOOD

The neighborhood submitted a request to City Council asking for the Public Works Department to conduct a traffic study of the neighborhood, which was approved by City Council in July 2015. The study area included streets on which there were significant concerns, and surrounding streets, to get the baseline traffic conditions. The results of the study were shared with the neighborhood in December 2015 and concluded that multiple neighborhood streets met the criteria to enroll in the Neighborhood Traffic Calming Program. Listed below is the minimum criteria to enroll in the program. Neighborhood streets must meet at least one of the conditions in the list. Appendix C shows the locations where data was collected, the 85th percentile speeds, and average daily traffic counts found at those locations. The study concluded that portions of S. Dogwood Drive, Maryland Avenue, W. Grace Street, and Willow Drive met one or more of the criteria. These streets will be the focus of the traffic calming plan, moving forward.

- Streets meeting minimum volume requirements – daily traffic greater than 600 vehicles
- Streets meeting 85th percentile speed requirements – 10 mph over posted speed limit
- Documented cut-through traffic

Crash data was also analyzed as part of the traffic study. Crash rates were generally low, and patterns of crashes were not found, with the exception of the intersection of Chestnut Avenue at New York Avenue.

While traffic volumes are much lower at this intersection than some others throughout the neighborhood, it has experienced twice to three times the number of accidents of other, higher volume intersections. After reviewing crash reports for this intersection, it was determined that crashes were not of similar cause, and no specific countermeasure would address all or the majority of causes.

Origin-destination information was also collected as part of the study. It was found that Google Maps directs drivers to use S. Dogwood Drive to Maryland Avenue when trips begin at Westover Park or west of Dogwood Drive and end south of Maryland Avenue. Staff and neighborhood representatives acknowledged that the location of the Cecil F. Gilkerson Community Center, Westover Park, and the pool at the park are all major destinations for the 53,000+ residents of the City, and that while there may be some diversion of this traffic due to traffic calming measures, it is likely to continue to be used by many. However, those using the route are expected to obey traffic laws and drive like they are in a neighborhood, and traffic calming measures are intended to increase compliance with traffic laws.

GOALS OF THE TRAFFIC CALMING PLAN

There are two main goals of this Traffic Calming Plan:

- 1) To reduce speeds on S. Dogwood Drive and Maryland Avenue.
- 2) To change the perception that S. Dogwood Drive and S. Willow Street are alternatives to S. High Street for through traffic.

The Traffic Calming Plan builds upon an existing enforcement strategy to reduce speeding and cut-through traffic. The Harrisonburg Police Department already has the authority to impose increased fines for speeding on S. Dogwood Drive and Maryland Avenue. This ability is authorized by state code, and was put into place in 2005 as a measure to address speeding and cut through traffic. Between the increased fine and slower travel time, some traffic is expected to divert off of this route.

The engineering strategy is based on the design of the street, which influences driver behavior. The engineering strategy will introduce minor horizontal or vertical impediments that that will slow speeds and increase the travel time to through the neighborhood. The engineered strategy will also enhance stop-controlled intersections with the intent of increasing compliance with stop signs. Safety is expected to increase due to slower speeds and increased compliance with stop signs.

TRAFFIC CALMING PRACTICES & PHASES

The Traffic Calming Plan establishes phases of implementation for engineered traffic calming strategies, as the goal is to implement only as many strategies as are necessary to reduce cut-through traffic and increase traffic control compliance to acceptable levels. The phases identified by the neighborhood, in partnership with the Harrisonburg Police Department and Department of Public Works are shown in the table below. A map showing the proposed location of the practices, by phase, can be found in Appendix A. Photos of each type of recommended practice can be found in Appendix B. The Public Works Department is responsible for implementing the phases, as planned.

PHASE/PRACTICE	ESTIMATED COST
Phase I	TBD
1) Intersection of W. Market Street and S. High Street: <ul style="list-style-type: none"> Modify traffic signal operation and reconfigure west approach to increase the level of service for the eastbound right turn onto S. High Street. <u>Support:</u> Improving the level of service for this movement may reduce the tendency for drive to try to avoid the signal delay by using S. Dogwood Drive and S. Willow Street.	
2) Intersection of S. High Street and Maryland Avenue: <ul style="list-style-type: none"> Add a leading pedestrian phase crossing S. High Street Study intersection to determine if warrants are met for “Turning vehicles yield to pedestrians” signs <u>Support:</u> The intersection is used as a safe route to school.	
3) Maryland Avenue: <ul style="list-style-type: none"> Digital speed radar sign <u>Support:</u> The expected result is that drivers will reduce their speed when they can see how far above the speed limit they are driving.	
4) East-west streets <u>Intersections</u> from Maryland Avenue to W. Market Street <u>South Avenue to W. Grace Street and S. High Street to S. Dogwood Drive:</u> <ul style="list-style-type: none"> Add stop bars at all stop signs <u>Support:</u> Increase compliance with stop signs will improve safety. Stop bars will help correct confused that may be caused by Maryland Avenue being the only east-west street to have no stop signs (since it is the major movement, as a neighborhood collector), while all other east-west streets are stop controlled at every intersection.	
Phase II	TBD
1) S. Dogwood Drive – Water Street to Maryland Avenue <ul style="list-style-type: none"> Restrict parking to one side. Narrow the travel lanes by adding bicycle lanes to both sides. Create a chicane effect that reduces driver speeds by alternating on-street parking to the other side of the street, by block, transitioning the typical section through the intersections. Add 2 parking spaces on west side of street between park and church to provide a chicane on this segment. Include hatched pavement markings at back side of on-street parking to protect parked cars. Remove sharrows. <u>Support:</u> Because on-street parking is poorly utilized on much of this stretch, the very wide road encourages drivers to speed. Chicaneing and bicycle lanes will narrow the travel lanes to reduce speeds. Bicycle lanes on this segment are justified by the relatively higher volume of traffic, and the connection to the park, where new bicycle facilities are soon to come online.	
2) Maryland Avenue: <ul style="list-style-type: none"> Speed hump <u>Support:</u> This speed control measure preserves the on-street	

parking that is regularly utilized.

Phase III

TBD

- 1) Intersection of Maryland Avenue and Dogwood Drive
 - Intersection treatment (miniroundabout or raised median, TBD by neighborhood input)
Support: An intersection control will reduce speeds by inducing yielding on the uncontrolled approaches, and in the case of the miniroundabout, greatly reduce conflict points, thereby increasing safety for all modes.

- 2) Intersection of Willow Street, Chestnut Drive, W. Grace Street
 - Construct miniroundabout
Support: The intersection will operate more intuitively, and more safely serve the traffic volumes of the adjacent institutional land use (James Madison University, Memorial Hall) by reducing conflict points.

With Paving Schedule

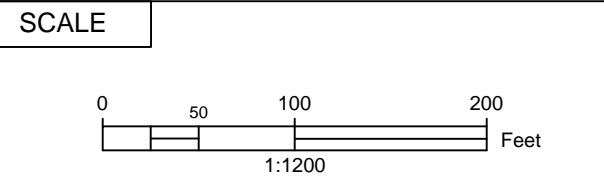
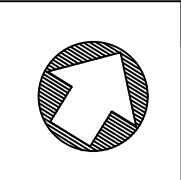
n/a

- 1) Willow Street
 - When next paved, remove double yellow line, except at stop or yield controls.
Support: Removing the centerline favors local road design, the intended purpose of which is to provide access to properties, instead of a design more appropriate for a collector street that may encourage through traffic use.

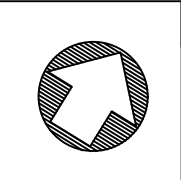
EVALUATION

After each phase of implementation, there will be a waiting period of two to three months, to allow time for traffic patterns can readjust. After traffic has readjusted, the Public Works Department will conduct a new traffic study to determine the effectiveness of the new practices. The waiting period will be adjusted based on the James Madison University semester schedule. Studies will not be performed while students are away, nor within the first couple of weeks of any semester, or exam time, as traffic patterns are not the norm during these periods. No additional phases will be implemented, if the traffic study indicates that cut-through traffic and speeding has reduced to acceptable levels. Education, encouragement, and enforcement can continue to be utilized strategies, as needed.

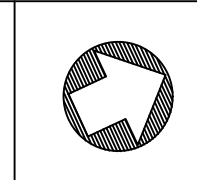
**Appendix A:
Proposed Traffic
Calming Practice
Locations**



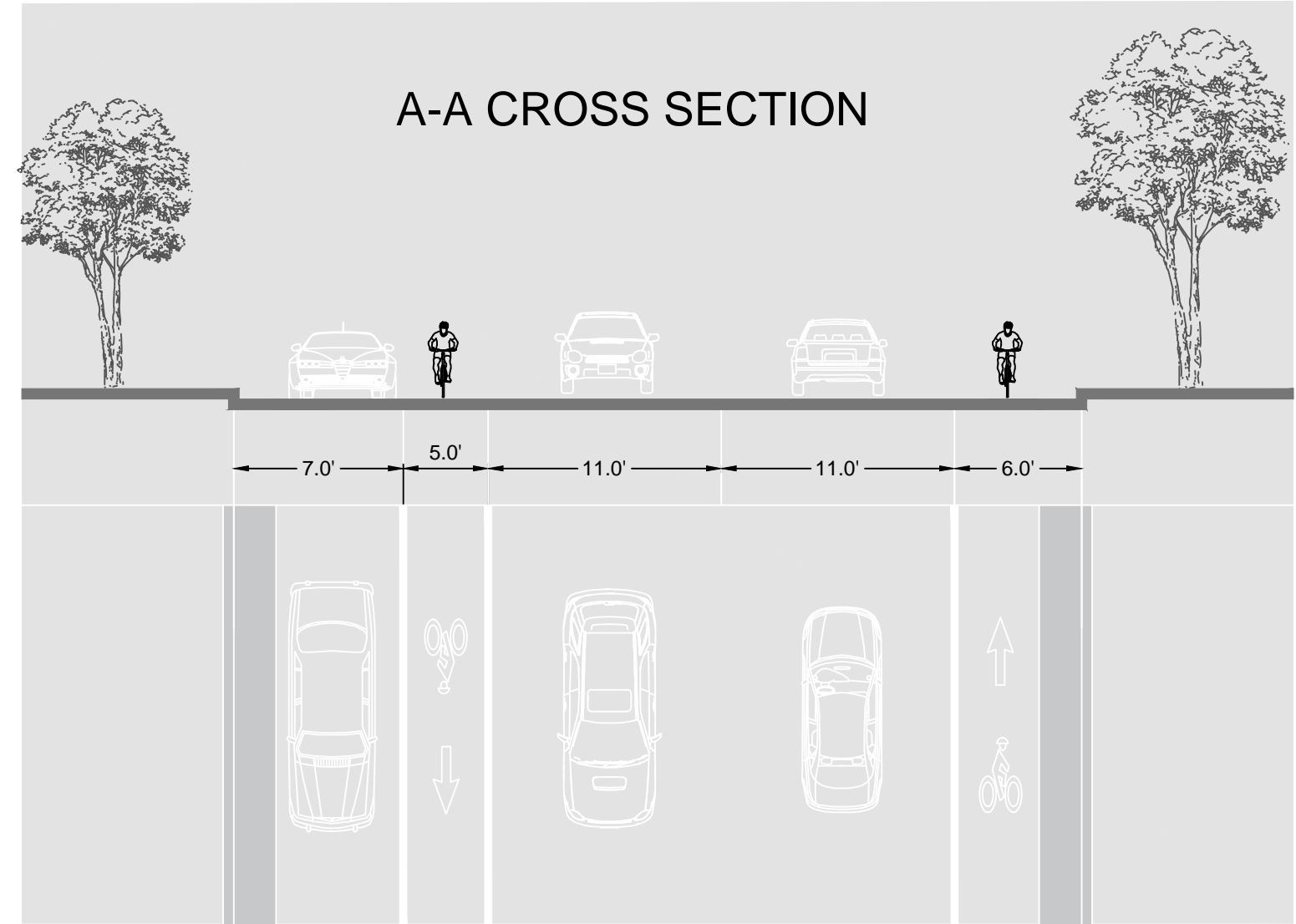
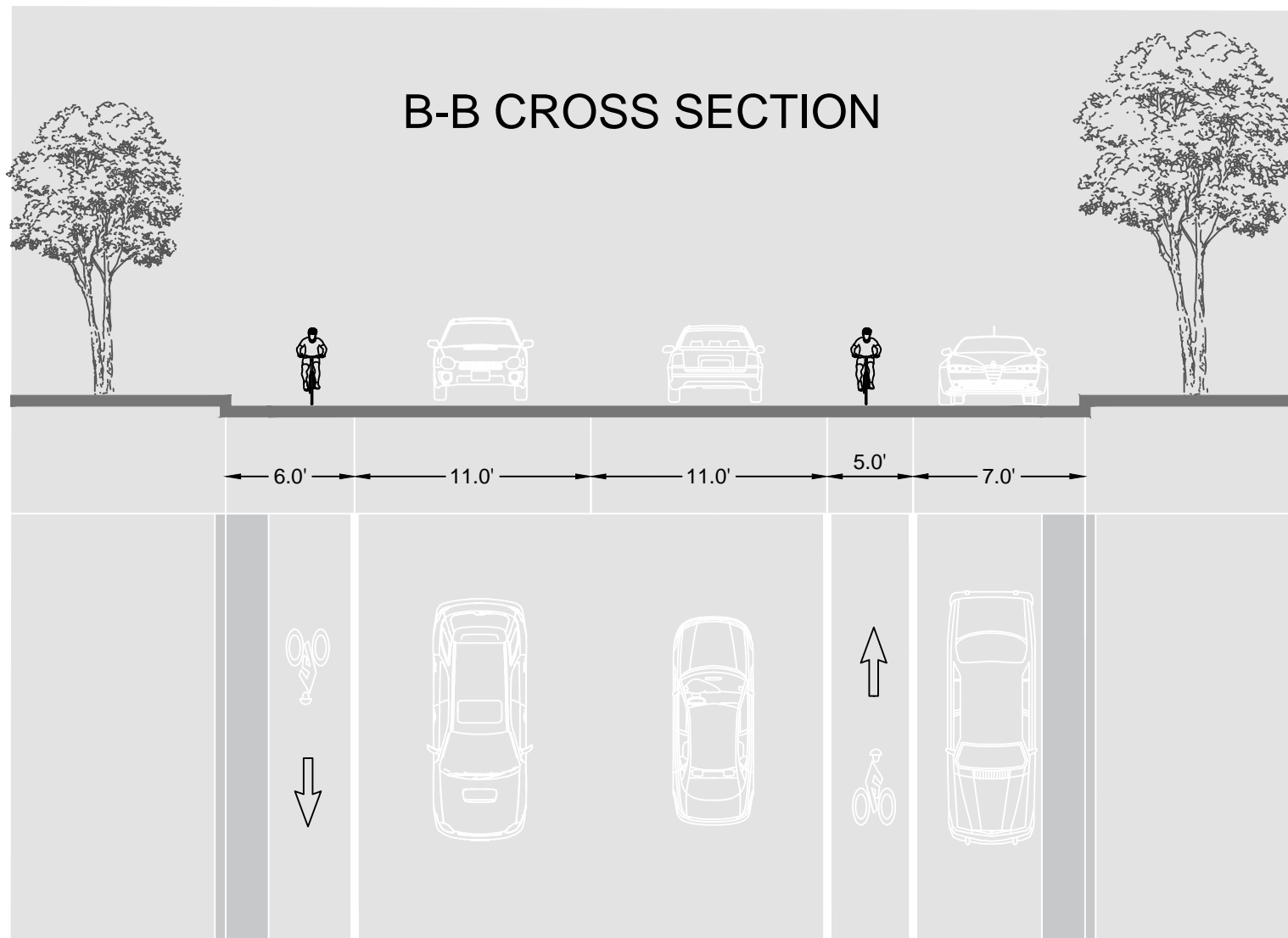
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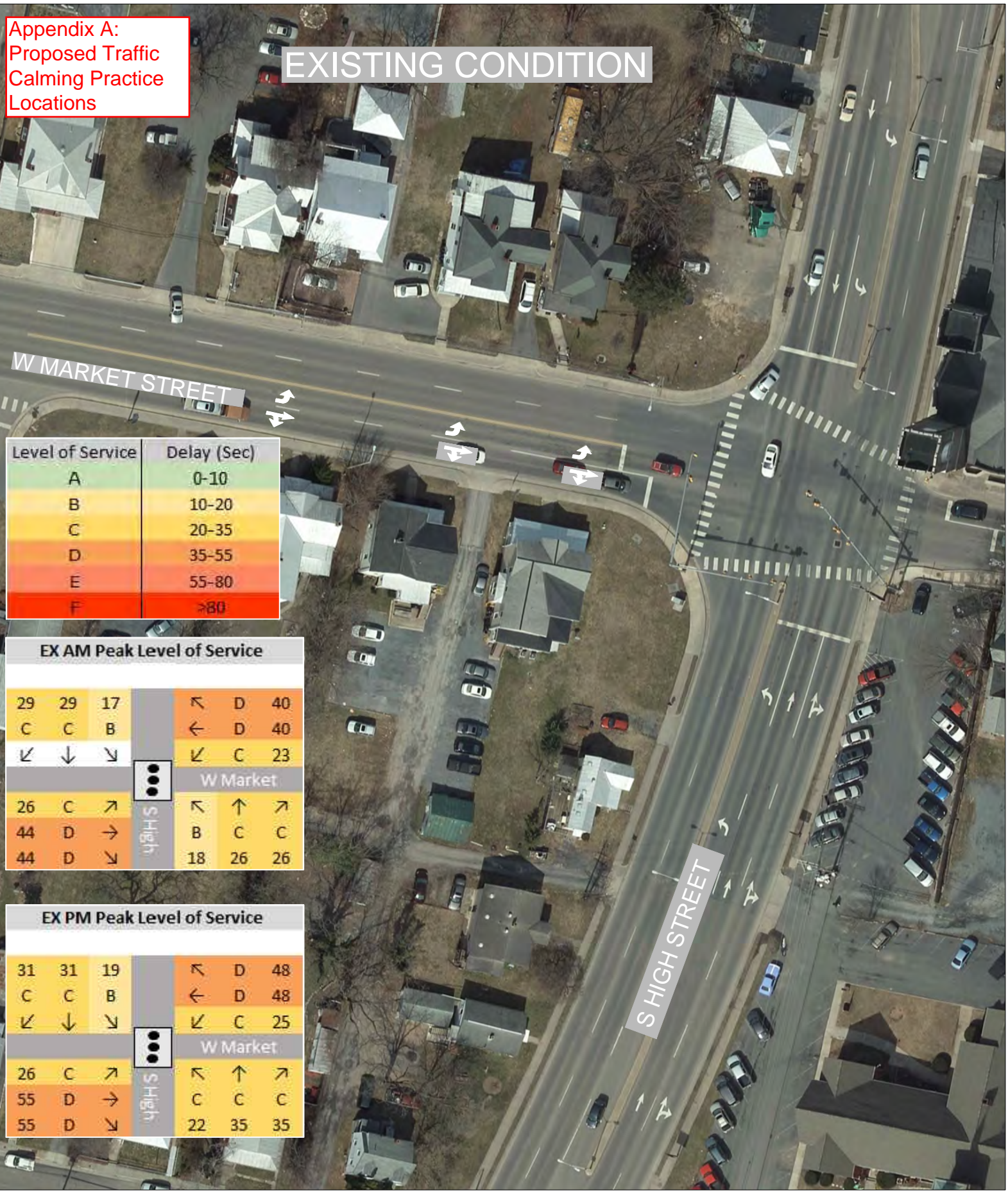


S. DOGWOOD TYPICAL SECTIONS



Appendix A:
Proposed Traffic
Calming Practice
Locations

EXISTING CONDITION



Level of Service	Delay (Sec)
A	0-10
B	10-20
C	20-35
D	35-55
E	55-80
F	>80

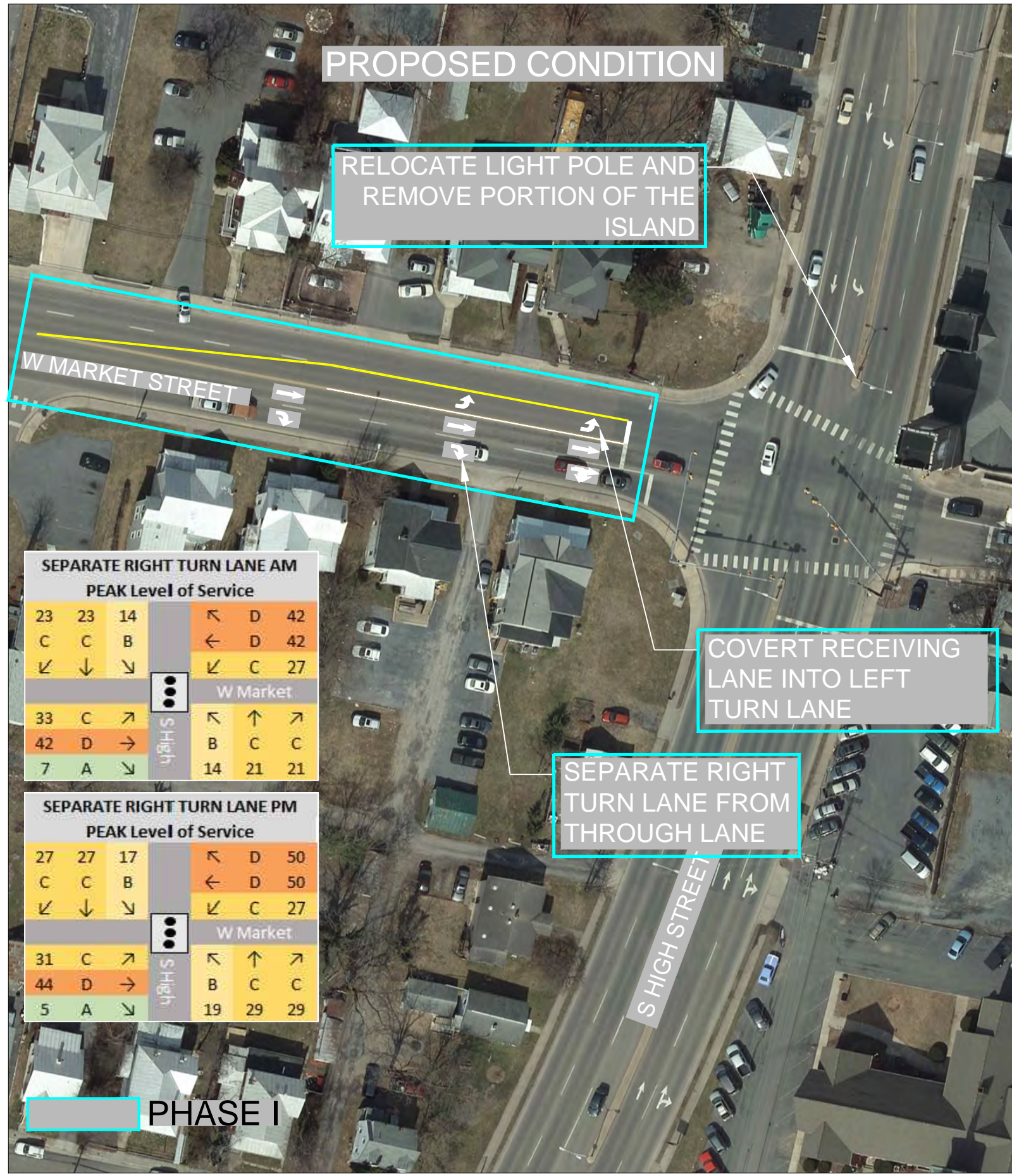
EX AM Peak Level of Service

29	29	17	↖	D	40
C	C	B	←	D	40
↙	↓	↘	↙	C	23
W Market					
26	C	↗	↖	↑	↗
44	D	→	B	C	C
44	D	↘	18	26	26

EX PM Peak Level of Service

31	31	19	↖	D	48
C	C	B	←	D	48
↙	↓	↘	↙	C	25
W Market					
26	C	↗	↖	↑	↗
55	D	→	C	C	C
55	D	↘	22	35	35

PROPOSED CONDITION



RELOCATE LIGHT POLE AND
REMOVE PORTION OF THE
ISLAND

COVERT RECEIVING
LANE INTO LEFT
TURN LANE

SEPARATE RIGHT
TURN LANE FROM
THROUGH LANE

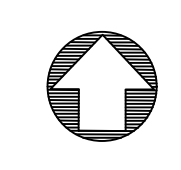
**SEPARATE RIGHT TURN LANE AM
PEAK Level of Service**

23	23	14	↖	D	42
C	C	B	←	D	42
↙	↓	↘	↙	C	27
W Market					
33	C	↗	↖	↑	↗
42	D	→	B	C	C
7	A	↘	14	21	21

**SEPARATE RIGHT TURN LANE PM
PEAK Level of Service**

27	27	17	↖	D	50
C	C	B	←	D	50
↙	↓	↘	↙	C	27
W Market					
31	C	↗	↖	↑	↗
44	D	→	B	C	C
5	A	↘	19	29	29

PHASE I



Sunset Heights Neighborhood Traffic Calming Practices

*Below are example photos of the practices identified in the Traffic Calming Plan, intended to convey the concepts of the practices. Actual practice may differ slightly from those show here.

Phase I:



1) Eastbound turn lane reconfiguration



2) Leading pedestrian phase & "Turning Vehicles Yield to Pedestrians" signs



3) Digital speed radar sign



4) Stop bars at stop signs

Phase II:



1) Chicane using on-street parking



2) Speed Hump – wide traversable speed hump, approximately 6” tall

Phase III:

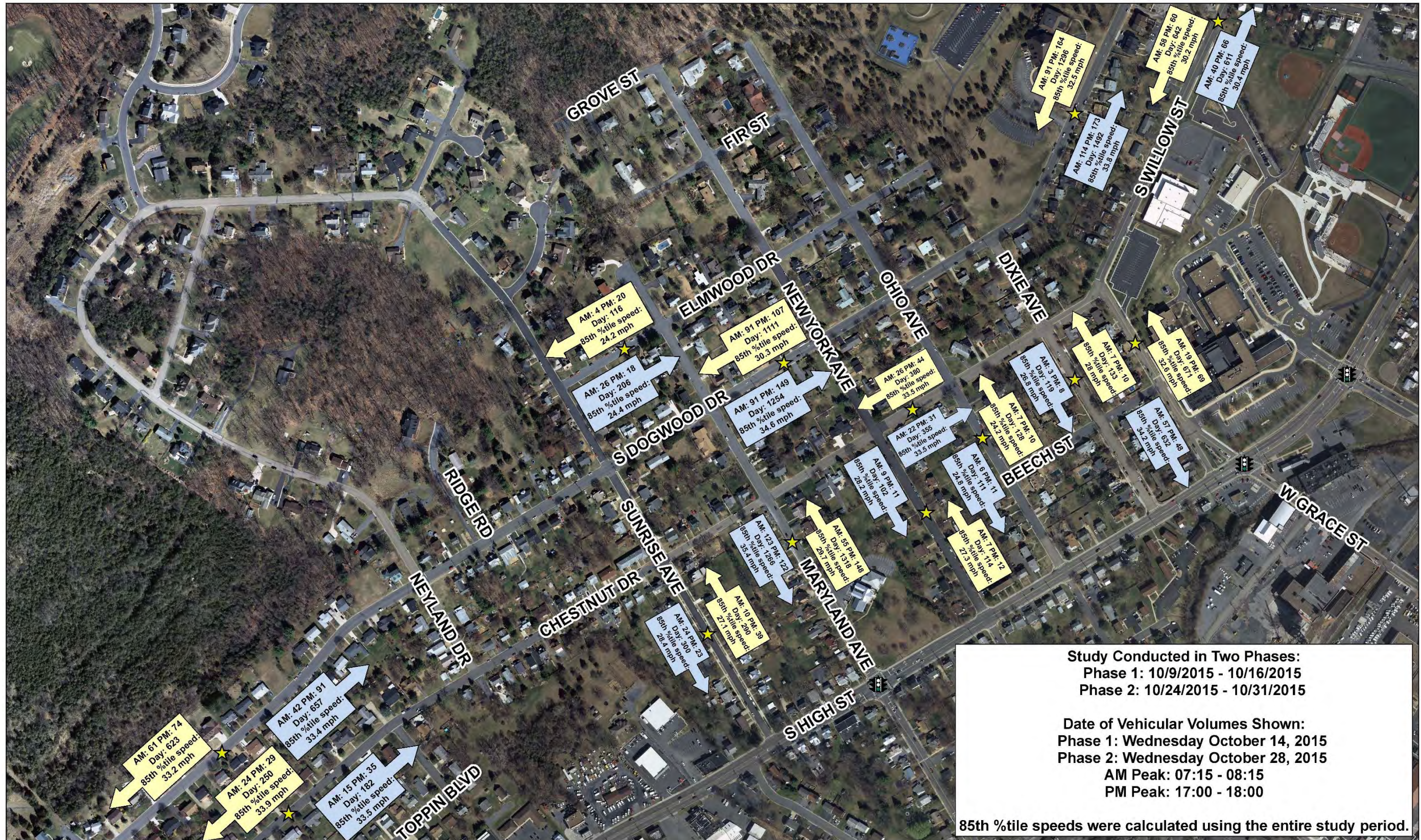


1) Intersection of Dogwood Drive and Maryland Avenue, option 1: Raised intersection



- 1) Intersection of Dogwood Drive and Maryland Avenue, option 2: Miniroundabout
- 2) Intersection of Willow Street, Chestnut Drive, and W. Grace Street: Miniroundabout proposed

Appendix C: Traffic Study



- Legend**
- Traffic Signal
 - Counter Location

Sunset Heights Neighborhood
 Neighborhood Traffic Calming Study

Study Conducted 10/9/2015 - 10/31/15

