



# Route 28 Priority Corridor Study

Milton, Massachusetts

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*Milton, Massachusetts*

Project Manager  
Seth Asante

Project Principal  
Mark Abbott

Data Analysts  
Kathy Jacob

Graphics  
Kenneth Dumas

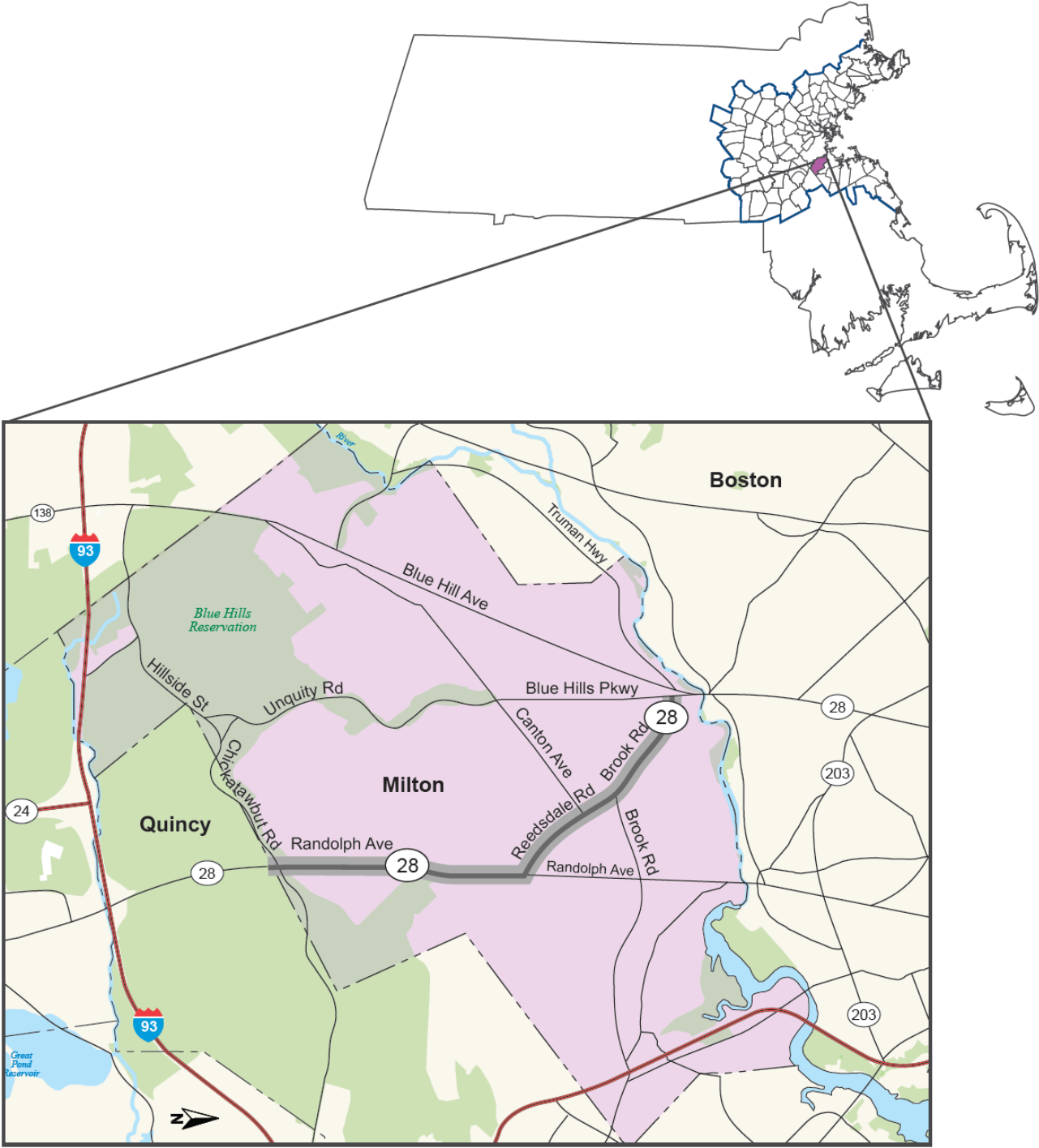
Cover Design  
Kim DeLauri

Editor  
Meghan O'Connor

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Central Transportation Planning Staff is directed by the Boston Region Metropolitan Planning Organization (MPO). The MPO is composed of state and regional agencies and authorities, and local governments.

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For general inquiries, contact  
 Central Transportation Planning Staff  
 State Transportation Building  
 Ten Park Plaza, Suite 2150  
 Boston, Massachusetts 02116

857.702.3700  
[ctps@ctps.org](mailto:ctps@ctps.org)  
[ctps.org](http://ctps.org)

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## Abstract

The *Route 28 Priority Corridor Study* focuses on one of the locations identified in the Needs Assessment for *Destination 2040*, the Metropolitan Planning Organization's (MPO) Long-Range Transportation Plan (LRTP) endorsed in 2019. The LRTP is used to guide investment decisions regarding transportation infrastructure improvements in the Boston region. The MPO prioritized Route 28 in Milton for study after considering a number of factors: the need to address poor safety conditions and traffic congestion; the desire to enhance multimodal transportation; and the potential for recommendations from the study to be implemented. This report details the existing conditions, assesses safety and operational problems, discusses options for improvements, and makes recommendations for implementing improvements. The recommendations, if implemented, would transform the roadway into a more pedestrian- and bicyclist-friendly roadway, improve safety at high-crash locations, make traffic flow and operations efficient, support the vision of connecting the neighborhoods to places, such as schools and local businesses, and promote multimodal transportation.

**TABLE OF CONTENTS** **PAGE**

- TABLES ..... 8
- FIGURES..... 9
- APPENDICES ..... 9
- Executive Summary ..... 10**
  - ES.1 Background .....10
  - ES.2 Existing Conditions and Needs Assessment .....10
  - ES.3 Proposed Improvements .....12
    - ES.3.1 Short-Term Improvements.....12
    - ES.3.2 Long-Term Improvements.....12
  - ES.4 Conclusion .....12
- Chapter 1—Introduction ..... 14**
  - 1.1 Origin of Study .....14
- Chapter 2— Study Location and Process ..... 16**
  - 2.1 Selection Process .....16
  - 2.2 Study Goals and Objectives.....18
  - 2.3 Advisory Task Force .....18
- Chapter 3—Roadway Characteristics ..... 20**
  - 3.1 Study Area Corridor .....20
    - 3.2 Route 28 (Brook Road Corridor).....23
    - 3.2 Route 28 (Reedsdale Road Corridor) .....23
    - 3.2 Route 28 (Randolph Avenue Corridor).....23
  - 3.2 Study Intersections.....23
    - 3.2.1 Route 28 (Brook Road) and Blue Hills Parkway .....24
    - 3.2.2 Route 28 (Brook Road) at St. Mary’s Road Intersection .....24
    - 3.2.3 Route 28 (Brook Road) at Standish Road Intersection .....25
    - 3.2.4 Route 28 (Brook Road and Reedsdale Road) at Central Avenue Intersection.....25
    - 3.2.5 Route 28 (Reedsdale Road) at Canton Avenue and Centre Street Intersection.....25
    - 3.2.6 Route 28 (Reedsdale Avenue) at Hospital Driveway Intersection ..26
    - 3.2.7 Route 28 (Reedsdale Road) at Randolph Avenue Intersection .....26

- 3.2.8 Route 28 (Randolph Avenue) at Reed Street/Access Road Intersection.....27
- 3.2.9 Route 28 (Randolph Avenue) at Hallen Avenue Intersection .....27
- 3.2.10 Route 28 (Randolph Avenue) at Hillside Street/Driveway Intersection 27
- 3.2.11 Route 28 (Randolph Avenue) at Chickatawbut Road Intersection..28
- Chapter 4—Data Collection ..... 30**
  - 4.1 Traffic Data.....30
  - 4.2 Intersection Layouts And Signal Timing Data .....30
  - 4.3 Crash Data .....30
  - 4.4 Transit Services .....30
  - 4.5 Projects .....30
- Chapter 5—Projects and Studies ..... 58**
  - 5.1 Reconstruction of Randolph Road and Chickatawbut Road Intersection ....58
  - 5.2 The Brook Road—Road Diet.....58
  - 5.3 Reedsdale Road at Beth Israel Deaconess Hospital: Pedestrian and Transit Improvements.....58
- Chapter 6—Existing Conditions Analysis ..... 32**
  - 6.1 Vehicle, Pedestrian, and Bicycle Volumes .....32
    - 6.1.1 Vehicular Volumes .....32
    - 6.1.2 Pedestrian Volumes.....32
    - 6.1.3 Bicycle Volumes .....35
  - 6.2 Vehicle Speed Information .....36
  - 6.3 Crash Data and Safety Analysis .....38
    - 6.3.1 Crash Summaries .....38
    - 6.3.2 Highway Safety Improvement Program (HSIP) Crash Clusters.....39
    - 6.3.3 Predicted and Expected Crashes.....41
    - 6.3.4 Analysis of Crash Diagrams.....43
      - High Priority Segments .....43
      - High Priority Intersections .....43
  - 6.4 Level of Service (LOS) Analysis .....51
    - 6.4.1 Intersection LOS.....51
    - 6.4.2 Pedestrian Level of Service (PLOS) .....54

- 6.4.3 Bicycle Level of Service (BLOS).....55
- 6.5 Transit Services .....55
- Chapter 7—Community and Stakeholder Engagement..... 60**
- 7.1 Community Survey .....60
- Chapter 8—Deficiencies and Needs ..... 62**
- 8.1 Deficiencies .....62
- 8.2 Needs Assessment.....63
- Chapter 9—Short-Term Improvements ..... 64**
- 9.1 Short-Term Improvements .....64
- Chapter 10—Long-Term Improvement Concepts ..... 70**
- 10.1 Future Traffic Projections.....70
- 10.2 Brook Road Improvement Concepts .....70
  - 10.2.1 Concept 1—Road Diet, Separated Bike Lanes, and Parking .....70
  - 10.2.2 Concept 2—Road Diet, Separated Bike Lanes, Parking, and Median with Left-turn Lanes .....73
  - 10.2.3 Concept 3—Road Diet, Separated Bike Lanes, Parking, and Two-Way Left-Turn Lane .....73
  - 10.2.4 Retrofit Brook Road and Reedsdale Road and Central Avenue Intersection with Roundabout .....73
- 10.3 Reedsdale Road Improvement Concepts .....77
  - 10.3.1 Concept 1—Road Diet Separated Bike Lanes, and Two-Way Left-Turn Lane .....77
  - 10.3.2 Concept 2—Road Diet, Multiuse Path, Median with Left-Turn Lanes, and Parking .....79
  - 10.3.3 Concept 3—Lane Diet (Narrow Lanes) with Multiuse Path.....81
- 10.4 Randolph Avenue Segment Improvement Concepts.....82
  - 10.4.1 Concept 1—Lane Diet (Narrow Lanes) with Multiuse Path.....82
  - 10.4.3 Concept 2—Two Southbound Lanes, One Northbound Lane, Left-Turn Lanes, and Multiuse Path .....84
  - 10.4.2 Concept 3—Two-Way Left-Turn Lane, Separated Bike Lanes, and Improved Sidewalks.....85
  - 10.4.5 Retrofit Randolph Avenue and Reedsdale Road Intersection into Roundabout .....85

- 10.4.3 Signalize the Intersections of Randolph Avenue at Hallen Avenue and Ridgewood Road/Wollaston Golf Club Driveway ..... 91
- 10.5 Pedestrian LOS with Improvements..... 91
- 10.6 Bicycle LOS with Improvements ..... 91
- 10.7 Safety Impacts of Proposed Improvements ..... 91
- 10.8 Comparison of Improvement Concepts ..... 92
- Chapter 11—Conclusion and Next Steps..... 94**
- 11.1 Project Implementation ..... 94
- 11.2 Project Development..... 94

**TABLES**

- Table 1 Peak Period Pedestrian Volumes ..... 35
- Table 2 Peak Period Bicycle Volumes..... 35
- Table 3 Observed Spot Speeds..... 36
- Table 4 Route 28 Crash Statistics (Five-Year Crash Summary) ..... 38
- Table 5 Potential for Safety Improvements ..... 42
- Table 6 Comprehensive Costs of Crashes..... 43
- Table 7 Intersection Level of Service Criteria..... 51
- Table 8 Brook Road: Existing Conditions, Levels of Service, Delays, and Queues ..... 52
- Table 9 Reedsdale Road: Existing Conditions Levels of Service, Delays, and Queues 53
- Table 10 Randolph Avenue: Existing Conditions Levels of Service, Delays, and Queues..... 54
- Table 11 Problems and Deficiencies ..... 62
- Table 12 Short-Term Improvements..... 65
- Table 13 Brook Road: Performance of Short-Term Improvements ..... 67
- Table 14 Reedsdale Road: Performance of Short-Term Improvements ..... 68
- Table 15 Randolph Avenue: Performance of Short-Term Improvements ..... 69
- Table 16 Brook Road: Performance of Long-Term Improvement Concept 1..... 72
- Table 17 Brook Road: Performance of Long-Term Improvements Concepts 2 and 3... 75
- Table 18 Performance of Brook Road and Reedsdale Road Roundabout Concept..... 77
- Table 19 Reedsdale Road: Performance of Long-Term Improvements—Concepts 1 and 2..... 79
- Table 20 Reedsdale Road: Performance of Long-Term Improvement—Concept 3..... 81
- Table 21 Randolph Avenue: Performance of Long-Term Improvement—Concept 1 .... 84
- Table 22 Randolph Avenue: Performance of Long-Term Improvement—Concept 2 .... 87
- Table 23 Randolph Avenue: Performance of Long-Term Improvement—Concept 3 .... 88
- Table 24 Performance of Randolph Avenue and Reedsdale Roundabout Concept..... 89

**FIGURES**

Figure 1 Route 28 in Milton Study Area and Nearby Roadways ..... 17

Figure 2 Jurisdictional Map and Study Intersections..... 21

Figure 3 Study Area Key Map..... 22

Figure 4 Average Weekday Traffic Volumes ..... 33

Figure 5 Weekday Peak-Hour Turning Movement Volumes..... 34

Figure 6 Measured and Posted Speeds ..... 37

Figure 7 Observed Intersection and Segment Crashes (2013–17) ..... 40

Figure 8 Collision Diagram: Brook Road at Reedsdale Road/Central Avenue ..... 44

Figure 9 Collision Diagram: Reedsdale Road at Canton Avenue and Centre Street..... 45

Figure 10 Collision Diagram: Randolph Avenue at Reedsdale Road..... 46

Figure 11 Collision Diagram: Randolph Avenue at Chickatawbut Road ..... 47

Figure 12 Collision Diagram: Randolph Avenue at Hallen Avenue ..... 48

Figure 13 Collision Diagram: Randolph Avenue Segment between Hallen Avenue and Hillside Street ..... 49

Figure 14 Collision Diagram: Randolph Avenue Segment between Hillside Street and Chickatawbut Road..... 50

Figure 15 Survey Results..... 61

Figure 16 Short-Term Improvements: Randolph Avenue Northbound Double Left-Turn Lanes..... 66

Figure 17 Brook Road: Long-Term Improvement Concept 1 ..... 71

Figure 18 Brook Road: Long-Term Improvements Concepts 2 and 3..... 74

Figure 19 Roundabout Retrofit at Brook Road and Reedsdale Road Intersection ..... 76

Figure 20 Reedsdale Road: Long-Term Improvement Concept 1 ..... 78

Figure 21 Reedsdale Road: Long-Term Improvements Concepts 2 and 3..... 80

Figure 22 Randolph Avenue: Long-Term Improvement Concept 1 ..... 83

Figure 23 Randolph Avenue: Long-Term Improvements Concepts 2 and 3..... 86

Figure 24 Roundabout Retrofit at Randolph Avenue and Reedsdale Road Intersection..... 90

Figure 25 Comparison of Improvement Concepts ..... 93

**APPENDICES**

- Appendix A: Comments and Selection Process
- Appendix B: Brook Road: Diet Project
- Appendix C: Traffic and Signal Timing Data
- Appendix D: Traffic Safety Data
- Appendix E: Intersection Level of Service Analysis
- Appendix F: Pedestrian and Bicycle Levels of Service
- Appendix G: Survey Comments
- Appendix H: MassDOT Highway Division Project Development Process



# Executive Summary

## ES.1 BACKGROUND

The Boston Region Metropolitan Planning Organization (MPO) selected Route 28 between Blue Hills Parkway and Chickatawbut Road in the Town of Milton as the subject of a corridor study in federal fiscal year 2020. The study focused on one of the locations identified in the Needs Assessment for *Destination 2040*, the MPO's Long-Range Transportation Plan endorsed in 2019. The Needs Assessment guides investment decisions regarding transportation infrastructure improvements in the Boston region. The MPO prioritized this location for study after considering a number of factors, including the need to address poor safety conditions and traffic congestion; desire to enhance multimodal transportation; need to maintain regional travel capacity; and the potential to implement the study recommendations. This report analyzes the existing conditions, assesses safety and operational problems in the corridor, and discusses concepts for roadway improvements.

## ES.2 EXISTING CONDITIONS AND NEEDS ASSESSMENT

Route 28 in Milton is a two-way, four-lane principal arterial under the jurisdiction of the Massachusetts Department of Transportation (MassDOT) and Town of Milton. A series of maps are appended to this report. The maps in Figures 1 and 2 show the study area, roadway configuration, and study intersections. Because the corridor is long (about four miles), staff segmented it into three to reflect the varied contexts and allow these contexts to be considered in the needs assessment and improvement concepts. Figure 3 shows the three segments.

The MassDOT Highway Division and Boston Region MPO collected and assembled the data used to assess the existing conditions and identify problems in the corridor. The data included vehicular, pedestrian, and bicycle volumes; traffic speeds and crashes; and community input data (community survey). Figures 4 through 14 and Tables 1 through 6 summarize the collected data and Tables 7 through 10 present the existing levels of services, delays, and queues for the selected intersections. Key vehicular, pedestrian, and bicycle issues and concerns identified within the corridor are summarized in Table 11 and described below. These concerns include crossing safety issues, school drop-off and pickup safety issues, parking problems, lack of adequate sidewalk conditions, insufficient pedestrian crossing intervals, wheelchair ramps that are not compliant with the Americans with Disabilities Act, lack of safe bicycling facilities, and traffic congestion at some of the signalized intersections.

Many locations in the study area experienced a greater-than-expected number of crashes: one intersection is on the list of the Top 200 high-crash location in Massachusetts and four intersections (including the one top 200 high-crash locations) are on the list of Highway Safety Improvement Program (HSIP) crash clusters.<sup>1</sup> Figure 7 shows the intersection and segment crashes and HSIP intersection crash clusters. Figures 8 through 14 show the collision diagrams for the high-crash locations. Many of the crashes were caused by failure to yield, inattention or distraction, lack of left-turn lanes, and traveling at high speeds.

Complaints about high travel speeds were received for the entire corridor in the community survey. As Figure 6 shows, there is a considerable variation in posted speed limits throughout the corridor. High speed of vehicles was a major problem for people who walk or bicycle in the corridor. In addition, there were four fatalities in the segment with high posted speed limits (40–45 miles per hour) from Reedsdale Road to Chickatawbut Road.

Many of the signalized intersections in the corridor experience high levels of congestion. Tables 8 through 10 present the existing intersection levels of service and delays. The traffic safety and operational problems include, but are not limited to, lack of left-turn lanes, outdated signal timing plans, lane movement assignments, and cut-through traffic.

Based on the problems and deficiencies, staff determined the following corridor needs:

- measures to reduce vehicular speed and calm traffic
- measures to improve safety for pedestrians
- measures to provide safe facilities to accommodate people who walk, bicycle, or ride the bus
- measures to create placemaking and connect people to places
- measures to reduce crashes in the corridor
- measures to improve safety of turn maneuvers in the corridor
- measures to reduce congestion at the signalized intersections
- measures to provide designated parking spaces for people who drop-off and pick-up students or visit recreation areas on Brook Road
- measures to reduce cut-through traffic on side streets
- measures to improve street lighting

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<sup>1</sup> An HSIP crash cluster is a location in which the number and severity of crashes—as measured on the “Equivalent Property Damage Only” (EPDO) index—ranks the location among the top five percent of crash clusters in the region. The EPDO method assigns weighted values to each crash based on whether the crash resulted in property damage (unweighted), injury (weighted by five), or a fatality (weighted by 10).

## **ES.3 PROPOSED IMPROVEMENTS**

MPO staff, working with an advisory task force (representatives from MassDOT, the Town of Milton, and state legislators) developed short- and long-term improvement concepts for the corridor.

### **ES.3.1 Short-Term Improvements**

The proposed short-term improvements address safety and operational concerns that, when implemented, will improve safety for people who walk and bike, and reduce congestion. The improvements include upgrading sidewalks and wheelchair ramps to MassDOT standards and Americans with Disabilities Act (ADA)-compliance; adding countdown timers to help expedite pedestrian crossings; providing bicycle detections at signalized intersections; and painting high visibility crosswalks. In addition, the improvements include traffic signal optimization to reduce congestion, modifying clearance intervals to MassDOT standards to address high number of angle and rear-end crashes, and adding retroreflective backplates with yellow borders to the signal heads to make them more visible to motorists. These improvements are usually low cost, relatively uncomplicated and inexpensive to implement, and require minimal design efforts. The recommended short-term improvements are listed in Table 12, and the intersection level of service that would result from short-term improvements, such as signal retiming and coordination and lane movement assignments are presented in Tables 13 through 15. The analysis indicated that retiming the signals in the corridor would reduce delays between 10 and 30 percent during weekday AM and PM peak periods.

### **ES.3.2 Long-Term Improvements**

The long-term improvements, usually high cost, require more design and engineering efforts and more funding resources. These improvements would focus on modernizing the roadway to make it multimodal and pedestrian and bicycle friendly (safety, mobility, connectivity, and security). For the purposes of this study, MPO staff divided the corridor into three segments—Brook Road, Reedsdale Road, and Randolph Avenue—and developed improvement concepts for each segment. The improvement concepts are diagramed in Figures 17 through 24. The long-term improvements were aimed at transforming the roadway from a car-centric corridor into a route for everyone that meets the needs of local residents and businesses, pedestrians, bicyclists, transit riders, and motorists.

## **ES.4 CONCLUSION**

The concepts developed in this study provide MassDOT, the Town of Milton, and other stakeholders an opportunity to review conceptual options for addressing

deficiencies in the corridor before committing design and engineering funds to a roadway improvement project. If implemented, the proposed improvements offered in this report would increase traffic safety, make traffic operations more efficient, and modernize the roadway to accommodate all users. This document provides a guide to possible improvements on this roadway; however, MassDOT and the Town of Milton are not obligated to make these improvements. The study aligns with the Boston Region MPO's goals of increasing safety on the region's highway system; modernizing roadways to improve capacity and mobility by expanding the quantity and quality of walking and bicycling infrastructure; making transit service more efficient; reducing congestion; and preserving the transportation system.

# Chapter 1—Introduction

## 1.1 ORIGIN OF STUDY

The Boston Region Metropolitan Planning Organization (MPO) has been conducting studies of roadway corridors identified through the Needs Assessment of the Long-Range Transportation Plan (LRTP) as needing infrastructure improvements to address safety, mobility, and traffic operations problems.<sup>2</sup> Municipalities in the region and the Massachusetts Department of Transportation (MassDOT) have been receptive to these studies, which provide the opportunity to review conceptual options to improve a specific arterial segment before committing design and engineering funds to a project. If a proponent initiates a project that qualifies for state and federal funds, the study's documentation may be useful to both MassDOT and the project proponent for completing MassDOT Highway Division's project initiation forms, identifying problems along the corridor, justifying the need for improvements, and providing improvement concepts to advance into the preliminary design and engineering stages.

MPO staff identified a number of arterial roadway segments listed in the LRTP that should be prioritized because the roadways require maintenance, modernization, and safety and mobility improvements. To address the problems that exist in some of these arterial segments, a LRTP priority corridor study was included in the federal fiscal year (FFY) 2020 Unified Planning Work Program (UPWP).<sup>3</sup> Staff selected Route 28 in the Town of Milton as the subject of the priority corridor study. MPO staff selects locations for study (considering agency, municipal, subregional, and other public feedback) and collects data, conducts technical analysis, and recommends improvements. Recommendations from the study are sent to implementing agencies, which may choose to fund improvements through various federal, state, and local sources, separately or in combination.

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<sup>2</sup> Boston Region Metropolitan Planning Organization, *Destination 2040: The New Long-Range Transportation Plan of the Boston Region Metropolitan Planning Organization*, endorsed by the Boston Region MPO on August 29, 2019.

<sup>3</sup> Boston Region Metropolitan Planning Organization, *Unified Planning Work Program, FFY 2020*, endorsed by the Boston Region Metropolitan Planning Organization on July 18, 2019.





# Chapter 2— Study Location and Process

## 2.1 SELECTION PROCESS

On November 7, 2019, the Boston Region MPO identified the Route 28 in Milton study, following a selection process that involved a review of safety conditions, congestion, multimodal and regional significance of the roadway, regional equity, and the potential for implementing study recommendations.<sup>4,5,6,7,8,9</sup> Figure 1 shows the study corridor and the surrounding area.

The study location was selected from a list of 44 arterial segments in 37 municipalities in the Boston Region MPO area.<sup>10</sup> A copy of the technical memorandum describing the selection process is included in Appendix A. MassDOT Highway Division District 6, the MassDOT Office of Transportation Planning, and the Town of Milton supported the study of Route 28 by collecting data needed for the analyses, reviewing documentation of existing conditions, identifying problems, and developing improvements to mitigate the problems.

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<sup>4</sup> Safety Conditions: The location has a higher-than-average crash rate for its functional class; contains a crash cluster that makes it eligible for HSIP funding; contains a crash location on MassDOT Highway Division's Top High Crash Locations Report; or has a significant number of pedestrian and bicycle crashes (two or more per mile).

<sup>5</sup> Congested Conditions: The travel time index is at least 1.3. The travel time index is the ratio of the peak-period travel time to the free-flow travel time.

<sup>6</sup> Multimodal Significance: The roadway carries one or more bus routes or is adjacent to a transit stop or station; the roadway supports bicycle or pedestrian activities or there is a project planned that will support these activities; there is a need to accommodate pedestrians and bicyclists and improve transit on the roadway; or there is a significant amount of truck traffic on the roadway serving regional commerce.

<sup>7</sup> Regional Significance: The roadway is on the National Highway System; carries a significant portion of regional traffic (average daily traffic of 20,000 vehicles or more); lies within 0.5 miles of environmental-justice transportation analysis areas or zones; or is essential for the region's economic, cultural, or recreational development.




<sup>8</sup> Regional Equity: To ensure that, over time, all subregions in the MPO's planning area receive support from the MPO in the form of UPWP planning studies, during each funding cycle, MPO staff select no more than one location per subregion to study and choose a location in a different subregion from the location studied in the preceding cycle.

<sup>9</sup> Implementation Potential: The study location is proposed by the jurisdictional agency or agencies for the roadway; proposed or prioritized by a subregional group; or identified as a priority for improvement by other stakeholders.

<sup>10</sup> Boston Region Metropolitan Planning Organization, *Selection of FFY 2020 LRTP Priority Corridor Study Location*, Technical Memorandum, November 7, 2019.



**LEGEND**

-  Study corridor
-  Interstate/Expressway
-  Other

BOSTON  
REGION  
MPO



**Figure 1**  
**Route 28 in Milton Study Area and Nearby Roadways**

*Addressing Priority Corridors from  
the LRTP Needs Assessment: Route 28  
Priority Corridor Study: Milton, Massachusetts*

## 2.2 STUDY GOALS AND OBJECTIVES

MassDOT and the Town of Milton have shown a commitment to improving conditions to transform this car-centric corridor into a route for everyone by

- increasing safety for motorists, pedestrians, and bicyclists;
- increasing the quality and quantity of walking and bicycling options;
- modernizing the roadway and making travel more efficient and reliable; and
- supporting economic vitality and livability of the communities.

Toward that end, the objectives of this study were to

- collect data on roadway conditions, pedestrians, bicyclists, motorists, and transit users;
- analyze data and identify existing problems;
- determine the needs of pedestrians, bicyclists, motorists, and transit riders; and
- develop improvement concepts to address problems and needs.

## 2.3 ADVISORY TASK FORCE

An advisory task force composed of representatives from Milton, MassDOT, and the state legislators representing Milton was established to guide this study. MPO staff met with the task force twice. In the first meeting, the work scope and existing problems were discussed. In the second meeting, MPO staff presented the existing condition analyses, proposed improvements, and received advice from the task force members. This report reflects the task force's feedback. Appendix A includes a list of task force members and comments.



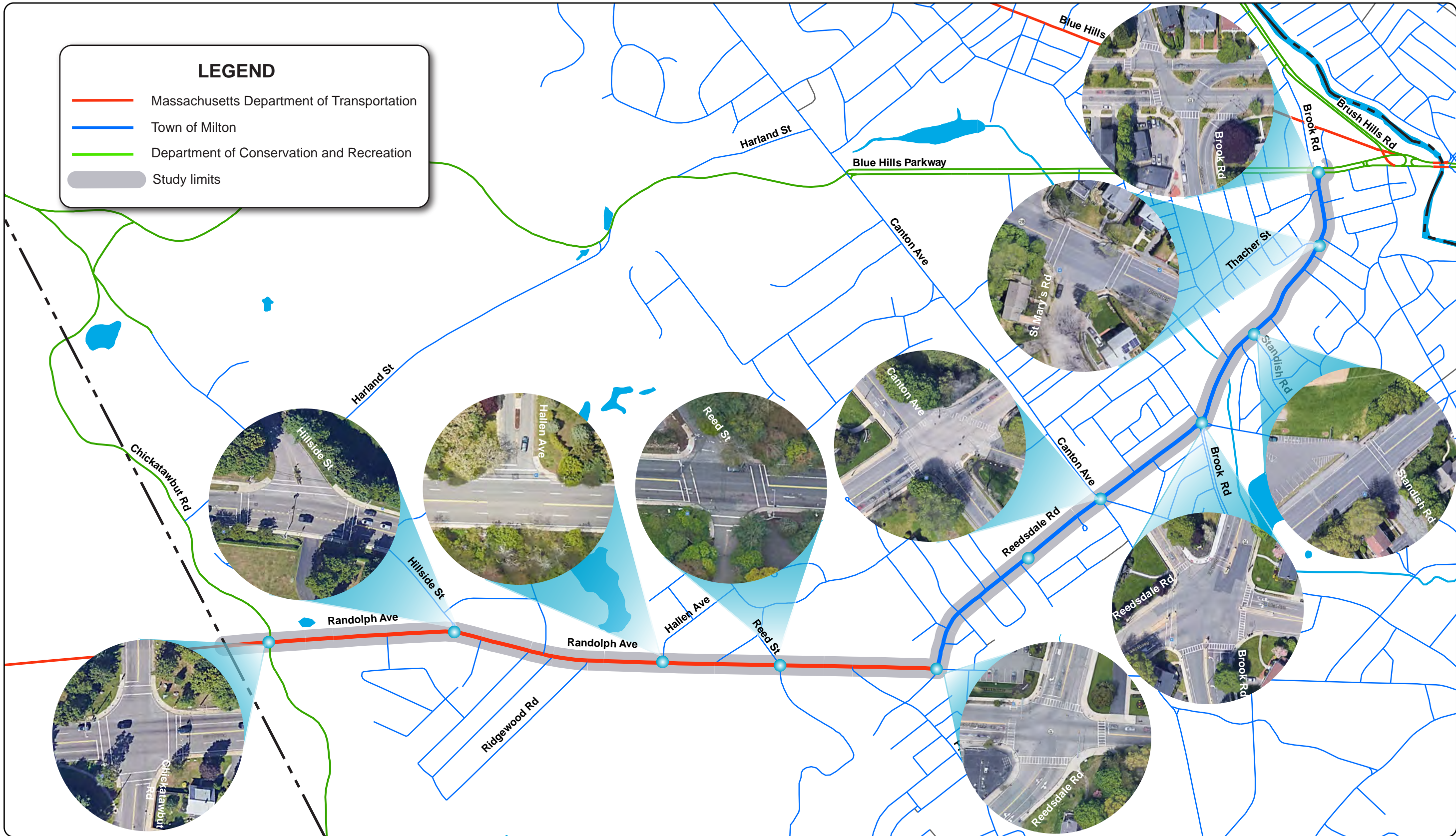
# Chapter 3—Roadway Characteristics

## 3.1 STUDY AREA CORRIDOR

Route 28 in Milton is a state and town highway. Figure 2 shows the jurisdictions of the roadway and selected intersections identified for study. The study corridor is about four miles long and assumes the local road names of Brook Road, Reedsdale Road, and Randolph Avenue. It is a four-lane, two-way roadway classified as an urban principal arterial and part of the National Highway System program. The Brook Road segment was recently reconfigured in October 2020 to a two-way, two-lane roadway with on-street protected bicycle lanes on either side of the roadway and parking at selected locations (Appendix B). The reconfiguration allowed continuous bicycle lanes from Adams Street to the Blue Hills Parkway and added parking for recreational and school needs. The roadway's right-of-way width varies between 65 feet and 72 feet, with the wider sections on Brook Road and Reedsdale Road and the narrower section on Randolph Avenue. This roadway serves regional and local traffic and includes several MPO transportation equity zones. The posted speed limit varies from 25 miles per hour (mph) to 45 mph throughout the corridor.

In this study, the corridor was divided into three segments for evaluation: Brook Road, Reedsdale Road, and Randolph Avenue (Figure 3). These road segments have different characteristics and contexts that define needs and considerations for developing improvement concepts. The three roadway segments and selected intersections for study are described below.





**Figure 2**  
**Jurisdiction Map and Study Intersections**





**Figure 3**  
Study Area Key Map



**3.2 Route 28 (Brook Road Corridor)**

The Brook Road segment is about 0.75 miles long. The area surrounding Brook Road has mixed land uses: residential, recreational, and educational. The St. Mary of the Hills School and Pierce Middle School are located in this section of the corridor, and both driveways are on Brook Road. In addition, the Kelly Field and Brook Road Playground is located adjacent to the road on the west side. There are many residences abutting the road. The speed limit in this corridor is 20 mph at the school zones and 25 mph otherwise. Due to the schools and playgrounds, parking is an issue during school openings and closings and in afternoons for field and playground activities. There are sidewalks on either side of the street. In October 2020, Brook Road was converted from a four-lane road to a two lane road. The reconfiguration added bike lanes on either side of the road and parking at selected locations. The reconfiguration has addressed some of the parking issues and improve connectivity and safety for people who bike.

**3.2 Route 28 (Reedsdale Road Corridor)**

The Reedsdale Road segment is about one mile long. The area surrounding Reedsdale Road is primarily residential. The Beth Israel Deaconess Hospital is located in this corridor and has a driveway on Reedsdale Road. The speed limit is 30 mph near the signalized intersections and 35 mph otherwise. There are sidewalks on either side of the roadway, but bicycles share the road with vehicles. Transit and pedestrian improvements were previously constructed in April 2020 at the hospital’s driveway, including the installation of a pedestrian hybrid beacon signal and ADA-compliant wheelchair ramps.

**3.2 Route 28 (Randolph Avenue Corridor)**

The Randolph Avenue segment is about 1.8 miles long. The area surrounding Randolph Avenue is primarily residential and recreational. The Wollaston Golf Club and Granite Links Golf Club are located in the corridor. Many of the residences have driveways on Randolph Avenue or the driveways are accessed through the side streets, requiring turns into and out of Randolph Avenue. There are sidewalks on either side of the street, but bicycles share the road with vehicles. The speed limits in this corridor are 40 mph and 45 mph. The Wollaston Golf Club has its main entrance on Randolph Avenue at the intersection with Ridgewood Road.

**3.2 STUDY INTERSECTIONS**

Several cross streets and driveways intersect Route 28, which creates safety and operations issues for motorists, pedestrians, and bicyclists. There are eight signalized intersections in the corridor, equipped with fully- or semi-actuated traffic-control systems, however, these systems require updating, lack

emergency preemption, and the existing signal timings and phasing plans are outdated. The following section describes the geometry, traffic and control, and land uses surrounding the signalized intersections. Figure 2 shows the aerial photos of the study intersections.

**3.2.1 Route 28 (Brook Road) and Blue Hills Parkway**

Blue Hills Parkway is the first intersection to the north of the study area. It intersects Route 28 to form a four-leg signalized intersection. At the intersection, Blue Hills Parkway (Route 28) southbound approach has two travel lanes, a shared through and left-turn lane, and an exclusive left-turn lane. Blue Hills Parkway’s northbound approach has two lanes, a share through/right lane and an exclusive through lane. Brook Road (Route 28) westbound approach has two exclusive right-turn lanes and one travel lane for moving traffic at the eastbound approach. The intersection is equipped with a TS2 Type 1 signal controller, which operates as a fully-actuated and isolated traffic signal with bicycle detection. The signal heads are mounted on overhead mast arms with black backplates and no retroreflective yellow borders. There are functioning pedestrian signals with pedestrian-activated pushbuttons, but these signals are not accessible. An accessible pedestrian signal is an integrated device that communicates information about the WALK and DON'T WALK intervals at signalized intersections in nonvisual formats (i.e., audible tones and vibrotactile surfaces) to pedestrians who are blind or have low vision. Crosswalks are provided on all legs of the intersection and the wheelchair/curb ramps have detectable warning plates. The channelized islands and medians at the intersection have adequate openings for wheelchairs ramps. Street lights are present at the intersection. This is one of the critical intersections in the corridor—congested during peak periods with high traffic volumes on Route 28 (a high crash location) and difficult to cross for people who walk and bike. The land use near the intersection is mostly residential and the Tucker Elementary School is 500 feet south of the intersection. A school crossing guard helps students cross at the intersection during school openings and closings.

**3.2.2 Route 28 (Brook Road) at St. Mary’s Road Intersection**

St. Mary’s Road is a town-owned street that intersects Brook Road to form a three-leg signalized intersection. Each of the approaches on Brook Road has one travel lane that is shared with the left- and right-turn movements, and one lane on St. Mary’s Road for moving all traffic at the approach. The intersection has a semi-actuated and coordinated traffic signal system with functioning accessible pedestrian signals. The traffic signal is interconnected with the midblock pedestrian signal at the St. Mary of the Hills School. The signal heads are mounted on posts and have backplates with retroreflective yellow borders to make them more visible. Crosswalks are provided at the intersection and the

wheelchair ramps have detectable warning plates. Street lights are present at the intersection. The Massachusetts Bay Transportation Authority (MBTA) Bus Route 245 has stops at the intersection. The land uses adjacent to the intersection are primarily residential, however, the St. Mary of the Hills School and Kelly Field are located about 500 feet south of the intersection.

### **3.2.3 Route 28 (Brook Road) at Standish Road Intersection**

Standish Road is a town-owned street that intersects Brook Road to form a three-leg signalized intersection. At the intersection, each approach has one travel lane serving all traffic movements. The intersection has a semi-actuated and coordinated traffic signal system with functioning accessible pedestrian signals. The signal heads are mounted on posts and some have backplates with yellow retroreflective borders. Crosswalks are provided at the intersection, but the wheelchair ramps lack detectable warning plates and are not ADA compliant. Street lights are present at the intersection. The land uses adjacent to the intersection are a mix of educational, recreation, and residential.

### **3.2.4 Route 28 (Brook Road and Reedsdale Road) at Central Avenue Intersection**

Reedsdale Road and Central Avenue are town-owned local roadways. They intersect Brook Road at oblique angles to form a five-leg signalized intersection. The westbound approach of Brook Road has two through lanes and an exclusive left turn lane. Each of the approaches of Brook Road eastbound, Reedsdale Road northbound, and Central Avenue southbound have two travel lanes (a shared left-turn/through lane and a shared through/right lane). The Central Avenue northbound approach has one lane moving traffic in all directions. The intersection is equipped with a fully-actuated and isolated traffic signal system with functioning accessible pedestrian signals. All of the signal heads are mounted on posts and do not have backplates with retroreflective yellow borders. Crosswalks are provided at the intersection, but the wheelchair ramps lack detectable warning plates and are not ADA compliant. Street lights are present at the intersection. Bicycle lanes are provided on the east leg of Brook Road and the north leg of Central Avenue, but the lanes end at the intersection. The land uses in the area are mostly educational and residential.

### **3.2.5 Route 28 (Reedsdale Road) at Canton Avenue and Centre Street Intersection**

Canton Avenue and Centre Street are town-owned streets that intersect Reedsdale Road to form a five-leg signalized intersection. At the intersection, Reedsdale Road has two through lanes on each approach that are shared with left- and right-turn movements. The Canton Avenue eastbound approach has two

travel lanes, a shared left-turn/through lane, and an exclusive right-turn lane. The Canton Avenue westbound approach and Centre Street southbound approach each have one lane on the approach serving all traffic movements. The intersection is equipped with a fully-actuated and isolated traffic signal system with functioning accessible pedestrian signals. The signal heads are a mixture of mast arm and post mounts, and the signals have backplates with retroreflective yellow borders. Crosswalks are provided on all legs of the intersection, but the wheelchair ramps have no detectable warning plates. Street lights are present at the intersection. The intersection handles high traffic volumes and it is congested during peak periods. The land use in the area is mostly residential, and the Milton Public Library is located in the southeastern corner of the intersection.

### **3.2.6 Route 28 (Reedsdale Avenue) at Hospital Driveway Intersection**

Beth Israel Deaconess Hospital's driveway intersects Reedsdale Road to form a three-leg unsignalized intersection. At the intersection, Reedsdale Road has two travel lanes on each approach that are shared with the left- and right-turn movements. The driveway has one lane on its approach serving all traffic movements. The intersection was recently equipped with pedestrian hybrid beacon signals that are mounted overhead on mast arms and have backplates. There are functioning pedestrian signals with pushbuttons, and the crosswalks have wheelchair ramps with detectable warning plates. Street lights are present at the intersection. The land use in the area is mostly residential.

### **3.2.7 Route 28 (Reedsdale Road) at Randolph Avenue Intersection**

Reedsdale Road is a town-owned road, which intersects Randolph Avenue, a state-owned road to form a four-leg signalized intersection. The intersection is under MassDOT's jurisdiction. At the intersection, Randolph Avenue northbound approach has two travel lanes (an exclusive left-turn lane and shared through/right-turn lane) while the southbound approach has one lane serving all traffic movements. Reedsdale Road eastbound approach has two travel lanes (an exclusive right-turn lane and shared through/left-turn lane) while the westbound approach has two travel lanes (shared left-turn/through lane and shared through/right lane). The signal heads are mounted overhead on mast arms and the signals have backplates with no retroreflective yellow borders. There are functioning pedestrian signals at all four corners of the intersection, but the signals are not accessible. Crosswalks with wheelchair ramps are provided on all legs of the intersection, but the crosswalks have no detectable warning plates. The intersection handles high volumes of traffic and it is congested during peak periods. Street lights are present at the intersection. The land uses adjacent to the intersection are mixed commercial and residential. The St. Elizabeth Rectory is located in the northwestern corner of the intersection.

### **3.2.8 Route 28 (Randolph Avenue) at Reed Street/Access Road Intersection**

Reed Street is a town-owned street that intersects Randolph Avenue to form a four-leg signalized intersection. The intersection is under MassDOT's jurisdiction. Access Road is a private road to the Granite Links Golf Club; it is currently closed to traffic. The intersection is under MassDOT's jurisdiction. Randolph Avenue has two through lanes on each approach that are shared with the left and right turns while Reed Street has one lane on its approach serving all movements. The intersection is equipped with a TS2 Type 1 signal controller, which operates as a fully-actuated system in isolated mode. The signal heads are mounted on a mixture of mast arms and posts, and the signals have backplates without yellow retroreflective borders. Functioning pedestrian signals with pedestrian-activated pushbuttons are provided, but are not accessible. There are crosswalks on all legs of the intersection with wheelchair ramps, but the crosswalks lack detectable warning. Street lights are present at the intersection. The land uses near the intersection are primarily residential and recreational. Because of cut-through traffic during the morning peak travel period, turns into Reed Street are prohibited from 7:00 AM–9:00 AM.

### **3.2.9 Route 28 (Randolph Avenue) at Hallen Avenue Intersection**

Hallen Avenue is a town-owned street that intersects Randolph Avenue to form a three-leg unsignalized intersection. The intersection is under MassDOT's jurisdiction. At the intersection, Randolph Avenue has two lanes on each approach that are shared with the left- and right-turn lanes. Hallen Avenue has a single lane serving all traffic movements at the approach. There are no crosswalks at the intersection. The land use adjacent to the intersection is primarily residential. Because of cut-through traffic during the morning peak travel period, turns into Hallen Avenue are prohibited from 7:00 AM–9:00 AM.

### **3.2.10 Route 28 (Randolph Avenue) at Hillside Street/Driveway Intersection**

Hillside Street is a town-owned road that intersects Randolph Avenue to form a four-leg signalized intersection. The intersection is under MassDOT's jurisdiction. At the intersection, Randolph Avenue has two through lanes on each approach, which are shared with the left and right turns. Hillside Street has a single lane on its approach for all movements. The fourth leg of the intersection is a driveway that provides access to an adjacent residence. The intersection is equipped with a TS2 Type 1 signal controller, which operates as a fully-actuated system in isolation mode. The signal heads are mounted on a combination of mast arms and posts, and have backplates without yellow retroreflective borders. Functioning pedestrian signals with pedestrian-activated pushbuttons are



provided but are not accessible. There are crosswalks on all legs of the intersection with wheelchair ramps, but the crosswalks lack detectable warning. Street lights are present at the intersection. The land use adjacent to the intersection is primarily residential.

### **3.2.11 Route 28 (Randolph Avenue) at Chickatawbut Road Intersection**

Chickatawbut Road is a state-owned road that intersects Randolph Avenue to form a four-leg signalized intersection. The intersection is under MassDOT's jurisdiction. At the intersection, Randolph Avenue has two through lanes on each approach, which are shared with the left and right turns. Chickatawbut Road has a single lane on each approach for all movements. The intersection is equipped with a TS2 Type 1 signal controller, which operates as a fully-actuated system in isolation mode. The signal heads are mounted on mixture of mast arms and posts, and have backplates without yellow retroreflective borders. Functioning pedestrian signals with pedestrian-activated pushbuttons are provided, but the signals are not accessible. There are crosswalks on all legs of the intersection with wheelchair ramps, but there is no detectable warning. Street lights are present at the intersection. The land uses adjacent to the intersection are primarily residential and recreational. This intersection is currently in MassDOT's project design process and includes improvements to address its problems—it is therefore excluded from this study.



# Chapter 4—Data Collection

MPO staff gathered data on vehicle, pedestrian, and bicycle volumes, vehicle travel speeds, crashes, signal timing information, and roadway and intersection geometry data for existing conditions analyses.

## 4.1 TRAFFIC DATA

MassDOT Highway Division’s Traffic Data Collection section collected traffic data for the study. Automatic traffic recorder (ATR) counts were collected during a seven-day period from Monday, October 26, 2020, to Sunday, November 1, 2020. The ATR counts included daily traffic volumes, speeds, and traffic mix (light and heavy vehicles). MassDOT also collected turning-movement counts (TMC) in the study area on Thursday, October 15, 2020, and on Saturday, October 17, 2020. The TMC counts were performed during the weekday AM peak travel period (6:00 AM to 9:00 AM) and weekday PM peak travel period (3:00 PM to 6:00 PM). In all cases, heavy vehicles, pedestrians, and bicycles were recorded separately.

## 4.2 INTERSECTION LAYOUTS AND SIGNAL TIMING DATA

MassDOT provided MPO staff with intersection layouts. Staff conducted field visits to verify modifications to the intersection layouts and signal timing plans. MassDOT Highway District 6 and the Town of Milton provided MPO staff with existing signal timings, as-built traffic signal plans, and signal-phase sequences of the signalized intersections.

## 4.3 CRASH DATA

MPO staff used crash data obtained from MassDOT’s Registry of Motor Vehicles database from January 2013, through December 2017, to evaluate safety for motorists, pedestrians, and bicyclists in the study area.

## 4.4 TRANSIT SERVICES

Transit service data from the MBTA and the Brockton Area Transit Authority (BAT) were gathered to evaluate transit services in the corridor.

## 4.5 PROJECTS

MassDOT and the Town of Milton provided information on planned and proposed projects in the corridor.



# Chapter 5—Existing Conditions Analysis

## 5.1 VEHICLE, PEDESTRIAN, AND BICYCLE VOLUMES

### 5.1.1 Vehicular Volumes

Due to the COVID-19 pandemic, the Route 28 October 2020 traffic counts were 30 percent lower. The counts were adjusted by using 2014 historical counts at the intersections of Reedsdale Road at Randolph Avenue and Randolph Road at Chickatawbut Road.

Figure 4 shows a summary of the adjusted average weekday traffic volumes. The amount of daily traffic volumes range from 18,000 to 30,000 vehicles per day. The volumes showed a gradual increase from north of the corridor to south of the corridor. The Randolph Avenue segment carried the highest volume of traffic and Brook Road and Reedsdale Road carried the lowest volume. The higher volumes occurred on Randolph Avenue, because major crossroads intersect Route 28 and connect to the Interstate 93 (Route 128) corridor via Randolph Avenue. Appendix C contains full records of the ATR counts.

Figure 5 shows the turning movement volumes at 12 intersections during the weekday AM and PM peak hours and Saturday PM peak hour. Peak hours in the corridor were recorded as 6:30 AM to 7:30 AM in the morning, 4:00 PM to 5:00 PM in the afternoon, and 12:30 PM to 1:30 PM on Saturday. Because of the pandemic, the October 2020 counts were lower by about 30 percent on Route 28. The counts were adjusted by using 2014 historical counts at the intersections of Reedsdale Road at Randolph Avenue and Randolph Road at Chickatawbut Road. The turning movement data are included in Appendix C.

### 5.1.2 Pedestrian Volumes

The TMC data also included volumes of pedestrians and bicyclists during the three-hour collection periods (weekday AM and PM and Saturday midday). Table 1 distinguishes the number of pedestrians that crossed Route 28 from those that crossed an adjacent side street on the east or west side of Route 28. The counts show that pedestrian activity is highest on Brook Road at Standish Road and Central Avenue intersections, which is also the area where the schools and playgrounds are located. The counts show that pedestrian activity is also high on Reedsdale Road, which serves the residential neighborhood and the Beth Israel Deaconess Hospital.





**BOSTON REGION MPO** **Figure 4**  
**Average Weekday Traffic Volumes**  
*Addressing Priority Corridors from the LRTP Needs Assessment: Route 28 Priority Corridor Study: Milton, Massachusetts*





**Table 1**  
**Peak Period Pedestrian Volumes**

<b>Route 28 Intersection</b>	<b>Route 28</b>	<b>Side Street on the west</b>	<b>Side Street on the east</b>	<b>Total</b>
Blue Hills Parkway/Brook Road	130	66	--	196
Thacher Street	17	79	--	96
St. Mary's Road	53	35	63	151
Standish Road	152	120	86	358
Central Avenue/Brook Road	114	53	64	231
Canton Avenue/Centre Street	97	35	47	179
Beth Israel Deaconess Hospital	21	56	82	159
Reedsdale Road/Randolph Avenue	107	14	16	137
Reed Street/Access Road	4	7	16	27
Hallen Road	0	9	--	9
Hillside Street	11	9	7	27
Chickatawbut Road	11	1	0	12

Note: Weekday AM = 6:00 AM to 9:00 AM. Weekday PM = 3:00 PM to 6:00 PM. Weekend PM 11:00 AM to 2:00 PM. Shading denotes that a crosswalk is absent on Route 28 at this location.

Source: Central Transportation Planning Staff.

### 5.1.3 Bicycle Volumes

Counts of bicycles on the road and at crosswalks were moderate (Table 2). MPO staff attributes the moderate cyclist volumes primarily to the absence of appropriate facilities in the corridor, high volumes of traffic, and high speeds of vehicles, which create high stress and safety concerns. The data indicate that most bicycle activities take place on Brook Road and Reedsdale Road.

**Table 2**  
**Peak Period Bicycle Volumes**

<b>Route 28 Intersection</b>	<b>Bicycle on Road</b>	<b>Bicycle on Crosswalk</b>	<b>Total</b>
Blue Hills Parkway/Brook Road	121	32	153
Thacher Street	37	6	43
St. Mary's Road	36	18	54
Standish Road	53	43	96
Central Avenue/Brook Road	52	36	88
Canton Avenue/Centre Street	23	23	46
Beth Israel Deaconess Hospital	10	23	33
Reedsdale Road/Randolph Avenue	17	23	40
Reed Street/Access Road	13	9	22
Hallen Road	10	3	13
Hillside Street	12	0	12
Chickatawbut Road	38	0	38

Note: Weekday AM = 6:00 AM to 9:00 AM. Weekday PM = 3:00 PM to 6:00 PM. Weekend PM 11:00 AM to 2:00 PM. Shading denotes that a crosswalk is absent on Route 28 at this location.

Source: Central Transportation Planning Staff.



### 5.2 VEHICLE SPEED INFORMATION

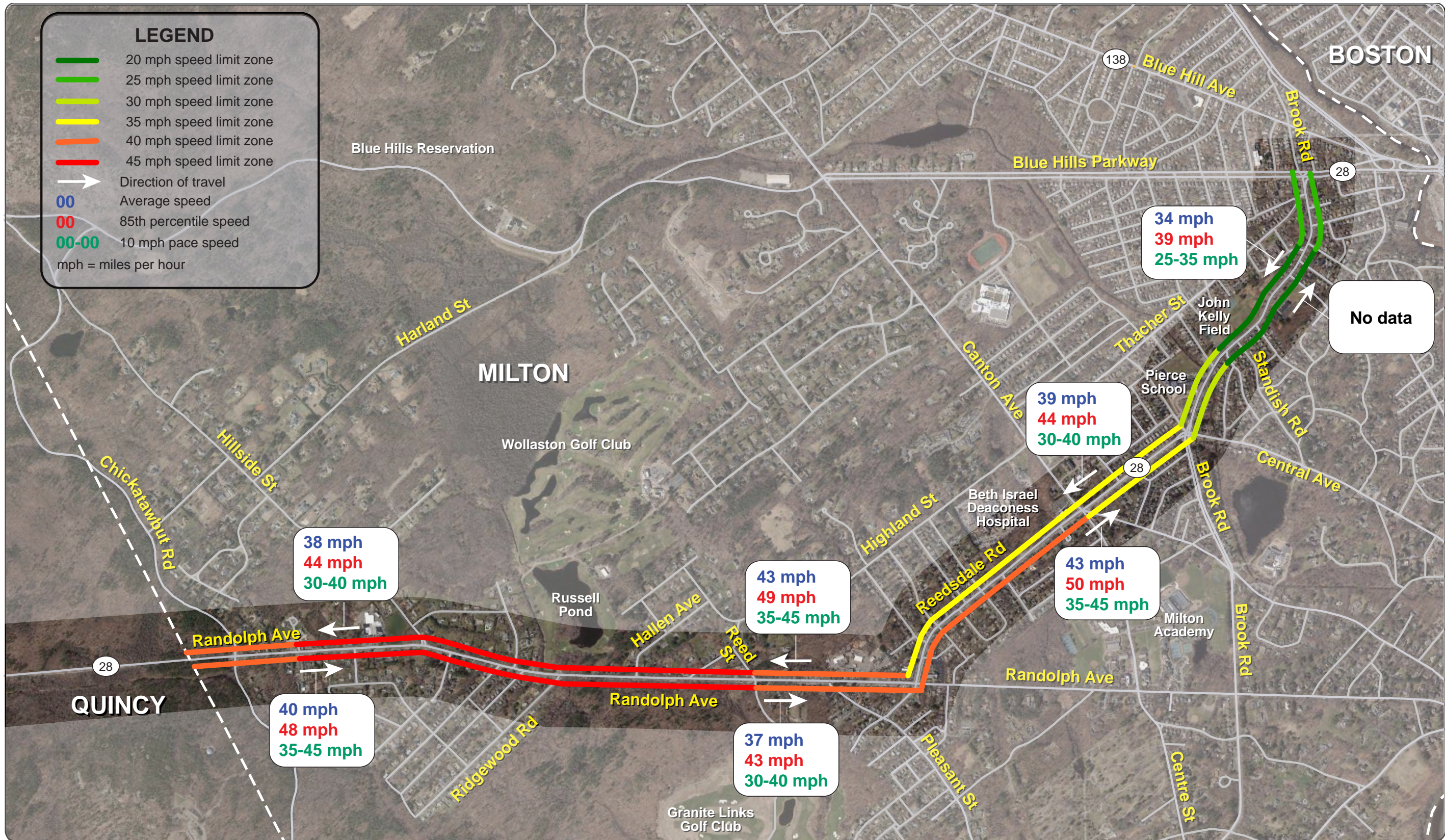
MPO staff collected vehicle spot speeds at three of the ATR sites on Route 28. The spot speeds measure vehicle speeds at a specific point and do not include delays at the intersections when traveling through the corridor. Table 3 presents the measured spot speeds, and Figure 6 shows the spot speed data and compares it with the posted speed regulations. The data show that the 85th percentile speeds were higher than the posted speed limits, because of the high speeds of vehicles during the off-peak periods. In other words, the 85th percentile speeds are speeds that 15 percent of the motorists sampled exceeded while driving in the corridor. The average spot speeds were also higher than the speed limits on Brook Road and Reedsdale Road, but consistent with the speed limits on Randolph Avenue. Appendix C includes the speed data.

**Table 3  
Observed Spot Speeds**

Location	Direction	Average Speed (mph)	85th Percentile Speed (mph)	10 mph Pace Speed (mph)	Average Speed Exceeds Posted Speed Limit?	85th Percentile Speed Exceeds Posted Speed Limit?
Brook Road south of Ridge Road	NB	No data	No data	No data	No data	No data
Brook Road south of Ridge Road	SB	34	39	25–35	Yes	Yes
Reedsdale Road north of Spafford Road	NB	43	50	35–45	Yes	Yes
Reedsdale Road north of Spafford Road	SB	38	44	30–40	Yes	Yes
Randolph Avenue south of Pleasant Street	NB	37	43	30–40	No	Yes
Randolph Avenue south of Pleasant Street	SB	43	49	35–45	Yes	Yes
Randolph Avenue south of Hillside Street	NB	40	48	30–40	Yes	Yes
Randolph Avenue south of Hillside Street	SB	38	44	30–40	No	Yes

mph = miles per hour. NB = northbound. SB = southbound.  
Source: Central Transportation Planning Staff.





**Figure 6**  
Measured and Posted Speeds



### 5.3 CRASH DATA AND SAFETY ANALYSIS

#### 5.3.1 Crash Summaries

During the five-year analysis period, 473 crashes were recorded in the MassDOT database. Table 4 presents a summary of the crashes. Some characteristics of the crashes include the following:

- four fatal crashes on the Randolph Avenue segment
- the injury rate was very high—40 percent of crashes resulted in injury to at least one of the involved parties
- thirty-six percent of all crashes were angle crashes
- twenty-seven percent of all crashes were rear-end crashes
- twenty-one percent of all crashes were single vehicle crashes
- many of the rear-end and angle crashes may have been caused by congestion and the lack of turn lanes at the signalized intersection
- thirty-eight percent of crashes took place during peak period (defined as 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM)
- three crashes involved a pedestrian and six crashes involved a bicyclist
- sixty-four percent of crashes took place at an intersection
- thirty-six percent of crashes took place along an open roadway segment

**Table 4  
Route 28 Crash Statistics (Five-Year Crash Summary)**

<b>Crash Variable</b>	<b>All Crashes</b>	<b>Percent (%)</b>
<b>Crash Severity</b>	—	—
Fatal injury	4	1
Nonfatal injury	189	40
Property damage only (none injured)	267	56
Not Reported	13	3
<b>Manner of Collision</b>	—	—
Rear-end	126	27
Angle	168	36
Sideswipe, same direction	42	9
Single vehicle crash	100	21
Head-on	17	4
Sideswipe, opposite direction	12	2
Not reported	8	1
<b>Road Surface Conditions</b>	—	—
Dry	361	76
Wet	74	16

Snow/ice/slush	34	7
Not reported	4	1
<b>Ambient Light Conditions</b>	—	—
Daylight	325	69
Dark—lighted roadway	123	26
Dusk	14	3
Dawn	4	1
Dark—roadway not lighted	2	0
Other	2	0
Not reported	3	1
<b>Weather Conditions</b>	—	—
Clear	290	61
Cloudy	99	21
Rain	54	11
Snow/sleet/hail	23	5
Fog/smog/smoke	3	1
Not reported	4	1
<b>Travel Period</b>	—	—
Off-peak	291	62
Peak	182	38
<b>Pedestrian and Bicycle Crashes</b>	—	—
Vehicle crashes	464	98
Pedestrian-related crashes	3	1
Bicycle-related crashes	6	1
<b>Crash Location</b>		
Intersection	302	64
Segment	171	36
<b>Total crashes</b>	<b>473</b>	<b>100</b>

Note: Peak periods are 6:00 AM to 9:00 AM and 3:00 PM to 7:00 PM, Monday through Friday.  
 Source: Central Transportation Planning Staff.

### 5.3.2 Highway Safety Improvement Program (HSIP) Crash Clusters

The HSIP provides funding for eligible improvements that reduce fatalities and serious injuries on public roads. An HSIP-eligible cluster is one in which the total number of EPDO crashes are within the top five percent in the Metropolitan Area Planning Council region. An HSIP-eligible project is any strategy, activity, or project that corrects or improves a hazardous public road location or feature, or addresses a highway safety problem.

Figure 7 shows the crashes at the intersections and between segments, and identifies the HSIP intersection crash clusters within the study corridor. Four intersections on the corridor are HSIP crash clusters.





**Figure 7**  
Observed Intersection and Segment Crashes (2013–17)



- Route 28 (Brook Road) at Reedsdale Road and Central Avenue
- Route 28 (Reedsdale Road) at Canton Avenue and Centre Street
- Route 28 (Randolph Avenue) at Reedsdale Road
- Route 28 (Randolph Avenue) at Chickatawbut Road

### 5.3.3 Predicted and Expected Crashes

MPO staff used the regionalized versions of the Highway Safety Manual (HSM) method for its analysis of intersections.<sup>11</sup> The techniques in the HSM combine roadway geometry, traffic volumes, crash history, and regional factors into unified metrics referred to as *predicted* and *expected* crashes. The predicted number of crashes is the estimated crashes under idealized circumstances. The expected number of crashes estimates the intrinsic safety conditions at a site by compensating for the random fluctuations typically associated with samples of crash data. The predicted and expected crashes are used to identify high-risk sites with potential for safety improvements, and to compare the relative merits of different intervention strategies.<sup>12</sup> The difference between predicted and expected crashes is referred to as the potential for safety improvement (PSI). If the predicted number of crashes is significantly less than the expected number of crashes, it suggests that correctable factors are elevating the crash rate.

For each intersection and road segment, Table 5 shows the average number of observed, predicted, and expected crashes, along with the total number of crashes that were recorded between 2013 and 2017. Table 5 also shows the numerical values of the PSI for the different intersections and segments (shaded green) within the corridor. This comparison provides insight into the responsiveness of a particular location to potential safety interventions. Many locations in the study area are high-risk sites with potential for safety improvements.

Table 6 shows the total estimated comprehensive societal cost per year that resulted from crashes within the corridor. Estimated costs based on expected crashes per year are well above \$12 million, which demonstrates that investing in safety improvements inside the corridor could yield large returns when

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<sup>11</sup> Yuanchang Xie and Chen (Julian) Chen, *Calibration of Safety Performance Functions for Massachusetts Urban and Suburban Intersections*. Report prepared for MassDOT Office of Transportation Planning, March 2016.

<sup>12</sup> American Association of State Highway and Transportation Officials, *Highway Safety Manual 2010*, Washington, DC, December 2010.

considering the comprehensive societal cost.<sup>13 14</sup> Appendix D provides details about the input data, computational steps, and HSM formula outputs.

**Table 5  
Potential for Safety Improvements**

Intersection/Segment	Total Crashes (2013–17)	HSIP	Average Observed Crashes	Average Predicted Crashes	Average Expected Crashes	PSI	High-risk Site	Observed Crashes > Expected Crashes
Brook Road segment	42	--	8.40	7.90	8.16	0.26	Yes	Yes
Brook Road at Blue Hill Parkway/Thacher Street	30	No	8.20	6.90	7.47	0.57	Yes	Yes
Brook Road at St. Mary's Road	5	No	1.00	4.80	1.35	-3.45	No	No
Brook Road at Standish Road	8	No	1.60	3.90	0.91	-2.99	No	Yes
Brook Road at Central Avenue	41	Yes	8.40	6.40	7.83	1.43	Yes	Yes
Reedsdale Avenue segment	31	--	6.2	10.53	6.90	-3.63	No	No
Reedsdale Road at Canton Avenue	32	Yes	7.40	7.20	7.26	0.06	Yes	Yes
Reedsdale Road at Beth Israel Deaconess Hospital	4	No	0.60	2.30	0.96	-1.34	No	No
Randolph Avenue segment	88	--	17.60	14.01	14.42	0.41	Yes	Yes
Randolph Avenue and Reedsdale Road	29	Yes	6.20	10.70	7.33	-3.37	No	No
Randolph Avenue at Reeds Road	17	No	3.60	7.80	4.81	-2.99	No	No
Randolph Avenue at Hallen Avenue	24	No	4.80	6.50	5.44	-1.06	No	No
Randolph Avenue at Hillside Street	11	No	2.20	14.50	4.24	-10.26	No	No
Randolph Avenue at Chickatawbut Road	102	Yes	20.20	11.86	20.55	8.69	Yes	No

Note: Green shading denotes segments within the corridor.  
 HSIP = Highway Safety Improvement Program. PSI = Potential for Safety Improvement.  
 Source: Central Transportation Planning Staff.

<sup>13</sup> Jeffrey Gooch, VHB, *MassDOT Average Comprehensive Crash Costs*, Technical Memorandum, dated January 1, 2018, to MassDOT.  
<sup>14</sup> For the purposes of this study, MPO staff used two values: \$15,600 per property damage only crash and \$260,800 per crash involving injury.

**Table 6  
Comprehensive Costs of Crashes**

<b>Crash Severity</b>	<b>Expected Crashes per Year</b>	<b>Annual Expected Cost</b>
Property Damage Only	79.68	\$1,243,008
Fatal and Injury	41.65	\$10,862,320
<b>Total</b>	<b>121.33</b>	<b>\$12,105,328</b>

Source: Central Transportation Planning Staff.

**5.3.4 Analysis of Collision Diagrams**

MPO staff prepared collision diagrams for the entire length of the corridor to examine patterns within the crash data. The collision diagrams are included in Appendix D. The associated tables may be used to look up additional details for specific crash events. Figures 8 through 11 show the collision diagrams for the HSIP intersection clusters. Figures 12 through 14 show the collision diagrams for locations with fatal crashes. Considering all the available data, MPO staff drew the following conclusions about conditions at different intersections within the study area:

***High Priority Segments***

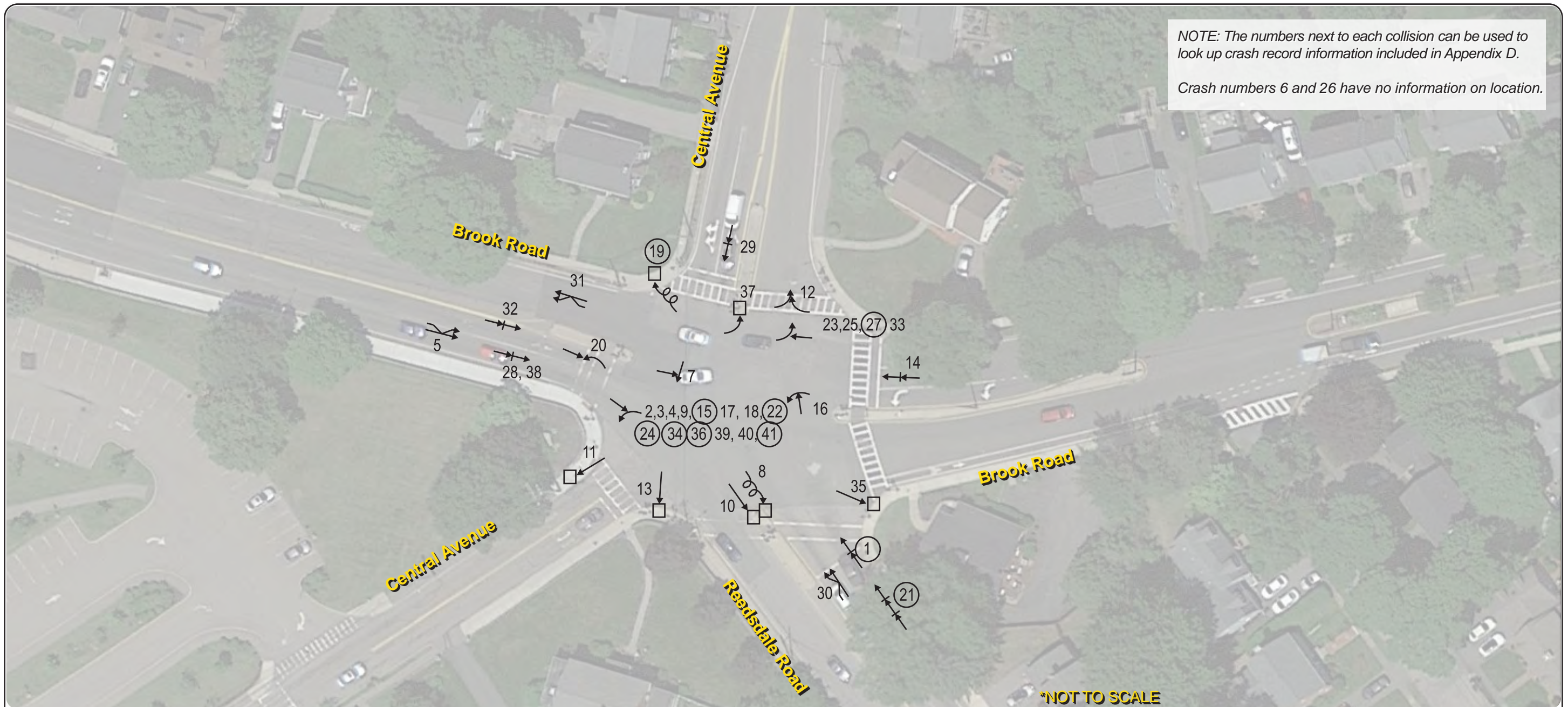
Randolph Avenue and Brook Road segments are the high priority segments. Each of these segments has large numbers of observed crashes and great potential for safety improvement, making them clear targets for intervention. The Brook Road segment has schools, recreational areas, and residences; therefore, its four travel lanes, low volumes, and high vehicle speeds make it unsafe for people who walk or bike. The Randolph Avenue segment has recreational areas, businesses, and residences; therefore, its straight alignment, high speed, and high volume makes it unsafe for people who drive, walk, or bike. There were four fatalities on the Randolph Avenue segment. Important contributing factors in these crashes were peak-period congestion, high speed of vehicles, and lack of turn lanes.

***High Priority Intersections***

Six intersections were included in this category based on the collision diagrams, HSIP crash clusters, PSI analysis, and unconventional geometry:

- Brook Road at Blue Hills Parkway
- Brook Road at Reedsdale Road and Central Avenue
- Reedsdale Road at Canton Avenue
- Reedsdale Road at Randolph Avenue
- Randolph Avenue at Hallen Avenue
- Randolph Avenue at Chickatawbut





NOTE: The numbers next to each collision can be used to look up crash record information included in Appendix D.  
 Crash numbers 6 and 26 have no information on location.

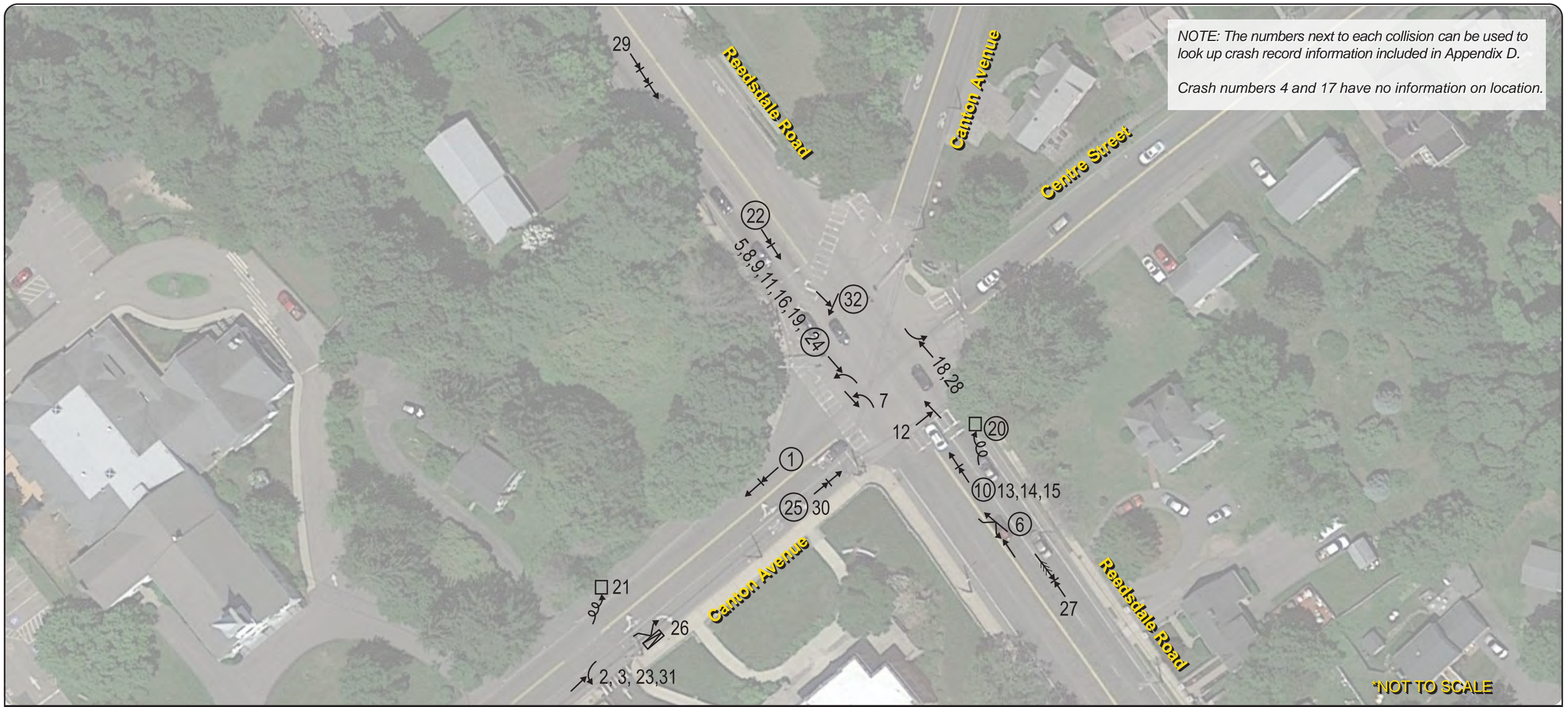
\*NOT TO SCALE

SYMBOLS		TYPES OF CRASH		SEVERITY	
→ Moving Vehicle	→ [hatched box] Parked Vehicle	↔↔ Head On	↔ Sideswipe	○ Injury Crash	⊙ Fatal Crash
↔ Backing Vehicle	→ [square] Fixed Object	↘↙ Angle	↻ Out of Control		
- - - Non-Involved Vehicle	→ [bicycle] Bicycle	→↘ Rear End			
→ [stick figure] Pedestrian	→ [animal] Animal				



**Figure 8**  
**Collision Diagram: Brook Road at Reedsdale Road/Central Avenue**  
 January 1, 2013, to December 31, 2017





NOTE: The numbers next to each collision can be used to look up crash record information included in Appendix D.  
 Crash numbers 4 and 17 have no information on location.

\*NOT TO SCALE

SYMBOLS		TYPES OF CRASH		SEVERITY	
Moving Vehicle Backing Vehicle Non-Involved Vehicle Pedestrian	Parked Vehicle Fixed Object Bicycle Animal	Head On Angle Rear End Sideswipe Out of Control	Injury Crash Fatal Crash		



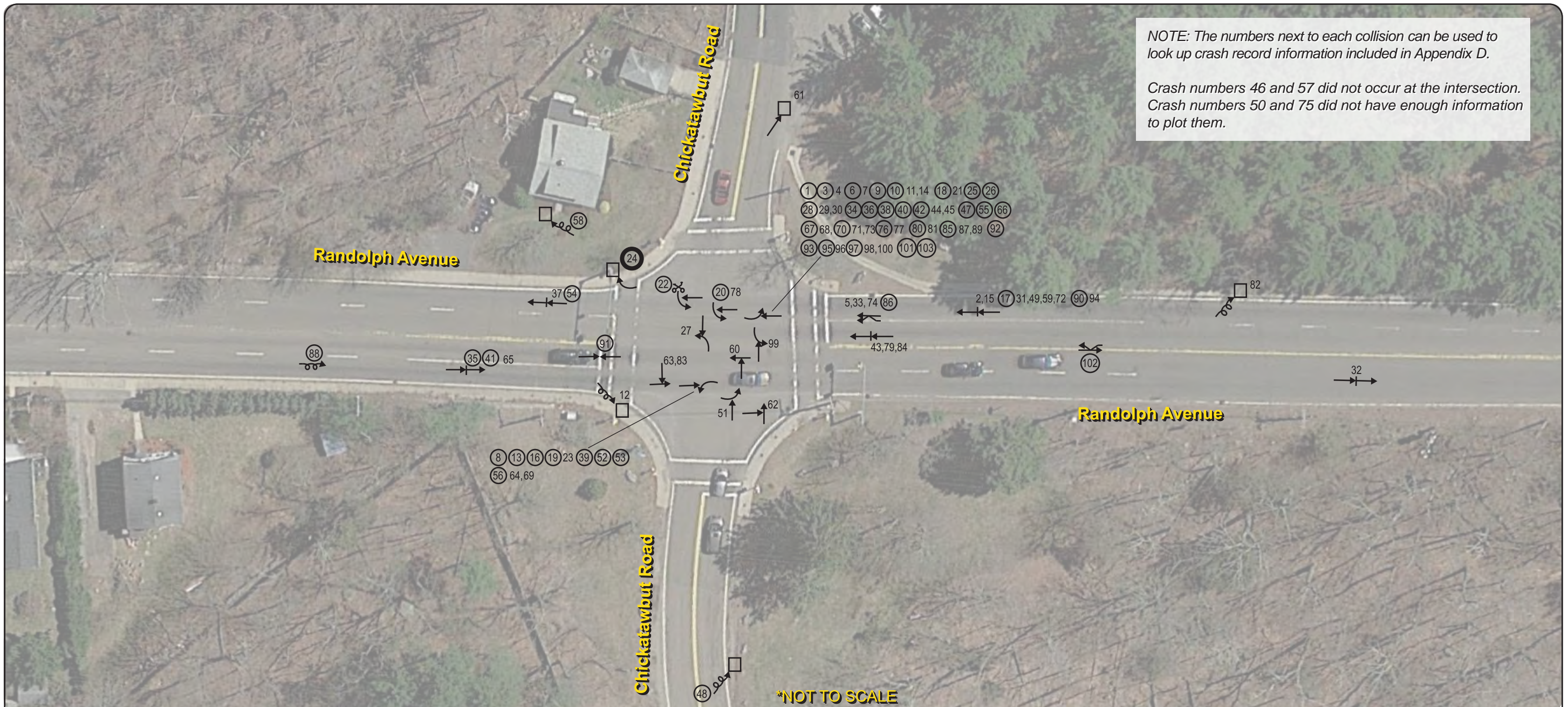
**Figure 9**  
**Collision Diagram: Reedsdale Road at Canton Avenue and Centre Street**  
 January 1, 2013, to December 31, 2017





SYMBOLS		TYPES OF CRASH		SEVERITY	
→ Moving Vehicle	→ [hatched box] Parked Vehicle	↔ Head On	↔ Sideswipe	○ Injury Crash	◉ Fatal Crash
↔ Backing Vehicle	→ [square] Fixed Object	↘ Angle	↻ Out of Control		
- - - Non-Involved Vehicle	→ [bicycle] Bicycle	→ Rear End			
→ [stick figure] Pedestrian	→ [animal] Animal				

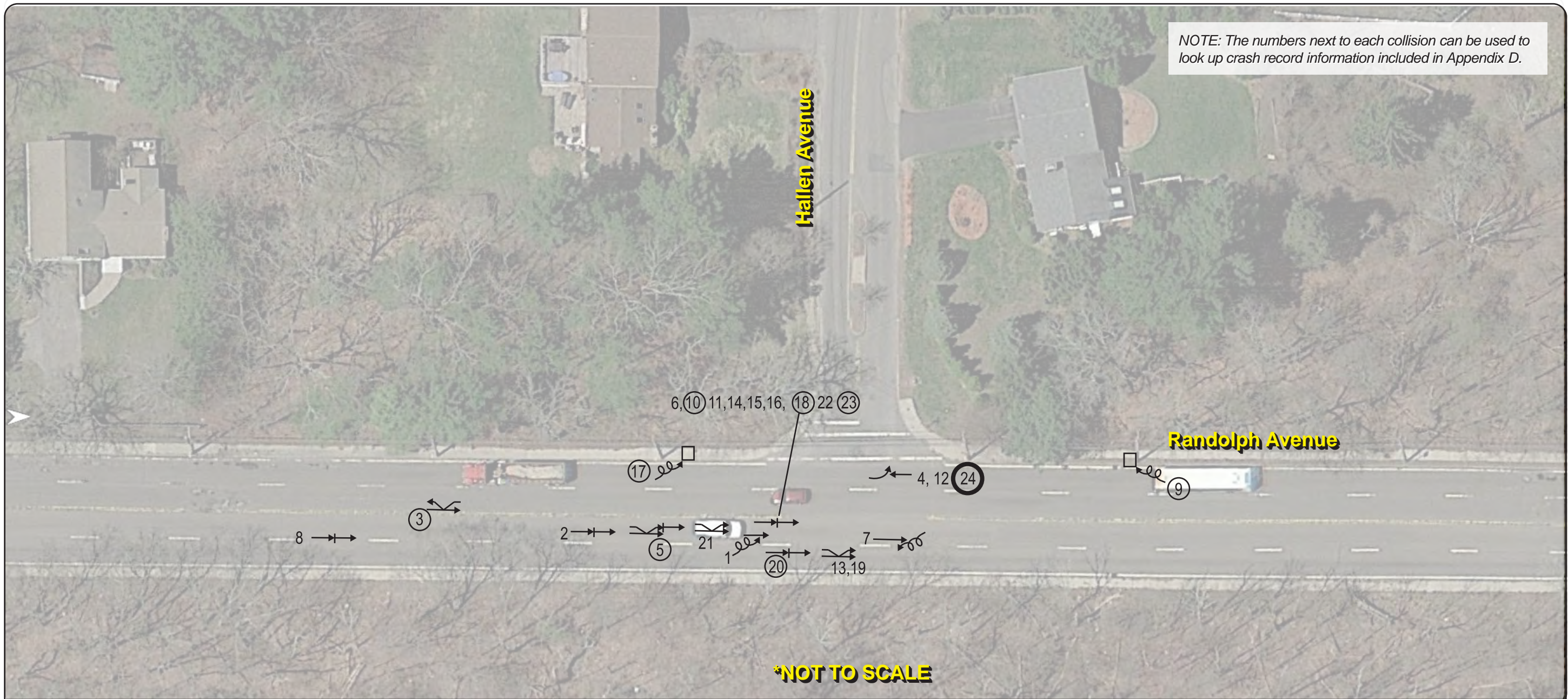




SYMBOLS		TYPES OF CRASH		SEVERITY	
<ul style="list-style-type: none"> <li>→ Moving Vehicle</li> <li>↔ Backing Vehicle</li> <li>- - - Non-Involved Vehicle</li> <li>→ ⚣ Pedestrian</li> <li>→ ☐ Parked Vehicle</li> <li>→ ☐ Fixed Object</li> <li>→ 🚲 Bicycle</li> <li>→ 🐘 Animal</li> </ul>	<ul style="list-style-type: none"> <li>↔↔ Head On</li> <li>↔↔ Angle</li> <li>↔↔ Rear End</li> <li>↔↔ Sideswipe</li> <li>↔↔ Out of Control</li> </ul>	<ul style="list-style-type: none"> <li>○ Injury Crash</li> <li>⊙ Fatal Crash</li> </ul>			



NOTE: The numbers next to each collision can be used to look up crash record information included in Appendix D.



SYMBOLS		TYPES OF CRASH		SEVERITY	
→ Moving Vehicle	→ [hatched box] Parked Vehicle	→↔ Head On	→↔ Sideswipe	○ Injury Crash	◉ Fatal Crash
→↔ Backing Vehicle	→ [square] Fixed Object	→↘ Angle	→↪ Out of Control		
- - - Non-Involved Vehicle	→ [bicycle] Bicycle	→↔ Rear End			
→ [stick figure] Pedestrian	→ [animal] Animal				



**Figure 12**  
**Collision Diagram: Randolph Avenue at Hallen Avenue**  
**January 1, 2013, to December 31, 2017**



NOTE: The numbers next to each collision can be used to look up crash record information included in Appendix D.



\*NOT TO SCALE

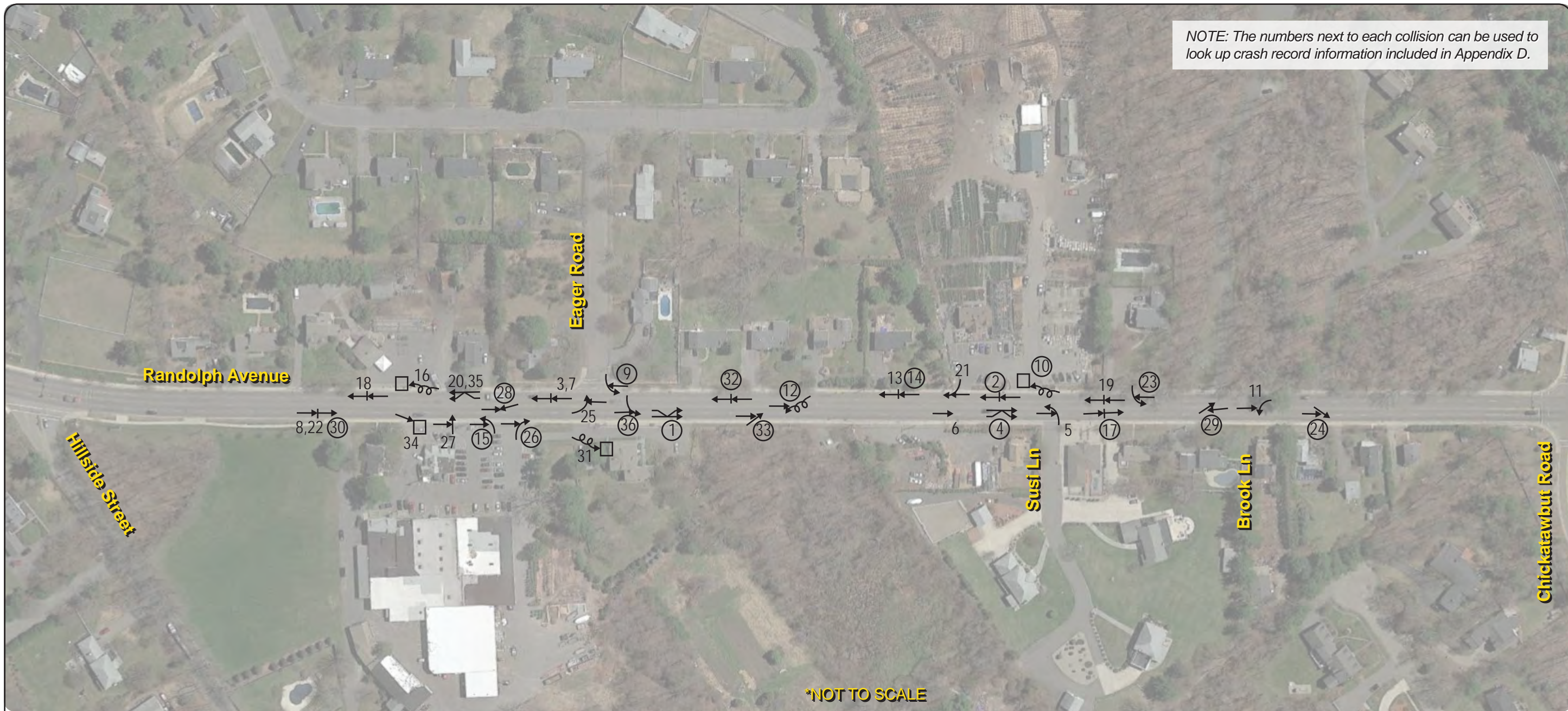
SYMBOLS		TYPES OF CRASH		SEVERITY	
→ Moving Vehicle	→ [hatched box] Parked Vehicle	↔↔ Head On	↔ Sideswipe	○ Injury Crash	◉ Fatal Crash
↔ Backing Vehicle	→ [square] Fixed Object	↘↙ Angle	↻ Out of Control		
- - - Non-Involved Vehicle	→ [bicycle] Bicycle	→  Rear End			
→ [stick figure] Pedestrian	→ [animal] Animal				



**Figure 13**  
**Collision Diagram: Randolph Avenue Segment Between Hallen Avenue and Hillside Street**  
 January 1, 2013, to December 31, 2017



NOTE: The numbers next to each collision can be used to look up crash record information included in Appendix D.



SYMBOLS		TYPES OF CRASH		SEVERITY	
→ Moving Vehicle	→ [hatched box] Parked Vehicle	↔ Head On	↔ Sideswipe	○ Injury Crash	◉ Fatal Crash
↔ Backing Vehicle	→ [square] Fixed Object	↘ Angle	↻ Out of Control		
- - - Non-Involved Vehicle	→ [bicycle] Bicycle	→ Rear End			
→ [stick figure] Pedestrian	→ [animal] Animal				



**Figure 14**  
**Collision Diagram: Randolph Avenue Segment Between Hillside Street and Chickatawbut Road**  
 January 1, 2013, to December 31, 2017

### 5.4 LEVEL OF SERVICE (LOS) ANALYSIS

#### 5.4.1 Intersection LOS

MPO staff conducted traffic operations analyses consistent with the HCM methodologies.<sup>15</sup> HCM methodology is used to assess traffic conditions at signalized and unsignalized intersections and to rate the LOS from A to F. LOS A represents the best operating conditions (little to no delay), while LOS F represents the worst operating conditions (long delay). LOS E represents operating conditions at capacity (the limit of acceptable delay). Table 7 presents the control delays (standards for comparison) associated with each LOS for signalized and unsignalized intersections.

Using the traffic and signal data collected, MPO staff built traffic analysis networks for the weekday AM and weekday PM peak hours. Synchro traffic analysis was used to assess the capacity and quality of traffic flow.<sup>16</sup> Tables 8 through 10 show the analysis results for the weekday AM, weekday PM, respectively. Appendix E presents the existing conditions LOS analysis worksheets. Based on the traffic operations analyses, these intersections are congested and have long queues during peak travel hours:

- Brook Road at Blue Hills Parkway
- Brook Road at Reedsdale Road/Central Avenue
- Reedsdale Road at Canton Avenue/Centre Street
- Randolph Avenue at Reedsdale Road

**Table 7**  
**Intersection Level of Service Criteria**

Level of Service	Signalized Intersection Control Delay (seconds per vehicle)	Unsignalized Intersection Control Delay (seconds per vehicle)
A	<10	<10
B	10–20	10–15
C	20–35	15–25
D	35–55	25–35
E	55–80	35–50
F	>80	>50

Source: Highway Capacity Manual 2010.

<sup>15</sup> Transportation Research Board of the National Academies, *Highway Capacity Manual 2010*, Washington, DC, December 2010.

<sup>16</sup> Trafficware Inc., Synchro Studio 9, Synchro plus SimTraffic, Build 914, Sugar Land, Texas.



**Table 8  
Brook Road: Existing Conditions, Levels of Service, Delays, and Queues**

Street Name	Approach	Lane Group	AM 50% Queue (ft.)*	AM 95% Queue (ft.)**	AM Delay (s)	AM LOS	PM 50% Queue (ft.)*	PM 95% Queue (ft.)**	PM Delay (s)	PM LOS
Route 28	SB	L	171	328	28.2	C	606	-1207	67.1	E
Route 28	SB	LT	175	334	27.9	C	670	-1309	73.4	E
Route 28	NB	R	303	-551	36.8	D	283	505	35.3	D
Blue Hill Parkway	NB	TR	172	-294	48.1	D	185	299	68.5	E
Brook Road	EB	LTR	155	-324	57.9	E	235	395	72.7	E
<b>Intersection</b>	<b>All</b>	<b>All</b>	--	--	<b>39.1</b>	<b>D</b>	--	--	<b>61.1</b>	<b>E</b>
Route 28	SB	TR	0	0	0.0	A	0	0	0.0	A
Route 28	NB	LT	0	3	0.4	A	0	0	0.0	A
Thacher Street	NB	LR	50	82	43.1	E	100	144	102.8	F
<b>Intersection</b>	<b>All</b>	<b>All</b>	--	--	<b>3.5</b>	<b>A</b>	--	--	<b>6.7</b>	<b>A</b>
Route 28	SB	TR	0	121	4.2	A	0	201	4.8	A
Route 28	NB	LT	0	201	5.0	A	0	149	4.6	A
St. Mary's Road	NE	LR	1	27	11.6	B	3	32	12.8	B
<b>Intersection</b>	<b>All</b>	<b>All</b>	--	--	<b>4.9</b>	<b>A</b>	--	--	<b>4.9</b>	<b>A</b>
Route 28	NB	LTR	43	204	8.4	A	36	171	8.4	A
Route 28	SB	LTR	26	128	7.3	A	50	230	9.2	A
Standish Street	SW	LTR	3	25	16.8	C	9	40	20.8	C
<b>Intersection</b>	<b>All</b>	<b>All</b>	--	--	<b>8.1</b>	<b>A</b>	--	--	<b>9.1</b>	<b>A</b>
Route 28	NB	LTR	-354	-522	84.7	F	238	306	64.6	E
Route 28	SB	LT	-516	-755	290.2	F	-628	-869	365.1	F
Route 28	SB	R	-386	-609	171.5	F	-393	-635	105.5	F
Brook Road	WB	L	125	203	42.8	D	142	222	45.4	D
Brook Road	WB	TR	150	210	42.2	D	171	231	44.4	D
Central Avenue	NE	LR	64	-194	58	E	-275	-460	288.1	F
Central Avenue	SB	LTR	123	172	65.6	E	205	273	68.5	E
<b>Intersection</b>	<b>All</b>	<b>All</b>	--	--	<b>117.3</b>	<b>F</b>	--	--	<b>137.4</b>	<b>F</b>

Note: Shading denotes intersections that are congested during peak travel hours.

\* Negative (-) sign = Volume exceeds capacity (queue may be longer)

\*\* Negative (-) sign = 95 percentile volume exceed capacity, queue may be longer

EB = eastbound. LOS = level of service. L = left. R = right. LR = left and through. TR = through and right. LTR = left, through, and right. NE = northeast. NB = northbound. WB = westbound SB = southbound. NW = northwest. SE = southeast. SW = southwest.

Source: Central Transportation Planning Staff.

**Table 9  
Reedsdale Road: Existing Conditions Levels of Service, Delays, and Queues**

Street Name	Approach	Lane Group	AM 50% Queue (ft.)*	AM 95% Queue (ft.)**	AM Delay (s)	AM LOS	PM 50% Queue (ft.)*	PM 95% Queue (ft.)**	PM Delay (s)	PM LOS
Route 28	NB	LTR	-354	-522	84.7	F	238	306	64.6	E
Route 28	SB	LT	-516	-755	290.2	F	-628	-869	365.1	F
Route 28	SB	R	-386	-609	171.5	F	-393	-635	105.5	F
Brook Road	WB	L	125	203	42.8	D	142	222	45.4	D
Brook Road	WB	TR	150	210	42.2	D	171	231	44.4	D
Central Avenue	NE	LR	64	-194	58	E	-275	-460	288.1	F
Central Avenue	SB	LTR	123	172	65.6	E	205	273	68.5	E
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>117.3</b>	<b>F</b>	<b>--</b>	<b>--</b>	<b>137.4</b>	<b>F</b>
Route 28	NB	LTR	-595	-889	104.2	F	348	-530	75.7	E
Route 28	SB	LTR	218	327	53.8	D	-466	-711	125.2	F
Canton Avenue	NE	LT	-466	-815	125	F	-527	-906	145.2	F
Canton Avenue	NE	R	41	123	21.9	C	41	125	22.6	C
Canton Avenue	SB	LR	143	-275	102.3	F	-249	-509	147.3	F
Centre Street	SW	LTR	-457	-802	122.9	F	405	-755	107	D
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>96.3</b>	<b>F</b>	<b>--</b>	<b>--</b>	<b>109.3</b>	<b>F</b>
Route 28	NB	LT	0	12	1.6	A	0	8	1.5	A
Route 28	SB	TR	0	0	0.0	A	0	0	0.0	A
Hospital Driveway	EB	LR	0	21	21.1	C	0	71	24.9	C
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>1.7</b>	<b>A</b>	<b>--</b>	<b>--</b>	<b>3.0</b>	<b>A</b>
Route 28	NB	L	-466	-1193	177.7	F	129	-591	53.5	D
Route 28	NB	LTR	159	505	21.3	C	115	322	17.5	B
Route 28	SB	LT	117	316	27.9	C	157	324	32.6	C
Route 28	SB	R	50	131	8.8	A	-439	-905	67.6	E
Reedsdale Road	WB	LTR	91	233	28.9	C	168	-354	53.2	D
Randolph Avenue	SB	LTR	115	310	34.8	C	212	-538	37.5	D
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>69.2</b>	<b>E</b>	<b>--</b>	<b>--</b>	<b>47.7</b>	<b>D</b>

Note: Shading denotes intersections that are congested during peak travel hours.  
 \* Negative (-) sign = Volume exceeds capacity (queue may be longer)  
 \*\* Negative (-) sign = 95 percentile volume exceed capacity, queue may be longer  
 EB = eastbound. LOS = level of service. L = left. R = right. LR = left and right. LT= left and through. TR = through and right. LTR = left, through, and right. NE = northeast. NB = northbound. WB = westbound SB = southbound. NW = northwest. SE = southeast. SW = southwest.  
 Source: Central Transportation Planning Staff.

**Table 10  
Randolph Avenue: Existing Conditions Levels of Service, Delays, and Queues**

Street Name	Approach	Lane Group	AM 50% Queue (ft.)	AM 95% Queue (ft.)	AM Delay (s)	AM LOS	PM 50% Queue (ft.)	PM 95% Queue (ft.)	PM Delay (s)	PM LOS
Route 28	NB	L	-466	-1193	177.7	F	129	-591	53.5	D
Route 28	NB	LTR	159	505	21.3	C	115	322	17.5	B
Route 28	SB	LT	117	316	27.9	C	157	324	32.6	C
Route 28	SB	R	50	131	8.8	A	-439	-905	67.6	E
Reedsdale Road	WB	LTR	91	233	28.9	C	168	-354	53.2	D
Randolph Avenue	SB	LTR	115	310	34.8	C	212	-538	37.5	D
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>69.2</b>	<b>E</b>	<b>--</b>	<b>--</b>	<b>47.7</b>	<b>D</b>
Route 28	NB	LT	0	-797	9.2	A	130	372	13.3	B
Route 28	SB	T	0	182	4.8	A	221	621	17.6	B
Reeds Street	EB	LR	9	46	32.9	C	21	83	31.2	C
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>8.2</b>	<b>A</b>	<b>--</b>	<b>--</b>	<b>16.2</b>	<b>B</b>
Route 28	NB	LT	0	3	0.3	A	0	19	2.5	A
Route 28	SB	TR	0	0	0	A	0	0	0	A
Hallen Avenue	EB	LR	0	13	15.9	B	20	72	42.2	D
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>0.6</b>	<b>A</b>	<b>--</b>	<b>--</b>	<b>2.6</b>	<b>A</b>
Route 28	NB	LTR	214	-980	16.7	B	113	-573	15.6	B
Route 28	SB	LTR	56	268	9.1	A	220	-981	17	B
Hillside Street	EB	LTR	48	132	43.6	D	59	157	44.4	D
Driveway	WB	LTR	2	17	44	D	2	17	44.8	D
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>15.6</b>	<b>B</b>	<b>--</b>	<b>--</b>	<b>17.8</b>	<b>B</b>

Note: Shading denotes intersections that are congested during peak travel hours.  
 \* Negative (-) sign = Volume exceeds capacity (queue may be longer)  
 \*\* Negative (-) sign = 95 percentile volume exceed capacity, queue may be longer  
 EB = eastbound. LOS = level of service. L = left. R = right. LR = left and right. LT= left and through. TR = through and right. LTR = left, through, and right. NE = northeast. NB = northbound. WB = westbound SB = southbound. NW = Northwest. SE = southeast. SW = southwest.  
 Source: Central Transportation Planning Staff.

**5.4.2 Pedestrian Level of Service (PLOS)**

The quality of pedestrian travel is largely affected by the roadway infrastructure, such as whether there are sidewalks and crosswalks present or pedestrian signals that allow pedestrians time to cross an intersection before vehicles get a green light. To reflect the complex relationship between pedestrians and the travel environments, MPO staff developed a PLOS tool, which grades a given roadway on its quality of pedestrian travel, and whether it reflects these objectives: safety, system preservation, capacity management and mobility, and

economic vitality.<sup>17</sup> Based on the tool, Route 28 in Milton was rated *poor* in terms of safety, *poor* in terms of system preservation, and *poor* in terms of economic vitality, and capacity management and mobility. Overall, the assessment indicates that the roadway needs improvements to safely accommodate pedestrians. The ratings from this pedestrian assessment tool are in Appendix F.

**5.4.3 Bicycle Level of Service (BLOS)**

The quality of bicycle travel is largely affected by the character of the roadway, safety, and security, such as speed of vehicles, travel time, comfort and convenience, and freedom to maneuver. The BLOS tool is intended to help users and planners assess the infrastructure to facilitate bicycle travel. The approach is similar to the PLOS tool in that it grades locations with features that are suitable or unsuitable for bicyclists—areas well suited for bicycle travel are awarded high scores and areas unsuitable for bicycle travel are awarded low scores. In addition, the BLOS ratings correlate with the objectives emphasized for PLOS. Based on the BLOS tool, Route 28 in Milton was rated *poor* in terms of safety, *poor* in terms of system preservation, and *poor* in terms of economic vitality, and capacity management and mobility. Overall, the assessment indicates that the roadway needs improvements to accommodate bicyclists. The ratings from this bicycle assessment tool are in Appendix F.

**5.5 TRANSIT SERVICES**

The Route 28 corridor in Milton and surrounding areas are served by three bus routes operated by the MBTA and BAT. BAT’s Route 12 and MBTA’s Route 240 operate full daily schedules, while MBTA’s Route 245 operates only on weekdays with five inbound and outbound trips. All three routes share stops and have designated signs at each of the stops. There are no benches or shelters at any of the bus stops.

The BAT’s Route 12, which serves Ashmont Station to the BAT Center in Brockton, operates on Randolph Avenue, Reedsdale Road, and Central Avenue. It provides bus service to Milton Hospital, the Mattapan High Speed Line, and the Red Line. Buses run Monday through Friday every 15 to 30 minutes from 5:45 AM to 12:02 AM; every 30 minutes on Saturdays from 6:20 AM to 11:45 PM; and every 40 to 80 minutes on Sundays from 11:20 AM to 7:40 PM.

MBTA bus Route 240, which serves Avon Square or Holbrook/Randolph Commuter Rail Station to Ashmont Station, operates through the area on Randolph Avenue, Reedsdale Road, and Central Avenue. It provides bus service

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<sup>17</sup> Ryan Hicks and Casey-Marie Claude, *Pedestrian Level-of-Service Memorandum*, Technical Memorandum to the Boston Region Metropolitan Planning Organization, January 19, 2017.

to Milton Hospital, the Mattapan High Speed Line, and Red Line. Buses run Monday through Friday every 10 to 30 minutes from 4:45 AM to 12:45 AM; every 30 to 60 minutes on Saturdays from 5:50 AM to 12:45 AM; and every 60 to 90 minutes on Sundays from 7:00 AM to 12:35 AM. On weekdays, Route 240 operates a total of 50 inbound buses and 50 outbound buses through the corridor. On Saturdays, it operates a total of 37 inbound buses and 37 outbound buses through the corridor. On Sundays, it operates 15 buses in each direction through the corridor. Total weekday ridership is 4,400 passengers.

MBTA bus Route 245, which serves Quincy Center Station to Mattapan Station, operates through the area on Reedsdale Road, Brook Road, and Blue Hills Parkway. It provides bus service to Milton Hospital and the Mattapan High Speed Line. Buses run Monday through Friday only with five inbound and five outbound trips—two trips in the morning and three trips in the afternoon for each direction. There is no weekend service or service during school vacation days.





# Chapter 6—Projects and Studies

Previous transportation projects and studies for the Route 28 corridor that addressed the study area problems are described below. The conceptual improvements developed in this study considered and incorporated recommendations from the previous studies.

## 6.1 RECONSTRUCTION OF RANDOLPH ROAD AND CHICKATAWBUT ROAD INTERSECTION

MassDOT’s project number 607342 will reconstruct this intersection to address the high number of crashes. This intersection ranks second in the state’s top 200 list given the severity of accidents that occur at this location. The project work will include replacing the existing traffic signal with a two-lane modern roundabout. This project is funded through the MPO’s 2022 Transportation Improvement Program (TIP), and it is currently at 25 percent design.

## 6.2 THE BROOK ROAD—ROAD DIET

The main goals of the Road Diet project were to accommodate pedestrians and bicyclists by repurposing the existing road cross section along the corridor. In doing so, Brook Road becomes a safer environment for all users—people who walk, bike, ride the bus, or drive. The improvements allocated space for separated bike lanes on either side of the road to connect the neighborhood roads to the St. Mary’s School and Pierce Middle School, and gave students a safer route to school. It also provided parking and designated pick-up and drop-off spaces at the schools to satisfy demand. Detail of the designs, which were implemented on October 10–14, 2020, are included in Appendix B.

## 6.3 REEDSDALE ROAD AT BETH ISRAEL DEACONESS HOSPITAL: PEDESTRIAN AND TRANSIT IMPROVEMENTS

These improvements were constructed by the Town of Milton through the Complete Streets program. The improvements widened the existing sidewalk on the hospital side to provide a bus shelter at the heavily used bus stop, and installed ADA-compliant wheelchair curb ramps and high-visibility crosswalks. In addition, a pedestrian hybrid beacon signal was installed at the existing bus stop to facilitate heavy pedestrian crossing demand.



# Chapter 7—Community and Stakeholder Engagement

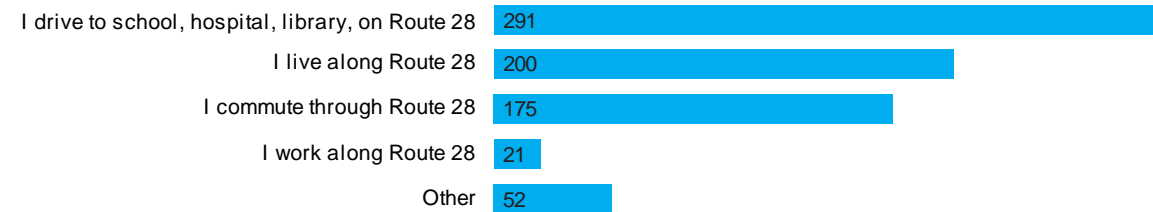
Stakeholder participation is a crucial part of any study. Hence, MPO staff used a number of methods to engage the community and stakeholders in planning for improvements to Route 28.

## 7.1 COMMUNITY SURVEY

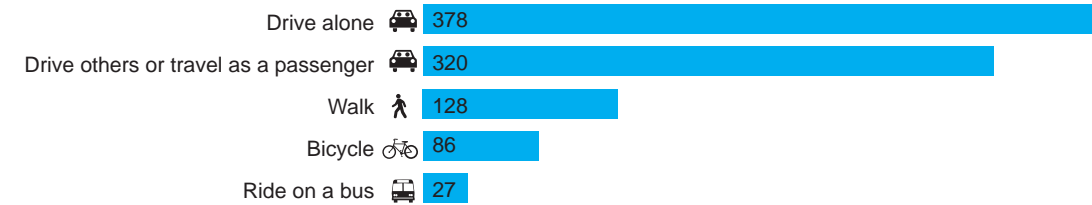
MPO staff developed a survey to help determine the public's opinion about concerns and problems on Route 28 in Milton and how to resolve them. The online survey, posted on the Town of Milton's website received 550 responses in April 2020. Figure 15 shows the questions contained in the survey, along with the answers received. Many of the respondents left significant free-response feedback for one or more questions; those comments are included in Appendix G. Feedback from the survey was helpful to gauge community sentiment and to solicit ideas for solutions to the existing problems. Some notable conclusions drawn from the survey are below.

- The vast majority of respondents (73 percent) drive on the corridor; however, 27 percent of respondents also said that they walk, bicycle, or ride on bus in the corridor.
- High speed of vehicles, safety concerns, high volumes of traffic, difficulty crossing Route 28, poor accommodation for pedestrians and bicyclists, and cut-through were the most commonly cited problems, both in the survey answers and in free responses.
- Many respondents expressed surprise that anyone would consider bicycling in the corridor because of the dangerous conditions.
- Despite being a population of mostly drivers, the respondents seemed extremely receptive to the idea of improving facilities for active transportation modes (walking and bicycling).
- Eighty percent of residents indicated they would like to see reduced traffic speeds, vehicle crashes, and congestion; high quality bicycle lanes or multiuse paths, more greenery and welcoming streetscape, and enhanced safety for all users in the corridor; and investments to make bus service more attractive.
- The written comments were focused on improving safety for pedestrians and bicyclists throughout the corridor, constructing high quality sidewalks, bicycle lanes, and multiuse paths for nonmotorized uses.

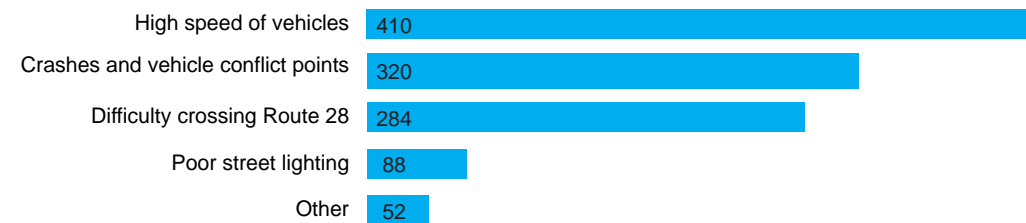
### What is your relationship with Route 28?



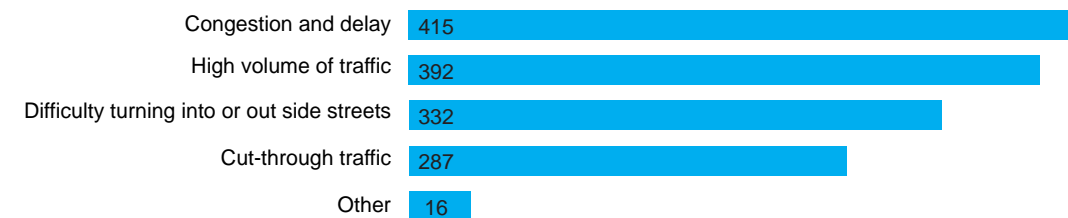
### How do you typically travel on Route 28?



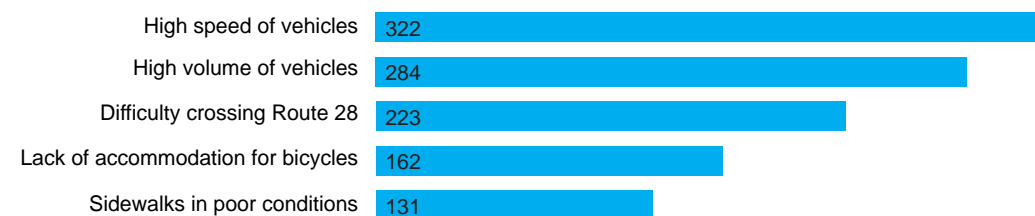
### Transportation problems and issues--Safety



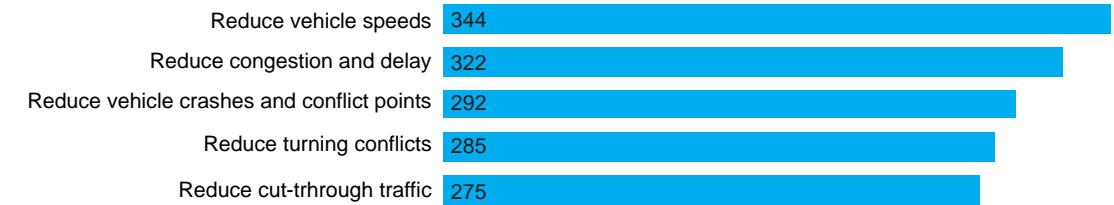
### Transportation problems and issues--Congestion



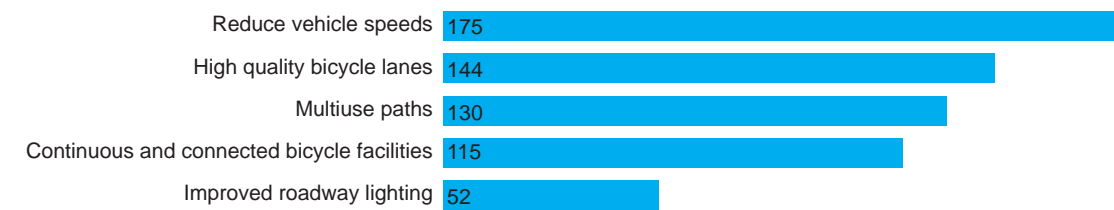
### Transportation problems and issues--Pedestrians and Bicyclist



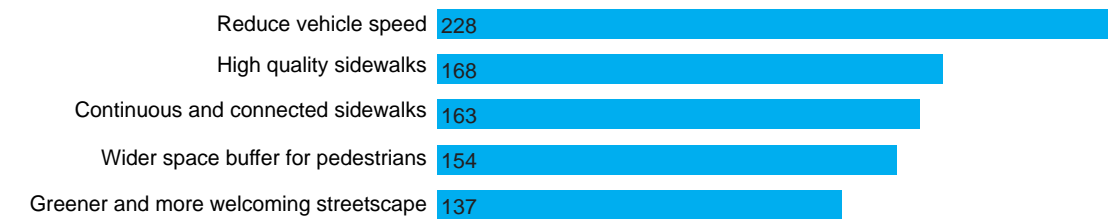
### What investments would improve driving conditions?



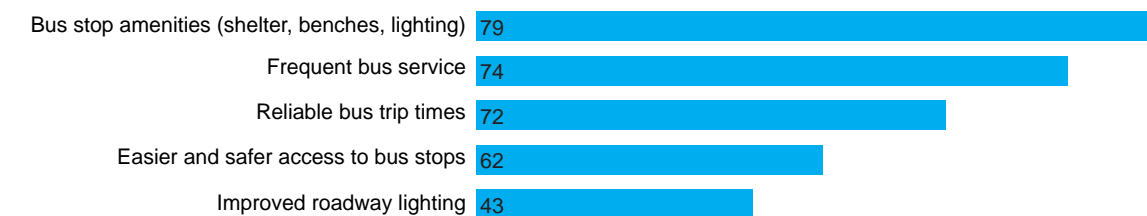
### What investments would make it more likely for you to bicycle?



### What investments would make it more likely for you to walk?



### What investments would make it more likely for you to ride the bus?



# Chapter 8—Deficiencies and Needs

The corridor deficiencies listed below are based on analyzing the collected data from field visits, determining the public’s opinion about the problems, and obtaining feedback from the advisory task force.

## 8.1 DEFICIENCIES

Table 11 presents the safety, operational problems, and deficiencies in the Brook Road, Reedsdale Road, and Randolph Avenue corridor.

**Table 11  
Problems and Deficiencies**

<b>Issue</b>	<b>Deficiencies</b>	<b>Jurisdiction</b>
Pedestrian and bicyclists	High vehicle speeds present safety problems for parents and students walking, bicycling, or crossing the road	Milton/Mass DOT
Pedestrians and bicyclists	Very difficult to cross (four travel lanes), unsafe for students and parents walking and bicycling to and from schools and recreational areas	Milton/Mass DOT
Pedestrians	Many wheelchair ramps are not ADA compliant	Milton/Mass DOT
Pedestrians	Inadequate sidewalk width and lack of sidewalk buffer place pedestrians too close to high-speed travel lanes, making them uncomfortable	Milton/Mass DOT
Pedestrians	Sidewalks obstructed with vegetation outgrowth that reduces width of sidewalk	Milton/Mass DOT
Bicyclists	Absence of separated bicycle lanes creates problems for people who bicycle	Milton/Mass DOT
Bicyclists	Lack of bicycle racks at destination locations create inconveniences for people who bicycle	Milton
Parking	Lack of parking spaces on Brook Road for people who drop and pick-up students or visit recreation areas on Brook Road	Milton
Safety	High crash segments with three HSIP locations—the intersections of Brook Road at Reedsdale Road and Central Avenue, Reedsdale Road at Canton Avenue, Randolph Avenue at Reedsdale Road and Randolph Avenue at Chickatawbut Road	Milton/MassDOT
Safety	High numbers of angle, rear-end, and left-turn related crashes at intersections	Milton/Mass DOT
Safety and operations	Lack of turn lanes present problems for traffic turning into and out of side streets and driveways	Milton/Mass DOT
Safety and operations	Four travel lanes with low volume of traffic causes motorists to drive at high speeds	Milton/Mass DOT
Safety	Motorists on Brook Road repeatedly run red lights at St. Mary’s Road and Standish Road	Milton
Safety	Post-mounted signals on Brook Road and Reedsdale Road do not provide adequate visibility for drivers	Milton

<b>Issue</b>	<b>Deficiencies</b>	<b>Jurisdiction</b>
Safety and operations	Peak period traffic congestion at the intersections of Brook Road at Central Avenue, Reedsdale Road at Canton Avenue, and Reedsdale Road at Randolph Avenue, and Randolph Avenue at Chickatawbut Road	Milton/MassDOT
Safety and operations	Lane configuration at Brook Road and Central Avenue intersection is confusing to many motorists	Milton
Operations	Existing traffic signal timings are outdated resulting in poorly timed signals	Milton/Mass DOT
Safety and operations	Cut-through traffic on side streets creates safety problems for residents	Milton/MassDOT
Safety	Four fatal crashes occurred on Randolph Avenue between 2013–17	MassDOT
Safety and operations	High volume of cut-through traffic on Reed Street, Highland Street, and Hallen Avenue create safety problems for residents	MassDOT
Safety and operations	High volumes of cut-through traffic on Pleasant Street heading to the Interstate 93 corridor during morning and afternoon peak periods	MassDOT
Safety and operations	Congestion and queues southbound on Randolph Avenue during the afternoon peak period divert high volumes of traffic through Heather Drive and Mark Lane; Cut-through and diverted traffic often speed on these otherwise quiet residential streets, which is a huge safety risk for residents	MassDOT
Safety and operations	Very dangerous turns into and out of Hallen Avenue and Ridgewood Road/Wollaston Golf Club due to high vehicle volumes and speeds; Lack of a traffic light at these locations make for dangerous turns	MassDOT

ADA = Americans with Disabilities Act. HSIP = Highway Safety Improvement Program. MassDOT = Massachusetts Department of Transportation.  
 Source: Central Transportation Planning Staff.

## 8.2 NEEDS ASSESSMENT

Based on the problems and deficiencies, staff determined the following corridor needs:

- measures to reduce vehicular speed and calm traffic
- measures to reduce pedestrian crossing distances to improve safety for pedestrians
- measures to provide safe facilities to accommodate people who walk, bicycle, or ride the bus.
- measures to create placemaking and connect people to places
- measures to reduces crashes in the corridor
- measures to improve safety of turn maneuvers in the corridor
- measures to reduce congestion at the signalized intersections
- measures to provide designated parking spaces for people who drop and pick-up students or visit recreation areas on Brook Road
- measures to reduce cut-through traffic on side streets



# Chapter 9—Short-Term Improvements

## 9.1 SHORT-TERM IMPROVEMENTS

The corridor would immensely benefit from short-term improvements. These improvements include installing signs, marking pavement, painting high-visibility crosswalks, adding detectable warning plates to existing wheelchair ramps, and upgrading signal-head sections. Additional short-term improvements include adding countdown timers for pedestrians, retiming and coordinating signals, repairing substandard sidewalks, and making minor geometric modifications. The time frame categorized as *short-term* is typically less than five years and the costs are usually low, which can be funded through maintenance budgets. Most short-term improvements typically do not require design and engineering efforts.

Table 12 shows the short-term safety and operational improvements for the Brook Road, Reedsdale Road, and Randolph Avenue segments along with the time frame, cost, and jurisdiction. A high proportion of Randolph Avenue northbound traffic turn left on Reedsdale Road. This movement experiences high delay during peak travel periods because the exclusive left-turn lane is insufficient. Providing double left-turn lane on that approach and retiming the signals would reduce congestion (Figure 16).

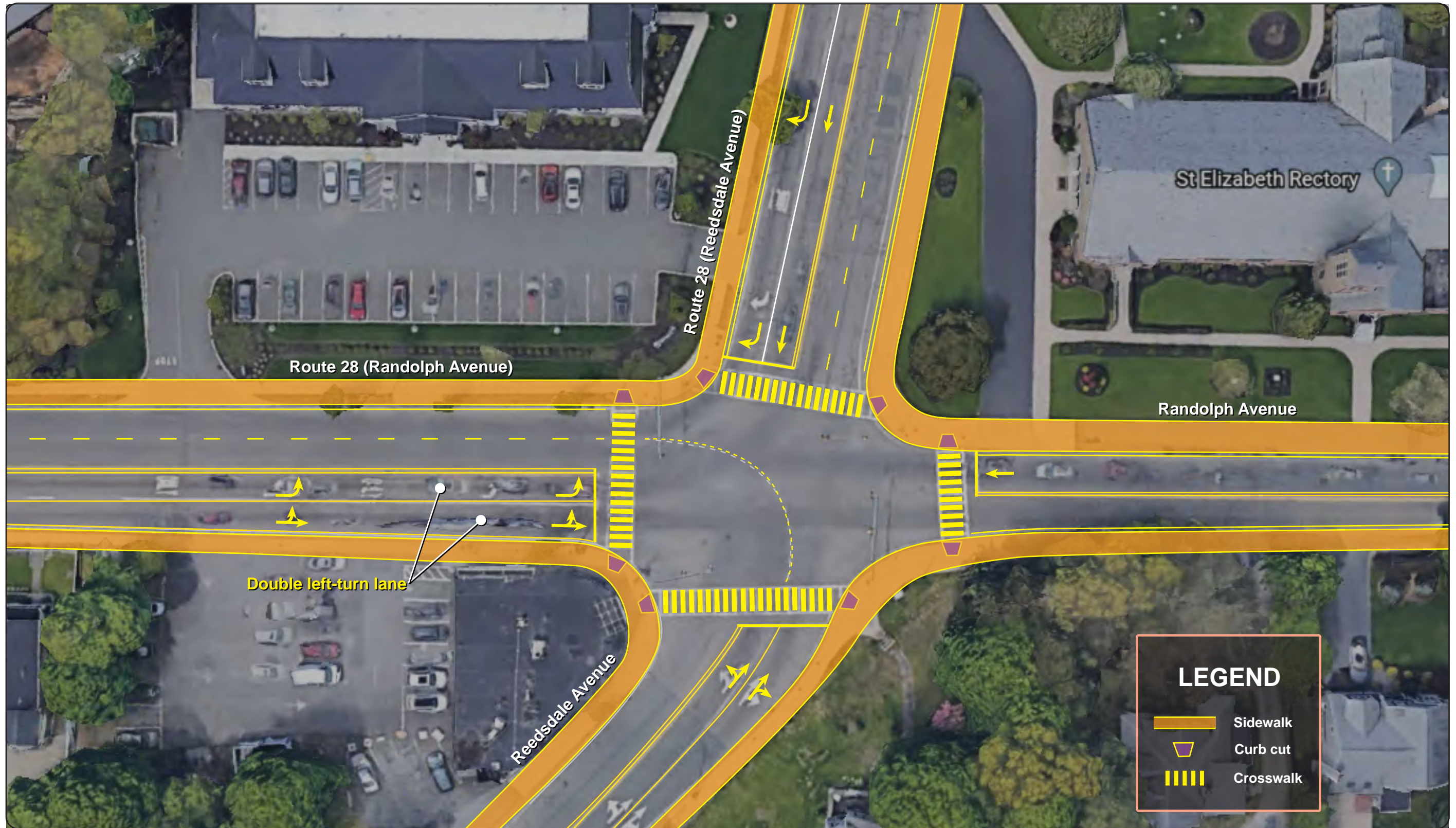
MPO staff evaluated what the LOS of Route 28 would be if the traffic signals were retimed and coordinated and double left-turn movement was provided at the intersection of Randolph Avenue and Reedsdale Road. The analysis focused on modifying the yellow and all-red intervals, phase splits, cycle lengths, and offsets to determine the effects of changes on the existing traffic volumes. The results of the LOS analyses are shown in Tables 13 through 15. Appendix E presents the short-term signal timing and coordination LOS analysis worksheets. The short-term analysis indicated that retiming the signals could reduce existing AM and PM peak-hour traffic signal delays by about 16 to 20 percent.

**Table 12  
Short-Term Improvements**

<b>Issue</b>	<b>Improvement</b>	<b>Time Frame</b>	<b>Cost</b>	<b>Jurisdiction</b>
Pedestrian safety	Trim vegetation outgrowth blocking or reducing sidewalk width	Short	Low	Milton/ MassDOT
Pedestrian safety	Make wheelchair ramps ADA-compliant by adding detectable plates	Short	Medium	Milton/ MassDOT
Pedestrian safety	Bring poor sidewalks to meet MassDOT standards and ADA compliance	Medium	Medium	Milton/ MassDOT
Pedestrian safety	Paint crosswalks and make them highly visible	Short	Low	Milton/ MassDOT
Pedestrian safety	Add countdown timers to help expedite pedestrian crossing at signalized intersections	Short	Medium	Milton/ MassDOT
Pedestrian safety	Conduct a pedestrian study to determine feasibility of a pedestrian hybrid beacon on Randolph Avenue at Pleasant Street	Short	Medium	MassDOT
Pedestrian safety	Inspect and repair broken pedestrian pushbuttons	Short	Medium	MassDOT
Bicycle safety	Provide bicycle detection at the signalized intersections	Medium	Medium	Milton/ MassDOT
Safety	Modify clearance intervals to MassDOT standards to address high number of angle and rear-end crashes	Short	Low	Milton/ MassDOT
Safety	Repaint or remark turn arrows at the intersections to make them highly visible to motorists	Short	Low	Milton/ MassDOT
Safety	Install signs in advance of the signalized intersections to direct motorists to the appropriate turn lanes	Short	Low	Milton/ MassDOT
Safety	Add backplates with retroreflective to signal heads to make them more visible to motorists	Short	Medium	Milton/ MassDOT
Congestion	Optimize traffic signal timings and coordinate signals to reduce congestion and delay	Short	Medium	Milton/ MassDOT
Congestion	Provide double left-turn lane on the approach and retime the signals to reduce congestion	Short	Medium	MassDOT
Safety	Install signs to prohibit cut-through traffic by nonresident commuters during peak travel periods: Heather Drive and Mark Lane	Short	Low	Milton/ MassDOT
Safety	Consider prohibiting cut-through traffic by nonresident commuters during the afternoon peak travel period (3:00 pm—6:00pm)	Short	Low	Milton/ MassDOT

ADA = Americans with Disabilities Act. MassDOT = Massachusetts Department of Transportation.  
Source: Central Transportation Planning Staff.





**Figure 16**  
**Short-Term Improvements: Randolph Avenue**  
**Northbound Double Left-Turn Lanes**

**Table 13  
Brook Road: Performance of Short-Term Improvements  
(Optimize Signal Timings)**

Street Name	Approach	Lane Group	AM 50% Queue (ft.)*	AM 95% Queue (ft.)**	AM Delay (s)	AM LOS	PM 50% Queue (ft.)*	PM 95% Queue (ft.)**	PM Delay (s)	PM LOS
Route 28	SB	L	160	314	26.4	C	584	-1038	46.5	D
Route 28	SB	LT	164	320	26.2	C	646	-1133	48.9	D
Route 28	NB	R	286	-523	35.3	D	273	428	28.8	C
Blue Hill Parkway	NB	TR	177	-327	53.4	D	211	-366	90.8	F
Brook Road	EB	LTR	160	-356	64.7	E	264	-501	90.7	F
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>39.9</b>	<b>D</b>	<b>--</b>	<b>--</b>	<b>53.0</b>	<b>D</b>
Route 28	SB	TR	0	0	0.0	A	0	0	0.1	A
Route 28	NB	LT	0	0	0.5	A	0	0	0.0	A
Thacher Street	NB	LR	0	79	40.8	E	0	133	88.0	F
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>3.3</b>	<b>A</b>	<b>--</b>	<b>--</b>	<b>5.7</b>	<b>A</b>
Route 28	SB	TR	0	126	4.5	A	0	201	4.8	A
Route 28	NB	LT	0	216	5.8	A	0	149	4.6	A
St. Mary's Road	NE	LR	1	27	11.7	B	3	32	12.8	B
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>5.4</b>	<b>A</b>	<b>--</b>	<b>--</b>	<b>4.9</b>	<b>A</b>
Route 28	NB	LTR	43	202	8.3	A	36	171	8.4	A
Route 28	SB	LTR	26	128	7.3	A	50	230	9.2	A
Standish Street	SW	LTR	3	25	16.8	B	9	40	20.8	C
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>8.1</b>	<b>A</b>			<b>9.1</b>	<b>A</b>
Route 28	NB	LTR	-400	-533	96.8	F	-286	-405	125.2	F
Route 28	SB	LT	395	-620	92.9	F	-538	-758	173.8	F
Route 28	SB	R	312	-462	61.9	E	338	-571	67.2	E
Brook Road	WB	L	115	176	33.1	C	130	197	37.5	D
Brook Road	WB	TR	138	182	33.4	C	157	206	37.4	D
Central Avenue	NE	LR	71	-229	93.7	F	-248	-424	192.5	F
Central Avenue	SB	LTR	-149	-246	135.7	F	217	-314	83.6	F
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>81.0</b>	<b>F</b>	<b>--</b>	<b>--</b>	<b>102.5</b>	<b>F</b>

Note: \* Negative (-) sign = Volume exceeds capacity (queue may be longer)  
 \*\* Negative (-) sign = 95 percentile volume exceed capacity, queue may be longer  
 EB = eastbound. L= left. LOS = level of service. LR = left and right. LT= left and through. LTR = left, through, and right. NB = northbound. NE = northeast. NW = northwest. R = right. SB = southbound. SE = southeast. SW = southwest. TR = through and right. WB = westbound.  
 Source: Central Transportation Planning Staff.



**Table 14  
Reedsdale Road: Performance of Short-Term Improvements  
(Optimize Signal Timings)**

Street Name	Approach	Lane Group	AM 50% Queue (ft.)*	AM 95% Queue (ft.)**	AM Delay (s)	AM LOS	PM 50% Queue (ft.)*	PM 95% Queue (ft.)**	PM Delay (s)	PM LOS
Route 28	NB	LTR	538	-820	75.9	E	328	480	63.2	E
Route 28	SB	LTR	190	288	47.8	D	408	-629	79.2	E
Canton Avenue	NE	LT	-450	-802	121.8	F	-430	-828	138.0	F
Canton Avenue	NE	R	40	121	21.4	C	134	257	65.6	E
Canton Avenue	SB	LR	-158	-355	171.4	F	223	-505	142.3	F
Centre Street	SW	LTR	-462	-802	128.6	F	-390	-788	127.5	F
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>88.8</b>	<b>F</b>	<b>--</b>	<b>--</b>	<b>95.7</b>	<b>F</b>
Route 28	NB	LT	0	12	1.6	A	0	12	1.5	A
Route 28	SB	TR	0	0	0.0	A	0	0	0.0	A
Hospital Driveway	EB	LR	0	21	21.8	C	0	73	25.3	C
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>1.7</b>	<b>A</b>	<b>--</b>	<b>--</b>	<b>3.0</b>	<b>A</b>
Route 28	NB	L	-287	-925	74.0	E	134	-375	28.4	C
Route 28	NB	LTR	329	-1012	46.6	D	168	374	18.8	B
Route 28	SB	LT	184	353	44.0	D	186	357	39.9	D
Route 28	SB	R	0	31	2.1	A	92	196	8.3	A
Reedsdale Road	WB	LTR	146	-302	56.5	E	201	-419	78.9	E
Randolph Avenue	SB	LTR	161	328	38.0	D	292	-639	78.0	E
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>48.0</b>	<b>D</b>	<b>--</b>	<b>--</b>	<b>40.6</b>	<b>D</b>

Note: \* Negative (-) sign = Volume exceeds capacity (queue may be longer)  
 \*\* Negative (-) sign = 95 percentile volume exceed capacity, queue may be longer  
 EB = eastbound. L= left. LOS = level of service. LR = left and right. LT= left and through. LTR = left, through, and right. NB = northbound. NE = northeast. R = right. SB = southbound. SW = southwest. TR = through and right. WB = westbound.  
 Source: Central Transportation Planning Staff.

**Table 15  
Randolph Avenue: Performance of Short-Term Improvements  
(Optimize Signal Timings)**

Street Name	Approach	Lane Group	AM 50% Queue (ft.)*	AM 95% Queue (ft.)**	AM Delay (s)	AM LOS	PM 50% Queue (ft.)*	PM 95% Queue (ft.)**	PM Delay (s)	PM LOS
Route 28	NB	L	-287	-925	74.0	E	134	-375	28.4	C
Route 28	NB	LTR	329	-1012	46.6	D	168	374	18.8	B
Route 28	SB	LT	184	353	44.0	D	186	357	39.9	D
Route 28	SB	R	0	31	2.1	A	92	196	8.3	A
Reedsdale Road	WB	LTR	146	-302	56.5	E	201	-419	78.9	E
Randolph Avenue	SB	LTR	161	328	38.0	D	292	-639	78.0	E
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>48.0</b>	<b>D</b>			<b>40.6</b>	<b>D</b>
Route 28	NB	LT	212	-827	13.8	B	87	323	9.9	A
Route 28	SB	T	47	181	6.3	A	152	548	13.3	B
Reeds Street	EB	LR	12	48	37.3	D	19	90	35.2	D
<b>Intersection</b>	<b>All</b>	<b>All</b>			<b>11.9</b>	<b>B</b>	<b>--</b>	<b>--</b>	<b>12.4</b>	<b>B</b>
Route 28	NB	LT	0	3	0.0	A	0	19	2.5	A
Route 28	SB	TR	0	0	0.0	A	0	0	0.0	A
Hallen Avenue	EB	LR	0	13	16.0	B	0	72	42.2	E
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>0.6</b>	<b>A</b>	<b>--</b>	<b>--</b>	<b>2.6</b>	<b>A</b>
Route 28	NB	LTR	256	-877	16.4	B	118	-593	16.5	B
Route 28	SB	LTR	65	227	8.0	A	231	-1010	18.2	B
Hillside Street	EB	LTR	51	-154	52.7	D	59	158	45.0	D
Driveway	WB	LTR	2	15	37.0	D	2	17	45.0	D
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>15.4</b>	<b>B</b>	<b>--</b>	<b>--</b>	<b>18.8</b>	<b>B</b>

Note: \* Negative (-) sign = Volume exceeds capacity (queue may be longer)  
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 EB = eastbound. L= left. LOS = level of service. LR = left and right. LT= left and through. LTR = left, through, and right.  
 NB = northbound. NE = northeast. R = right. SB = southbound. SW = southwest. TR = through and right. WB = westbound.

Source: Central Transportation Planning Staff.



# Chapter 10—Long-Term Improvement Concepts

The corridor needs long-term improvements to address multimodal transportation needs. Long-term improvements typically require design and engineering efforts and larger funding resources. The time frame categorized as *long-term* is typically greater than five years, and can be as long as 15 years. The goals of implementing these long-term improvements are to modernize a car-centric corridor into a roadway that connects people to places and provides safe access to schools, recreational areas, neighborhoods, and transit; to increase safety for people who walk, bicycle, or ride the bus; and to support livable communities and economic vitality.

Due to varying needs along the corridor, MPO staff divided the roadway into three segments for long-term improvement concepts—Brook Road, Reedsdale Road, and Randolph Avenue (see Figure 3). Chapter 3 describes the character and context of each segment. Based on discussions with the advisory task force, MPO staff developed three long-term alternatives for each segment. All the alternatives have improvements that mostly fall within the existing roadway's right-of-way width and considers the needs of abutters and users.

## 10.1 FUTURE TRAFFIC PROJECTIONS

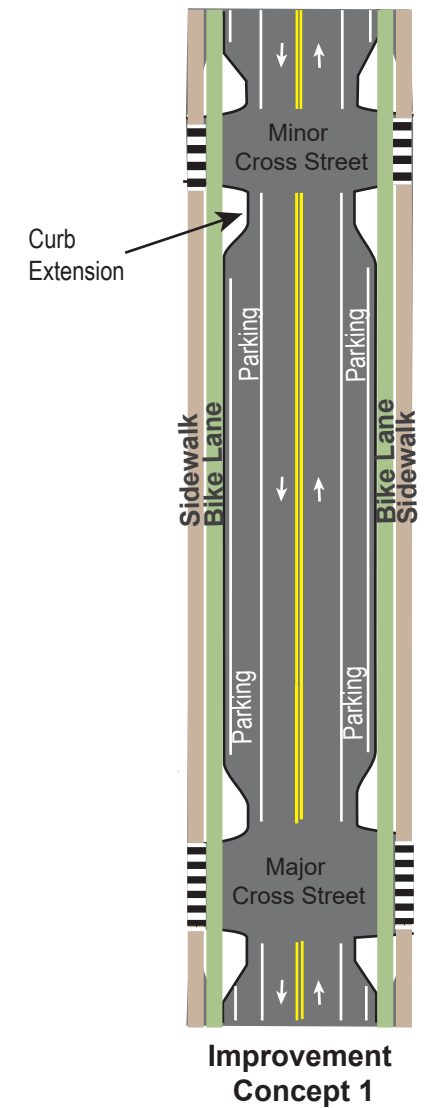
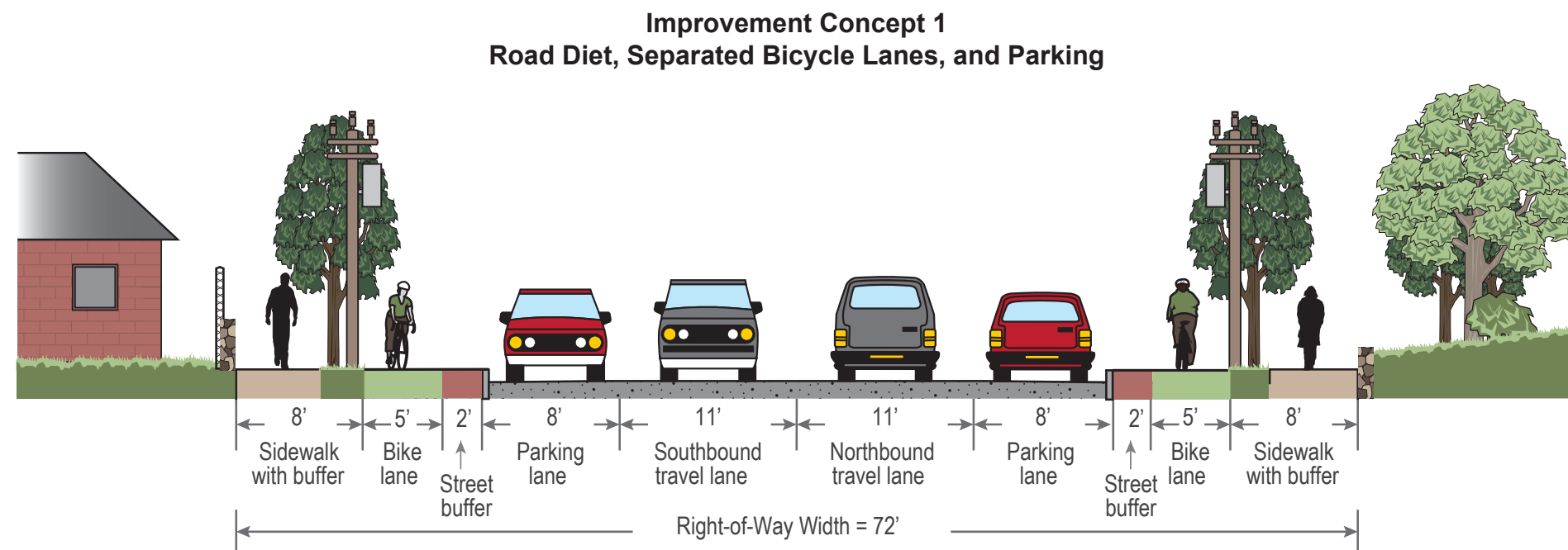
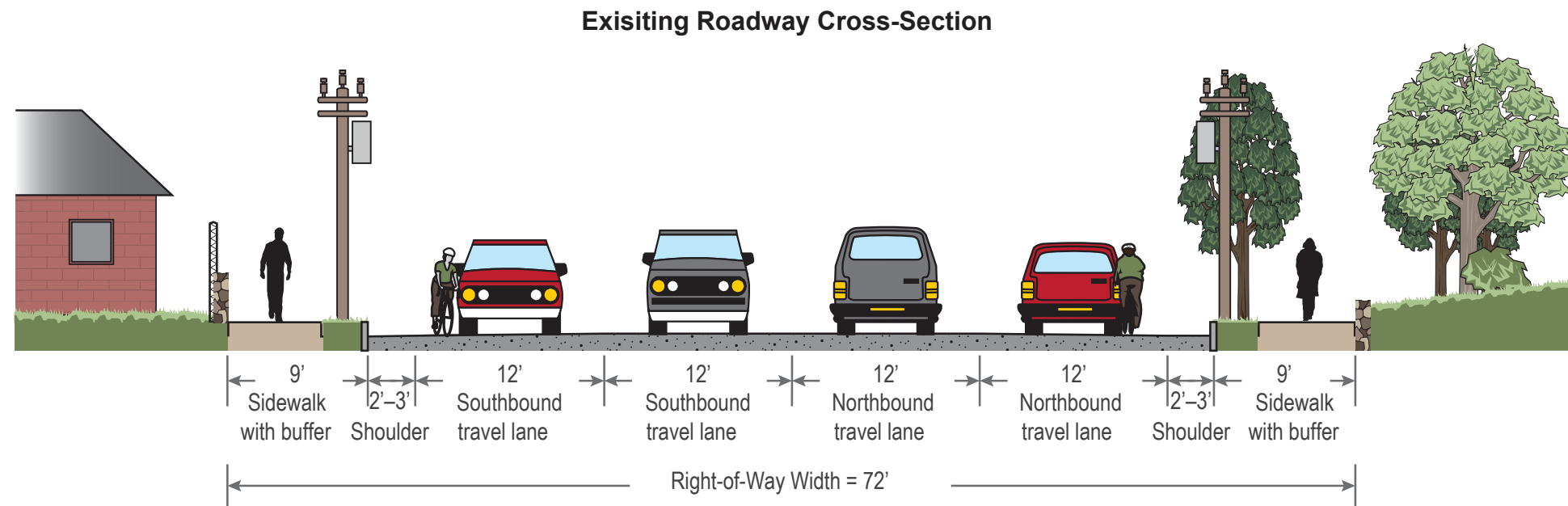
Planners typically use a planning model to forecast traffic volumes based on changes in the transportation network or land use. For this study, MPO staff used the Boston Region MPO's transportation model, which was recently adopted for the development of the LRTP. This model's socioeconomic components are derived from forecasts produced by the Metropolitan Area Planning Council. Using this model, staff projected that between now and 2040, traffic volume on Route 28 in Milton would grow by about five percent. Staff grew the existing peak-hour turning movement volumes by five percent to test the impact of future traffic conditions that would result from proposed improvements.

## 10.2 BROOK ROAD IMPROVEMENT CONCEPTS

The needs of the Brook Road segments are described in Chapter 8. Three improvement concepts suggested below are designed to address those needs.

### 10.2.1 Concept 1—Road Diet, Separated Bike Lanes, and Parking

Figure 17 shows the cross-sectional configuration of Concept 1.



**Figure 17**  
**Brook Road: Long-Term Improvement Concept 1**

Concept 1 would remove a travel lane in each direction and reconfigure the roadway to install on-street parking, separated bicycle lanes, and sidewalks to ADA standards on either side of the roadway. Concept 1 retains the current configuration at the major signalized intersections. The new roadway could include green streetscape, ornamental street lighting, and bus shelters with benches at the bus stops near the schools and recreation areas. Concept 1 renovates the corridor to meet current needs, making it easier and safer to walk and bike. It provides parking for school drop-off and pick-up and for recreational activities. The improvements would also calm traffic and reduce high speeds of vehicles. Table 16 presents the performance of Concept 1.

**Table 16**  
**Brook Road: Performance of Long-Term Improvement Concept 1**

Street Name	Approach	Lane Group	AM 50% Queue (ft.)*	AM 95% Queue (ft.)**	AM Delay (s)	AM LOS	PM 50% Queue (ft.)*	PM 95% Queue (ft.)**	PM Delay (s)	PM LOS
Route 28	WB	R	303	-560	36.0	D	233	399	26.8	C
Route 28	SB	L	168	333	26.7	C	-534	-1003	75.0	E
Route 28	SB	LT	172	337	26.4	C	-626	-1086	84.4	F
Blue Hill Parkway	NB	TR	186	-347	54.1	D	158	-315	74.2	E
Brook Road	EB	LTR	168	-376	65.7	E	196	-427	69.9	E
<b>Intersection</b>	<b>All</b>	<b>All</b>	--	--	<b>40.5</b>	<b>D</b>	--	--	<b>64.2</b>	<b>E</b>
Route 28	EB	TR	0	0	0.0	A	0	0	0.0	A
Route 28	WB	LT	0	2	0.0	A	0	1	0.1	A
Thacher Street	NB	LR	10	43	21.5	C	20	115	64.4	E
<b>Intersection</b>	<b>All</b>	<b>All</b>	--	--	<b>2.3</b>	<b>A</b>	--	--	<b>4.2</b>	<b>A</b>
Route 28	EB	TR	0	331	6.6	A	0	-705	11.1	B
Route 28	WB	LT	0	-706	11.4	B	0	-495	9.4	A
St. Mary's Road	NE	LR	2	31	15.9	B	3	32	12.8	B
<b>Intersection</b>	<b>All</b>	<b>All</b>	--	--	<b>9.6</b>	<b>A</b>	--	--	<b>10.4</b>	<b>B</b>
Route 28	NW	LTR	0	-775	9.4	A	103	512	9.0	A
Route 28	SE	LTR	0	370	6.0	A	162	-837	12.0	B
Standish Street	SW	LTR	4	31	20.6	C	12	49	27.9	C
<b>Intersection</b>	<b>All</b>	<b>All</b>	--	--	<b>8.3</b>	<b>A</b>	--	--	<b>11.1</b>	<b>B</b>
Route 28	NB	LTR	-440	-580	112.4	F	-300	-423	121.6	F
Route 28	EB	LT	-481	-704	135.6	F	-523	-745	125.9	F
Route 28	EB	R	182	309	34.0	C	360	-593	63.9	E
Brook Road	WB	L	126	192	35.2	D	-155	-319	151.7	F
Brook Road	WB	TR	143	191	34.0	C	156	204	34.2	C
Central Avenue	NE	LR	2	-98	27.5	C	66	-247	74.3	E
Central Avenue	SB	LTR	141	-225	89.6	F	224	-313	77.8	E
<b>Intersection</b>	<b>All</b>	<b>All</b>	--	--	<b>79.5</b>	<b>E</b>	--	--	<b>89.7</b>	<b>F</b>

Note: \* Negative (-) sign = Volume exceeds capacity (queue may be longer)

\*\* Negative (-) sign = 95 percentile volume exceed capacity, queue may be longer

EB = eastbound. L= left. LOS = level of service. LR = left and right. LT= left and through. LTR = left, through, and right. NB = northbound. NE = northeast. NW = northwest. R = right. SB = southbound. SW = southwest. TR = through and right. WB = westbound.

Source: Central Transportation Planning Staff.

### **10.2.2 Concept 2—Road Diet, Separated Bike Lanes, Parking, and Median with Left-turn Lanes**

Figure 18 shows the cross-sectional configuration of Concept 2. It is similar to Concept 1 and would reconfigure the roadway to include separated bicycle lane and sidewalks on either side of the roadway, and on-street parking on one side. In addition, Concept 2 adds a median to make it easier to cross the road. The median in Concept 2 could transition into left-turn lanes at the some of the signalized intersections to improve traffic flow and safety. The new roadway could include green streetscape, ornamental street lighting, and bus shelters with benches at the bus stops near the schools and recreation areas.

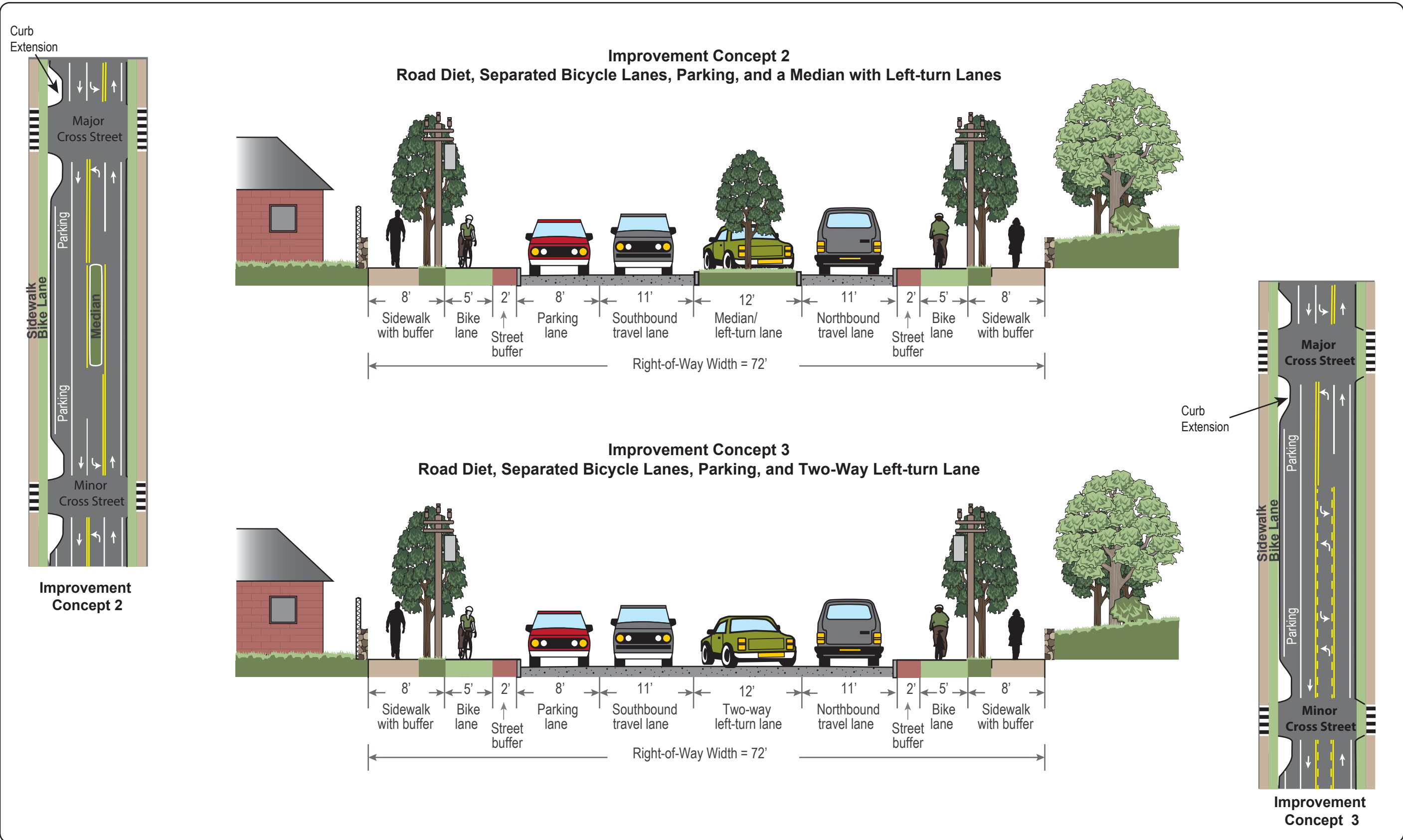
Concept 2 renovates the corridor to meet current needs, making it easier and safer to walk, bike, cross the road, and provides parking for school and recreational activities. Adding a median would calm traffic, reduce high speeds of vehicles, reduce crossing distances, and provide refuge areas for pedestrians crossing the road. In addition, left-turn lanes at the some of the signalized intersections (Standish Road and St Mary’s Road) would improve traffic flow and safety in the segment during peak travel periods. Table 17 presents the performance of Concept 2.

### **10.2.3 Concept 3—Road Diet, Separated Bike Lanes, Parking, and Two-Way Left-Turn Lane**

Figure 18 shows the cross-sectional configuration of Concept 3. It includes many of the same elements in Concept 2, except that the median is replaced with a two-way left-turn lane. Concept 3 also renovates the corridor to address current needs of the corridor—safe accommodation for people who walk and bike and parking for school and recreational activities. The two-way left-turn lane would improve safety of left-turn maneuvers, traffic flow, and safety in the segment. Table 17 presents the performance of Concept 3.

### **10.2.4 Retrofit Brook Road and Reedsdale Road and Central Avenue Intersection with Roundabout**

This intersection experiences congestion during peak travel periods. The lane assignments at the approaches of Brook Road and Reedsdale Road are confusing to some motorists and it is a high-crash intersection. Figure 19 shows a roundabout concept that MPO staff developed for the intersection.



**Figure 18**  
 Brook Road: Long-Term Improvements Concepts 2 and 3

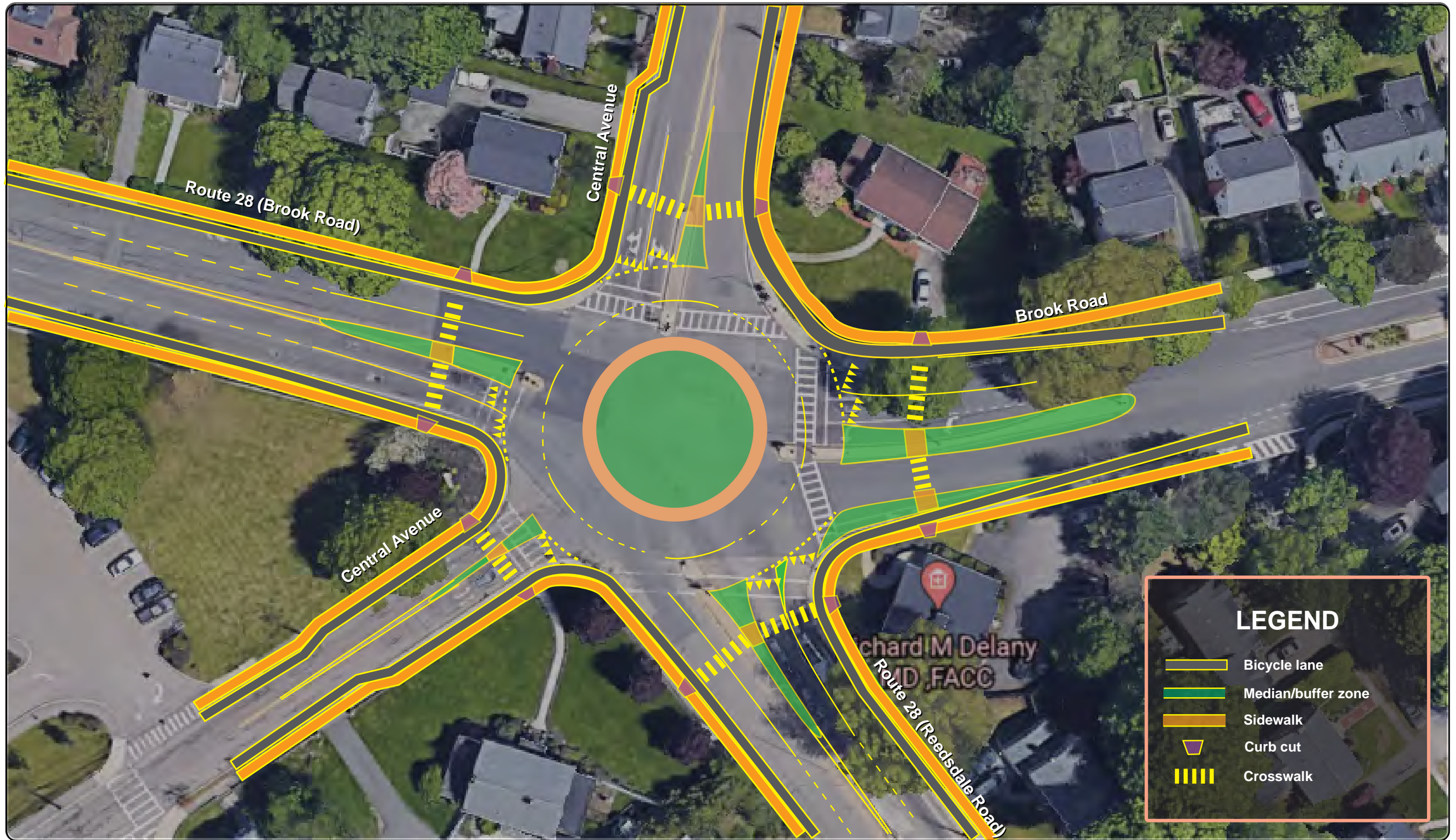


Analysis indicates that retrofitting the signalized intersection with roundabout would work well and reduce severe injury crashes. Roundabouts are geometrically designed to reduce speeds to 15–25 mph and have traffic calming benefits. Table 18 presents the performance of the roundabout concept.

**Table 17**  
**Brook Road: Performance of Long-Term Improvements Concepts 2 and 3**

Street Name	Approach	Lane Group	AM 50% Queue (ft.)*	AM 95% Queue (ft.)**	AM Delay (s)	AM LOS	PM 50% Queue (ft.)*	PM 95% Queue (ft.)**	PM Delay (s)	PM LOS
Route 28	WB	R	303	-560	36.0	D	233	399	26.8	C
Route 28	SB	L	168	333	26.7	C	-534	-1003	75.0	E
Route 28	SB	LT	172	337	26.4	C	-626	-1086	84.4	F
Blue Hill Parkway	NB	TR	186	-347	54.1	D	158	-315	74.2	E
Brook Road	EB	LTR	168	-376	65.7	E	196	-427	69.9	E
<b>Intersection</b>	<b>All</b>	<b>All</b>	--	--	<b>40.5</b>	<b>D</b>	--	--	<b>64.2</b>	<b>E</b>
Route 28	EB	TR	0	0	0.0	A	0	0	0.0	A
Route 28	WB	LT	2	2	0.4	A	0	0	0.0	A
Thacher Street	NB	LR	20	43	21.5	C	50	115	64.4	E
<b>Intersection</b>	<b>All</b>	<b>All</b>	--	--	<b>2.3</b>	<b>A</b>	--	--	<b>4.2</b>	<b>A</b>
Route 28	EB	TR	0	331	6.6	A	0	-705	11.1	B
Route 28	WB	L	0	33	5.9	A	0	20	7.6	A
Route 28	WB	T	0	-623	9.7	A	0	-465	8.7	A
St. Mary's Road	NE	LR	2	31	16.0	B	3	32	12.8	B
<b>Intersection</b>	<b>All</b>	<b>All</b>	--	--	<b>8.5</b>	<b>A</b>	--	--	<b>10.2</b>	<b>B</b>
Route 28	NW	L	0	17	5.2	A	3	26	7.5	A
Route 28	NW	TR	0	-742	9.0	A	91	442	7.9	A
Route 28	SE	L	0	19	6.0	A	2	17	6.1	A
Route 28	SE	TR	0	341	5.6	A	151	-796	11.4	B
Standish Street	SW	LTR	4	31	20.6	C	11	49	26.6	C
<b>Intersection</b>	<b>All</b>	<b>All</b>	--	--	<b>7.8</b>	<b>A</b>	--	--	<b>10.2</b>	<b>B</b>
Route 28	NB	LTR	-440	-580	112.4	F	-300	-423	121.6	F
Route 28	EB	LT	-481	-704	135.6	F	-523	-745	125.9	F
Route 28	EB	R	182	309	34.0	C	360	-593	63.9	E
Brook Road	WB	L	126	192	35.2	D	-155	-319	151.7	F
Brook Road	WB	TR	143	191	34.0	C	156	204	34.2	C
Central Avenue	NE	LR	2	-98	27.5	C	66	-247	74.3	E
Central Avenue	SB	LTR	141	-225	89.6	F	224	-313	77.8	E
<b>Intersection</b>	<b>All</b>	<b>All</b>	--	--	<b>79.5</b>	<b>E</b>	--	--	<b>89.7</b>	<b>F</b>

Note: \* Negative (-) sign = Volume exceeds capacity (queue may be longer)  
 \*\* Negative (-) sign = 95 percentile volume exceed capacity, queue may be longer  
 EB = eastbound. L= left. LOS = level of service. LR = left and right. LT= left and through. LTR = left, through, and right.  
 NB = northbound. NE = northeast. NW = northwest. R = right. SB = southbound. SW = southwest. TR = through and right. WB = westbound.  
 Source: Central Transportation Planning Staff.



**Figure 19**  
**Roundabout Retrofit at Brook Road and Reedsdale Road Intersection**

**Table 18**  
**Performance of Brook Road and Reedsdale Road Roundabout Concept**

Street Name	Approach	Lane Group	AM	AM	AM	AM LOS	PM	PM 95%	PM	PM
			50% Queue (ft.)*	95% Queue (ft.)**	Delay (s)		50% Queue (ft.)*	Queue (ft.)**	Delay (s)	LOS
Route 28	NB	L	--	100	15.5	C	--	200	19.2	D
	NB	LTR	--	75	11.3	B	--	0	5.3	A
Route 28	SB	LT	--	75	11.4	B	--	125	18.7	C
	SB	R	--	50	8.6	A	--	125	16.4	C
Brook Road	WB	LT	--	75	14.8	B	--	50	11.7	B
	WB	TR	--	75	13.6	B	--	50	10.6	B
Central Avenue	SB	LT	--	25	12.6	B	--	50	14.3	B
Central Avenue	SB	TR	--	25	11.3	B	--	50	12.9	B
Central Avenue	NB	LTR	--	25	10.5	B	--	75	21.2	C
<b>Intersection</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>12.2</b>	<b>B</b>	<b>--</b>	<b>--</b>	<b>17.7</b>	<b>C</b>

LOS = level of service. EB = eastbound. L= left. LOS = level of service. LR = left and right. LT= left and through. LTR = left, through, and right. NB = northbound. R = right. SB = southbound. WB = westbound.  
Source: Central Transportation Planning Staff.

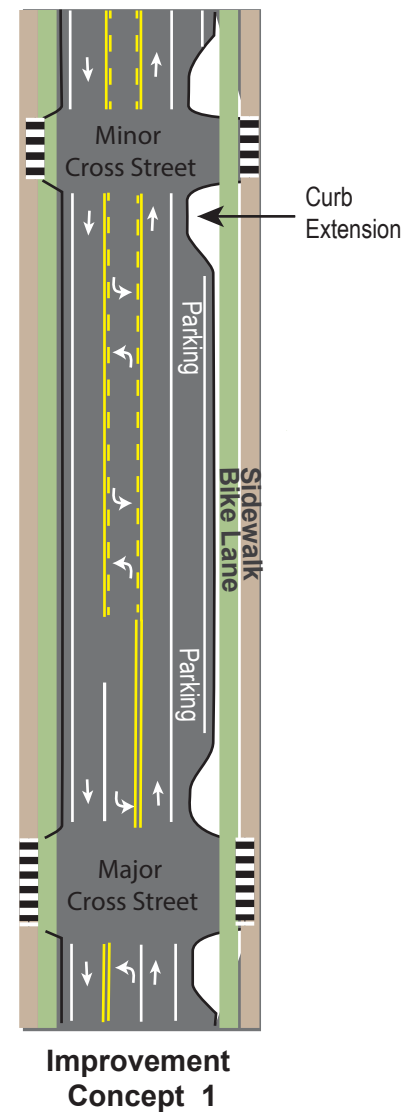
**10.3 REEDSDALE ROAD IMPROVEMENT CONCEPTS**

The needs of the Reedsdale Road segment are described in Chapter 8. The improvement concepts suggested below are designed to address those needs.

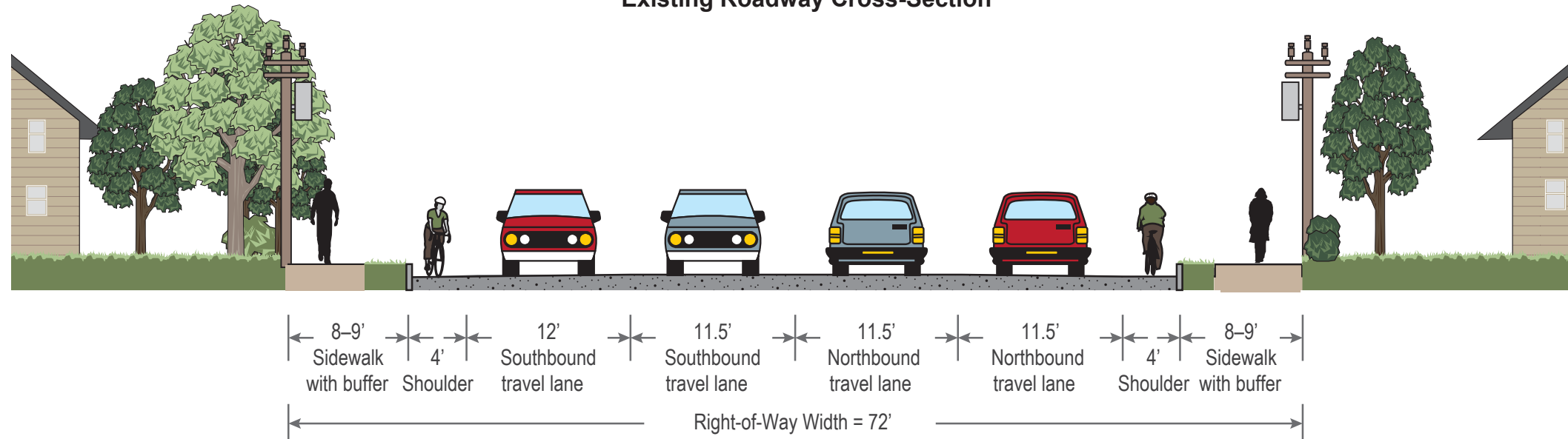
**10.3.1 Concept 1—Road Diet Separated Bike Lanes, and Two-Way Left-Turn Lane**

Figure 20 shows the cross-sectional configuration of Concept 1. Concept 1 would remove a travel lane in each direction on Reedsdale Road and reconfigure the roadway to include a two-way, left-turn lane, separated bicycle lanes, and ADA-compliant sidewalks. Additional improvements include green streetscape design, ornamental street lighting, bike racks, and bus shelters with benches near the Beth Israel Deaconess Hospital and Milton Library.

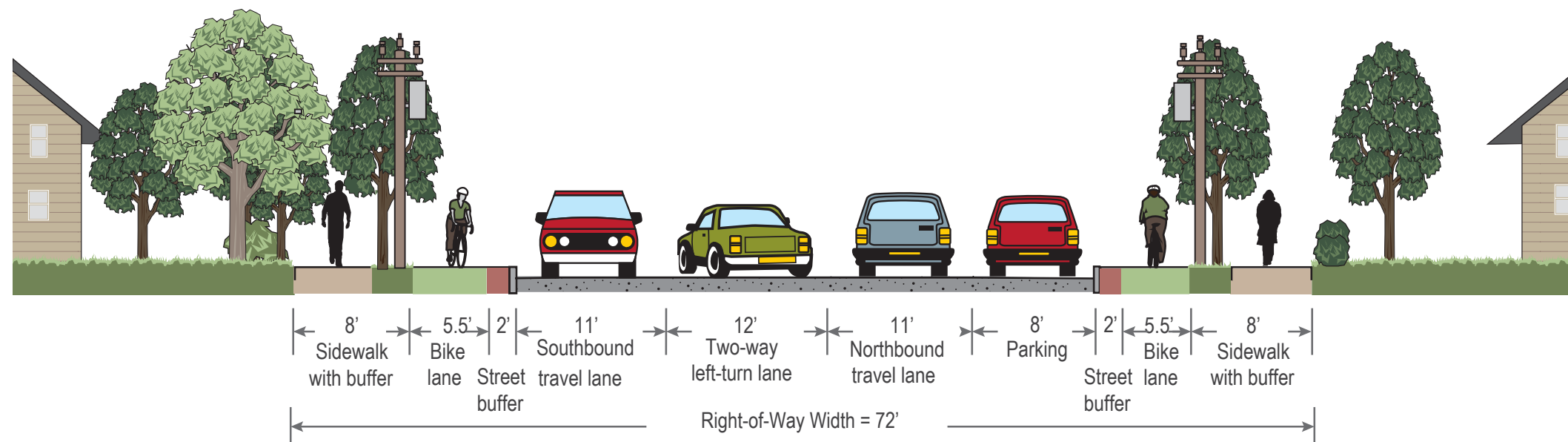
Concept 1 renovates the corridor to address current needs, making it easier and safer to walk or bicycle in the segment. The improvements would also calm traffic and reduce high speeds of vehicles. The two-way left-turn lanes would improve safety of left-turn maneuvers. Table 19 presents the performance of Concepts 1 and 2.



**Existing Roadway Cross-Section**



**Improvement Concept 1  
Road Diet, Separated Bicycle Lanes, Two-way Left-Turn Lane, and Parking**



**Table 19**  
**Reedsdale Road: Performance of Long-Term Improvements—Concepts 1 and 2**

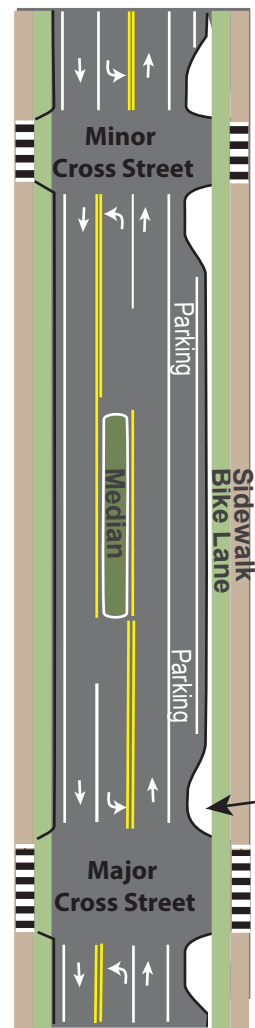
Street Name	Approach	Lane Group	AM	AM	AM Delay (s)	AM LOS	PM	PM	PM Delay (s)	PM LOS
			50% Queue (ft.)*	95% Queue (ft.)**			50% Queue (ft.)*	95% Queue (ft.)**		
Route 28	NW	LTR	-630	-771	83.4	F	361	-547	71.6	E
Route 28	SE	LTR	198	257	35.7	D	-492	-743	121.1	F
Canton Avenue	NE	LT	-555	-779	164.3	F	-613	-1004	220.5	F
Canton Avenue	NE	R	49	123	22.9	C	46	134	23.3	C
Canton Avenue	SB	LR	42	-168	57.8	E	-295	-564	207.1	F
Centre Street	SW	LTR	-545	-769	161.1	F	-515	-879	193	F
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>94.5</b>	<b>F</b>	<b>--</b>	<b>--</b>	<b>137.1</b>	<b>F</b>
Route 28	NB	L	5	15	10.1	B	5	14	13.3	B
Route 28	NB	T	0	0	0	A	0	0	0.0	A
Route 28	SB	TR	0	0	0.0	A	0	0	0.0	A
Hospital Driveway	EB	LR	30	80	89.5	F	200	337	307.7	F
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>3.7</b>	<b>A</b>	<b>--</b>	<b>--</b>	<b>31.0</b>	<b>C</b>
Route 28	NB	L	-356	-977	97.3	F	133	-405	34.9	C
Route 28	NB	LTR	367	-1061	57.3	E	190	412	22	C
Route 28	EB	LT	199	-406	44.8	D	191	369	37.9	D
Route 28	EB	R	0	34	2.3	A	146	-380	12.4	B
Reedsdale Road	WB	LTR	160	-337	60.1	E	209	-433	72.2	E
Randolph Avenue	SB	LTR	168	331	35.7	D	290	-619	54.6	D
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>56.6</b>	<b>E</b>	<b>--</b>	<b>--</b>	<b>37.8</b>	<b>D</b>

Note: Shading denotes intersections that are congested during peak travel hours.  
 \* Negative (-) sign = Volume exceeds capacity (queue may be longer)  
 \*\* Negative (-) sign = 95 percentile volume exceed capacity, queue may be longer  
 EB = eastbound. L= left. LOS = level of service. LR = left and right. LT= left and through. LTR = left, through, and right.  
 NB = northbound. NE = northeast. NW = northwest. R = right. SB = southbound. SE = southeast. T = through. SW = southwest. TR = through and right. WB = westbound.  
 Source: Central Transportation Planning Staff.

**10.3.2 Concept 2—Road Diet, Multiuse Path, Median with Left-Turn Lanes, and Parking**

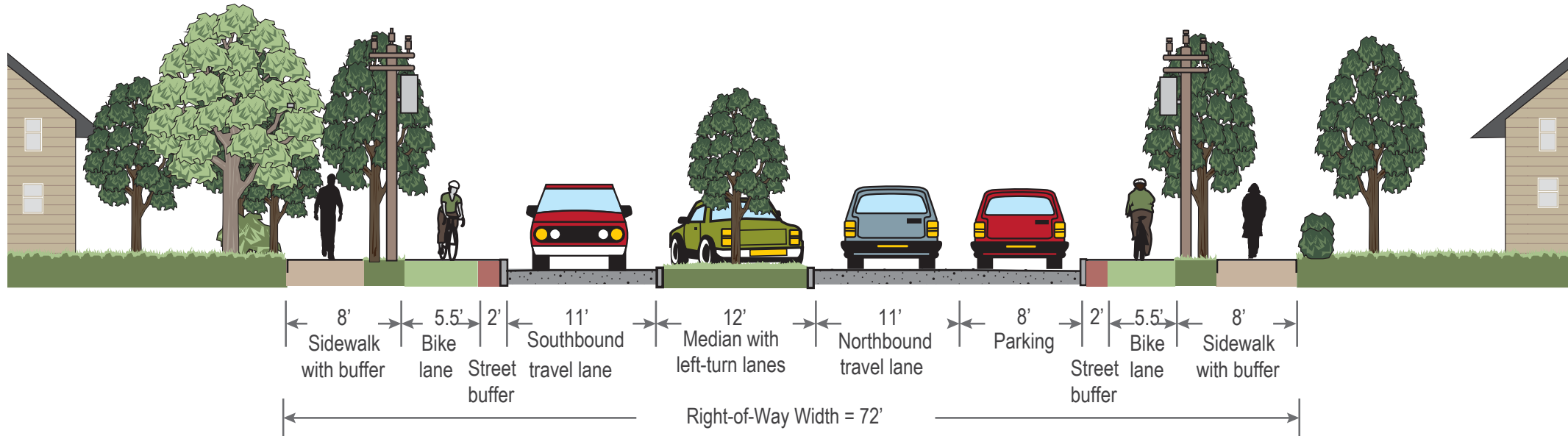
Figure 21 shows the roadway cross-sectional configuration of Concepts 2 and 3. Concept 2 would reconfigure the roadway to include an ADA-compliant sidewalk on one side of the roadway and a multiuse path on the other side. Concept 2 also includes a median to make it easier to cross the road and on-street parking for residents. The median would transition into left-turn lanes at the signalized intersections at Central Avenue, Canton Avenue, and Randolph Avenue. Additional improvements include trees or grass buffers to separate pedestrians from travel lanes, ornamental street lighting, and bus shelters with benches near the Beth Israel Deaconess Hospital and Milton Library. Table 19 presents the performance of Concepts 1 and 2.



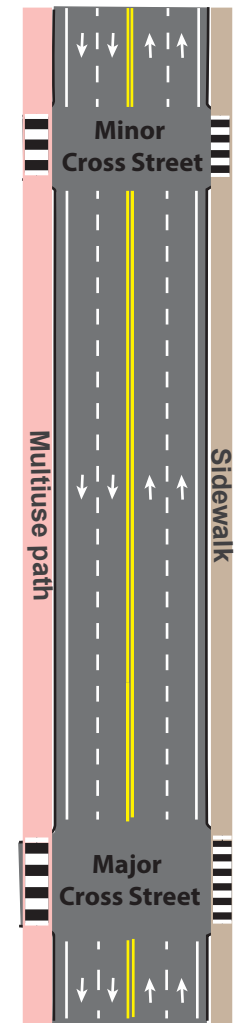
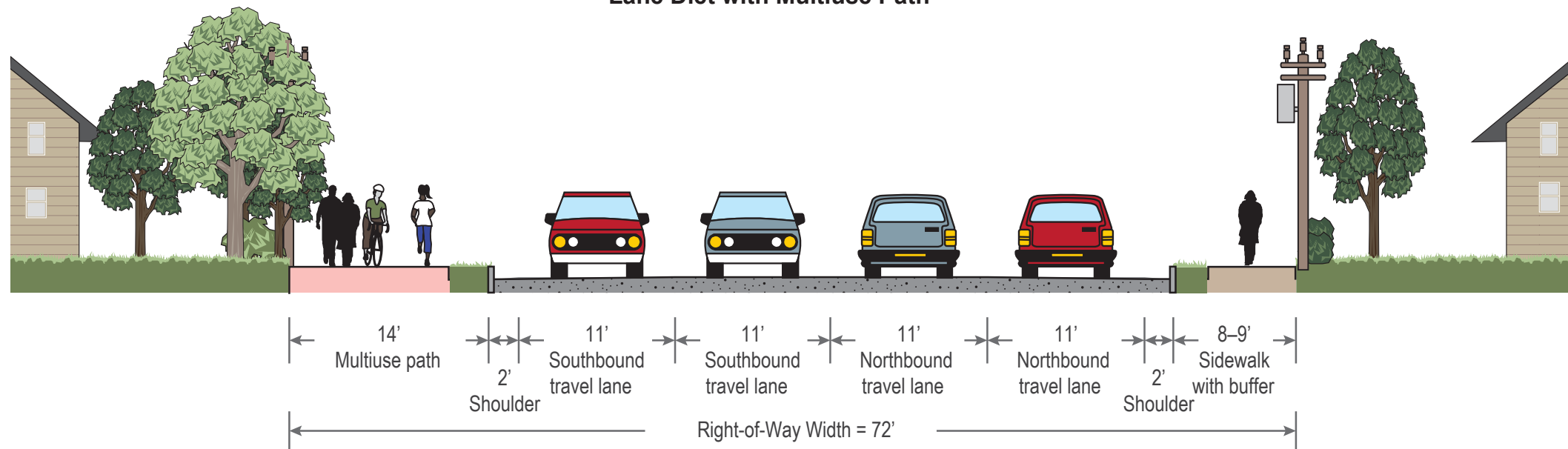


Improvement Concept 2

**Improvement Concept 2**  
**Road Diet, Separated Bicycle Lanes, Median with Left-Turn Lanes, and Parking**



**Improvement Concept 3**  
**Lane Diet with Multiuse Path**



Improvement Concept 3

Concept 2 addresses the corridor issues, making it easier and safer to walk, bike, and cross the road. It would improve the safety of left-turn maneuvers, provide parking for residents, calm traffic, reduce high speeds of vehicles, and provide median refuge areas for pedestrians.

**10.3.3 Concept 3—Lane Diet (Narrow Lanes) with Multiuse Path**

Figure 21 shows the roadway cross-sectional configuration of Concepts 2 and 3. Concept 3 maintains the four travel lanes (two in each direction) but reduces lane widths and utilizes the shoulders to install a multiuse path on one side of the roadway and a sidewalk on the other. Table 20 presents the performance of Concept 3.

**Table 20  
Reedsdale Road: Performance of Long-Term Improvement—Concept 3**

Street Name	Approach	Lane Group	AM 50% Queue (ft.)*	AM 95% Queue (ft.)**	AM Delay (s)	AM LOS	PM 50% Queue (ft.)*	PM 95% Queue (ft.)**	PM Delay (s)	PM LOS
Route 28	NW	LTR	-594	-908	96.1	F	354	-535	68.4	E
Route 28	SE	LTR	205	310	49.7	D	-476	-718	105.3	F
Canton Avenue	NE	LT	-520	-873	150.1	F	-505	-892	172	F
Canton Avenue	NE	R	47	133	23.1	C	147	271	67.9	E
Canton Avenue	SB	LR	-180	-382	201.2	F	-270	-549	172.6	F
Centre Street	SW	LTR	-522	-873	158.7	F	-474	-852	158.9	F
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>108.2</b>	<b>F</b>	<b>--</b>	<b>--</b>	<b>117.5</b>	<b>F</b>
Route 28	NB	LT	0	13	1.8	A	0	9	1.3	A
Route 28	SB	TR	0	0	0.0	A	0	0	0.0	A
Hospital Driveway	EB	LR	10	25	24.3	C	30	90	30.0	D
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>1.8</b>	<b>A</b>	<b>--</b>	<b>--</b>	<b>3.5</b>	<b>A</b>
Route 28	NB	L	-385	-841	110.6	F	154	-415	33.1	C
Route 28	NB	LTR	-433	-1083	71.9	E	184	407	20.7	C
Route 28	EB	LTR	238	-516	55.3	E	200	-419	43	D
Route 28	EB	R	68	116	9.3	A	427	-1039	39	D
Reedsdale Road	WB	LTR	165	-350	77.7	E	-241	-456	107.8	F
Randolph Avenue	SB	LTR	180	-373	41	D	-318	-678	93.1	F
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>69.6</b>	<b>E</b>	<b>--</b>	<b>--</b>	<b>58.0</b>	<b>E</b>

Note: \* Negative (-) sign = Volume exceeds capacity (queue may be longer).  
 \*\* Negative (-) sign = 95 percentile volume exceed capacity, queue may be longer.  
 EB = eastbound. L= left. LOS = level of service. LR = left and right. LT= left and through. LTR = left, through, and right.  
 NB = northbound. NE = northeast. NW = northwest. R = right. SB = southbound. SE = southeast. SW = southwest. TR = through and right. WB = westbound.  
 Source: Central Transportation Planning Staff.

Concept 3 renovates the corridor to address some of the corridor needs, making it easier and safer to walk and bicycle, and it reduces congestion. The weaknesses of Concept 3 include minimal impact on high speed and crossing distances, and it does not improve the safety of left-turn maneuvers.

## **10.4 RANDOLPH AVENUE SEGMENT IMPROVEMENT CONCEPTS**

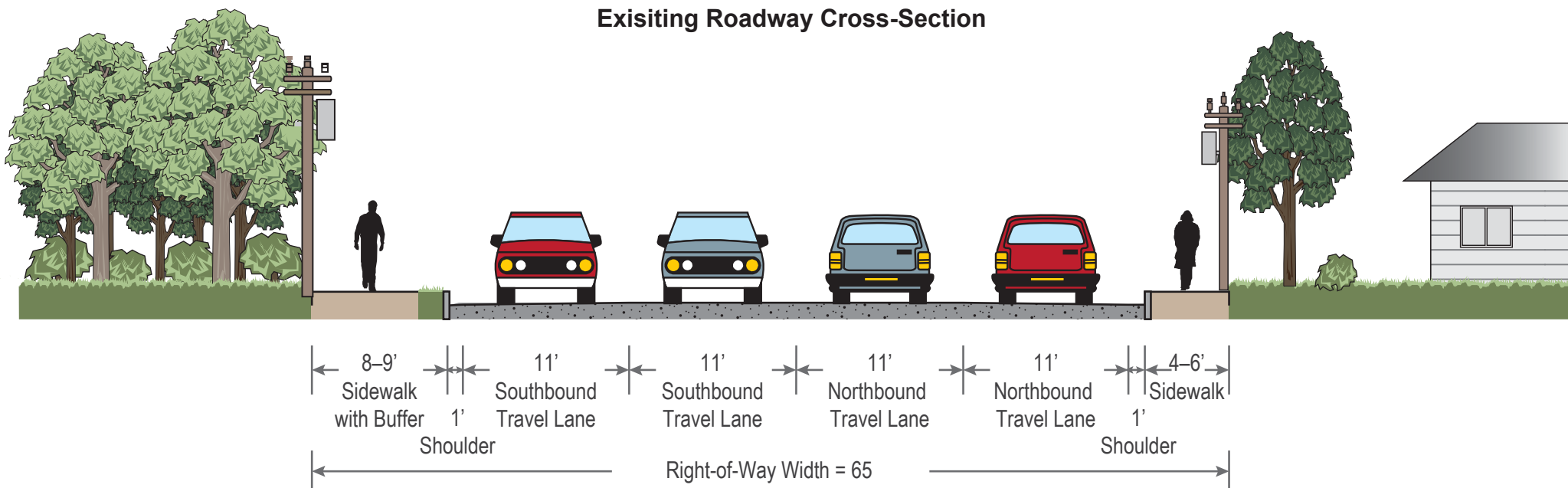
The needs of the Randolph Avenue segment are described in Chapter 8. Unlike the Brook Road and Reedsdale Avenue segments, the right-of-way in the Randolph Avenue segment is constrained, which limits the concepts choices for the segment. The objectives of the improvement concepts are to improve safety for people who walk, bicycle, or drive in the Randolph Avenue segment. There were four fatalities and a high number of crashes in 2013–17. The improvement concepts suggested below are designed to address those needs.

### **10.4.1 Concept 1—Lane Diet (Narrow Lanes) with Multiuse Path**

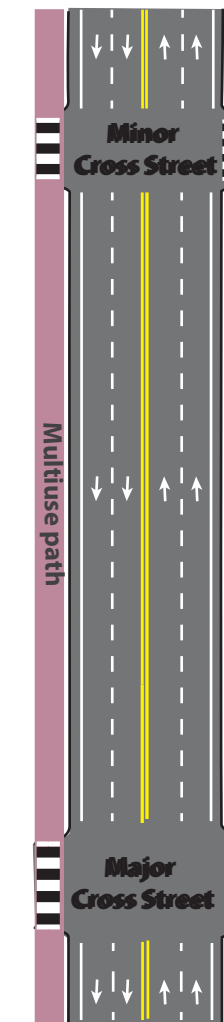
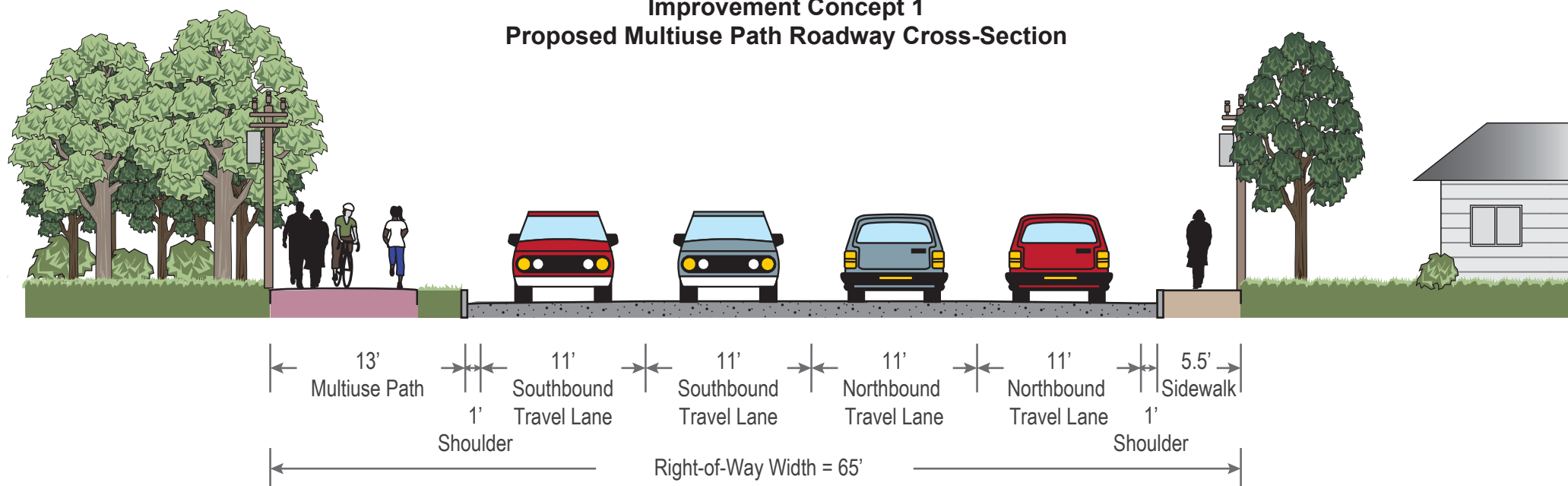
Figure 22 shows the roadway cross-sectional configuration of Concept 1. Concept 1 maintains the four travel lanes (two in each direction) but reduces lane widths to install a multiuse path on one side of the roadway and a sidewalk on the other side. Additional improvements include better streetscape design that could include trees or grass buffers and street lighting. This concept creates space for people who walk and bike, making it easier and safer to walk and bicycle in the segment. Table 21 presents the performance of Concept 1.

A shortcoming of this concept is that it does not address the lack of turn lanes on Randolph Avenue, a major contributor of crashes in the segment, and would not improve the safety of left-turn maneuvers or reduce the high number of crashes or the severity.

**Existing Roadway Cross-Section**



**Improvement Concept 1  
Proposed Multiuse Path Roadway Cross-Section**



**Improvement Concept 1**



**Table 21**  
**Randolph Avenue: Performance of Long-Term Improvement—Concept 1**

Street Name	Approach	Lane Group	AM 50% Queue (ft.)*	AM 95% Queue (ft.)**	AM Delay (s)	AM LOS	PM 50% Queue (ft.)*	PM 95% Queue (ft.)**	PM Delay (s)	PM LOS
Route 28	NB	L	-392	-995	122.2	F	146	-429	38.1	D
Route 28	NB	LTR	-412	-1082	72.4	E	192	420	23.0	C
Route 28	EB	LT	200	-418	45.2	D	193	-375	38.8	D
Route 28	EB	R	0	35	2.5	A	138	-371	12.1	B
Reedsdale Road	WB	LTR	162	-343	60.9	E	212	-442	80.3	F
Randolph Avenue	SB	LTR	167	331	35.6	D	303	-657	72.3	E
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>66.4</b>	<b>E</b>	<b>--</b>	<b>--</b>	<b>42.7</b>	<b>D</b>
Route 28	NB	LT	237	-898	14.4	B	95	350	9.9	A
Route 28	SB	T	51	192	6.2	A	166	602	13.7	B
Reeds Street	EB	LR	13	51	37.4	D	21	92	36.8	D
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>12.4</b>	<b>B</b>	<b>--</b>	<b>--</b>	<b>12.7</b>	<b>B</b>
Route 28	NB	LT	177	327	5.9	A	92	-575	12.9	B
Route 28	SB	TR	36	63	2.2	A	126	-752	10.6	B
Hallen Avenue	EB	L	2	13	29.8	C	2	16	36.5	C
Hallen Avenue	EB	R	0	31	13.7	B	0	51	15.2	B
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>5.0</b>	<b>A</b>	<b>--</b>	<b>--</b>	<b>11.7</b>	<b>B</b>
Route 28	NB	LTR	296	-947	18.3	B	139	-660	18.8	B
Route 28	SB	LTR	72	241	8.3	A	266	-1088	20.2	C
Hillside Street	EB	LTR	53	-164	53.7	D	63	166	45.5	D
Driveway	WB	LTR	2	15	37	D	2	17	45.2	D
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>16.8</b>	<b>B</b>	<b>--</b>	<b>--</b>	<b>20.9</b>	<b>C</b>

Note: \* Negative (-) sign = Volume exceeds capacity (queue may be longer)  
 \*\* Negative (-) sign = 95 percentile volume exceed capacity, queue may be longer  
 EB = eastbound. L= left. LOS = level of service. LR = left and right. LT= left and through. LTR = left, through, and right.  
 NB = northbound. R = right. SB = southbound. SE = southeast. T = through. TR = through and right. WB = westbound.  
 Source: Central Transportation Planning Staff.

**10.4.3 Concept 2—Two Southbound Lanes, One Northbound Lane, Left-Turn Lanes, and Multiuse Path**

Figure 23 shows the roadway cross-sectional configuration of Concept 2 and 3. Concept 2 reconfigures the roadway to provide two southbound lanes and one northbound lane with left-turn lanes at the intersections. Concept 2 also includes a multiuse path on one side of the roadway and a sidewalk on the other.

Concept 2 renovates the corridor to meet current needs, improves quality of life in the neighborhood, and makes it easier and safer to walk, bike, and cross the road. Concept 2 would calm traffic, reduce high speeds of vehicle, and high number of crashes. The left-turn lanes and two-way, left-turn lanes would

improve safety for left-turn maneuvers and reduce crashes on the segment. Concept 2 works well during the PM peak hours of travel. The shortcoming of Concept 2 is that congestion worsens during the AM peak hours of travel with long traffic queues in the northbound direction. Table 22 presents the performance of Concept 2.

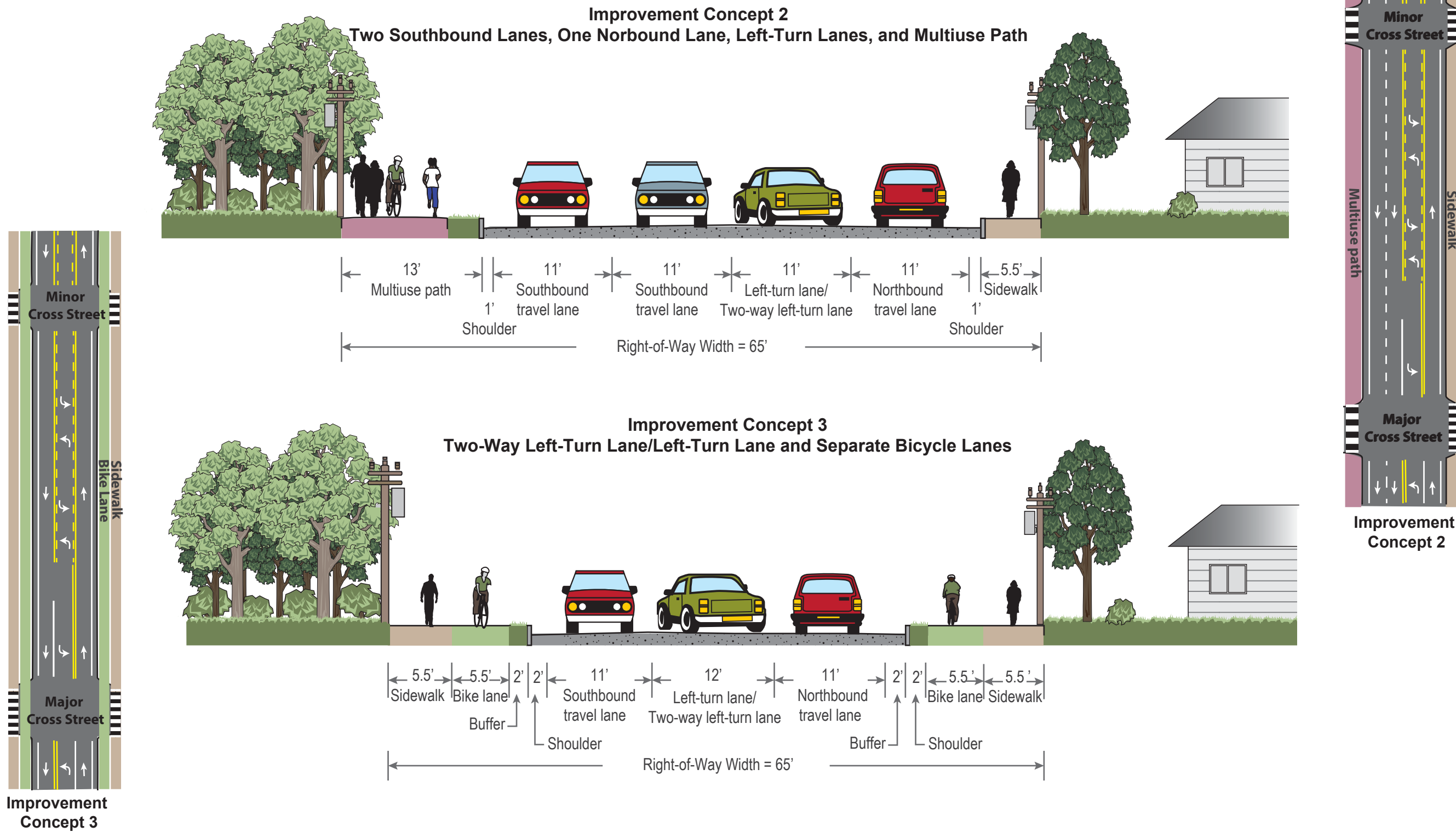
#### **10.4.2 Concept 3—Two-Way Left-Turn Lane, Separated Bike Lanes, and Improved Sidewalks**

Concept 3 was included in this study because there were comments from the community survey about keeping Randolph Avenue as two-lane, two-way road throughout Milton. The four-lane segment is perceived by some residents to attract cut-through traffic avoiding congestion on the Route 128 and the Southeast Expressway. Figure 23 shows the roadway cross-sectional configuration of Concept 3. Concept 3 removes a travel lane in each direction on Randolph Avenue and reconfigures the roadway to include a two-way left-turn lane, separated bicycle lanes, and ADA-compliant sidewalks on both sides of the roadway. The two-way left-turn lane would transition into left-turn lanes at the signalized intersections. Additional improvements include better streetscape design and street lighting.

Concept 3 renovates the corridor to meet current needs, improves quality of life in the neighborhood, and makes it easier and safer to walk, bike, and cross the road. Concept 3 would calm traffic, reduce high speeds of vehicle, and high number of crashes. The two-way left-turn lanes would improve safety for left-turn maneuvers. The shortcoming of Concept 3 is that congestion worsens and traffic operation deteriorates during the peak hours of travel with long traffic queues. The congestion and queues resulting from this concept could increase rear-end crashes and offset safety benefits. Table 23 presents the performance of Concept 3.

#### **10.4.5 Retrofit Randolph Avenue and Reedsdale Road Intersection into Roundabout**

Besides traffic congestion, the intersection of Randolph Avenue and Reedsdale Road is a HSIP crash cluster with many angle crashes. Figure 24 shows a roundabout retrofit concept for the intersection. Analysis indicates that retrofitting the signalized intersection with roundabout would work well and reduce crashes. Table 24 presents the performance of the roundabout concept versus the signalized intersection.



**Figure 23**  
Randolph Avenue: Long-Term Improvements Concepts 2 and 3

**Table 22  
Randolph Avenue: Performance of Long-Term Improvement—Concept 2**

Street Name	Approach	Lane Group	AM 50% Queue (ft.)*	AM 95% Queue (ft.)**	AM Delay (s)	AM LOS	PM 50% Queue (ft.)*	PM 95% Queue (ft.)**	PM Delay (s)	PM LOS
Route 28	NB	L	-388	-977	118.8	F	188	-515	49.8	D
Route 28	NB	LTR	-412	-1082	72.0	E	139	307	16.7	B
Route 28	EB	LT	200	-418	45.2	D	196	-400	40.4	D
Route 28	EB	R	0	35	2.4	A	138	-361	12.1	B
Reedsdale Road	WB	LTR	162	-343	60.9	E	-232	-450	92.9	F
Randolph Avenue	SB	LTR	170	335	36.9	D	303	-655	71.7	E
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>65.6</b>	<b>E</b>	<b>--</b>	<b>--</b>	<b>46.5</b>	<b>D</b>
Route 28	NB	L	0	7	6	A	1	10	5.4	A
Route 28	NB	T	-93	-2308	120.5	F	318	-1287	18.2	B
Route 28	SB	TR	0	246	6.6	A	166	726	11.2	B
Reeds Street	EB	LR	10	50	35.0	C	6	34	39.6	D
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>87.0</b>	<b>F</b>	<b>--</b>	<b>--</b>	<b>14.2</b>	<b>B</b>
Route 28	NB	L	1	23	4.9	A	0	13	3.9	A
Route 28	NB	T	-88	-2163	92.4	F	0	351	3.4	A
Route 28	SB	TR	35	240	7.6	A	110	324	6.1	A
Hallen Avenue	EB	L	2	17	35.8	D	2	15	32.8	C
Hallen Avenue	EB	R	0	21	10.4	B	0	44	13.8	B
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>65.8</b>	<b>E</b>	<b>--</b>	<b>--</b>	<b>5.4</b>	<b>A</b>
Route 28	NB	L	2	19	4.6	A	6	41	6.8	A
Route 28	NB	TR	-1539	-2930	193.2	F	267	-1361	21.2	C
Route 28	NB	L	1	8	8.4	A	1	9	8.0	A
Route 28	SB	TR	55	288	8.4	A	386	-1127	22.8	C
Hillside Street	EB	LTR	67	-239	79.1	E	77	-258	69.5	E
Driveway	WB	LTR	2	18	50.2	D	2	17	45.2	D
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>134.4</b>	<b>F</b>	<b>--</b>	<b>--</b>	<b>24.0</b>	<b>C</b>

Note: \* Negative (-) sign = Volume exceeds capacity (queue may be longer)  
 \*\* Negative (-) sign = 95 percentile volume exceed capacity, queue may be longer  
 EB = eastbound. L= left. LOS = level of service. LR = left and right. LT= left and through. LTR = left, through, and right.  
 NB = northbound. R = right. SB = southbound. T = through. TR = through and right. WB = westbound.  
 Source: Central Transportation Planning Staff.



**Table 23**  
**Randolph Avenue: Performance of Long-Term Improvement—Concept 3**

Street Name	Approach	Lane Group	AM 50% Queue (ft.)*	AM 95% Queue (ft.)**	AM Delay (s)	AM LOS	PM 50% Queue (ft.)*	PM 95% Queue (ft.)**	PM Delay (s)	PM LOS
Route 28	NB	L	-640	-1145	150.8	F	182	-500	43.8	D
Route 28	NB	TR	202	450	96.9	F	138	303	16.7	B
Route 28	EB	LT	202	-418	45.9	D	194	374	39.4	D
Route 28	EB	R	0	22	1.4	A	133	-268	11.1	B
Reedsdale Road	WB	LTR	163	-345	63.7	E	213	-442	82.1	F
Randolph Avenue	SB	LTR	206	-484	87.7	F	299	-643	64.9	E
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>73.2</b>	<b>E</b>	<b>--</b>	<b>--</b>	<b>42.0</b>	<b>D</b>
Route 28	NB	L	0	7	6.0	A	1	10	5.7	A
Route 28	NB	T	-39	-2280	103.0	F	300	-1252	16.7	B
Route 28	SB	TR	0	-730	10.5	B	-1161	-2273	119.8	F
Reeds Street	EB	LR	10	50	34.8	C	6	34	38.7	D
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>75.6</b>	<b>E</b>	<b>--</b>	<b>--</b>	<b>77.0</b>	<b>E</b>
Route 28	NB	L	2	7	1.5	A	11	-88	36.3	D
Route 28	NB	T	-1704	-1942	90.5	F	175	414	5.9	A
Route 28	SB	TR	174	288	5.4	A	-1514	-1927	95.9	F
Hallen Avenue	EB	L	4	18	49.2	D	4	19	52.7	D
Hallen Avenue	EB	R	0	40	20.9	C	7	64	24.8	C
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>64.1</b>	<b>E</b>	<b>--</b>	<b>--</b>	<b>58.3</b>	<b>E</b>
Route 28	NB	L	2	17	5.1	A	5	32	4.7	A
Route 28	NB	TR	-1525	-2505	160.3	F	238	-1198	15.7	B
Route 28	SB	L	1	12	14.0	B	1	7	5.5	A
Route 28	SB	TR	144	740	13.2	B	-1661	-2648	235.4	F
Hillside Street	EB	LTR	74	-238	122.1	F	88	-273	109.1	F
Driveway	WB	LTR	3	18	50.8	D	2	16	43.0	D
<b>Intersection</b>	<b>All</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>114.4</b>	<b>F</b>	<b>--</b>	<b>--</b>	<b>150.0</b>	<b>F</b>

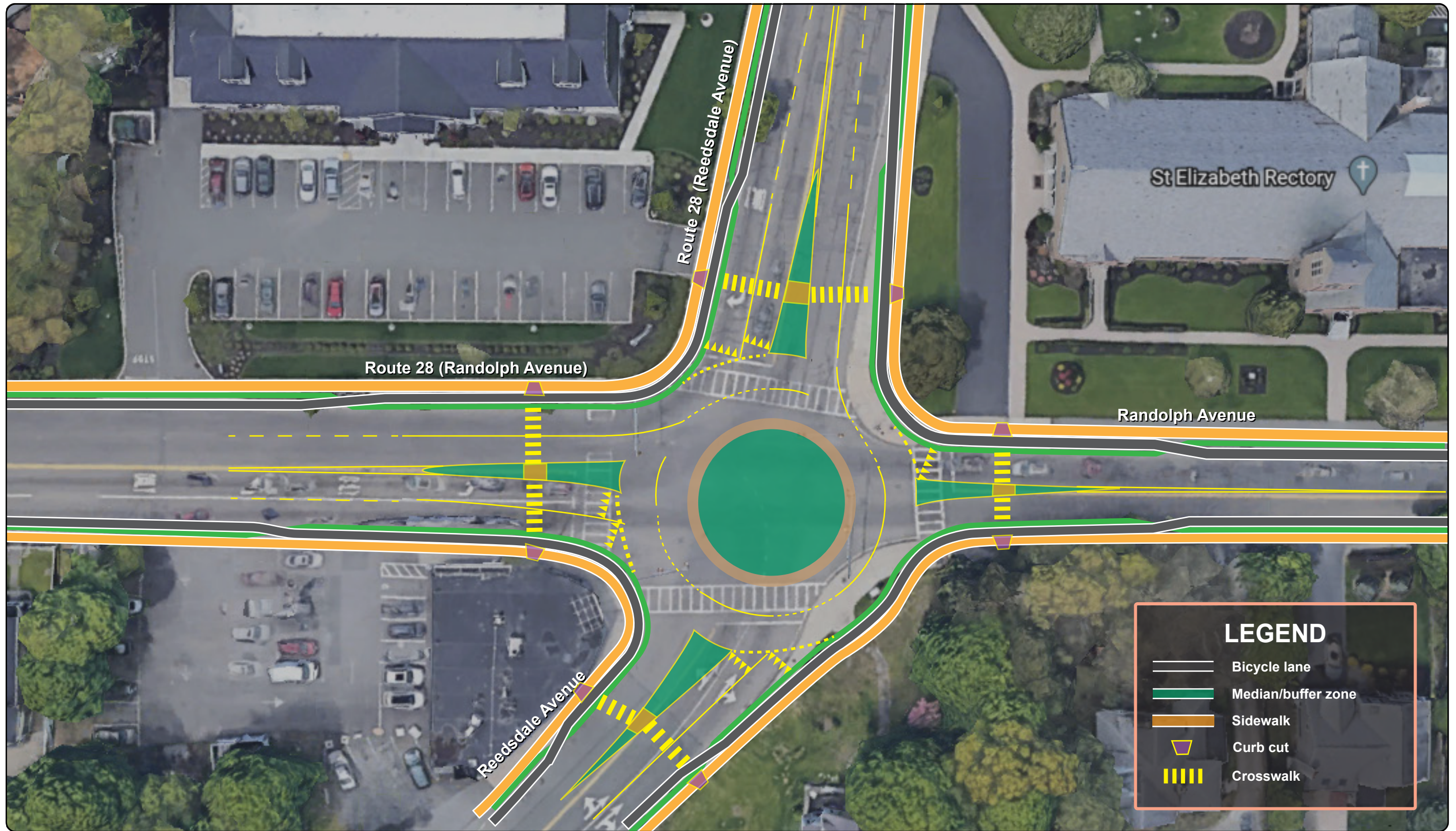
Note: \* Negative (-) sign = Volume exceeds capacity (queue may be longer)  
 \*\* Negative (-) sign = 95 percentile volume exceed capacity, queue may be longer  
 EB = eastbound. L= left. LOS = level of service. LR = left and right. LT= left and through. LTR = left, through, and right.  
 NB = northbound. R = right. SB = southbound. SE = southeast. T = through. TR = through and right. WB = westbound.  
 Source: Central Transportation Planning Staff.

**Table 24**  
**Performance of Randolph Avenue and Reedsdale Roundabout Concept**

<b>Street Name</b>	<b>Approach</b>	<b>Lane Group</b>	<b>AM 50% Queue (ft.)*</b>	<b>AM 95% Queue (ft.)**</b>	<b>AM Delay (s)</b>	<b>AM LOS</b>	<b>PM 50% Queue (ft.)*</b>	<b>PM 95% Queue (ft.)**</b>	<b>PM Delay (s)</b>	<b>PM LOS</b>
Route 28	NB	LT	--	250	23.3	C	--	75	9.8	A
Route 28	NB	TR	--	150	14.1	B	--	50	7.9	A
Route 28	SB	LTR	--	50	9.2	A	--	300	47.3	E
Route 28	SB	R	--	50	8.1	A	--	325	45.3	E
Reedsdale Road	WB	L	--	75	24.9	C	--	75	16.2	B
Reedsdale Road	WB	TR	--	200	45.7	E	--	50	11.9	B
Randolph Avenue	SB	LT	--	50	17.9	C	--	50	15.5	C
Randolph Avenue	SB	TR	--	50	15.5	C	--	50	14.0	B
<b>Intersection</b>	<b>All</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>19.6</b>	<b>C</b>	<b>--</b>	<b>--</b>	<b>25.0</b>	<b>D</b>

LOS = level of service. EB = eastbound. L= left. LOS = level of service. LR = left and right. LT= left and through. LTR = left, through, and right. NB = northbound. R = right. SB = southbound. WB = westbound.  
Source: Central Transportation Planning Staff.





**Figure 24**  
**Roundabout Retrofit at Randolph Avenue and Reedsdale Road Intersection**



**10.4.3 Signalize the Intersections of Randolph Avenue at Hallen Avenue and Ridgewood Road/Wollaston Golf Club Driveway**

These two intersections and the road segment between them experience high numbers of crashes, including two fatalities and several injuries as shown in Figures 12 through 14. Many of the crashes are left-turn-related angle and rear-end crashes and lane-changing-related sideswipes crashes.

MPO staff recommends signalizing these intersections to reduce left-turn-related crashes. The LOS analysis indicates that installing a traffic signal at Hallen Avenue and adding a northbound left-turn lane would operate well. Due to the low traffic volumes collected during the pandemic, staff recommends that MassDOT collect additional traffic volumes to perform traffic signal warrant analysis for these intersections.

Installing additional traffic signals at these intersections would also help to calm traffic, reduce high speeds of vehicles, and add additional crossing opportunities for at these intersections for pedestrians and bicycles.

**10.5 PEDESTRIAN LOS WITH IMPROVEMENTS**

MPO staff evaluated what the future PLOS of Route 28 would be if the recommendations from this study were implemented. Appendix F contains results of the PLOS scorecard analyses. Based on the assessment, Route 28 was rated *good* in terms of meeting the MPO’s goals for capacity management and mobility and economic vitality because of the prioritization of safe accommodations for people who walk and for improving the connectivity of the pedestrian network.

**10.6 BICYCLE LOS WITH IMPROVEMENTS**

MPO staff evaluated what the future BLOS of Route 28 would be in Milton if the recommendations from this study were implemented. Appendix F contains results of the BLOS scorecard analyses. Based on the assessment, Route 28 was rated *excellent* in terms of meeting the MPO’s goals for capacity management and mobility and economic vitality because of the prioritization of safe accommodations for people who bike, and for improving the connectivity of the bicycle network.

**10.7 SAFETY IMPACTS OF PROPOSED IMPROVEMENTS**

Each of the proposed improvements was chosen to target specific safety and operational deficiencies present in the study area.



- **Corridor and Intersection Lighting Upgrades.** MPO staff recommends upgrading or replacing these facilities as part of any future project. Providing intersection and highway lighting could reduce nighttime crashes by approximately 18 percent to 38 percent.<sup>18</sup>
- **Pedestrian Crossing Safety.** Improving the ability of pedestrians to cross Route 28 safely was a major priority in this study. The recommendations include fitting all signalized intersections with high-visibility crosswalks and installing midblock pedestrian-activated crossing signals at selected locations. Upgrading crossings has been shown to reduce vehicle-pedestrian collisions by about 40 percent.<sup>19</sup> Providing pedestrian-activated crossing signals could reduce vehicle-pedestrian crashes by as much as 55 percent.
- **Bicycle Safety.** The survey responses showed that Route 28 is generally not considered for people who bike. The concepts in this study seek to remedy this problem by providing people who bike with separated bicycle lanes or multiuse paths separated from the travel lanes. A 2014 analysis of bicycle crashes in Florida showed a 25 percent reduction in vehicle/bicycle collision totals after installing shared-use paths.<sup>20</sup>
- **Pavement Resurfacing.** A corridor project like this will include some degree of pavement resurfacing or replacement. This change could improve safety by increasing pavement friction and replacing faded pavement markings. However, currently available studies cannot reliably correlate the magnitude of the effect, as it depends heavily on the characteristics of the site.
- **Retiming and Coordinating Traffic Signals.** The analysis shows that retiming the signals in the corridor could reduce AM and PM peak-hour signal delays by 16 to 20 percent.

## 10.8 COMPARISON OF IMPROVEMENT CONCEPTS

A summary of all the improvement concepts showing their advantages and disadvantages are presented in Figure 25. These concepts include safety, congestion, operations, multimodal features (pedestrian and bicycle infrastructure), and traffic calming.

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<sup>18</sup> US Department of Transportation Federal Highway Administration, Crash Modification Factors Clearinghouse, August 14, 2018, <http://www.cmfclearinghouse.org/>.

<sup>19</sup> L. Chen, C. Chen, and R. Ewing. "The Relative Effectiveness of Pedestrian Safety Countermeasures at Urban Intersections—Lessons from a New York City Experience." Presented at the 91st Annual Meeting of the Transportation Research Board, January 22–26, Washington, DC, 2012, [http://www.cmfclearinghouse.org/study\\_detail.cfm?stid=280](http://www.cmfclearinghouse.org/study_detail.cfm?stid=280).

<sup>20</sup> P. Alluri, A. Raihan, D. Saha, et al. "Statewide Analysis of Bicycle Crashes." Florida Department of Transportation (May 2017).

**Figure 25**  
**Comparisons of Improvement Concepts**

Concept	Increase Safety	Reduce Congestion	Accommodate Pedestrians	Accommodate Bicycles	Address Left-Turn Operations	Address Parking Needs	Calm Traffic
Brook Road Concept 1	●	●	●	●	●	●	●
Brook Road Concept 2	●	●	●	●	●	●	●
Brook Road Concept 3	●	●	●	●	●	●	●
Reedsdale Road Concept 1	●	●	●	●	●	●	●
Reedsdale Road Concept 2	●	●	●	●	●	●	●
Reedsdale Road Concept 3	●	●	●	●	●	●	●
Randolph Avenue Concept 1	●	●	●	●	●	○	●
Randolph Avenue Concept 2	●	●	●	●	●	○	●
Randolph Avenue Concept 3	●	●	●	●	●	○	●

● Full support. ● Some support. ● No support. ○ Not applicable

Source: Central Transportation Planning Staff.

# Chapter 11—Conclusion and Next Steps

The concepts developed in this study provide MassDOT, the Town of Milton, and other stakeholders an opportunity to review conceptual options for addressing deficiencies in the corridor before committing design and engineering funds to a roadway improvement project. If implemented, the improvement concepts in this report would yield the following benefits:

- transform the car-centric corridor into a road that connects people to places and meets the needs of local residents and businesses, people who walk, bicycle, drive, and ride the bus
- transform the road to provide safe access to schools, recreational areas, neighborhoods, transit areas and other destinations
- transform the road to improve travel choices and connectivity for pedestrian and bicycle modes by closing gaps in the sidewalk and bicycle networks
- improve safety at HSIP intersection crash cluster locations and other high-crash locations in the corridor
- transform Route 28 to support the vision of connecting the neighborhoods to places and promoting multimodal transportation

## 11.1 PROJECT IMPLEMENTATION

Successful implementation of the improvements would require cooperation between the MassDOT Highway Division and the Town of Milton to ensure that sidewalks and multiuse paths are continuous and connected, and to ensure that MassDOT's standards guide the design of roadway elements. In addition, it is important for stakeholders to evaluate the improvement concepts with all road users in mind. MassDOT has jurisdiction of Randolph Avenue and the Town of Milton has jurisdiction of Brook Road and Reedsdale Road, and each would be responsible for implementing renovations to the roadway in its jurisdiction.

## 11.2 PROJECT DEVELOPMENT

Project development is the process that takes transportation improvements from planning concept to construction. This process will depend on cooperation between MassDOT, the Town of Milton, and the Boston Region MPO. This planning study provides the necessary information for the project proponents to initiate the project notification and review process. After completing these initial steps, the proponents can start preliminary design and engineering and begin working with the MPO to program funding for the project in the TIP. Appendix H contains an overview of the project development process.

# Appendix A: Comments and Selection Process

1. Review Comments
2. Selection of Study Locations
3. Support Letters
4. Public Participation



## Part 1: Review Comments

## Seth Asante

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**From:** Driscoll, William - Rep. (HOU) <William.Driscoll@mahouse.gov> on behalf of Driscoll, William - Rep. (HOU)  
**Sent:** Friday, February 5, 2021 4:01 PM  
**To:** Seth Asante  
**Cc:** Ordaz, Summer (HOU)  
**Subject:** Re: [External]: Route 28 Priority Corridor Study

Dear Seth,

Thank you for your recent update on the Route 28 Corridor study. Please see below for my feedback.

### **Speed Limit Reduction**

The study notes that one of the improvements to Route 28 is to reduce speed limits to 30/35 mph from 40/45 mph. Is MassDOT/MPO aware that the town of Milton passed a petition last year to reduce the speed limit to 25 mph on portions of Route 28 and Chickatawbut Road? This home rule petition has been filed in the Legislature and is currently in motion ([SD115](#)).

### **Multiuse Path -- Transportation Bond Bill Earmark**

I would like to reiterate that we secured an earmark for part of this project in the most recent transportation bond bill. The earmark is for \$10M to be expended for a multi-use path connecting the MBTA Milton Station to Houghton's Pond Recreational Area in the Town of Milton via Adams Street, Randolph Avenue, Chickatawbut Road and Hillside Street. ([Chapter 383 of the Acts of 2020](#), Line Item 6921-2115)

### **2-4-2 Lane Configuration**

Re: the section of roadway Randolph Ave (Route 28 between Chickatawbut Rd and the intersection of Reedsdale Rd and Randolph Ave), I found it odd that this section of road did not have the same number of alternatives to consider as the other section of road. The impetus for this corridor study is directly related to the speeding and crash issues on this stretch in particular.

Could an alternative design be mocked up that looks at two vehicle lanes, a multi-use path and turn lane options in and out of adjacent neighboring streets? Turn lanes in to and out of the intersecting streets would increase quality of life and safety for this stretch of Route 28.

### **Hallen Ave/Signalization/One-way issue**

I think signalization with a 2 way as it is now makes the most sense, or some type of turn lane configuration. There is right of way to take on the Blue Hills side of the road so widening is easier than dealing with private property impacts re widening.

### **Ridgewood Rd/Wollaston Golf Course Stop Light**

This was not mentioned in the study. I would like to see this addressed considering the dangerousness of this area and the previous fatalities. Again, this stretch of road on 28 (segment 3 in the presentation) and this intersection were one of the key reasons that a corridor study was sought in the first place. to have this intersection left out is puzzling.

Again, thank you for the recent update. I am hopeful this feedback will be incorporated as we seek to address the transportation needs of the corridor.

Sincerely,

Bill Driscoll Jr.  
7th Norfolk District

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**From:** Seth Asante <sasante@ctps.org>  
**Sent:** Thursday, January 28, 2021 1:06 PM  
**To:** Timitly, Walter (SEN) <Walter.Timitly@masenate.gov>; Driscoll, William - Rep. (HOU) <William.Driscoll@mahouse.gov>; Fluker Oakley, Brandy - Rep. (HOU) <Brandy.FlukerOakley@mahouse.gov>; Buntich, Hannah (SEN) <Hannah.Buntich@masenate.gov>; Ordaz, Summer (HOU) <Summer.Ordaz@mahouse.gov>; Chris Westfall (HOU) <Christ.Westfall@mahouse.gov>  
**Subject:** [External]: Route 28 Priority Corridor Study

Good afternoon,

Thank you for your participation and the feedback you provided on the Route 28 Priority Corridor Study meeting. Your feedback will help us address the transportation needs of the corridor. I have attached the presentation slides and would welcome any feedback or questions about the presentation and study. Please provide us with your input by February 5.

Thank you,  
Seth

**Seth A. Asante, P.E.** | Chief Transportation Planner  
CENTRAL TRANSPORTATION PLANNING STAFF  
857.702.3644 | [sasante@ctps.org](mailto:sasante@ctps.org)  
[www.ctps.org/bostonmpo](http://www.ctps.org/bostonmpo)

Two Park Plaza, Rm. 1012 Boston, MA 02116-1699  
Tel: 617.502.3700 Fax: 617.579.9433 | TTY: 617.579.9433



*Please be advised that the Massachusetts Secretary of State considers e-mail to be a public record, and therefore subject to the Massachusetts Public Records Law, M.G.L. c. 66 § 10.*

## Feedback on the Improvement Concepts

- **Representative Brandy Fluker Oakley: What is the community outreach of the study?** At the planning stage, the outreach involves MassDOT, Town of Milton, and State Legislators. MPO staff also conducted a community survey to solicit input from Milton residents. After the planning study, if MassDOT or Town of Milton advance any of the concepts into projects, there would be public hearings at various stages of the project. It will be similar to what was done for the Route 138 project in Canton and Milton.
- **Representative Brandy Fluker Oakley: What is the status of the Route 138 project? I have other questions and will send them to you by email.** MassDOT has advanced the concepts from that study into a project. A public hearing was held on October 22, 2019 in Milton for the project.
- **Melinda Collins, Milton Select Board: How does the study relates to the project at Chickatawbut Road intersection? Going forward, the question residents will have is how the two solutions be married together?** Typically what we do, when we are doing our studies and we know that there is another project going on at one end or the other, in this case the Chickatawbut Road intersection project, we would not design or recommend anything for that location, so we can marry into their project. However, we would mention the recommendations from that project in the current study.

**Melinda Collins, Milton Select Board: There is real interest in making the Skyline Trail crossing located south of the study area safer for pedestrians and hikers?** Yes, this request has been brought to the attention of the MPO and MassDOT. The Skyline Trail crossing is outside the study limits.

- **Chase Berkeley, Milton DPW: We did implement a road diet on the northern portion of the quarter, very recently. The project was done through a grant from Shared Streets and Open Spaces program. Thank you to all the elected officials and MassDOT who supported that funding. We send you details of that project.** Thank you for sharing the project information.
- **Raj Kulen, MassDOT: Brook Road Concept 3 does not have a shoulder and that could affect traffic operations if there is a breakdown or incident. We will review the concept and make necessary changes.**
- **Raj Kulen, MassDOT: Reducing the speed limit on Randolph Avenue from 45 mph to 35 mph would be difficult to enforce and would not accomplish the desired results, unless the roadway is designed to calm traffic.** We will review this recommendation and design in some traffic calming measures to reduce traffic speeds.
- **Mark Alba, Milton Police: In the northerly section down by St Mary's School, the road has curves, kind of a winding road, so I am not sure a**



median is perfect for that location, a winding road with children crossing, pedestrian traffic, and turning traffic. Thank you, we will review that concept.

- **Representative William Driscoll:** One of the issues on Randolph Avenue is turning in and out of the neighborhoods. The roadway width in this segment is just not wide enough to include kind of a center turn lane. However, it would be an ideal type of roadway to have that center turn lane to improve safety. The concepts we developed, we tried to stay within the existing right-of-way, but we can include in the report that future process look at possible land takings to include turn lanes at the at the major intersections on that segment
- **Representative William Driscoll:** The other thing I hear you know from residents a lot in terms of constituent feedback, I don't know if this is reflected in the comments that you received as part of the study, but just the fact that it goes from two lanes on Route 28 to four lanes and then back to two lane. The cut through traffic that we see there is the additional 10,000 cars. So I don't know if there's any additional thoughts there in terms of looking at going down to two lanes of travel and some other improvements. Yes, this idea was reflected in the comments from the community survey. We will review this concept further and include it in the report.
- **Representative William Driscoll:** A new bond bill allocated \$10 million to try to improve the multiuse lanes on that section of Randolph Avenue. It is meant to connect the Milton MBTA stops with and high speed line to the Houghton's Pond recreation area, so if you follow that kind of trajectory of the streets mentioned Randolph Avenue in segment three do fall into this project so just point that out as something that's out there for the can be capitalized on. Okay thank you.

**Mr. Dennehy:** For the Hallen Avenue intersection, obviously the safest path of travel for anyone is a signaling the intersection but just having been in Milton for a long time, taking that left turn away on Randolph Avenue put an abundance of pressure onto specific neighborhoods. Residents are already feeling some of the heat of cut through traffic in the Hillside Street and Highland Street neighborhoods. We are getting a lot of traffic through them now and in the PM commute. I am all for the safest left hand turn, because that was a location of one of the fatalities in the reports two summers ago a tragic accident.

In addition, Hallen Avenue is used by many people to get to the hospital. I think you can corroborate this is part of the destination, to the hospital, which is becoming a regional hospital. To include ambulances as well, so some points coming from the other way. Possible signalization at Hallen Avenue, we would look at the traffic signal warrants there, but some of the

volumes are just a bit short right now, we have to wait until after the pandemic when traffic volumes return to normal.

**Senator Walter Timilty:** I thank you very much a couple of points—number one, a couple years back, I filed an amendment and I have had some talks with MassDOT on this to fund an additional traffic light on Randolph Avenue somewhere around the side streets that are across from the Pepsi plantation or new Wollaston Golf Club. At the determination of the Town Administrator in Milton and with conversations with MassDOT, I was told that if we do that, we would have to regrade the road. However, it's something that I believe there's a great deal worth and exploring because it is one way to slow down traffic, I would also like to point out that anytime we talked about land takings, whether it be for a roundabout or to widened Randolph Avenue, you are going to engender pushback. Yes, that's why, when we do our studies we try to stay on with existing right away as much as possible, we understand that anytime you propose land takings whether it's empty space or someone's yard does become a contentious issue.

**Raj Kulen, MassDOT:** Yes, this is to make the Senator Timilty's point. Did you take a traffic count at that at that location? The second question is about the golf course entrance. In order to install the traffic signal we need to do a traffic signal warrant analysis. No, we did take a traffic count at Hallen Avenue, not at the Golf Course entrance. Maybe we'll put in a request to for a traffic count, but the volume will be low due to the pandemic.

**Raj Kulen, MassDOT:** Knowing the intersection, probably it would not meet many of the warrants for signalization, but we could look at other ones such as systems warrants or other ones. Okay thank you.

**Mark Alba, Milton Police:** Just real quickly to revisit the Hallen Avenue, some of those side streets are one-way leading up to Randolph Avenue or are time restricted, so the one way would not work well. Okay, thank you.

### **Closing comments**

Mark Abbott, Boston Region MPO: MPO staff will be trying to wrap up the draft report, shortly after receiving feedback. Once the draft ready we will send it to all of you once again for your comments and questions on that before we finalize it. Any further feedback is welcome throughout the course of the study. All your questions and comments are greatly appreciated, especially people from Milton that travel the roadway and see it all the time. You provided some valuable input into our reports as well, and thank you, Senator Walter Timilty, Representative William Driscoll, and Representative Brandy Fluker Oakley for attending. Thank you Town of Milton and MassDOT representatives and legislative staff.

## Seth Asante

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**From:** Kinahan, Erin (DOT) <erin.kinahan@state.ma.us> on behalf of Kinahan, Erin (DOT)  
**Sent:** Monday, February 8, 2021 12:16 PM  
**To:** Seth Asante  
**Subject:** 2021-01-27 Milton Route 28 Presentation.pdf

Seth

I have made some comments regarding the Route 28 study Please let me know if you have any questions

Thanks  
Erin Kinahan

You can view "2021-01-27 Milton Route 28 Presentation.pdf" at:  
<https://documentcloud.adobe.com/link/track?uri=urn:aaid:scds:US:84ad5741-1d75-4e9a-8562-68ea67b7d4c6>

### Comments

1. The MassDOT project will improve transit accommodations along. Should this study mention potential transit improvements?
2. What is the 85% speeds along corridor, will the speed zoning be updated if not this recommendation may be difficult to implement.
3. How will the reduction in speed limits be achieved currently based on 85%.
4. Why is this bullet red text? Does this intersection meet 8 hour warrants?
5. Cross section north of Chickatawbut Road should tie into the proposed improvements. Most recent design should be submitted to MassDOT by end of February

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## **Part 2: Selection of Study Locations**





# BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Stephanie Pollack, MassDOT Secretary and CEO and MPO Chair  
Tegin L. Teich, Executive Director, MPO Staff

## ***TECHNICAL MEMORANDUM***

**DATE:** November 7, 2019  
**TO:** Boston Region Metropolitan Planning Organization  
**FROM:** Seth Asante, MPO Staff  
**RE:** Selection of FFY 2020 LRTP Priority Corridor Study Location

### 1 BACKGROUND

During the development of the Boston Region Metropolitan Planning Organization's (MPO) Long-Range Transportation Plan (LRTP), *Destination 2040*, the MPO staff identified the existing needs for all transportation modes in the region.<sup>1</sup> The results were compiled in the LRTP Needs Assessment, which is used to guide the MPO's decision-making process for selecting transportation projects to fund in future Transportation Improvement Programs (TIPs). The MPO goals that guided the development of the LRTP Needs Assessment include the following:

- Safety—make all modes safe
- Preservation—maintain and modernize the system
- Capacity Management and Mobility—use existing facility capacity more efficiently and increase healthy transportation capacity
- Clean Air/Clean Communities—create an environmentally friendly transportation system
- Transportation Equity—provide comparable transportation access and service quality among communities, regardless of income level or minority population
- Economic Vitality—ensure our transportation network serves as a strong foundation for economic vitality

Based on previous and ongoing transportation-planning work—including the MPO's Congestion Management Process (CMP) and planning studies—MPO staff identified several priority arterial roadway segments that require maintenance, modernization, and safety and mobility improvements. These locations are documented in the LRTP Needs Assessment.

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<sup>1</sup> *Destination 2040: The New Long-Range Transportation Plan of the Boston Region Metropolitan Planning Organization* was adopted by the Boston Region MPO in August 2019.

To address problems on some of these arterial segments, the *Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment* study was included in the federal fiscal year (FFY) 2020 Unified Planning Work Program (UPWP).<sup>2</sup> This memorandum presents the results of the selection process and a recommendation for a location to study to the MPO board for discussion.<sup>3</sup>

By focusing on arterial segments rather than intersections, planners can evaluate multimodal transportation needs comprehensively (with the goal of creating Complete Streets). A holistic approach to analyzing problems and forming recommendations ensures that the needs of all transportation users are considered. Ultimately, this approach will result in roadways where it is safe to cross the street and walk or bicycle to shops, schools, train stations, and recreational facilities, and where buses can run on time. Typically, the recommended improvements are within a roadway's right-of-way. When developing the recommendations, the needs of abutters and users are taken into account. The interests and support of stakeholders are also considered.

## 2 SELECTION PROCEDURE

The process for selecting study locations consisted of three steps:

1. MPO staff gathered and assembled data about the arterial segments from the LRTP Needs Assessment and used the data to identify and prioritize the segments in need of improvements.
2. Staff examined the arterial segments more closely by applying specific criteria.
3. Staff scored each arterial segment and assigned a priority of *low*, *medium*, or *high* to each segment.

Details about each step in the process are provided below.

### 2.1 Gathering Data and Identifying Potential Arterial Segments

MPO staff identified 43 arterial segments in 33 municipalities in the Boston region based on the following data sources:

- The Massachusetts Department of Transportation (MassDOT) 2017 Road Inventory File and 2012–16 crash database were used to assemble the

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<sup>2</sup> The FFY 2020 Unified Planning Work Program was endorsed by the Boston Region MPO on July 18, 2019.

<sup>3</sup> The Boston Region MPO's work program for *Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment: Federal Fiscal Year 2020* was approved on September 19, 2019.

following information for each arterial segment: roadway jurisdiction, National Highway System status, average daily traffic (ADT), high-crash locations, and crash rates.

- The MPO's CMP data on arterial congestion were used to determine average travel speeds, travel-time index (travel time in the peak period divided by travel time during free-flow conditions), and speed index (average travel speed divided by the speed limit) on each arterial segment.
- The MPO's data on gaps in the bike network and data on the location of MassDOT's bike facilities were used to identify bicyclists' needs, including locations where connectivity between bicycle facilities and bicyclists' accommodations could be improved.
- Data on Massachusetts Bay Transportation Authority (MBTA) bus service performance and passenger loads were used to determine the percentage of bus trips that do not adhere to the schedule (in other words, that provide late service) or do not adhere to passenger load standards (resulting in crowding).
- Data on MBTA bus routes, subway lines, and commuter rail lines were used to identify which arterial segments serve MBTA buses or stations.
- Data on the MPO's transportation equity analysis zones were used to identify areas of concern as relates to transportation equity.
- Data selected from MassDOT's project-information database, the MPO's FFY 2020–24 TIP project database, MPO planning studies and other studies, and municipal websites were used to obtain data on projects, studies, and TIP projects that are planned or programmed for each arterial segment.

Table 1 (attached) presents the data and information gathered about each of the arterial segments:

- Municipality
- Metropolitan Area Planning Council (MAPC) subregion
- Jurisdiction
- MassDOT district office
- Number of top-200 high-crash locations
- Number of crash clusters that are eligible for Highway Safety Improvement Program (HSIP) funding
- Travel-time index
- Transit service performance

- Proximity to a transportation equity analysis zone (within one-half mile distance)
- Relevant studies or projects within or near the segment

Table 1 also includes the score and priority rating that were determined by applying the selection criteria. The processes for scoring and assigning priority ratings to segments are described below.

## 2.2 Selection Criteria

MPO staff examined the arterial segments more closely by applying the following six criteria and assigning points based on the number of criteria that apply to each location.

1. *Safety Conditions, 0–4 points (each of the four criteria is worth one point)*
  - Location has a higher-than-average crash rate for its functional class
  - Location contains an HSIP-eligible crash cluster
  - Location is identified in the Massachusetts *Top High Crash Locations Report*
  - Location has a significant number of pedestrian and bicycle crashes per year (two or more per mile) or contains one or more HSIP-eligible bike-pedestrian crash cluster
2. *Congested Conditions, 0–2 points (each of the two criteria is worth one point)*
  - Travel-time index is at least 1.3
  - Travel-time index is at least 2.0
3. *Multimodal Significance, 0–3 points (each of the three criteria is worth one point)*
  - Location currently supports transit, bicycle, or pedestrian activities
  - Location needs to have improved transit, bicycle, or pedestrian facilities
  - Location has a high volume of truck traffic serving regional commerce
4. *Regional Significance, 0–4 points (each of the four criteria is worth one point)*
  - Location is in the National Highway System
  - Location carries a significant portion of regional traffic (ADT is greater than 20,000)
  - Location lies within 0.5 miles of a transportation equity analysis zone



- Location is essential for the region's economic, cultural, or recreational development
5. *Regional Equity, 0–2 points (each of the two criteria is worth one point)*
- Location is in an MAPC subregion for which there has not been a Priority Corridors study
  - Location is in an MAPC subregion for which there has not been a Priority Corridors study in the previous three years
6. *Implementation Potential, 0–3 points (each of the three criteria is worth one point)*
- Location is proposed or endorsed for study by the agency that administers the roadway
  - Location is proposed or endorsed by its MAPC subregional group and is a priority for that subregional group
  - Other stakeholders strongly support improvements for the location

## 2.3 Rating Potential Roadways

MPO staff rated arterial segments with a total score of 11 or fewer points as *low* priority; those with a score of 12 to 13 points as *medium* priority; and those with a total score of 14 or more points as *high* priority. Staff gave 12 arterial segments a high-priority rating based on safety and operational needs, multimodal and regional significance, regional equity, and support for improvements from agencies and municipalities. Staff then examined high-priority segments more closely and excluded arterials for which there were projects meeting any of the following criteria from further consideration for this cycle of the Priority Corridors study: recently completed, in construction, in design, under study, or programmed in the TIP with the 25 percent design completed.

Staff also evaluated the pedestrian accommodation and safety improvement needs for the segment with the highest score by applying the MPO's Pedestrian Report Card Assessment and Bicycle Level-of-Service Metric (Bicycle Report Card).<sup>4</sup> These locations highly qualify based on pedestrian and bicycle accommodation or safety improvement requirements. Appendix A contains detailed results of the assessments for Route 28 in Milton, the arterial segment with the highest score.

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<sup>4</sup> Ryan Hicks and Casey-Marie Claude, Boston Region Metropolitan Planning Organization, *Pedestrian Level-of-Service Memorandum*, January 19, 2017; Casey-Marie Claude, Boston Region Metropolitan Planning Organization, *Development of a Scoring System for Bicycle Travel in the Boston Region*, November 8, 2018.

Based on this evaluation, staff recommends studying the segment on Route 28 in Milton. Figure 1 shows the study area with four HSIP intersection crash clusters.

### 3 **ARTERIAL SEGMENT SELECTED FOR STUDY: ROUTE 28 IN MILTON**

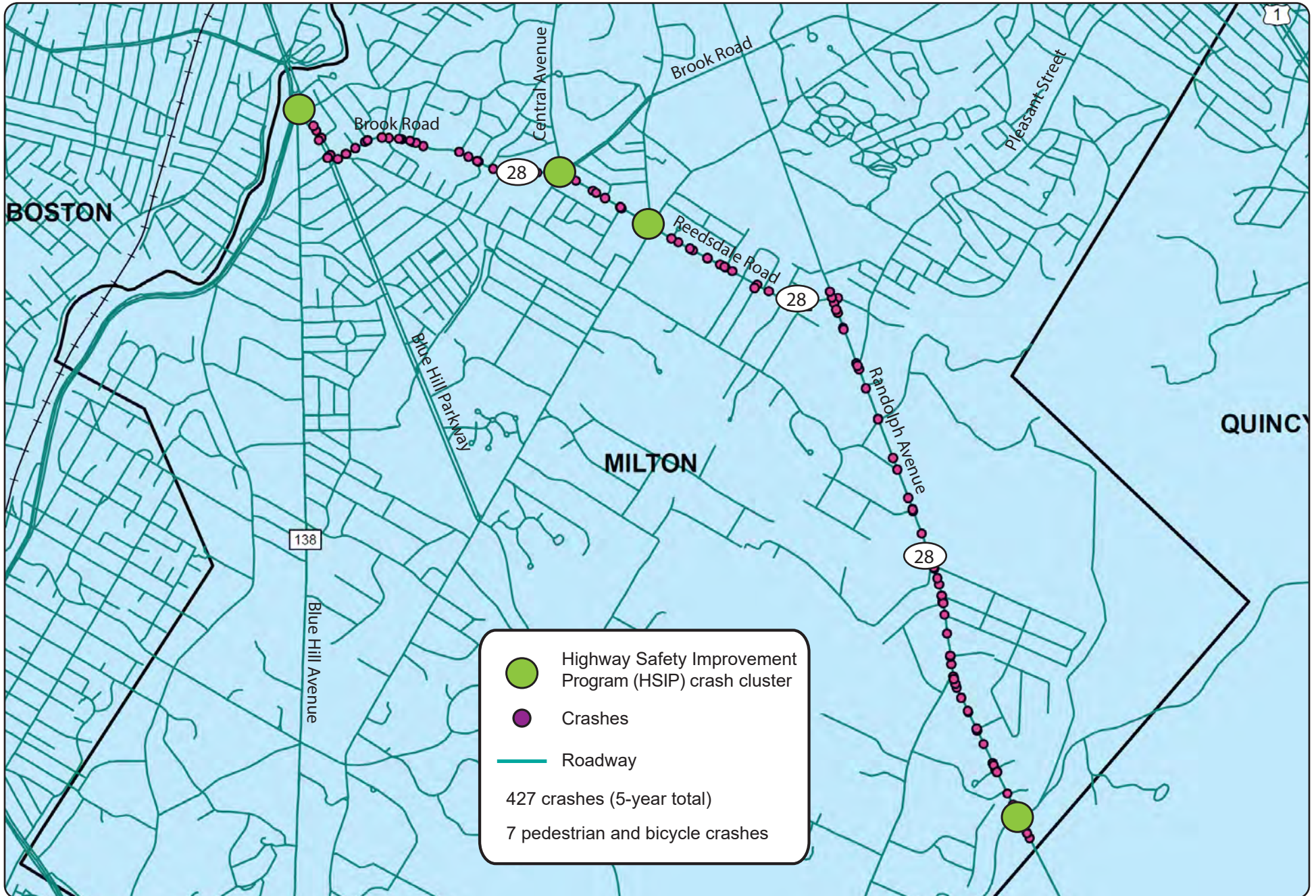
The arterial segment on Route 28 in Milton received a total score of 15, based on five of the six selection criteria (safety, congestion, multimodal and regional significance, regional equity, and implementation potential). Route 28 runs north and south through Milton and it serves residential, educational, and recreational areas, and a medical center. Route 28 also carries commuter traffic to and from Boston. Staff's evaluation indicates that there are safety, capacity management, and mobility problems in the segment. Four locations along the segment contain HSIP-eligible crash clusters, one of which is in the top 200 of intersection crash clusters in Massachusetts. Also, accommodation for bicyclists is poor and better bicycle connections are needed in the area.

The Town of Milton and the MassDOT Highway Division are looking for solutions to the problems in the corridor and have expressed support for and willingness to participate in a study of this arterial segment (see Appendix B). MPO staff would identify the problems and develop solutions that could be incorporated into MassDOT's project #609396 for resurfacing and related work on Route 28. The improvements would be implemented by the Town of Milton and MassDOT. The recommended arterial segment meets the selection criteria of this study, especially by supporting the transportation improvement priorities of the MPO's LRTP.

### 4 **NEXT STEPS**

After the MPO board discusses this recommendation, staff will meet with officials from the Town of Milton and MassDOT and other stakeholders to discuss the study specifics, conduct field visits, collect data, identify needs, and develop solutions.

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**Figure 1**  
**Crashes 2012-16**

Addressing Priority Corridors from  
 the LRTP Needs Assessment  
 Route 28 in Milton



**TABLE 1**  
**Arterial Segments Considered for Study: Priority Corridors for Long-Range Transportation Plan Needs Assessment Study**

Arterial Segment	Community	MAPC Subregion	MassDOT District	Jurisdiction	National Highway System	Functional Class*	Number of Top-200 High-Crash Locations 2014–16	Number of HSIP Eligible Crash Clusters 2014–16**	Travel Time Index	Transit Service	Crowded or Late Bus	In or Near Transportation Equity Priority Area	Study, Project, or TIP Project	Safety Conditions***	Congested Conditions***	Multimodal Significance***	Regional Significance***	Regional Equity***	Implementation Potential***	Score	Priority Rating	Summary of Comments
Route 28	Milton	ICC and TRIC	6	MassDOT and Milton	Yes	3	1	4	2.48	MBTA bus Routes 240, 245, 24, 28, 26, 29, 30, 31, and 33 MBTA Red Line rapid transit at Mattapan/Ashmont Station, BAT Route 12	Yes	Yes	MassDOT Project #607342, Intersection and Signal Improvements at Route 28 (Randolph Avenue) and Chickatawbut Road; programmed FFY 2020. MassDOT Project #609396, Resurfacing and related work on Route 28, in preliminary design. MassDOT Project # 106901: Reconstruction on Route 28 (Randolph Avenue) from Reedsdale Road to Quincy town line, completed in 2008.	4	2	3	3	0	3	15	High	This arterial segment was recommended for study because of safety problems. There are four HSIP intersection clusters in the segment. There is no accommodation for bicycles in the segment, which presents a significant connectivity problem because several of the side streets have bicycle lanes. There are peak period traffic congestion problems that create safety, operations, and mobility issues for the residents. The Town of Milton and MassDOT have expressed their support and will participate in the study. In addition, recommendations from the study could be incorporated into MassDOT Project #609396 or a new project.
Route 107	Salem	NSTF	4	MassDOT and Salem	Yes	3	4	13	2.84	MBTA bus Routes 450, 456, 459, 461, 465, and 469 MBTA commuter rail at Salem and Beverly Ferry service	Yes	Yes	Route 107 Corridor Study in Salem and Lynn, completed in 2016. MassDOT Project #608059: Stormwater improvements along Route 107 (Salem Bypass Road), in construction. MassDOT Project #608650: Adaptive Signal Controls on Route 107 (Highland Avenue), in construction. MassDOT Project #608817: Resurfacing and related work on Route 107, programmed FFY 2022 TIP. MassDOT Project #608927: reconstruction of Route 107, in preliminary design.	4	2	2	4	2	0	14	High	This arterial segment is not recommended for study. The Route 107 corridor in Lynn and Salem was studied in 2016 and many of the recommendations have advanced into MassDOT projects. Also, there is a FFY 2022 TIP project programmed for the corridor.
Route 3A	Burlington	NSPC	4	MassDOT	Yes	3	0	1	1.67	MBTA bus Routes 350, 351, 352, 353, and 354 travel on or across the segment.	None	Yes	MassDOT Project #608068, will install an adaptive traffic control signal system on Cambridge Street, Middlessex Turnpike, and Burlington Mall Road. The project includes the installation of compatible traffic signal control equipment, video detection, communication devices and software to integrate 11 MassDOT and 16 Town-owned traffic signal locations into one adaptive signal system. The project is in construction.	3	1	3	4	2	1	14	High	On this segment, there are no accommodations for bicycles, gaps in sidewalk network, and travel lanes that are very wide (drivers form two lanes in each direction). Land use is mixed along the corridor. There are three MBTA bus routes operating in the corridor. Pedestrian and bicycle crashes have occurred in the corridor. The installation of an adaptive traffic control signal system is underway on Cambridge Street, Middlessex Turnpike, and Burlington Mall Road to integrate 11 MassDOT and 16 Town-owned traffic signal locations into one adaptive signal system.
Route 9	Framingham	MWRC	3	MassDOT	Yes	2	2	7	3.47	MWRTA Routes 1, 2, 3, 7, and 9	None	Yes	MassDOT Project #604991: Resurfacing and Related Work on Route 9, includes wheelchair ramp upgrades, additional sidewalks/repairs, and signal improvements; completed in autumn 2011. MassDOT Project #608006: Framingham--Pedestrian Hybrid Beacon Installation at Route 9 and Maynard Road and the Framingham Fire Station, in design. MassDOT Project #608281: Installation of adaptive traffic control signal equipment, vehicle detection, communication equipment, and managing software at 5 traffic signals (3 in Framingham and 2 in Natick) on Route 9, in construction. MassDOT Project #608836: Drainage improvements on Route 9 at Route 126 interchange and salt shed relocation (Phase 1).	3	2	2	4	2	1	14	High	This arterial segment was not selected because, according to MassDOT District 3, most of the intersections on this corridor have already been studied and there are several MassDOT projects under construction in the corridor.
Route 135	Framingham	MWRC	3	Framingham	Yes	3	1	4	1.63	MBTA commuter rail at Framingham. MWRTA Routes 4, 5, 6, and 11		Yes	MassDOT Project #606109: Intersection improvements at Route 126/135/MBTA and CSX railroad.	4	1	2	4	2	1	14	High	MassDOT Project #606109: Intersection improvements at Route 126/135/MBTA and CSX railroad. Roadway has received improvements to address congestion and make it multimodal (accommodation for pedestrians and bicycles).
Route 16	Medford	ICC	4	MassDOT	Yes	2, 3	1	5	3.04	MBTA bus Routes 90, 97, 99, 100, 106, 108, 110, 112, and 134 MBTA rapid transit on the Orange Line at Wellington and on the Red Line at Porter Square; MBTA commuter rail at West Medford and Porter Square	Yes	Yes	MassDOT Project #604660: Everett--Medford-Bridge Replacements, Revere Beach Parkway (Route 16), E-12-004=M-12-018 over the Malden River (Woods Memorial Bridge) and M-12-017 over MBTA and Rivers Edge Drive--The purpose of this project is to replace the existing non-operating draw bridge with a new fixed bridge. The project is under construction. MassDOT Project #605531: Structure maintenance, E-12-004=M-12-018, Revere Beach Parkway (Route 16) over the Malden River (Woods Memorial Draw Bridge), in construction.	3	2	3	4	0	2	14	High	In FFY 2019, MPO staff studied Route 16 in Chelsea and Everett and suggested improvements to address safety, congestion, multimodal transportation, pedestrian and bicycle accommodations. The section of Route 16 in Medford has five HSIP intersection clusters, including two pedestrian clusters. The roadway experiences congestion and high truck volumes. It is also carries vehicular, pedestrian, and bicycle traffic to Wellington Station. Studying this segment in Medford will provide MassDOT with improvement concepts to comprehensively address safety, capacity management and mobility, and pedestrian and bicycle accommodations in the corridor.
Route 16	Milford	SWAP	3	MassDOT and Milford	Yes	3	0	5	3.58	MWRTA Route 14		Yes	MassDOT Project #607428: Resurfacing and intersection improvements on Route 16 (Main Street), from Water Street west to approximately 120 feet west of the Milford/Hopedale town line and the intersection of Route 140; programmed FFY 2019. MassDOT Project #606142: Signal and intersection improvements on Route 16 (Main Street and East Main Street) at six locations; completed in 2013.	3	2	2	4	2	1	14	High	This corridor is not recommended for study. The corridor received improvements in 2013 based on a CTPS study and currently a MassDOT resurfacing and intersection improvement project has been programmed for FFY 2019.
Route 114	Salem	NSTF	4	MassDOT and Salem	Yes	2, 3	0	3	2.06	MBTA bus Routes 450, 451, 455, 456, 459, and 465 MBTA commuter rail at Salem and Beverly; Ferry service	Yes	Yes	MassDOT Project #608521: Bridge Maintenance, North Street (Route 114) over Bridge Street (Route 107) and MBTA, in construction. MassDOT Project #605332, Bridge Replacement (Route 114) North Street over North River; in preliminary design.	3	2	2	4	2	1	14	High	This roadway has Complete Streets improvements, including sidewalks and bicycle lanes on either side of the roadway. The section that requires improvements to improve safety, capacity management and mobility, and accommodate bicycles is between Bridge Street (Route 107) and Route 128.
Route 16	Wellesley	MWRC	6	MassDOT and Wellesley	Yes	3	0	5	2.57	MBTA commuter rail at Wellesley Square, Wellesley Hills, Wellesley Farms and Waltham	N/A	Yes	MassDOT Project #94762: Bridge Rehabilitation, Br# W-13-014 Route 16 (Washington Street) over Route 9 including relocation of retaining wall.	3	2	2	4	2	1	14	High	The location was suggested in 2014 LRTP outreach through verbal comments at a 495/MetroWest Partnership meeting.



**TABLE 1**  
**Arterial Segments Considered for Study: Priority Corridors for Long-Range Transportation Plan Needs Assessment Study**

Arterial Segment	Community	MAPC Subregion	MassDOT District	Jurisdiction	National Highway System	Functional Class*	Number of Top-200 High-Crash Locations 2014–16	Number of HSIP Eligible Crash Clusters 2014–16**	Travel Time Index	Transit Service	Crowded or Late Bus	In or Near Transportation Equity Priority Area	Study, Project, or TIP Project	Safety Conditions***	Congested Conditions***	Multimodal Significance***	Regional Significance***	Regional Equity***	Implementation Potential***	Score	Priority Rating	Summary of Comments
Route 20	Weston	MWRC	6	MassDOT	Yes	3	0	3	3.06	MBTA bus Route 70 MBTA commuter rail at Waltham and Kendal Green	Yes	Yes	Intersection improvements on Boston Post Road (Route 20) at Wellesley Street; preliminary design stage.	2	2	2	4	2	2	14	High	A congestion study was suggested through UPWP and LRTP outreach in 2012, 2013, and 2014 by MAGIC; a formal letter was submitted and verbal comments were made at an MWRC subregion meeting.  A suggestion to study this location was resubmitted in a comment on the Draft FFY 2014 UPWP and during the 2017 MPO outreach program.
Route 18	Weymouth	SSC	6	MassDOT	Yes	3	3	9	2.55	MBTA bus Route 225 MBTA commuter rail at South Weymouth	Yes	Yes	MassDOT Project #601630—Reconstruction and widening on Route 18 (Main Street) from Highland Place to Route 139 (4.0 miles) includes replacing W-32-013, Route 18 over the Old Colony Railroad (MBTA); in construction.	4	2	2	4	2	0	14	High	This arterial segment was not selected because a MassDOT project, currently in construction, would address problems in the entire segment and no study is needed at this time.
Routes 38/129	Wilmington	NSPC	4	MassDOT and Wilmington	Yes	3	0	4	3.31	MBTA commuter rail at Wilmington, North Wilmington, Anderson/Woburn, and Reading	N/A	Yes	MassDOT Project #608051, Reconstruct Route 38 from Route 62 to the Woburn city line, add bike lanes, sidewalks, and turn lanes, and upgrade signals; in design. MassDOT Project #609253, Intersection improvements at Lowell Street (Route 129) and Woburn Street; in design. MassDOT Project #601732, Rehabilitation, Route 129 (Lowell Street) from Route 38 (Main Street) to Woburn Street; completed in 2009.	3	2	2	4	2	1	14	High	Several sections of the arterial have projects that are currently in design. These MassDOT projects would address problems in the corridor.
Route 2A/3	Arlington	ICC	4	Arlington	Yes	3	0	2	2.39	MBTA bus Routes 67, 77, 79, 80, 87, and 350 travel on or across the segment.	Yes	Yes	None	3	2	3	4	0	1	13	High	None
Route 203	Boston	ICC	6	MassDOT	Yes	3	5	9	2.94	MBTA bus Routes 14, 26, 201, 202, 215, and 217 travel on or across the segment.		Yes	MassDOT Project #606318, Intersection improvements at Gallivan Boulevard (Route 203) and Morton Street; in construction.  MassDOT Project #608755, Intersection improvements Morton Street (Route 203) at Blue Hill Ave, at Courtland Road/Havelock Street, and at Havard Street; programmed in the FFY 2019 TIP, in design.  MassDOT Project #606896, Reconstruction on (Route 203) Gallivan Boulevard, from Neponset Circle to east of Morton Street intersection; in preliminary design.  MassDOT Project #606897, Improvements on (Route 203) Morton Street, from west of Gallivan Boulevard to Shea Circle; in preliminary design.	4	2	2	4	0	1	13	High	The FFY 2012 Priority Corridors for LRTP Needs Assessment Study and several MassDOT projects in the corridor will address issues.
Route 37	Braintree	SSC	6	MassDOT	Yes	2	0	2	2.73	MBTA bus Routes 230 and 236 and travel on or across the segment.		Yes	MassDOT Project #608651, Adaptive traffic signal control on Route 37 (Granite Street). Installation of adaptive traffic control signal equipment, vehicle detection, communication equipment, and managing software at seven traffic signals on Route 37; in construction.  MassDOT Project #607684, Bridge replacement, B-21-017, Washington Street (Route 37) over MBTA/CSX railroad; preliminary design.	2	2	2	4	2	1	13	High	The arterial segment has a 5- to 6-foot shoulder on either side of the roadway for most of the corridor. There are sidewalks on either side of the roadway throughout the corridor. In addition, MassDOT is installing adaptive traffic control signal equipment, vehicle detection, communication equipment, and managing software at seven traffic signals on Route 37, a project that is under construction.
Route 2A	Cambridge	ICC	6	Cambridge and DCR	Yes	3	1	14	2.05	MBTA bus Routes 67, 77, 79, 80, 87, and 350 travel on or across the segment.		Yes	None	4	2	2	4	0	1	13	High	None
Route 2	Concord	MAGIC	4	MassDOT	Yes	2	0	1	5.93	MBTA commuter rail at West Concord, Concord, and Lincoln	N/A	Yes	MassDOT Project #602984, Crosby's Corner (Route 2 at Route 2A) Improvements; in construction. MassDOT Project #608015, Reconstruction and widening on Route 2, from Sandy Pond Road to Bridge over MBTA/B&M railroad. MassDOT Project #602091, Concord Rotary; in preliminary design. MassDOT Project #604069, Bridge Replacement over Sudbury River; in preliminary design. MassDOT Project #606223: Bruce Freeman Rail Trail Construction (Phase II-B) in Acton and Concord, will connect the trail across Route 2; programmed in the FFY 2019 TIP, in design.	2	2	2	4	2	1	13	High	FFY 2013 Priority Corridors for LRTP Needs Assessment Study (Concord and Lincoln)  Route 2 was suggested during MPO outreach as a route experiencing congestion that affects MAGIC communities as well as Cambridge.  There are many projects and studies conducted for this corridor, including the Route 2 (Crosby's Corner) improvements and Concord Rotary upgrade and improvements.
Route 16	Holliston	MWRC	3	MassDOT and Holliston	Yes	3	0	2	1.76	MWRTA Routes 6 and 14	None	Yes	2011 CTPS study, Route 126 Corridor: Transportation Improvement Study. 2008 CTPS study, Washington Street (Route 16/126) at Hollis Street.	2	1	2	4	2	2	13	High	This location has MassDOT projects and CTPS studies, which have not been implemented.  The 495/MetroWest Partnership expressed interest in a Route 16 study.  The section that experiences the most crashes is the town center portion (under Holliston jurisdiction). A road safety audit was performed for the town center portion in December 2012.

**TABLE 1**  
**Arterial Segments Considered for Study: Priority Corridors for Long-Range Transportation Plan Needs Assessment Study**

Arterial Segment	Community	MAPC Subregion	MassDOT District	Jurisdiction	National Highway System	Functional Class*	Number of Top-200 High-Crash Locations 2014–16	Number of HSIP Eligible Crash Clusters 2014–16**	Travel Time Index	Transit Service	Crowded or Late Bus	In or Near Transportation Equity Priority Area	Study, Project, or TIP Project	Safety Conditions***	Congested Conditions***	Multimodal Significance***	Regional Significance***	Regional Equity***	Implementation Potential***	Score	Priority Rating	Summary of Comments
Route 107	Lynn	ICC	4	MassDOT and Lynn	Yes	3	4	13	1.87	MBTA bus Routes 424, 426, 435, 436, 441, 442, 450, 455, 456, 459, 429, and 435 MBTA commuter rail at River Works, Lynn/Central Square, and Swampscott Ferry service	Yes	Yes	MassDOT Project #808817: Resurfacing of Route 107 and related improvements; programmed FFY 2022. MassDOT Project #608927, Reconstruction of Route 107 in Lynn and Salem; in preliminary design. MassDOT project #609246, Rehabilitation of Western Avenue (Route 107); in preliminary design. MassDOT Project #604952, Bridge Replacement, Route 107 over the Saugus River; programmed 2019. MassDOT Project #26710, Bridge Replacement, Route 107 over the Saugus River (Fox Hill Bridge); completed spring 2013.	4	1	3	4	0	1	13	High	This arterial segment was not selected for study because a Route 107 Corridor Study in Lynn and Salem has been completed by MassDOT recently and the proposed improvements would be addressed under project #608927, which is in design.
Route 114	Peabody	NSTF	4	MassDOT and Peabody	Yes	3	0	2	3.60	MBTA bus Routes 435, 465	Yes	Yes	MassDOT Project # 608567, Improvements at Route 114 at Sylvan Street, Cross Street, Northshore Mall, Loris Road, Route 128 Interchange, and Esquire Drive; programmed FFY 2022.	3	2	2	3	2	1	13	High	Route 114 in Peabody was listed as a potential corridor in need of signal progression and improvements to accommodate pedestrians and bicyclists. However, the arterial segment was not selected because, according to MassDOT Highway District 4, a road safety audit was completed for the segment in August 2016 and a consultant has started design work as part of project #608567, which is programed for FFY 2022.
Route 3A	Quincy	ICC	6	MassDOT, DCR, and Quincy	Yes	3	1	10	2.76	MBTA bus Routes 201, 202, 210, 211, 212, 214, 216, 225, and 217 MBTA Red Line rapid transit at Quincy Center MBTA commuter rail at Quincy Center	Yes	Yes	MassDOT Project #608569, Intersection improvements at Route 3A (Southern Artery) and Broad Street; programmed FFY 2022 TIP. MassDOT Project #605729, Intersection and signal improvements at Hancock Street and East/West Squantum streets; completed in 2015. An FFY 2012 CTPS safety and operations study addressed problems at the Route 3A and Coddington Street intersection.	4	2	2	4	0	1	13	High	Route 3A (Hancock Street and Southern Artery) has received several improvement projects and was the focus of a CTPS study. The location was suggested in the 2017 MPO outreach program.
Route 1A	Salem	NSTF	4	MassDOT and Salem	Yes	2	0	9	1.59	16 MBTA bus stops MBTA bus Routes 455 and 459 MBTA commuter rail at Salem Ferry service	Yes	Yes	MassDOT Project #605146: Reconstruction of Canal Street from Washington Street and Mill Street to Loring Avenue (Route 1A) and Jefferson Street; completed in 2018. MassDOT Project #601017: Reconstruction of Route 1A (Bridge Street) from the Beverly/Salem Bridge to Washington Street (6,000 feet); completed in 2013.	3	1	2	4	2	1	13	High	This arterial segment was not selected because the southern end of this arterial segment is included in the study of Route 1A at Vinnin Square in Marblehead and in Swampscott; this location was selected as the subject of the FFY 2016 Priority Corridors Study. The intersection of Route 1A and Jefferson Street and Canal Street was reconstructed in 2018.
Route 16	Sherborn	SWAP	3	Sherborn	Yes	3	0	2	3.20	None	N/A	Yes	None	2	2	1	4	2	2	13	High	This location was suggested during 2014 LRTP outreach at a 495/MetroWest Partnership meeting.  The section that experiences the most crashes and congestion is in the town center, where Route 16 and Route 27 combine and split.
Route 3A	Weymouth	SSC	6	MassDOT	Yes	3	0	1	1.74	30 MBTA bus stops MBTA bus Routes 220, 221, and 222 MBTA commuter rail at Quincy Center, Weymouth Landing/East Braintree, and West Hingham Ferry service	Yes	Yes	MassDOT Project #608231, Reconstruction of Route 3A including pedestrian and traffic signal improvements; in design. MassDOT Project #604382, Route 3A (Washington Street) Bridge; in construction. MassDOT Project #608483, Work consists of resurfacing on Route 3A; in preliminary design.	2	2	2	4	2	1	13	High	A road safety audit was completed for Route 3A in Weymouth in September 2016. The audit identified the problems and needs on the roadway, and suggested short-, medium-, and long-term improvements. MassDOT Project #608321, in design, will address problems and needs identified in the corridor.
Route 60	Arlington	ICC	4	Arlington	Yes	3	0	1	3.92	MBTA bus Routes 67, 77, 79, 80, 87, and 350 travel on or across the segment	Yes	Yes	CTPS and MAPC Community Transportation Technical Assistance Program evaluated the high-crash location at the intersection at Massachusetts Avenue in March 2010.  MassDOT Project #606885 reconstructed the intersection of Route 3 and Route 60; the project was completed in 2017.	3	2	3	3	0	1	12	Medium	None
Route 2/3/3A/16	Cambridge	ICC	6	DCR	Yes	2	3	5	4.80	MBTA bus Routes 75, 71, 72, 73, 74, and 78 MBTA Red Line rapid transit MBTA commuter rail at Porter Square	Yes	Yes	DCR announced that the agency will conduct a traffic study of several intersections along Mount Auburn Street and Fresh Pond Parkway, in partnership with the City of Cambridge and the MBTA. The study will focus on safety measures, bus prioritization, and accessibility.  MassDOT Project #608806, Multi-use Path Construction (Phase II), will create a multi-use greenway on the former B&M railroad right-of-way extending from Concord Avenue in Cambridge through the Fresh Pond Reservation, under Huron Avenue and Mount Auburn Street and into Watertown; this project is in construction. MassDOT Project #609290, Intersection improvements at Fresh Pond Parkway/Gerrys Landing Road, from Brattle Road to Memorial Drive.	3	2	2	4	0	1	12	Medium	The Fresh Pond Residents Alliance identified Fresh Pond Parkway and Alewife Brook Parkway as locations in need of transportation improvements. Concerns include pedestrian safety, particularly for young students who walk to Shady Hill School, because of high traffic volumes, environmental issues, and lack of livability.
Route 16	Chelsea and Everett	ICC	4	MassDOT	Yes	2	6	7	1.99	MBTA bus Routes 97, 99, 106, 110, 112, 104, 105, and 109 MBTA Orange Line rapid transit at Wellington and MBTA commuter rail at Chelsea	Yes	Yes	FFY 2019 Priority Corridor for LRTP Needs Assessment Study (Chelsea and Everett)	3	1	3	4	0	1	12	Medium	FFY 2019 Priority Corridors for LRTP Needs Assessment Study (Concord and Lincoln)

**TABLE 1**  
**Arterial Segments Considered for Study: Priority Corridors for Long-Range Transportation Plan Needs Assessment Study**

Arterial Segment	Community	MAPC Subregion	MassDOT District	Jurisdiction	National Highway System	Functional Class*	Number of Top-200 High-Crash Locations 2014-16	Number of HSIP-Eligible Crash Clusters 2014-16**	Travel Time Index	Transit Service	Crowded or Late Bus	In or Near Transportation Equity Priority Area	Study, Project, or TIP Project	Safety Conditions***	Congested Conditions***	Multimodal Significance***	Regional Significance***	Regional Equity***	Implementation Potential***	Score	Priority Rating	Summary of Comments
Route 99	Everett	ICC	4	Everett	Yes	3	0	1	2.23	MBTA bus Routes 97, 99, 104, 105, 106, 109, 110, and 112 travel on or across the segment	Yes	Yes	MassDOT Project #602383 reconstructed Route 99 with a traffic signal upgrade, from Second Street to the Malden city line; completed in 2008. MassDOT Project #602382 reconstructed Route 99 from Sweetser Circle to the Alford Street Bridge in 2013; completed spring 2013.	2	2	3	4	0	1	12	Medium	This roadway is not recommended for study because MassDOT completely reconstructed Route 99 with signal improvements from Alford Street Bridge to the Malden city line. Route 99 (Lower Broadway) has also received improvements, including pedestrian and bicycle accommodation, as a result of the Encore Boston Harbor mitigation improvements.
Route 3A	Hingham	SSC	5	MassDOT	Yes	3	0	1	1.69	MBTA commuter rail at Cohasset, Nantasket Junction, West Hingham, and East Weymouth Ferry service MBTA bus Routes 220 and 221	N/A	Yes	MassDOT Project #605168, Improvements on Route 3A from Otis Street/Cole Road including Summer Street and rotary; Rockland Street to George Washington Boulevard; in preliminary design. MassDOT Project #603137, Intersection Improvements on Route 3A at Kirby Street. There has been local interest in installing a traffic signal at this intersection; in preliminary design.	2	1	2	4	2	1	12	Medium	In FFY 2015, a subregional priority roadway study was conducted for Route 3A in Hingham and Hull. The location received strong support from the Towns of Hingham and Hull, as well as the South Shore Coalition and the MassDOT Highway Division District 5 Office.
Route 1	Norwood	TRIC	5	MassDOT	Yes	3	0	3	3.85	MBTA commuter rail at Islington, Dedham Corp. Center, Endicott, Norwood Depot, Norwood Central, Windsor Gardens, and Plimptonville	N/A	Yes	MassDOT's I-95 South Corridor Study, provided a comprehensive evaluation of the I-95 and Route 1 corridors south of Route 128 that included a recommended plan of short-term and long-term improvements; June 2010. MassDOT Project #609371, Median jersey barrier and fencing upgrade; programmed FFY 2019. MassDOT Project #608052, Route 1 at Morse Street (approved by PRC November 2014); programmed FFY 2023. MassDOT Project #605857, Route 1 at University Avenue and Everett Street; programmed FFY 2022. MassDOT Project #605321, Bridge Preservation, Route 1 over the Neponset River; in design stage. MassDOT Project #606545, Median jersey barrier and fencing upgrade; completed in 2012.	2	2	3	4	0	1	12	Medium	The location has MassDOT projects and studies and it is not recommended for study.
Route 28	Randolph	TRIC	6	MassDOT and Randolph	Yes	3	3	6	2.00	MBTA bus Routes 240 and 238 MBTA commuter rail at Holbrook/Randolph BAT Route 12	Yes	Yes	MassDOT Project #609399, Resurfacing and related work on Route 28; in preliminary design. Arterial Coordination Study, CTPS study (2010).	3	2	2	4	0	1	12	Medium	The location has received several MassDOT projects and CTPS studies and it is not recommended for study.
Route 16 (Revere Beach Parkway)	Revere	ICC	4	MassDOT	Yes	2	0	1	2.93	MBTA bus Routes 110, 116, and 117 travel on or across the segment MBTA rapid transit on Blue Line MBTA commuter rail at Chelsea	Yes	Yes	None	2	2	3	4	0	1	12	Medium	This location is not recommended for study because the Suffolk Downs Redevelopment project is evaluating several scenarios that would affect traffic on Route 16 and Route 1A.
Route 20	Waltham	ICC	6	MassDOT and Waltham	Yes	3	0	9	2.45	MBTA bus Routes 70, 170, 505, and 506 travel on or across the segment.	Yes	Yes	City of Waltham Transportation Master Plan, January 2017.	3	2	2	4	0	1	12	Medium	This location is not recommended for study because this location had been studied and improvements proposed in the Waltham Transportation Master Plan.
Route 9	Wellesley	MWRC	6	MassDOT	Yes	2	0	2	1.77	MBTA commuter rail at Wellesley Hills and Wellesley Farms MWRTA bus Route 1	None	Yes	MassDOT Project #608180: Resurfacing on Route 9, from limit of add-a-lane to east of Overbrook intersection; in construction. MassDOT Project #606530: Drainage improvements along Route 9 Boulder Brook Culvert (design only); in design. MassDOT Project #607340: Resurfacing and related work on Route 9 from Dearborn Street to Natick town line; in preliminary design. MassDOT Project #609402: Resurfacing and related work on Route 9; in preliminary design. MassDOT Project #94762, Bridge Rehabilitation, Route 16 (Washington Street) over Route 9, including relocation of retaining wall; completed summer 2010. MAPC Land Use/Corridor Study (fall 2013).	2	1	2	4	2	1	12	Medium	MassDOT has completed a preliminary assessment of this corridor that will develop into 25 percent design plans for roadway improvements.
Route 117	Bolton	MAGIC	3	Bolton			0	0	1.70	None		Yes	None	2	1	2	3	2	1	11	Medium	None
Route 62	Concord	MAGIC	4	Concord	Yes	3	0	1	2.65	MBTA commuter rail at Concord and West Concord	N/A	Yes	MassDOT Project #604646 Reconstruction of Main Street (Route 62) from Water Street to the Acton town line; completed 2010.	2	2	2	2	2	1	11	Medium	None
Route 60	Medford	ICC	4	Medford	No	3	0	3	3.00	MBTA bus Routes 95, 101, 194, 134, 326, and 710 MBTA commuter rail at West Medford and Porter Square		Yes	None	3	2	3	2	0	1	11	Medium	None



**TABLE 1**  
**Arterial Segments Considered for Study: Priority Corridors for Long-Range Transportation Plan Needs Assessment Study**

Arterial Segment	Community	MAPC Subregion	MassDOT District	Jurisdiction	National Highway System	Functional Class*	Number of Top-200 High-Crash Locations 2014-16	Number of HSIP-Eligible Crash Clusters 2014-16**	Travel Time Index	Transit Service	Crowded or Late Bus	In or Near Transportation Equity Priority Area	Study, Project, or TIP Project	Safety Conditions***	Congested Conditions***	Multimodal Significance***	Regional Significance***	Regional Equity***	Implementation Potential***	Score	Priority Rating	Summary of Comments
Route 138	Milton	ICC and TRIC	6	MassDOT	Yes	2	0	2	2.41	MBTA bus Routes 245 and 716 MBTA commuter rail at Route 128 Station  MBTA Red Line rapid transit at Mattapan Station	Yes	Yes	MassDOT Project #608484, Roadway Improvements on Route 138, is planned to be funded through the Boston Region Metropolitan Planning Organization's FFY 2020 Transportation Improvement Program; the project will also incorporate work planned originally for Project #607763 (described below); programmed FFY 2020.  FFY 2018 LRTP Priority Corridor Study	2	2	2	4	0	1	11	Medium	FFY 2018 Priority Corridors for LRTP Needs Assessment Study (Canton). MassDOT Project #608484, Roadway Improvements on Route 138, programmed for FFY 2020, will address problems and needs in the corridor.
Route 135	Natick	MWRC	3	MassDOT and Natick	Yes	3	0	3	1.97	MWRTA bus Routes 10 and 11  MBTA commuter rail at Natick and West Natick	None	Yes	MassDOT Project #600573 reconstructed Route 135 in Natick in 2008. More extensive improvements were proposed in the downtown area, on East Central Street between North Main Street and Union Street, including signal upgrades, new sidewalks, pavement rehabilitation, and shoulders; Contract #32302 was completed; all construction operations were suspended (as of June 30, 2007).  2010 CTPS study, West Central Street (Route 135) at Speen Street.	3	1	2	2	2	1	11	Medium	There is congestion in the downtown area. The likely focus area would be on the intersection of Route 135 at Route 27 and the intersection of Route 135 at Speen Street because of the crash history of those locations.
Route 9	Newton	ICC	6	MassDOT	Yes	2	0	3	4.98	MWRTA Route 1  MBTA bus Routes 60, 51, 52, and 59 travel on or across the segment  MBTA Green Line	Yes	Yes	MassDOT Project #608821, Resurfacing and related work on Route 9; in preliminary design. MassDOT Project #604327, Resurfacing and Related Work on Route 9 (Boylston Street) from the Wellesley/Newton city line to Newton/Brookline city line; completed in summer 2012. MassDOT Project #606635, Reconstruction of Highland Avenue, Needham Street, and Charles River Bridge, from Webster Street to Route 9; programmed FFY 2019.	2	2	2	4	0	1	11	Medium	According to MassDOT District 6, improvements were recently made to accommodate new developments. An analysis of the new existing conditions would be helpful to compare with the future projected conditions.
Route 129	Reading	NSPC	4	MassDOT and Reading	Yes	3	0	0	1.82	MBTA bus Route 136  MBTA commuter rail at Wakefield, Reading, and Woburn	Yes	Yes	No projects	3	1	2	2	2	1	11	Medium	None
Route 1	Walpole	TRIC	5	MassDOT	Yes	3	0	2	1.53	MBTA commuter rail at Sharon and Walpole	N/A	Yes	MassDOT's I-95 South Corridor Study presented a comprehensive evaluation of the I-95 and Route 1 corridors south of Route 128 and included a recommended plan of short-term and long-term improvements; June 2010. MassDOT Project #608480, Resurfacing and related work on Route 1; programmed FFY 2020. MassDOT Project #608599, Stormwater Improvements to treat discharges from Route 1, I-95, and Route 1A to the Neponset River and an Unnamed Tributary; programmed FFY 2022.	2	1	3	4	0	1	11	Medium	The location has MassDOT projects and studies and was not recommended for study by MassDOT Highway District 5.
Route 1	Westwood	TRIC	6	MassDOT	Yes	3	0	0	3.49	MBTA commuter rail at Islington	N/A	Yes	MassDOT's I-95 South Corridor Study provided a comprehensive evaluation of the I-95 and Route 1 corridors south of Route 128 and included a recommended plan of short-term and long-term improvements; June 2010.  MassDOT Project #603162, Route 128 Add-a-Lane Bridges (Bridge III), Route 1 and 1A over I-95/128; completed in 2012.	2	2	2	4	0	1	11	Medium	This segment is the subject of MassDOT projects and studies.

**Notes:**

**\*Functional Class**

2 = principal arterial. 3 = principal arterial other (rural minor arterial or urban principal arterial). 5 = minor arterial (urban minor arterial or rural major collector).

**\*\*Number of HSIP-eligible crash clusters**

HSIP-eligible crash clusters are defined by MassDOT as crash clusters that rank within the top five percent of crash clusters for each regional planning agency, based on the Equivalent Property Damage Only (EDPO) index. In the EDPO index, property damage only crashes are awarded one point each, crashes involving injuries are given five points each, and fatal crashes are given 10 points each. In the Boston region, the 896 intersections in the top five percent have crash clusters with a minimum EDPO value of 42.

**\*\*\*Selection Criteria**

Safety Conditions: Segment has a high crash rate for its functional class, contains an HSIP-eligible crash location, a top-200 high-crash location, and/or a significant number or HSIP-eligible clusters of pedestrian or bicycle crashes.

Congested Conditions: Segment has a Travel Time Index of at least 1.3 and/or of at least 2.0, that is, which signify that it experiences delays during peak periods.

Multimodal Significance: Segment supports transit or bicycle or pedestrian activities, has a need to improve these activities, and/or has a high volume of truck traffic serving regional commerce.

Regional Significance: Segment is in the National Highway System, carries a significant proportion of regional traffic, lies within 0.5 miles of environmental justice transportation analysis zones, and/or is essential for regional economic, cultural, or recreational development in the area.

Regional Equity: Location is in a subregion that has not had a priority corridor study before, or location is in a subregion that has not had a priority corridor study in the in last three years.

Implementation Potential: Improvements to the segment are proposed or endorsed by the roadway administrative agency (agencies), proposed or endorsed by the subregion and are a priority for the subregion, and/or have strong support from other stakeholders.

**Acronyms**

ADA = Americans with Disabilities Act. BAT = Brockton Area Transit Authority. CTPS = Central Transportation Planning Staff. DCR = Department of Conservation and Recreation. DEIR = Draft Environmental Impact Report. EJ = environmental justice. FFY = federal fiscal year. GATRA = Greater Attleboro Taunton Regional Transit Authority. HSIP = Highway Safety Improvement Program. ICC = Inner Core Committee. LRTP = Long-Range Transportation Plan. MAGIC = Minuteman Advisory Group on Interlocal Coordination. MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. MBTA = Massachusetts Bay Transportation Authority. MPO = Boston Region Metropolitan Planning Organization. MWRC = MetroWest Regional Collaborative. MWRTA = MetroWest Regional Transit Authority. NSPC = North Suburban Planning Council. NSTF = North Shore Task Force. PRC = MassDOT Project Review Committee. SSC = South Shore Coalition. SWAP = South West Advisory Planning Committee. TIP = Transportation Improvement Program. TRIC = Three Rivers Interlocal Council. UPWP = Unified Planning Work Program. VHB = Vanasse, Hangen, Brustlin Inc.

**Source: Central Transportation Planning Staff.**



## **Part 3: Support Letters**

## Seth Asante

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**From:** John Thompson  
**Sent:** Friday, October 11, 2019 10:54 AM  
**To:** Vatan, Geraldine T. (DOT); Seth Asante; Dwyer, Courtney (DOT)  
**Cc:** Mark Abbott; Michael D. Dennehy; Chase Berkeley  
**Subject:** RE: Milton - Route 28 - Corridor Study

Good Morning Seth,

The Town of Milton still very much supports a corridor study for Route 28 as well. As you know, the Town sees a huge influx of cut through traffic in the peak hours along this corridor and safety and efficiency are of the utmost importance to the Town and residents.

Thank-you for the consideration.

Regards,

John P. Thompson, P.E.  
Town Engineer

Town of Milton – Engineering Dept.  
525 Canton Avenue  
Milton, MA 02186

(617) 898-4869

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**From:** Vatan, Geraldine T. (DOT) <geraldine.vatan@state.ma.us>  
**Sent:** Friday, October 11, 2019 10:00 AM  
**To:** Seth Asante <sasante@ctps.org>; Dwyer, Courtney (DOT) <courtney.dwyer@state.ma.us>  
**Cc:** Mark Abbott <mabbott@ctps.org>; John Thompson <jthompson@townofmilton.org>  
**Subject:** RE: Milton - Route 28 - Corridor Study

Hello Seth,  
Yes, thank you for your consideration, D6 is still in support of a Route 28 corridor study in Milton.  
Geri

### Geraldine Vatan - District 6 Project Development Engineer

MassDOT Highway Division  
185 Kneeland Street, Boston MA 02111  
Office (857) 368-6115 Cell (508) 330-1078 [geraldine.vatan@state.ma.us](mailto:geraldine.vatan@state.ma.us)

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**From:** Seth Asante <[sasante@ctps.org](mailto:sasante@ctps.org)>  
**Sent:** Thursday, October 10, 2019 3:02 PM  
**To:** Vatan, Geraldine T. (DOT) <[Geraldine.Vatan@dot.state.ma.us](mailto:Geraldine.Vatan@dot.state.ma.us)>; Worhunsky, Courtney (DOT) <[Courtney.Dwyer@dot.state.ma.us](mailto:Courtney.Dwyer@dot.state.ma.us)>  
**Cc:** Mark Abbott <[mabbott@ctps.org](mailto:mabbott@ctps.org)>  
**Subject:** RE: Milton - Route 28 - Corridor Study

Good afternoon Geri and Courtney,

I am reviewing the arterial segments that were identified in the needs assessment of the MPO's Long-Range Transportation Plan to select a priority corridor for study this year.

Last April, you requested for a Route 28 corridor study in Milton with the support of the Town and Representative William Driscoll. This corridor ranks high on our list and so I wanted to confer with you if District 6 and Milton are still interested in pursuing the Route 28 study.

Please let me know as soon as possible.

Thank you,  
Seth

**Seth A. Asante, P.E.** | Chief Transportation Planner  
CENTRAL TRANSPORTATION PLANNING STAFF  
857.702.3644 | [sasante@ctps.org](mailto:sasante@ctps.org)  
[www.ctps.org/bostonmpo](http://www.ctps.org/bostonmpo)

Ten Park Plaza, Suite 2150 | Boston, MA 02116-3968  
Main 857.702.3700 | Fax 617.570.9192 | TTY 617.570.9193



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**From:** Dwyer, Courtney (DOT) <[courtney.dwyer@state.ma.us](mailto:courtney.dwyer@state.ma.us)>  
**Sent:** Monday, April 1, 2019 2:50 PM  
**To:** Mark Abbott <[mabbott@ctps.org](mailto:mabbott@ctps.org)>; [sasante@ctps.org](mailto:sasante@ctps.org)  
**Cc:** Vatan, Geraldine T. (DOT) <[geraldine.vatan@state.ma.us](mailto:geraldine.vatan@state.ma.us)>  
**Subject:** Milton - Route 28 - Corridor Study

Good Afternoon Mark & Seth,

The Town of Milton has requested for a corridor study to be conducted on Route 28. State Representative William Driscoll has been supportive of this request and has asked for an update regarding next steps and what, if anything, is required from Milton to get this study programmed. We have committed that the District will get back to the Town and Rep. Driscoll, after we hear back from you.

In March 2019, there was a Project (#609396) initiated for Resurfacing and Related Work on Route 28. The project is scheduled for advertisement in April 2024.

Please let us know if there is anything else you need from the District or Milton to help process this request.

Thank you,  
Courtney

**Courtney (Dwyer) Worhunsky, P.E.**  
District 6 Projects Engineer  
MassDOT – Highway Division | 185 Kneeland Street, 9th Floor Boston, MA 02111  
office (857)368-6165 | [courtney.dwyer@state.ma.us](mailto:courtney.dwyer@state.ma.us)

*Please be advised that the Massachusetts Secretary of State considers e-mail to be a public record, and therefore subject to the Massachusetts Public Records Law, M.G.L. c. 66 § 10.*

## Part 4: Public Participation



## **Route 28 Priority Corridor Study in Milton**

Kickoff Meeting

Blute Conference Room

Milton Town Hall,

January 21, 2020, 10:00 AM — 11:00 AM

### **ATTENDANCE**

John Thompson	Town of Milton
William Clark	Town of Milton
Chase Berkeley	Town of Milton
Michael Dennehy	Town of Milton
Mark Alba	Town of Milton
Chris Trudel	Town of Milton
Makaela Niles	MassDOT—Planning
Raj Kulen	MassDOT—District 6
Courtney Worhunsky	MassDOT—District 6
Bryan Sutherland	MassDOT—District 6
Hameed Pervez	MassDOT—District 6
Jeff Maxtutis	BETA Group
Mark Abbott	Boston Region MPO
Seth Asante	Boston Region MPO

### **MEETING SUMMARY**

#### **Summary of Study Tasks**

- Collect Data for Analysis—intersection geometry, signal timings, turning movement counts (TMCs), automatic traffic recorder (ATR) counts, spot speed data, crash data, community survey data—by January 2020
- Analyze Existing Conditions/Identify Problems—by March 2020
- Develop Conceptual Improvements—by June 2020
- Prepare Study Document for Review—by July 2020
- Final Report—by September 2020

## ISSUES AND CONCERNS RAISED

### Data Collection

- Additional counts are needed at the John Kelly Field/Playground between St Mary's Road and Lincoln Street to capture recreational trips.

Additional counts would be scheduled in May from 2:00 pm to 6:00 pm when schools are in session and weather conditions are warmer for outdoor recreational activities.

- The traffic count periods will miss afternoon school closing trips at the Pierce Middle School and St Mary of the Hills School.

Additional traffic counts will be scheduled from 2:00 pm to 6:00 pm for the intersections of Route 28 at Central Avenue, Lincoln Street, and the driveway of St Mary of the Hills School. The school and playground counts would be combined.

- Include the intersection of Route 28 and Pleasant Street in the turning movement counts.
- Modify the speed survey locations on Route 28 between Chickatawbut Road and Hillside Street to capture high speeds of vehicles on the sag curve in the segment.
- MassDOT expressed interest in the traffic counts for the Chickatawbut Road intersection, especially accounting for the long traffic queues at the intersection during peak travel periods.

### Traffic Safety Issues

- There have been fatal crashes on the Route 28 segment between Chickatawbut Road and Hallen Avenue.

MPO staff will analyze crash data for the segment and present the results to the study's task force.

- Check for the posted speed limits on Route 28 (Brook Road and Reedsdale Road) where the land uses are mixed—residential intermixed with schools, park and playground, hospital, and a public library.
- High speeds of vehicles is a safety concern for residents in the corridor, especially on Route 28 between Chickatawbut Road and Reedsdale Road.
- Sidewalks on Route 28 (Randolph Avenue segment) are too close to the travel lanes and there are no grass buffers to provide comfort and safety for pedestrians.

- Consider reducing speed limits on Route 28 (Randolph Avenue segment) to improve safety for motorists, pedestrians, and bicycles.
- Consider consolidating the two crosswalks at St Mary's of the Hills School

### **Complete Streets Issues**

- Consider a Road Diet for the segment of Brook Road between Central Avenue and Blue Hill Parkway. Milton's Complete Streets Prioritization Plan includes a road diet option for the segment to accommodate pedestrians and bicycles safely.
- Consider a Lane Diet for the segment of Brook Road between Central Avenue and Blue Hill Parkway. Milton's Complete Streets Prioritization Plan includes a lane diet option for the segment to accommodate pedestrians and bicycles safely.

### **Corridor Analysis and Improvements**

- Evaluation of the Route 28 and Chickatawbut Road intersection would be excluded from this study to avoid duplication, but the recommendations will be included in the study report to make the corridor study complete.

- The task force agreed to conduct a community survey for the study.

MPO staff would design the survey questionnaire and submit it to MassDOT and Milton for comments.

- Analysis of future traffic conditions as part of the study was raised. MPO staff would use the regional model to project 2040 traffic for evaluation of future conditions.

- MPO staff were asked to consider northbound double left-turn lanes at Reedsdale Road and Randolph Avenue intersection.

- Milton would be installing a HAWK signal on Route 28 (Reedsdale Road) at the driveway to Beth Israel Deaconess Hospital to address high pedestrian crossings, ADA issues, and bus transit issues.

Town Engineer will provide MPO staff with details to incorporate into the study

- Consider extending the two southbound lanes on Route 28 south of the Chickatawbut intersection to reduce the impact of a traffic queue backing up into the intersection.

This improvement should be considered in the ongoing design work for the Chickatawbut intersection to avoid duplication.

- Study should show benefits of coordinating traffic signals.

### **Follow-Up Task**

- Milton will provide details of the proposed HAWK signal and improvements at the intersection of Reedsdale Avenue and driveway to Beth Israel Deaconess Hospital to MPO staff.
- Milton will provide Complete Street Prioritization projects on Route 28 (Brook Road and Reedsdale Road) to MPO staff to incorporate into the study.
- MPO staff will update turning movement counts to incorporate school closing and recreational trips nearby Pierce Middle School and John Kelly Field/Playground.
- MPO staff will design the survey questionnaire and submit it to study advisory task force for comments.

Any further feedback is welcome throughout the course of the study.



## **Route 28 Priority Corridor Study in Milton**

Zoom Virtual Meeting #2

January 27, 2021

### **ATTENDANCE**

Senator Walter Timilty	Massachusetts Senate
Hannah Buntich	Massachusetts Senate
Representative William Driscoll	Massachusetts House
Representative Brandy Fluker Oakley	Massachusetts House
Chris Westfall	Massachusetts House
Melinda Collins	Town of Milton
Chase Berkeley	Town of Milton
Michael Dennehy	Town of Milton
Mark Alba	Town of Milton
Makaela Niles	MassDOT—Planning
Benjamin Muller	MassDOT—Planning
Raj Kulen	MassDOT—District 6
Erin Kinahan	MassDOT—District 6
Bryan Sutherland	MassDOT—District 6
Hameed Pervez	MassDOT—District 6
Sylvia Costa	MassDOT—District 6
Mark Abbott	Boston Region MPO
Seth Asante	Boston Region MPO

### **MEETING SUMMARY**

#### **Improvement Concepts**

The meeting began with introductions. Seth Asante, MPO staff, presented the improvement concepts for the corridor. The corridor was divided into three segments: Brook Road, Reedsdale Road, and Randolph Avenue. Each of the Brook Road and Reedsdale Road segments had three improvement concepts and one improvement concept for the Randolph Avenue segment. Participants and

stakeholders provided feedback after the presentation. The presentation was sent to participants, who were given two weeks to provide any further comments.

### **Feedback on the Improvement Concepts**

- **Representative Brandy Fluker Oakley: What is the community outreach of the study?** At the planning stage, the outreach involves MassDOT, Town of Milton, and State Legislators. MPO staff also conducted a community survey to solicit input from Milton residents. After the planning study, if MassDOT or Town of Milton advance any of the concepts into projects, there would be public hearings at various stages of the project. It will be similar to what was done for the Route 138 project in Canton and Milton.
- **Representative Brandy Fluker Oakley: What is the status of the Route 138 project? I have other questions and will send them to you by email.** MassDOT has advanced the concepts from that study into a project. A public hearing was held on October 22, 2019 in Milton for the project.
- **Melinda Collins, Milton Select Board: How does the study relates to the project at Chickatawbut Road intersection? Going forward, the question residents will have is how the two solutions be married together?** Typically what we do, when we are doing our studies and we know that there is another project going on at one end or the other, in this case the Chickatawbut Road intersection project, we would not design or recommend anything for that location, so we can marry into their project. However, we would mention the recommendations from that project in the current study.

**Melinda Collins, Milton Select Board: There is real interest in making the Skyline Trail crossing located south of the study area safer for pedestrians and hikers?** Yes, this request has been brought to the attention of the MPO and MassDOT. The Skyline Trail crossing is outside the study limits.

- **Chase Berkeley, Milton DPW: We did implement a road diet on the northern portion of the quarter, very recently. The project was done through a grant from Shared Streets and Open Spaces program. Thank you to all the elected officials and MassDOT who supported that funding. We send you details of that project.** Thank you for sharing the project information.
- **Raj Kulen, MassDOT: Brook Road Concept 3 does not have a shoulder and that could affect traffic operations if there is a breakdown or incident. We will review the concept and make necessary changes.**
- **Raj Kulen, MassDOT: Reducing the speed limit on Randolph Avenue from 45 mph to 35 mph would be difficult to enforce and would not accomplish the desired results, unless the roadway is designed to calm traffic. We will**

review this recommendation and design in some traffic calming measures to reduce traffic speeds.

- **Mark Alba, Milton Police:** In the northerly section down by St Mary's School, the road has curves, kind of a winding road, so I am not sure a median is perfect for that location, a winding road with children crossing, pedestrian traffic, and turning traffic. Thank you, we will review that concept.
- **Representative William Driscoll:** One of the issues on Randolph Avenue is turning in and out of the neighborhoods. The roadway width in this segment is just not wide enough to include kind of a center turn lane. However, it would be an ideal type of roadway to have that center turn lane to improve safety. The concepts we developed, we tried to stay within the existing right-of-way, but we can include in the report that future process look at possible land takings to include turn lanes at the at the major intersections on that segment
- **Representative William Driscoll:** The other thing I hear you know from residents a lot in terms of constituent feedback, I don't know if this is reflected in the comments that you received as part of the study, but just the fact that it goes from two lanes on Route 28 to four lanes and then back to two lane. The cut through traffic that we see there is the additional 10,000 cars. So I don't know if there's any additional thoughts there in terms of looking at going down to two lanes of travel and some other improvements. Yes, this idea was reflected in the comments from the community survey. We will review this concept further and include it in the report.
- **Representative William Driscoll:** A new bond bill allocated \$10 million to try to improve the multiuse lanes on that section of Randolph Avenue. It is meant to connect the Milton MBTA stops with and high speed line to the Houghton's Pond recreation area, so if you follow that kind of trajectory of the streets mentioned Randolph Avenue in segment three do fall into this project so just point that out as something that's out there for the can be capitalized on. Okay thank you.

**Mr. Dennehy:** For the Hallen Avenue intersection, obviously the safest path of travel for anyone is a signaling the intersection but just having been in Milton for a long time, taking that left turn away on Randolph Avenue put an abundance of pressure onto specific neighborhoods. Residents are already feeling some of the heat of cut through traffic in the Hillside Street and Highland Street neighborhoods. We are getting a lot of traffic through them now and in the PM commute. I am all for the safest left hand turn, because that was a location of one of the fatalities in the reports two summers ago a tragic accident.

**In addition, Hallen Avenue is used by many people to get to the hospital. I think you can corroborate this is part of the destination, to the hospital, which is becoming a regional hospital. To include ambulances as well, so some points coming from the other way.** Possible signalization at Hallen Avenue, we would look at the traffic signal warrants there, but some of the volumes are just a bit short right now, we have to wait until after the pandemic when traffic volumes return to normal.

**Senator Walter Timilty: I thank you very much a couple of points—number one, a couple years back, I filed an amendment and I have had some talks with MassDOT on this to fund an additional traffic light on Randolph Avenue somewhere around the side streets that are across from the Pepsi plantation or new Wollaston Golf Club. At the determination of the Town Administrator in Milton and with conversations with MassDOT, I was told that if we do that, we would have to regrade the road. However, it's something that I believe there's a great deal worth and exploring because it is one way to slow down traffic, I would also like to point out that anytime we talked about land takings, whether it be for a roundabout or to widened Randolph Avenue, you are going to engender pushback. Yes, that's why, when we do our studies we try to stay on with existing right away as much as possible, we understand that anytime you propose land takings whether it's empty space or someone's yard does become a contentious issue.**

**Raj Kulen, MassDOT: Yes, this is to make the Senator Timilty's point. Did you take a traffic count at that at that location? The second question is about the golf course entrance. In order to install the traffic signal we need to do a traffic signal warrant analysis.** No, we did take a traffic count at Hallen Avenue, not at the Golf Course entrance. Maybe we'll put in a request to for a traffic count, but the volume will be low due to the pandemic.

**Raj Kulen, MassDOT: Knowing the intersection, probably it would not meet many of the warrants for signalization, but we could look at other ones such as systems warrants or other ones.** Okay thank you.

**Mark Alba, Milton Police: Just real quickly to revisit the Hallen Avenue, some of those side streets are one-way leading up to Randolph Avenue or are time restricted, so the one way would not work well.** Okay, thank you.

## **Closing comments**

Mark Abbott, Boston Region MPO: MPO staff will be trying to wrap up the draft report, shortly after receiving feedback. Once the draft ready we will send it to all of you once again for your comments and questions on that before we finalize it. Any further feedback is welcome throughout the course of the study. All your questions and comments are greatly appreciated, especially people from Milton that travel the roadway and see it all the time. You provided some valuable input



into our reports as well, and thank you, Senator Walter Timilty, Representative William Driscoll, and Representative Brandy Fluker Oakley for attending. Thank you Town of Milton and MassDOT representatives and legislative staff.

**Appendix B**  
**Brook Road: Road Diet Project**

# SHARED STREETS AND SPACES GRANT APPLICATION

## Shared Streets and Spaces Grant Application

Brook Road, Milton - Road Diet

August 7, 2020

Prepared for:



Prepared by:

Stantec Consulting Services Inc.



## Table of Contents

<b>1.0</b>	<b>APPLICANT INFORMATION</b> .....	<b>1</b>
<b>2.0</b>	<b>PROJECT INFORMATION</b> .....	<b>2</b>
2.1	PROJECT GOALS .....	2
2.2	PROJECT DESCRIPTION .....	2
2.2.1	Project Location .....	3
2.2.2	GPS Coordinates for Project Location.....	3
2.2.3	Dedicated Bus Lane Inclusion .....	3
2.3	PROJECT IMPLEMENTATION .....	3
2.3.1	Required Materials .....	3
2.4	PROJECT BUDGET .....	4
2.5	PROJECT TIMELINE AND MILESTONES .....	4
2.5.1	Project’s Alignment with Program Goals .....	4
<b>3.0</b>	<b>SITE INFORMATION</b> .....	<b>6</b>
<b>4.0</b>	<b>ELIGIBLE PROJECT TYPES</b> .....	<b>7</b>





**SHARED STREETS AND SPACES GRANT APPLICATION**

**1.0 APPLICANT INFORMATION**

<b>DATE</b>	Friday, August 7, 2020
<b>MUNICIPALITY</b>	Town of Milton
<b>NAME OF OFFICIAL MUNICIPAL SIGNATORY</b>	Michael Dennehy, Town Administrator
<b>OTHER MUNICIPALITY INVOLVED AND ROLES</b>	N/A
<b>DESCRIPTION OF ROLES AND RESPONSIBILITIES OF THE APPLICANT AND ANY PARTNERING MUNICIPALITIES</b>	Town of Milton, project proponent & jurisdiction of proposed project, responsible for installation
<b>CONTACT PERSON</b>	Chase Berkeley, P.E. – Director Public Works
<b>ADDRESS</b>	629 Randolph Avenue, Milton MA 02186
<b>EMAIL</b>	cberkeley@townofmilton.org
<b>TELEPHONE</b>	617-898-4971

## 2.0 PROJECT INFORMATION

### 2.1 PROJECT GOALS

The Brook Road – Road Diet aims to provide additional space for pedestrians and bicyclists by reallocating existing road-widths from wide travel lanes and shoulders along the corridor. By reallocating space, Brook Road becomes a safer environment for all users – including vehicle motorists, bus passengers, bicycle riders, and people on foot. Parking protected bike lanes connecting neighborhood roads to the St. Mary’s School and Peirce Middle School give students a safer route to school; painted buffers increase the perception of safety for pedestrians and bicyclists who are now separated from moving vehicles; and designated pick-up and drop-off spaces at the schools ease tensions resulting from a demand for road space.

### 2.2 PROJECT DESCRIPTION

The existing four-lane Brook Road has wide travel lanes, sub-standard bicycle facilities, and dilapidated sidewalks. To maintain CDC-recommended social distances, pedestrians and bicyclists find themselves venturing into the road, unprotected from oncoming traffic (see Appendix for photographs taken on a site visit in July 2019). As the public continues to practice social distancing and maintains space between others, the need for safe spaces beyond the limits of the sidewalks is needed on Brook Road.

The existing 55-foot right-of way will be restriped with paint funded by the grant to include a protected bicycle lane in both directions, painted buffers, one travel lane in both directions, and a parking lane south of the St. Mary’s School to operate as parking and school pick-up and drop-off at the St. Mary’s School and the Pierce Middle School.

#### *Bike Lanes*

Creating parking protected, buffered bicycle lanes on Brook Road will increase safety and the ability for social distancing for all users, especially students walking and biking to school. By adding a bicycle lane and buffered area on existing roadway, vehicle traffic will have less space to drive, and therefore slow down. This is particularly important on Brook Road, as the majority of the corridor is adjacent to schools or a park, both popular destinations for pedestrians and bicyclists.

#### *Pick-Up / Drop-Off School Zone and Parking*

The John L. Kelly Field and Playground on the western side of Brook Road requires parking for park goers, and the schools need dedicated space for parents to drop children off in the morning and pick students up in the afternoon and evenings. This plan acknowledges these needs and provides parking along the fence and a pick-up / drop-off zones for the schools. These zones will be clearly marked by signs purchased with grant awarded funds.

North of the St. Mary’s School, the Town does not feel the need for on-street parking and is opting to paint wider buffers in this space.

## SHARED STREETS AND SPACES GRANT APPLICATION

### *St. Mary's Street Intersection*

At St. Mary's Street and Brook Road, the existing intersection will be narrowed by adjusting curb radii with paint and planting barrels to shorten the pedestrian crossing and slow turning vehicles. The paint and planters will be funded with grant funds.

### *Connection to Blue Hills Avenue*

To better connect the new bicycle facilities on Brook Road to the bicycle lane on Blue Hill Avenue, the road will be marked with Sharrows from Columbia Park to the intersection with Blue Hill Avenue. Continuing the bike lane is not realistic given the existing vehicle volumes and roadway width.

*See Appendix for the road diet plan view and cross section diagrams.*

### **2.2.1 Project Location**

The project extends along the Brook Road Corridor, from Thatcher Street to Central Street.

### **2.2.2 GPS Coordinates for Project Location**

The northwestern terminus of the project is at the Thatcher Street - Brook Road intersection (42.262576, -71.092706). The southeastern terminus of the project is the intersection of Central Street and Brook Road (42.258299, -71.081248).

A map showing the extent of the project is included as part of the appendix.

### **2.2.3 Dedicated Bus Lane Inclusion**

The Project does not include a dedicated bus lane.

## **2.3 PROJECT IMPLEMENTATION**

The improvements will be in place for the fall while Town staff monitor the changes. After the initial period, the Town of Milton will reassess the effectiveness and consider changes or more permanent solutions for Brook Road.

Project components will comply with safety and accessibility-related regulations (ADA and MAAB). In locations where these standards are not met, a temporary variance will be required while accessibility improvements are designed for future implementation.

### **2.3.1 Required Materials**

Paint for restriping the road is primary required material – with barrels and cones needed to increase visibility of the new roadway configuration. Two LED signs at either end of the corridor alerting drivers of the changes are also needed for the first few weeks of the project's implementation.

## SHARED STREETS AND SPACES GRANT APPLICATION

### 2.4 PROJECT BUDGET

The Project budget covers the purchase and installation of all materials. The funding request entails \$57,731.32 of equipment and materials.

Items for Reimbursement	Cost per Unit	Units	Unit Type	Total Cost
Pavement Arrows and Legends refl. White (Thermoplastic)	\$14	1,030	SF	\$14,420.00
4 inch Reflectorized White Line (Thermoplastic)	\$0.27	17,288	FT	\$4,667.76
12 inch Reflectorized White Line (Thermoplastic)	\$1.65	2,150	FT	\$3,547.50
4 inch Reflectorized Yellow Line (Thermoplastic)	\$0.27	6,170	FT	\$4,667.76
High Friction Green Surface Treatment	\$8.50	1,080	SF	\$9,180.00
Grinding for Paint Removal	\$0.75	10,000	SF	\$7,500.00
Signage	\$50	25	Sign	\$1,250.00
Signage Installation	\$250	25	Sign	\$6,250.00
Planters for St. Mary's Street	\$500	2	Planter	\$1,000
Contingency and Construction Management	10%	-	-	\$5,248.30
<b>Total</b>				<b>\$ 57,731.32</b>

### 2.5 PROJECT TIMELINE AND MILESTONES

The changes to Brook Road outlined in this application require approval through the Town Traffic Commission, although the project is strongly supported by Town administration, staff and residents. Delay due to opposition is not likely. Understanding the desire for implementation within 15-30 days after award and for the project to be completely installed by October, the Town staff is bringing the proposed plan to the Commission when submitting the application to MassDOT for review. Approval will take no longer than one week.

The Town of Milton has an existing contract with Markings Inc. They will coordinate with the provider to restripe the road within one month of award.

Following the striping, the Town will closely monitor the traffic impacts of the striping, including analyzing crash data, monitoring queues along the North of Brook Road, collecting bicycle and vehicle counts, monitoring speed through the corridor, and general observations of the school drop-off zones when schools reopen.

The observations will inform any future design considerations.

#### 2.5.1 Project's Alignment with Program Goals

The Brook Road – Road Diet aligns with the Shared Streets and Spaces Grant Program by providing safer spaces for bicyclists and pedestrians, while ensuring the roadway provides the same service for



## SHARED STREETS AND SPACES GRANT APPLICATION

transit and vehicle traffic as it does today. Dedicated space for bicyclists is provided by using the excess of vehicle space along the corridor – thereby creating safer paths for bicyclists throughout the neighborhood heading to the John L. Kelley Field and Park, Pierce Middle School, or St. Mary's School. On-street parking is preserved to provide needed parking for residents and park-goers and designated drop-off lanes at the schools provide safe arrivals and pick-ups for parents dropping off children. The additional space not needed for travel lanes, parking, drop-off, and bike lanes is converted to buffer space to slow traffic and create a pedestrian-friendly environment.

## SHARED STREETS AND SPACES GRANT APPLICATION

### SITE INFORMATION

Proof of ownership/control of the relevant municipal infrastructure is attached as an appendix.

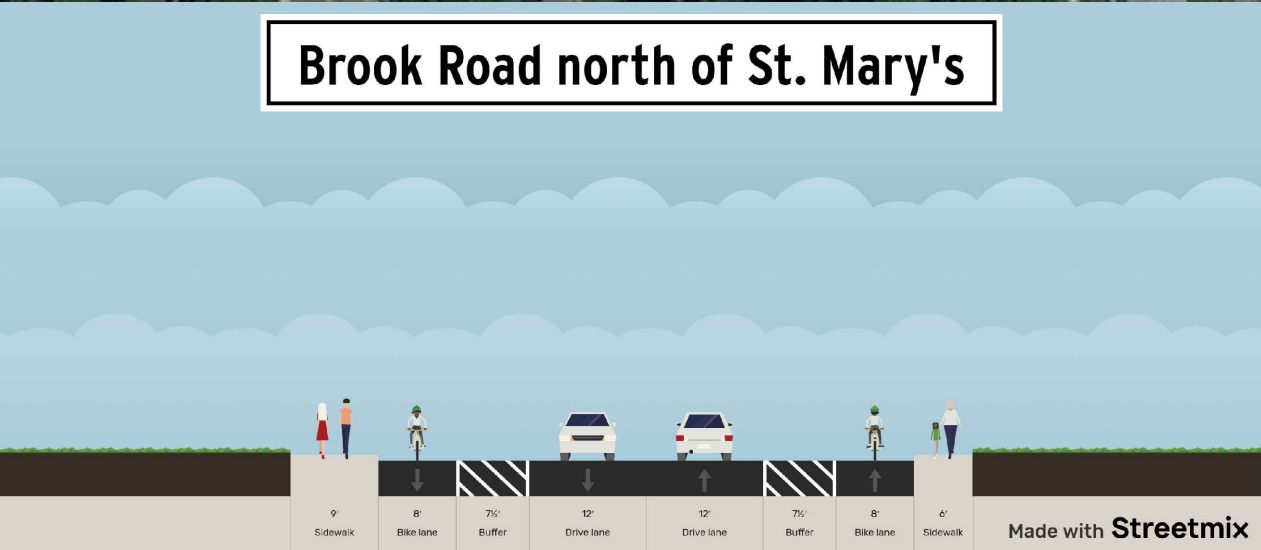
1. Is this project entirely on municipally owned infrastructure?	<b>Yes</b> No
2. Indicate whether any MassDOT-owned infrastructure is integral to the proposed project?	Yes <b>No</b>
3. Indicate whether any infrastructure owned by a state agency other than MassDOT is integral to the proposed project (i.e. Department of Conservation and Recreation)	Yes <b>No</b>
4. Demonstrate whether the proposed project is in a Census Block Group identified by the relevant Regional Planning Agency as an Environmental Justice area	<b>Yes</b> No
5. Is the site on a National Highway System roadway?	Yes <b>No</b> Unknown
6. Is this project intended to be a temporary or a permanent change? (preference will be given to projects with potential to be lasting)	Definitely temporary <b>Potentially permanent</b> Definitely permanent
7. How fast can the proposed project be implemented?	Within 0-15 days of award <b>Within 15-30 days of award</b> More than 30 days
8. Would the proposed project divert, detour, or otherwise impede current public transit service, even temporarily?	Yes <b>No</b>
9. Would the proposed project repurpose parkland for transportation purposes, even temporarily?	Yes <b>No</b>

### 3.0 ELIGIBLE PROJECT TYPES

Project type(s) and elements included in this project proposal are highlighted below.

PROJECT TYPE (MINIMUM 1)	PROJECT ELEMENTS (MINIMUM 2)
<b>Shared Streets and Spaces</b>	<p><b>Converted neighborhood streets for exclusive and/or shared use by people walking and/or biking</b> Expanded sidewalks</p> <p><b>Safety, traffic calming, and speed reduction measures</b> Modified traffic signals to support safe walking and biking</p> <p><b>Protected bike lanes, bike parking, signage, pavement markings</b> New and/or expanded infrastructure and capital start-up (non-operating) costs for bicycle and scooter sharing networks</p> <p><b>Accessibility upgrades to curb-ramps, crosswalks, and/or related facilities</b></p> <p><b>Contiguous walking and/or biking corridors among neighborhoods and/or destinations</b></p>
Outdoor Dining and Commerce	<p>Repurposed and/or expanded portions of streets, curbs, and/or sidewalks to create more safe space for pedestrians, retail activity, dining, and community programming</p> <p>Repurposed parking areas (on/off street) for walking, recreation, outdoor seating, retail and/or dining</p>
Better Buses	<p>Dedicated lanes</p> <p>Transit signal priority</p> <p>Bus stops and related facilities and infrastructure</p>
<b>Safe Routes to School</b>	<p><b>Converted neighborhood streets for exclusive and/or shared use by people walking and/or biking</b></p> <p><b>Signage, crosswalks</b></p> <p><b>Delineated areas for safe child drop-off and pick-up</b></p>
Innovation	





DRAWING NOT DRAWN TO SCALE

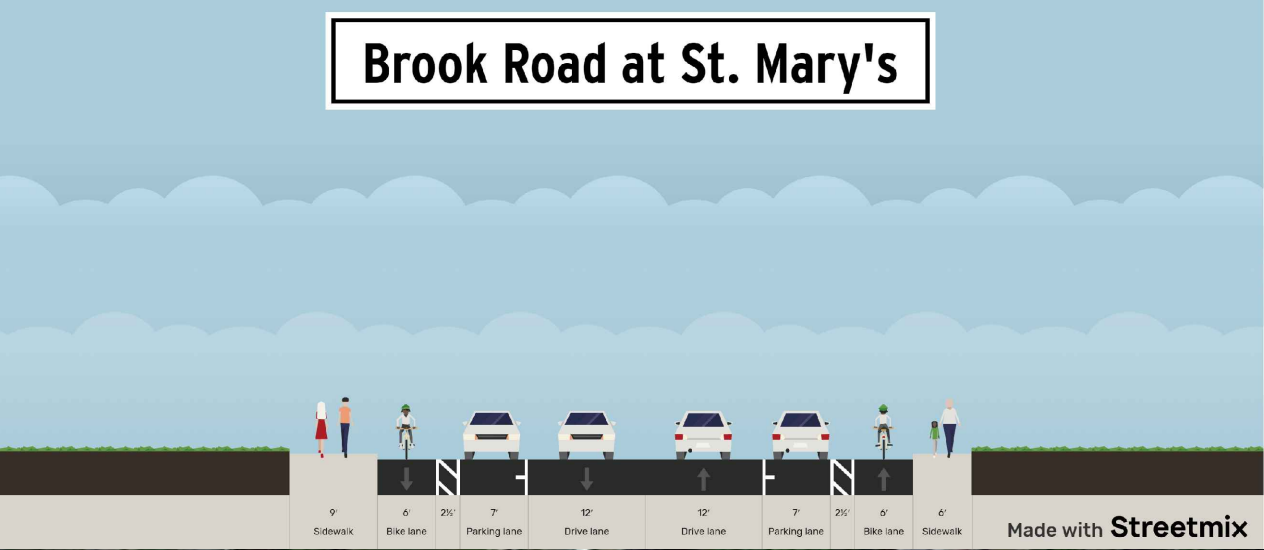


# BROOK ROAD

MILTON, MASSACHUSETTS

AUGUST 2020





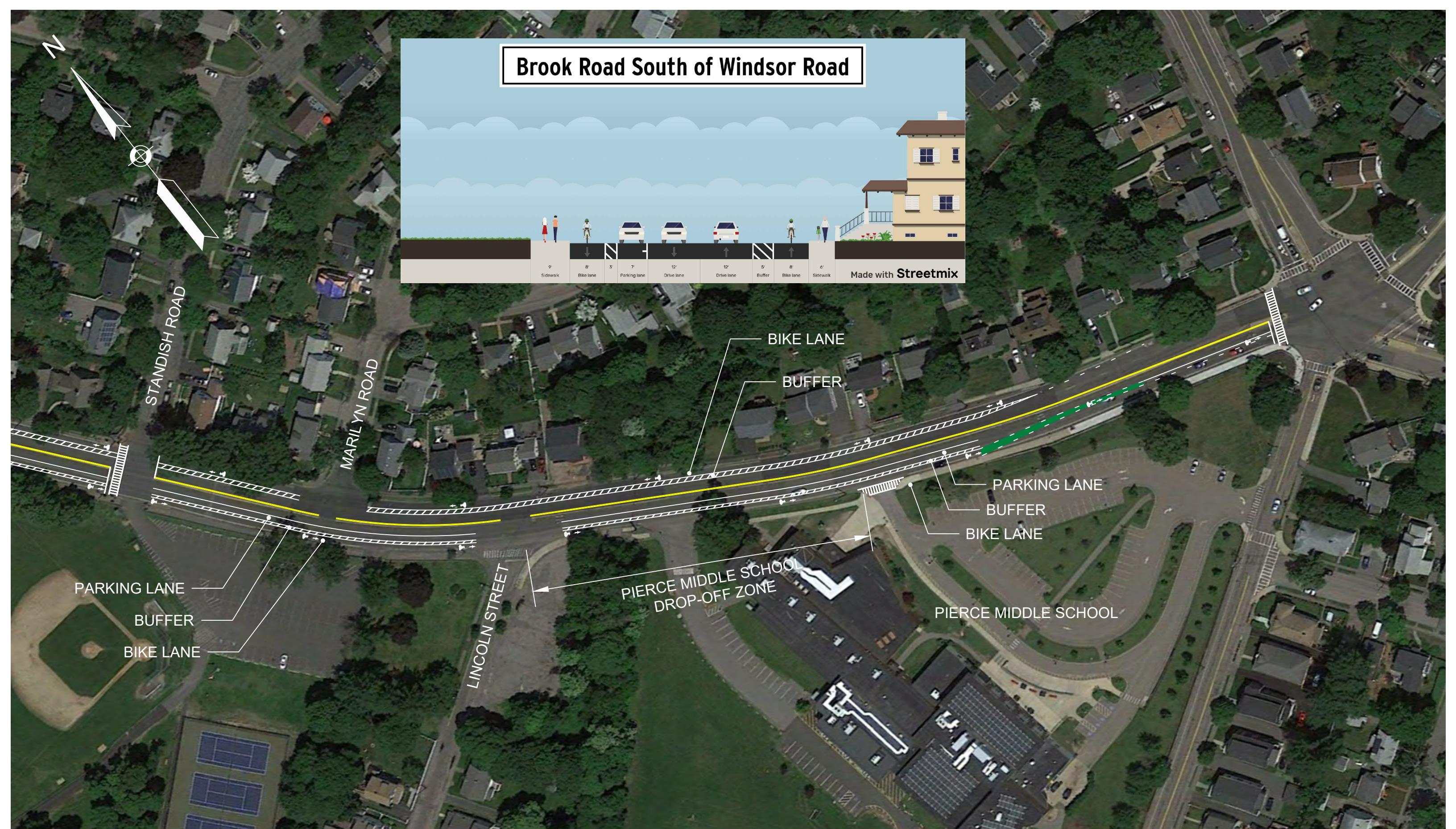
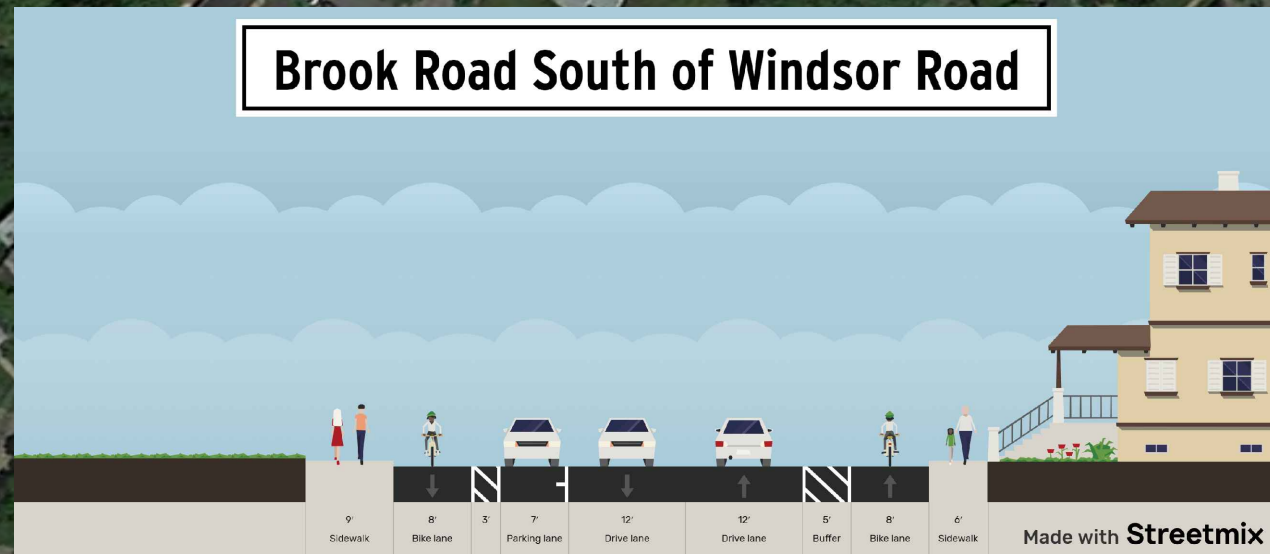
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**BROOK ROAD**  
MILTON, MASSACHUSETTS

AUGUST 2020





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# Appendix C: Traffic and Signal Timing Data

- Part 1: Turning Movement Count (TMC) Data
- Part 2: Automatic Traffic Recorder (ATR) Data
- Part 3: Speed Data
- Part 4: Signal Timing and Layout Information



## **Part 1: Turning Movement Count (TMC) Data**

207528 (1) Blue Hills Pkway @ Brook Rd) TMC - TMC

Thu Oct 15, 2020

Full Length (6 AM-9 AM, 3 PM-6 PM, 11 AM-2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791910, Location: 42.262527, -71.093513, Site Code: 207528

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Blue Hill Parkway (Route 28) Southbound						Brook Road (Route 28) Westbound						Blue Hills Parkway Northbound						Brook Road Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 6:00AM	0	68	137	1	206	0	636	0	0	0	636	7	13	308	0	0	321	2	3	58	8	0	69	1	1232
7:00AM	0	161	282	1	444	1	614	0	0	0	614	10	40	372	0	0	412	4	6	111	10	0	127	9	1597
8:00AM	0	193	308	1	502	0	517	0	0	0	517	22	39	331	0	0	370	3	12	160	14	0	186	8	1575
3:00PM	0	582	526	2	1110	0	546	0	0	0	546	20	40	280	0	1	321	1	24	191	9	0	224	9	2201
4:00PM	0	543	558	0	1101	0	565	0	0	0	565	12	39	282	0	0	321	0	21	164	9	0	194	5	2181
5:00PM	0	492	542	5	1039	0	537	0	0	0	537	17	71	288	0	0	359	7	17	142	16	0	175	12	2110
2020-10-17 11:00AM	0	211	350	1	562	0	416	0	0	0	416	13	48	196	0	0	244	10	9	134	7	0	150	6	1372
12:00PM	0	256	425	0	681	0	475	0	0	0	475	21	43	224	0	1	268	6	14	148	7	0	169	10	1593
1:00PM	0	297	505	0	802	0	525	1	0	0	526	7	32	278	0	0	310	5	14	128	11	0	153	6	1791
<b>Total</b>	0	2803	3633	11	6447	1	4831	1	0	0	4832	129	365	2559	0	2	2926	38	120	1236	91	0	1447	66	15652
<b>% Approach</b>	0%	43.5%	56.4%	0.2%	-	-	100.0%	0%	0%	0%	-	-	12.5%	87.5%	0%	0.1%	-	-	8.3%	85.4%	6.3%	0%	-	-	-
<b>% Total</b>	0%	17.9%	23.2%	0.1%	41.2%	-	30.9%	0%	0%	0%	30.9%	-	2.3%	16.3%	0%	0%	18.7%	-	0.8%	7.9%	0.6%	0%	9.2%	-	-
<b>Motorcycles</b>	0	18	11	0	29	-	9	0	0	0	9	-	0	10	0	0	10	-	1	2	0	0	3	-	51
<b>% Motorcycles</b>	0%	0.6%	0.3%	0%	0.4%	-	0.2%	0%	0%	0%	0.2%	-	0%	0.4%	0%	0%	0.3%	-	0.8%	0.2%	0%	0%	0.2%	-	0.3%
<b>Lights</b>	0	2704	3509	10	6223	-	4684	1	0	0	4685	-	346	2478	0	2	2826	-	109	1183	88	0	1380	-	15114
<b>% Lights</b>	0%	96.5%	96.6%	90.9%	96.5%	-	97.0%	100%	0%	0%	97.0%	-	94.8%	96.8%	0%	100%	96.6%	-	90.8%	95.7%	96.7%	0%	95.4%	-	96.6%
<b>Single-Unit Trucks</b>	0	18	64	1	83	-	85	0	0	0	85	-	7	16	0	0	23	-	2	26	2	0	30	-	221
<b>% Single-Unit Trucks</b>	0%	0.6%	1.8%	9.1%	1.3%	-	1.8%	0%	0%	0%	1.8%	-	1.9%	0.6%	0%	0%	0.8%	-	1.7%	2.1%	2.2%	0%	2.1%	-	1.4%
<b>Articulated Trucks</b>	0	3	5	0	8	-	8	0	0	0	8	-	1	1	0	0	2	-	0	5	0	0	5	-	23
<b>% Articulated Trucks</b>	0%	0.1%	0.1%	0%	0.1%	-	0.2%	0%	0%	0%	0.2%	-	0.3%	0%	0%	0%	0.1%	-	0%	0.4%	0%	0%	0.3%	-	0.1%
<b>Buses</b>	0	18	43	0	61	-	37	0	0	0	37	-	1	8	0	0	9	-	2	13	0	0	15	-	122
<b>% Buses</b>	0%	0.6%	1.2%	0%	0.9%	-	0.8%	0%	0%	0%	0.8%	-	0.3%	0.3%	0%	0%	0.3%	-	1.7%	1.1%	0%	0%	1.0%	-	0.8%
<b>Bicycles on Road</b>	0	42	1	0	43	-	8	0	0	0	8	-	10	46	0	0	56	-	6	7	1	0	14	-	121
<b>% Bicycles on Road</b>	0%	1.5%	0%	0%	0.7%	-	0.2%	0%	0%	0%	0.2%	-	2.7%	1.8%	0%	0%	1.9%	-	5.0%	0.6%	1.1%	0%	1.0%	-	0.8%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	111	-	-	-	-	-	36	-	-	-	-	-	55	-
<b>% Pedestrians</b>	-	-	-	-	-	0%	-	-	-	-	-	86.0%	-	-	-	-	-	94.7%	-	-	-	-	-	83.3%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	1	-	-	-	-	-	18	-	-	-	-	-	2	-	-	-	-	-	11	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	100%	-	-	-	-	-	14.0%	-	-	-	-	-	5.3%	-	-	-	-	-	16.7%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (1) Blue Hills Pkwy @ Brook Rd) TMC - TMC

Thu Oct 15, 2020

AM Peak (Oct 15 2020 7:30AM - 8:30 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791910, Location: 42.262527, -71.093513, Site Code: 207528

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Blue Hill Parkway (Route 28) Southbound						Brook Road (Route 28) Westbound						Blue Hills Parkway Northbound						Brook Road Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 7:30AM	0	54	83	0	137	0	162	0	0	0	162	0	10	107	0	0	117	1	3	34	4	0	41	0	457
7:45AM	0	46	73	0	119	1	151	0	0	0	151	0	15	104	0	0	119	1	1	32	1	0	34	3	423
8:00AM	0	48	72	0	120	0	121	0	0	0	121	4	9	75	0	0	84	2	3	44	3	0	50	0	375
8:15AM	0	48	77	1	126	0	138	0	0	0	138	7	8	73	0	0	81	0	4	48	1	0	53	1	398
<b>Total</b>	0	196	305	1	502	1	572	0	0	0	572	11	42	359	0	0	401	4	11	158	9	0	178	4	1653
<b>% Approach</b>	0%	39.0%	60.8%	0.2%	-	-	100%	0%	0%	0%	-	-	10.5%	89.5%	0%	0%	-	-	6.2%	88.8%	5.1%	0%	-	-	-
<b>% Total</b>	0%	11.9%	18.5%	0.1%	30.4%	-	34.6%	0%	0%	0%	34.6%	-	2.5%	21.7%	0%	0%	24.3%	-	0.7%	9.6%	0.5%	0%	10.8%	-	-
<b>PHF</b>	-	0.923	0.919	0.250	0.922	-	0.880	-	-	-	0.880	-	0.650	0.827	-	-	0.826	-	0.625	0.823	0.667	-	0.830	-	0.903
<b>Motorcycles</b>	0	0	1	0	1	-	1	0	0	0	1	-	0	1	0	0	1	-	0	0	0	0	0	-	3
<b>% Motorcycles</b>	0%	0%	0.3%	0%	0.2%	-	0.2%	0%	0%	0%	0.2%	-	0%	0.3%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0.2%
<b>Lights</b>	0	185	288	1	474	-	545	0	0	0	545	-	38	347	0	0	385	-	9	152	8	0	169	-	1573
<b>% Lights</b>	0%	94.4%	94.4%	100%	94.4%	-	95.3%	0%	0%	0%	95.3%	-	90.5%	96.7%	0%	0%	96.0%	-	81.8%	96.2%	88.9%	0%	94.9%	-	95.2%
<b>Single-Unit Trucks</b>	0	2	7	0	9	-	19	0	0	0	19	-	1	3	0	0	4	-	0	3	0	0	3	-	35
<b>% Single-Unit Trucks</b>	0%	1.0%	2.3%	0%	1.8%	-	3.3%	0%	0%	0%	3.3%	-	2.4%	0.8%	0%	0%	1.0%	-	0%	1.9%	0%	0%	1.7%	-	2.1%
<b>Articulated Trucks</b>	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	0	2	0	0	2	-	3
<b>% Articulated Trucks</b>	0%	0.5%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	1.3%	0%	0%	1.1%	-	0.2%
<b>Buses</b>	0	4	9	0	13	-	5	0	0	0	5	-	0	3	0	0	3	-	1	1	0	0	2	-	23
<b>% Buses</b>	0%	2.0%	3.0%	0%	2.6%	-	0.9%	0%	0%	0%	0.9%	-	0%	0.8%	0%	0%	0.7%	-	9.1%	0.6%	0%	0%	1.1%	-	1.4%
<b>Bicycles on Road</b>	0	4	0	0	4	-	2	0	0	0	2	-	3	5	0	0	8	-	1	0	1	0	2	-	16
<b>% Bicycles on Road</b>	0%	2.0%	0%	0%	0.8%	-	0.3%	0%	0%	0%	0.3%	-	7.1%	1.4%	0%	0%	2.0%	-	9.1%	0%	11.1%	0%	1.1%	-	1.0%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	11	-	-	-	-	-	4	-	-	-	-	-	3	
<b>% Pedestrians</b>	-	-	-	-	-	0%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	75.0%	
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	100%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	25.0%	

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (1) Blue Hills Pkwy @ Brook Rd) TMC - TMC

Thu Oct 15, 2020

PM Peak (Oct 15 2020 3:15PM - 4:15 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791910, Location: 42.262527, -71.093513, Site Code: 207528

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Blue Hill Parkway (Route 28) Southbound						Brook Road (Route 28) Westbound						Blue Hills Parkway Northbound						Brook Road Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 3:15PM	0	151	122	1	<b>274</b>	0	141	0	0	0	<b>141</b>	5	10	72	0	1	<b>83</b>	0	4	48	0	0	<b>52</b>	1	<b>550</b>
3:30PM	0	138	133	1	<b>272</b>	0	133	0	0	0	<b>133</b>	1	8	72	0	0	<b>80</b>	1	4	46	2	0	<b>52</b>	2	<b>537</b>
3:45PM	0	155	146	0	<b>301</b>	0	131	0	0	0	<b>131</b>	8	8	65	0	0	<b>73</b>	0	10	55	6	0	<b>71</b>	3	<b>576</b>
4:00PM	0	140	128	0	<b>268</b>	0	127	0	0	0	<b>127</b>	2	13	69	0	0	<b>82</b>	0	11	50	2	0	<b>63</b>	4	<b>540</b>
<b>Total</b>	0	584	529	2	<b>1115</b>	0	532	0	0	0	<b>532</b>	16	39	278	0	1	<b>318</b>	1	29	199	10	0	<b>238</b>	10	<b>2203</b>
<b>% Approach</b>	0%	52.4%	47.4%	0.2%	-	-	100%	0%	0%	0%	-	-	12.3%	87.4%	0%	0.3%	-	-	12.2%	83.6%	4.2%	0%	-	-	-
<b>% Total</b>	0%	26.5%	24.0%	0.1%	<b>50.6%</b>	-	24.1%	0%	0%	0%	<b>24.1%</b>	-	1.8%	12.6%	0%	0%	<b>14.4%</b>	-	1.3%	9.0%	0.5%	0%	<b>10.8%</b>	-	-
<b>PHF</b>	-	0.935	0.906	0.500	<b>0.923</b>	-	0.948	-	-	-	<b>0.948</b>	-	0.731	0.965	-	0.250	<b>0.954</b>	-	0.675	0.905	0.417	-	<b>0.831</b>	-	0.953
<b>Motorcycles</b>	0	3	2	0	<b>5</b>	-	3	0	0	0	<b>3</b>	-	0	3	0	0	<b>3</b>	-	0	1	0	0	<b>1</b>	-	12
<b>% Motorcycles</b>	0%	0.5%	0.4%	0%	<b>0.4%</b>	-	0.6%	0%	0%	0%	<b>0.6%</b>	-	0%	1.1%	0%	0%	<b>0.9%</b>	-	0%	0.5%	0%	0%	<b>0.4%</b>	-	0.5%
<b>Lights</b>	0	570	503	2	<b>1075</b>	-	508	0	0	0	<b>508</b>	-	37	269	0	1	<b>307</b>	-	26	186	9	0	<b>221</b>	-	2111
<b>% Lights</b>	0%	97.6%	95.1%	100%	<b>96.4%</b>	-	95.5%	0%	0%	0%	<b>95.5%</b>	-	94.9%	96.8%	0%	100%	<b>96.5%</b>	-	89.7%	93.5%	90.0%	0%	<b>92.9%</b>	-	95.8%
<b>Single-Unit Trucks</b>	0	4	18	0	<b>22</b>	-	12	0	0	0	<b>12</b>	-	1	1	0	0	<b>2</b>	-	1	8	1	0	<b>10</b>	-	46
<b>% Single-Unit Trucks</b>	0%	0.7%	3.4%	0%	<b>2.0%</b>	-	2.3%	0%	0%	0%	<b>2.3%</b>	-	2.6%	0.4%	0%	0%	<b>0.6%</b>	-	3.4%	4.0%	10.0%	0%	<b>4.2%</b>	-	2.1%
<b>Articulated Trucks</b>	0	0	2	0	<b>2</b>	-	2	0	0	0	<b>2</b>	-	0	0	0	0	<b>0</b>	-	0	1	0	0	<b>1</b>	-	5
<b>% Articulated Trucks</b>	0%	0%	0.4%	0%	<b>0.2%</b>	-	0.4%	0%	0%	0%	<b>0.4%</b>	-	0%	0%	0%	0%	<b>0%</b>	-	0%	0.5%	0%	0%	<b>0.4%</b>	-	0.2%
<b>Buses</b>	0	3	4	0	<b>7</b>	-	6	0	0	0	<b>6</b>	-	0	1	0	0	<b>1</b>	-	0	3	0	0	<b>3</b>	-	17
<b>% Buses</b>	0%	0.5%	0.8%	0%	<b>0.6%</b>	-	1.1%	0%	0%	0%	<b>1.1%</b>	-	0%	0.4%	0%	0%	<b>0.3%</b>	-	0%	1.5%	0%	0%	<b>1.3%</b>	-	0.8%
<b>Bicycles on Road</b>	0	4	0	0	<b>4</b>	-	1	0	0	0	<b>1</b>	-	1	4	0	0	<b>5</b>	-	2	0	0	0	<b>2</b>	-	12
<b>% Bicycles on Road</b>	0%	0.7%	0%	0%	<b>0.4%</b>	-	0.2%	0%	0%	0%	<b>0.2%</b>	-	2.6%	1.4%	0%	0%	<b>1.6%</b>	-	6.9%	0%	0%	0%	<b>0.8%</b>	-	0.5%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	10	-	-	-	-	-	1	-	-	-	-	-	4	
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	62.5%	-	-	-	-	-	100%	-	-	-	-	-	40.0%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	6	-	-	-	-	-	0	-	-	-	-	-	6	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	-	37.5%	-	-	-	-	-	0%	-	-	-	-	-	60.0%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (1) Blue Hills Pkway @ Brook Rd) TMC - TMC

Sat Oct 17, 2020

Midday Peak (WKND) (Oct 17 2020 11:45AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791910, Location: 42.262527, -71.093513, Site Code: 207528

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Blue Hill Parkway (Route 28) Southbound						Brook Road (Route 28) Westbound						Blue Hills Parkway Northbound						Brook Road Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2020-10-17 11:45AM	0	58	97	0	155	0	107	0	0	0	107	2	13	56	0	0	69	6	2	37	1	0	40	1	371
12:00PM	0	62	101	0	163	0	132	0	0	0	132	8	19	54	0	0	73	3	5	36	1	0	42	4	410
12:15PM	0	56	120	0	176	0	116	0	0	0	116	6	8	47	0	1	56	0	5	46	1	0	52	0	400
12:30PM	0	79	105	0	184	0	130	0	0	0	130	3	6	65	0	0	71	2	1	34	3	0	38	4	423
<b>Total</b>	0	255	423	0	678	0	485	0	0	0	485	19	46	222	0	1	269	11	13	153	6	0	172	9	1604
<b>% Approach</b>	0%	37.6%	62.4%	0%	-	-	100%	0%	0%	0%	-	-	17.1%	82.5%	0%	0.4%	-	-	7.6%	89.0%	3.5%	0%	-	-	-
<b>% Total</b>	0%	15.9%	26.4%	0%	42.3%	-	30.2%	0%	0%	0%	30.2%	-	2.9%	13.8%	0%	0.1%	16.8%	-	0.8%	9.5%	0.4%	0%	10.7%	-	-
<b>PHF</b>	-	0.826	0.881	-	0.931	-	0.924	-	-	-	0.924	-	0.605	0.855	-	0.250	0.924	-	0.550	0.832	0.500	-	0.850	-	0.951
<b>Motorcycles</b>	0	1	1	0	2	-	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	3
<b>% Motorcycles</b>	0%	0.4%	0.2%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0%	0.5%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0.2%
<b>Lights</b>	0	249	421	0	670	-	477	0	0	0	477	-	46	217	0	1	264	-	11	152	6	0	169	-	1580
<b>% Lights</b>	0%	97.6%	99.5%	0%	98.8%	-	98.4%	0%	0%	0%	98.4%	-	100%	97.7%	0%	100%	98.1%	-	84.6%	99.3%	100%	0%	98.3%	-	98.5%
<b>Single-Unit Trucks</b>	0	1	0	0	1	-	5	0	0	0	5	-	0	0	0	0	0	-	0	1	0	0	1	-	7
<b>% Single-Unit Trucks</b>	0%	0.4%	0%	0%	0.1%	-	1.0%	0%	0%	0%	1.0%	-	0%	0%	0%	0%	0%	-	0%	0.7%	0%	0%	0.6%	-	0.4%
<b>Articulated Trucks</b>	0	0	1	0	1	-	1	0	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	2
<b>% Articulated Trucks</b>	0%	0%	0.2%	0%	0.1%	-	0.2%	0%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Buses</b>	0	0	0	0	0	-	1	0	0	0	1	-	0	1	0	0	1	-	0	0	0	0	0	-	2
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0.2%	0%	0%	0%	0.2%	-	0%	0.5%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Bicycles on Road</b>	0	4	0	0	4	-	1	0	0	0	1	-	0	3	0	0	3	-	2	0	0	0	2	-	10
<b>% Bicycles on Road</b>	0%	1.6%	0%	0%	0.6%	-	0.2%	0%	0%	0%	0.2%	-	0%	1.4%	0%	0%	1.1%	-	15.4%	0%	0%	0%	1.2%	-	0.6%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	15	-	-	-	-	-	11	-	-	-	-	-	7	
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	78.9%	-	-	-	-	-	100%	-	-	-	-	-	77.8%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	2	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	-	21.1%	-	-	-	-	-	0%	-	-	-	-	-	22.2%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



207528 (1) Blue Hills Pkway @ Brook Rd) TMC - TMC

Sat Oct 17, 2020

PM Peak (WKND) (Oct 17 2020 1PM - 2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791910, Location: 42.262527, -71.093513, Site Code: 207528

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Blue Hill Parkway (Route 28) Southbound						Brook Road (Route 28) Westbound						Blue Hills Parkway Northbound						Brook Road Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2020-10-17 1:00PM	0	85	122	0	207	0	120	0	0	0	120	0	11	69	0	0	80	0	7	30	3	0	40	3	447
1:15PM	0	66	121	0	187	0	127	0	0	0	127	3	5	59	0	0	64	1	0	39	7	0	46	1	424
1:30PM	0	69	134	0	203	0	144	0	0	0	144	4	10	77	0	0	87	2	3	28	0	0	31	1	465
1:45PM	0	77	128	0	205	0	134	1	0	0	135	0	6	73	0	0	79	2	4	31	1	0	36	1	455
<b>Total</b>	0	297	505	0	802	0	525	1	0	0	526	7	32	278	0	0	310	5	14	128	11	0	153	6	1791
<b>% Approach</b>	0%	37.0%	63.0%	0%	-	-	99.8%	0.2%	0%	0%	-	-	10.3%	89.7%	0%	0%	-	-	9.2%	83.7%	7.2%	0%	-	-	-
<b>% Total</b>	0%	16.6%	28.2%	0%	44.8%	-	29.3%	0.1%	0%	0%	29.4%	-	1.8%	15.5%	0%	0%	17.3%	-	0.8%	7.1%	0.6%	0%	8.5%	-	-
<b>PHF</b>	-	0.875	0.942	-	0.970	-	0.911	0.250	-	-	0.913	-	0.705	0.925	-	-	0.907	-	0.500	0.816	0.393	-	0.828	-	0.965
<b>Motorcycles</b>	0	0	1	0	1	-	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	2
<b>% Motorcycles</b>	0%	0%	0.2%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0.4%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Lights</b>	0	294	496	0	790	-	519	1	0	0	520	-	29	267	0	0	296	-	14	121	10	0	145	-	1751
<b>% Lights</b>	0%	99.0%	98.2%	0%	98.5%	-	98.9%	100%	0%	0%	98.9%	-	90.6%	96.0%	0%	0%	95.5%	-	100%	94.5%	90.9%	0%	94.8%	-	97.8%
<b>Single-Unit Trucks</b>	0	0	7	0	7	-	6	0	0	0	6	-	2	1	0	0	3	-	0	2	1	0	3	-	19
<b>% Single-Unit Trucks</b>	0%	0%	1.4%	0%	0.9%	-	1.1%	0%	0%	0%	1.1%	-	6.3%	0.4%	0%	0%	1.0%	-	0%	1.6%	9.1%	0%	2.0%	-	1.1%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	0	1	0	0	1	-	2
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.4%	0%	0%	0.3%	-	0%	0.8%	0%	0%	0.7%	-	0.1%
<b>Buses</b>	0	0	1	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	1
<b>% Buses</b>	0%	0%	0.2%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Bicycles on Road</b>	0	3	0	0	3	-	0	0	0	0	0	-	1	8	0	0	9	-	0	4	0	0	4	-	16
<b>% Bicycles on Road</b>	0%	1.0%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	3.1%	2.9%	0%	0%	2.9%	-	0%	3.1%	0%	0%	2.6%	-	0.9%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	6	-	-	-	-	-	3	-	-	-	-	-	6	
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	85.7%	-	-	-	-	-	60.0%	-	-	-	-	-	100%	
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	0	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	-	14.3%	-	-	-	-	-	40.0%	-	-	-	-	-	0%	

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (2) Brook Rd @ Thatcher St - TMC

Thu Oct 15, 2020

Full Length (6 AM-9 AM, 3 PM-6 PM, 11 AM-2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791912, Location: 42.262579, -71.092657, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street,  
Framingham, MA, MA, 01702, US

Leg Direction	Brook Road (Route 28) Westbound						Thatcher Street Northbound						Driveway Northeastbound						Brook Road (Route 28) Eastbound						Int
	T	BL	L	U	App	Ped*	R	L	HL	U	App	Ped*	HR	BR	HL	U	App	Ped*	HR	R	T	U	App	Ped*	
2020-10-15 6:00AM	583	0	4	1	588	0	7	48	0	0	55	3	0	0	0	0	0	3	0	31	177	1	209	4	852
7:00AM	576	1	17	0	594	0	5	38	0	0	43	2	0	0	0	0	0	3	1	60	374	1	436	0	1073
8:00AM	490	1	20	0	511	0	4	39	0	0	43	6	0	1	1	0	2	12	1	61	444	1	507	1	1063
3:00PM	495	2	28	0	525	1	10	57	0	0	67	3	2	1	1	0	4	3	2	156	588	2	748	3	1344
4:00PM	504	1	22	0	527	0	7	54	0	0	61	16	0	3	1	0	4	15	4	121	644	1	770	3	1362
5:00PM	486	1	21	0	508	0	11	53	0	0	64	7	5	0	1	0	6	17	4	143	604	6	757	3	1335
2020-10-17 11:00AM	366	2	13	1	382	0	6	45	0	0	51	6	1	1	2	0	4	12	4	87	426	2	519	1	956
12:00PM	413	0	21	0	434	0	11	51	0	0	62	5	1	0	2	0	3	7	2	109	511	0	622	0	1121
1:00PM	442	1	20	0	463	0	4	54	1	0	59	4	1	3	1	0	5	6	3	118	505	3	629	1	1156
<b>Total</b>	4355	9	166	2	4532	1	65	439	1	0	505	52	10	9	9	0	28	78	21	886	4273	17	5197	16	10262
<b>% Approach</b>	96.1%	0.2%	3.7%	0%	-	-	12.9%	86.9%	0.2%	0%	-	-	35.7%	32.1%	32.1%	0%	-	-	0.4%	17.0%	82.2%	0.3%	-	-	-
<b>% Total</b>	42.4%	0.1%	1.6%	0%	44.2%	-	0.6%	4.3%	0%	0%	4.9%	-	0.1%	0.1%	0.1%	0%	0.3%	-	0.2%	8.6%	41.6%	0.2%	50.6%	-	-
<b>Motorcycles</b>	11	0	0	0	11	-	0	1	0	0	1	-	0	0	0	0	0	-	0	0	13	0	13	-	25
<b>% Motorcycles</b>	0.3%	0%	0%	0%	0.2%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0.3%	0%	0.3%	-	0.2%
<b>Lights</b>	4218	9	162	2	4391	-	62	429	1	0	492	-	10	8	9	0	27	-	20	875	4085	17	4997	-	9907
<b>% Lights</b>	96.9%	100%	97.6%	100%	96.9%	-	95.4%	97.7%	100%	0%	97.4%	-	100%	88.9%	100%	0%	96.4%	-	95.2%	98.8%	95.6%	100%	96.2%	-	96.5%
<b>Single-Unit Trucks</b>	80	0	2	0	82	-	0	3	0	0	3	-	0	1	0	0	1	-	1	7	85	0	93	-	179
<b>% Single-Unit Trucks</b>	1.8%	0%	1.2%	0%	1.8%	-	0%	0.7%	0%	0%	0.6%	-	0%	11.1%	0%	0%	3.6%	-	4.8%	0.8%	2.0%	0%	1.8%	-	1.7%
<b>Articulated Trucks</b>	4	0	0	0	4	-	0	3	0	0	3	-	0	0	0	0	0	-	0	1	12	0	13	-	20
<b>% Articulated Trucks</b>	0.1%	0%	0%	0%	0.1%	-	0%	0.7%	0%	0%	0.6%	-	0%	0%	0%	0%	0%	-	0%	0.1%	0.3%	0%	0.3%	-	0.2%
<b>Buses</b>	34	0	0	0	34	-	1	1	0	0	2	-	0	0	0	0	0	-	0	0	58	0	58	-	94
<b>% Buses</b>	0.8%	0%	0%	0%	0.8%	-	1.5%	0.2%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0%	0%	1.4%	0%	1.1%	-	0.9%
<b>Bicycles on Road</b>	8	0	2	0	10	-	2	2	0	0	4	-	0	0	0	0	0	-	0	3	20	0	23	-	37
<b>% Bicycles on Road</b>	0.2%	0%	1.2%	0%	0.2%	-	3.1%	0.5%	0%	0%	0.8%	-	0%	0%	0%	0%	0%	-	0%	0.3%	0.5%	0%	0.4%	-	0.4%
<b>Pedestrians</b>	-	-	-	-	-	1	-	-	-	-	-	50	-	-	-	-	-	75	-	-	-	-	-	15	-
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	96.2%	-	-	-	-	-	96.2%	-	-	-	-	-	93.8%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	3	-	-	-	-	-	1	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	3.8%	-	-	-	-	-	3.8%	-	-	-	-	-	6.3%	-

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (2) Brook Rd @ Thatcher St - TMC

Thu Oct 15, 2020

AM Peak (Oct 15 2020 7:30AM - 8:30 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791912, Location: 42.262579, -71.092657, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Brook Road (Route 28) Westbound					Thatcher Street Northbound					Driveway Northeastbound					Brook Road (Route 28) Eastbound					Int		
	T	BL	L	U	App Ped*	R	L	HL	U	App Ped*	HR	BR	HL	U	App Ped*	HR	R	T	U	App Ped*			
2020-10-15 7:30AM	159	1	7	0	167	0	3	4	0	0	7	1	0	0	0	0	0	0	0	128	0	302	
7:45AM	136	0	3	0	139	0	0	11	0	0	11	0	0	0	0	0	0	0	0	120	0	270	
8:00AM	116	1	2	0	119	0	1	6	0	0	7	2	0	1	1	0	2	5	124	1	252		
8:15AM	137	0	7	0	144	0	0	11	0	0	11	1	0	0	0	0	0	0	134	0	289		
<b>Total</b>	548	2	19	0	569	0	4	32	0	0	36	4	0	1	1	0	2	8	506	1	1113		
<b>% Approach</b>	96.3%	0.4%	3.3%	0%	-	11.1%	88.9%	0%	0%	-	0%	50.0%	50.0%	0%	-	0.4%	11.3%	88.1%	0.2%	-	-		
<b>% Total</b>	49.2%	0.2%	1.7%	0%	51.1%	-	0.4%	2.9%	0%	0%	3.2%	-	0%	0.1%	0.1%	0%	0.2%	-	0.2%	5.1%	40.1%	0.1%	45.5%
<b>PHF</b>	0.860	0.500	0.679	-	0.850	-	0.333	0.705	-	-	0.795	-	-	0.250	0.250	-	0.250	-	0.500	0.750	0.926	0.250	0.942
<b>Motorcycles</b>	1	0	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	0	0	1	0	1	
<b>% Motorcycles</b>	0.2%	0%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0.2%	0%	0.2%	
<b>Lights</b>	524	2	19	0	545	-	4	30	0	0	34	-	0	1	1	0	2	-	2	57	417	1	477
<b>% Lights</b>	95.6%	100%	100%	0%	95.8%	-	100%	93.8%	0%	0%	94.4%	-	0%	100%	100%	0%	100%	-	100%	100%	93.5%	100%	94.3%
<b>Single-Unit Trucks</b>	18	0	0	0	18	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	11	0	11
<b>% Single-Unit Trucks</b>	3.3%	0%	0%	0%	3.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	2.5%	0%	2.2%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	2
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0.4%	0%	0.4%
<b>Buses</b>	4	0	0	0	4	-	0	1	0	0	1	-	0	0	0	0	0	-	0	0	10	0	10
<b>% Buses</b>	0.7%	0%	0%	0%	0.7%	-	0%	3.1%	0%	0%	2.8%	-	0%	0%	0%	0%	0%	-	0%	0%	2.2%	0%	2.0%
<b>Bicycles on Road</b>	1	0	0	0	1	-	0	1	0	0	1	-	0	0	0	0	0	-	0	0	5	0	5
<b>% Bicycles on Road</b>	0.2%	0%	0%	0%	0.2%	-	0%	3.1%	0%	0%	2.8%	-	0%	0%	0%	0%	0%	-	0%	0%	1.1%	0%	1.0%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	8	-	-	-	-	1
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	100%
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	0%

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (2) Brook Rd @ Thatcher St - TMC

Thu Oct 15, 2020

PM Peak (Oct 15 2020 4:45PM - 5:45 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791912, Location: 42.262579, -71.092657, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Brook Road (Route 28) Westbound						Thatcher Street Northbound						Driveway Northeastbound						Brook Road (Route 28) Eastbound						
Time	T	BL	L	U	App	Ped*	R	L	HL	U	App	Ped*	HR	BR	HL	U	App	Ped*	HR	R	T	U	App	Ped*	Int
2020-10-15 4:45PM	116	1	5	0	122	0	2	9	0	0	11	9	0	0	0	0	0	8	1	44	179	1	225	0	358
5:00PM	139	0	10	0	149	0	6	7	0	0	13	2	2	0	0	0	2	5	2	31	161	3	197	1	361
5:15PM	109	0	4	0	113	0	3	16	0	0	19	1	1	0	1	0	2	3	1	35	170	3	209	0	343
5:30PM	129	1	5	0	135	0	1	16	0	0	17	4	2	0	0	0	2	5	1	42	139	0	182	0	336
<b>Total</b>	493	2	24	0	519	0	12	48	0	0	60	16	5	0	1	0	6	21	5	152	649	7	813	1	1398
<b>% Approach</b>	95.0%	0.4%	4.6%	0%	-	-	20.0%	80.0%	0%	0%	-	-	83.3%	0%	16.7%	0%	-	-	0.6%	18.7%	79.8%	0.9%	-	-	-
<b>% Total</b>	35.3%	0.1%	1.7%	0%	37.1%	-	0.9%	3.4%	0%	0%	4.3%	-	0.4%	0%	0.1%	0%	0.4%	-	0.4%	10.9%	46.4%	0.5%	58.2%	-	-
<b>PHF</b>	0.883	0.500	0.600	-	0.867	-	0.500	0.750	-	-	0.789	-	0.625	-	0.250	-	0.750	-	0.625	0.864	0.904	0.583	0.902	-	0.963
<b>Motorcycles</b>	4	0	0	0	4	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	2	-	6
<b>% Motorcycles</b>	0.8%	0%	0%	0%	0.8%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0.3%	0%	0.2%	-	0.4%
<b>Lights</b>	477	2	24	0	503	-	12	48	0	0	60	-	5	0	1	0	6	-	5	151	626	7	789	-	1358
<b>% Lights</b>	96.8%	100%	100%	0%	96.9%	-	100%	100%	0%	0%	100%	-	100%	0%	100%	0%	100%	-	100%	99.3%	96.5%	100%	97.0%	-	97.1%
<b>Single-Unit Trucks</b>	7	0	0	0	7	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	5	0	6	-	13
<b>% Single-Unit Trucks</b>	1.4%	0%	0%	0%	1.3%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.7%	0.8%	0%	0.7%	-	0.9%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	1	-	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0.2%	0%	0.1%	-	0.1%
<b>Buses</b>	3	0	0	0	3	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	10	0	10	-	13
<b>% Buses</b>	0.6%	0%	0%	0%	0.6%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	1.5%	0%	1.2%	-	0.9%
<b>Bicycles on Road</b>	2	0	0	0	2	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	5	0	5	-	7
<b>% Bicycles on Road</b>	0.4%	0%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0.8%	0%	0.6%	-	0.5%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	16	-	-	-	-	-	21	-	-	-	-	-	1	-
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (2) Brook Rd @ Thatcher St - TMC

Sat Oct 17, 2020

Midday Peak (WKND) (Oct 17 2020 11:45AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791912, Location: 42.262579, -71.092657, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Brook Road (Route 28) Westbound					Thatcher Street Northbound					Driveway Northeastbound					Brook Road (Route 28) Eastbound					Int				
Time	T	BL	L	U	App	Ped*	R	L	HL	U	App	Ped*	HR	BR	HL	U	App	Ped*	HR	R	T	U	App	Ped*	Int
2020-10-17 11:45AM	91	1	7	0	99	0	1	13	0	0	14	4	0	0	0	0	0	6	1	16	123	0	140	0	253
12:00PM	97	0	5	0	102	0	1	12	0	0	13	2	1	0	0	0	1	3	1	32	127	0	160	0	276
12:15PM	110	0	10	0	120	0	7	10	0	0	17	2	0	0	1	0	1	1	1	30	141	0	172	0	310
12:30PM	121	0	4	0	125	0	2	13	0	0	15	0	0	0	0	0	0	1	0	27	118	0	145	0	285
<b>Total</b>	419	1	26	0	446	0	11	48	0	0	59	8	1	0	1	0	2	11	3	105	509	0	617	0	1124
<b>% Approach</b>	93.9%	0.2%	5.8%	0%	-	-	18.6%	81.4%	0%	0%	-	-	50.0%	0%	50.0%	0%	-	-	0.5%	17.0%	82.5%	0%	-	-	-
<b>% Total</b>	37.3%	0.1%	2.3%	0%	39.7%	-	1.0%	4.3%	0%	0%	5.2%	-	0.1%	0%	0.1%	0%	0.2%	-	0.3%	9.3%	45.3%	0%	54.9%	-	-
<b>PHF</b>	0.864	0.250	0.650	-	0.890	-	0.450	0.923	-	-	0.950	-	0.250	-	0.250	-	0.500	-	0.750	0.820	0.902	-	0.897	-	0.910
<b>Motorcycles</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	1	-	1
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0.2%	0%	0.2%	-	0.1%
<b>Lights</b>	412	1	25	0	438	-	9	46	0	0	55	-	1	0	1	0	2	-	3	104	507	0	614	-	1109
<b>% Lights</b>	98.3%	100%	96.2%	0%	98.2%	-	81.8%	95.8%	0%	0%	93.2%	-	100%	0%	100%	0%	100%	-	100%	99.0%	99.6%	0%	99.5%	-	98.7%
<b>Single-Unit Trucks</b>	4	0	1	0	5	-	0	1	0	0	1	-	0	0	0	0	0	-	0	0	1	0	1	-	7
<b>% Single-Unit Trucks</b>	1.0%	0%	3.8%	0%	1.1%	-	0%	2.1%	0%	0%	1.7%	-	0%	0%	0%	0%	0%	-	0%	0%	0.2%	0%	0.2%	-	0.6%
<b>Articulated Trucks</b>	1	0	0	0	1	-	0	1	0	0	1	-	0	0	0	0	0	-	0	1	0	0	1	-	3
<b>% Articulated Trucks</b>	0.2%	0%	0%	0%	0.2%	-	0%	2.1%	0%	0%	1.7%	-	0%	0%	0%	0%	0%	-	0%	1.0%	0%	0%	0.2%	-	0.3%
<b>Buses</b>	1	0	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	1
<b>% Buses</b>	0.2%	0%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Bicycles on Road</b>	1	0	0	0	1	-	2	0	0	0	2	-	0	0	0	0	0	-	0	0	0	0	0	-	3
<b>% Bicycles on Road</b>	0.2%	0%	0%	0%	0.2%	-	18.2%	0%	0%	0%	3.4%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.3%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	8	-	-	-	-	-	11	-	-	-	-	-	0	-
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	-

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn



207528 (2) Brook Rd @ Thatcher St - TMC

Sat Oct 17, 2020

PM Peak (WKND) (Oct 17 2020 1PM - 2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791912, Location: 42.262579, -71.092657, Site Code: S20-003

Provided by: Precision Data Industries,  
LLC (PDI)  
46 Morton Street,  
Framingham, MA, MA, 01702, US

Leg Direction	Brook Road (Route 28) Westbound					Thatcher Street Northbound					Driveway Northeastbound					Brook Road (Route 28) Eastbound					Int				
	T	BL	L	U	App	Ped*	R	L	HL	U	App	Ped*	HR	BR	HL	U	App	Ped*	HR	R		T	U	App	Ped*
2020-10-17 1:00PM	101	1	7	0	109	0	0	8	0	0	8	0	0	1	1	0	2	0	1	31	124	0	156	0	275
1:15PM	111	0	3	0	114	0	1	15	0	0	16	0	0	1	0	0	1	0	1	35	120	0	156	0	287
1:30PM	123	0	3	0	126	0	1	14	0	0	15	1	1	1	0	0	2	1	1	25	130	2	158	0	301
1:45PM	107	0	7	0	114	0	2	17	1	0	20	3	0	0	0	0	0	5	0	27	131	1	159	1	293
<b>Total</b>	442	1	20	0	463	0	4	54	1	0	59	4	1	3	1	0	5	6	3	118	505	3	629	1	1156
<b>% Approach</b>	95.5%	0.2%	4.3%	0%	-	-	6.8%	91.5%	1.7%	0%	-	-	20.0%	60.0%	20.0%	0%	-	-	0.5%	18.8%	80.3%	0.5%	-	-	-
<b>% Total</b>	38.2%	0.1%	1.7%	0%	40.1%	-	0.3%	4.7%	0.1%	0%	5.1%	-	0.1%	0.3%	0.1%	0%	0.4%	-	0.3%	10.2%	43.7%	0.3%	54.4%	-	-
<b>PHF</b>	0.898	0.250	0.714	-	0.919	-	0.500	0.794	0.250	-	0.738	-	0.250	0.750	0.250	-	0.625	-	0.750	0.843	0.969	0.375	0.994	-	0.959
<b>Motorcycles</b>	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	0	0	1	0	1	-	2
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	1.9%	0%	0%	1.7%	-	0%	0%	0%	0%	0%	-	0%	0%	0.2%	0%	0.2%	-	0.2%
<b>Lights</b>	437	1	20	0	458	-	4	53	1	0	58	-	1	3	1	0	5	-	3	116	489	3	611	-	1132
<b>% Lights</b>	98.9%	100%	100%	0%	98.9%	-	100%	98.1%	100%	0%	98.3%	-	100%	100%	100%	0%	100%	-	100%	98.3%	96.8%	100%	97.1%	-	97.9%
<b>Single-Unit Trucks</b>	5	0	0	0	5	-	0	0	0	0	0	-	0	0	0	0	0	-	0	2	6	0	8	-	13
<b>% Single-Unit Trucks</b>	1.1%	0%	0%	0%	1.1%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	1.7%	1.2%	0%	1.3%	-	1.1%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	1	-	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0.2%	0%	0.2%	-	0.1%
<b>Buses</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	3	0	3	-	3
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0.6%	0%	0.5%	-	0.3%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	5	0	5	-	5
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	1.0%	0%	0.8%	-	0.4%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	6	-	-	-	-	-	-	1
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-100%	-	-	-	-	-	-100%	-	-	-	-	-	-	-	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	-	0%

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (3) Brook Road (Route 28) @ St Mary Rd - TMC

Thu Oct 15, 2020

Full Length (6 AM-9 AM, 3 PM-6 PM, 11 AM-2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 792078, Location: 42.262544, -71.08996, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Driveway Southbound						Brook Road (Route 28) Westbound						St Marys Road Northbound						Brook Road (Route 28) Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 6:00AM	0	0	0	0	0	0	0	580	9	0	589	1	5	0	5	0	10	2	6	176	0	0	182	0	781
7:00AM	0	0	2	0	2	6	0	583	34	0	617	1	14	0	4	0	18	0	14	367	0	0	381	3	1018
8:00AM	0	0	0	0	0	10	0	499	42	0	541	0	27	0	1	0	28	8	10	464	0	0	474	3	1043
3:00PM	0	0	0	0	0	13	0	510	45	0	555	8	16	1	11	0	28	0	21	576	0	0	597	3	1180
4:00PM	0	0	0	0	0	6	1	523	14	1	539	0	14	0	15	0	29	7	12	652	0	0	664	6	1232
5:00PM	1	0	0	0	1	8	2	499	41	0	542	2	9	0	9	0	18	8	17	589	0	0	606	4	1167
2020-10-17 11:00AM	0	0	2	0	2	7	0	376	17	1	394	4	9	0	7	0	16	4	17	428	0	0	445	2	857
12:00PM	0	0	0	0	0	5	0	418	19	1	438	6	8	0	6	0	14	3	13	502	0	0	515	2	967
1:00PM	0	0	0	0	0	8	1	435	21	0	457	2	12	0	5	0	17	3	15	499	0	0	514	6	988
<b>Total</b>	1	0	4	0	5	63	4	4423	242	3	4672	24	114	1	63	0	178	35	125	4253	0	0	4378	29	9233
<b>% Approach</b>	20.0%	0%	80.0%	0%	-	-	0.1%	94.7%	5.2%	0.1%	-	-	64.0%	0.6%	35.4%	0%	-	-	2.9%	97.1%	0%	0%	-	-	-
<b>% Total</b>	0%	0%	0%	0%	0.1%	-	0%	47.9%	2.6%	0%	50.6%	-	1.2%	0%	0.7%	0%	1.9%	-	1.4%	46.1%	0%	0%	47.4%	-	-
<b>Motorcycles</b>	0	0	0	0	0	-	0	9	0	0	9	-	0	0	0	0	0	-	0	11	0	0	11	-	20
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.3%	0%	0%	0.3%	-	0.2%
<b>Lights</b>	1	0	4	0	5	-	4	4272	235	3	4514	-	110	0	62	0	172	-	123	4067	0	0	4190	-	8881
<b>% Lights</b>	100%	0%	100%	0%	100%	-	100%	96.6%	97.1%	100%	96.6%	-	96.5%	0%	98.4%	0%	96.6%	-	98.4%	95.6%	0%	0%	95.7%	-	96.2%
<b>Single-Unit Trucks</b>	0	0	0	0	0	-	0	89	4	0	93	-	1	0	1	0	2	-	0	90	0	0	90	-	185
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	0%	2.0%	1.7%	0%	2.0%	-	0.9%	0%	1.6%	0%	1.1%	-	0%	2.1%	0%	0%	2.1%	-	2.0%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	7	1	0	8	-	0	0	0	0	0	-	0	9	0	0	9	-	17
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0.2%	0.4%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0.2%
<b>Buses</b>	0	0	0	0	0	-	0	36	0	0	36	-	1	0	0	0	1	-	0	57	0	0	57	-	94
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0.8%	0%	0%	0.8%	-	0.9%	0%	0%	0%	0.6%	-	0%	1.3%	0%	0%	1.3%	-	1.0%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	10	2	0	12	-	2	1	0	0	3	-	2	19	0	0	21	-	36
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0.2%	0.8%	0%	0.3%	-	1.8%	100%	0%	0%	1.7%	-	1.6%	0.4%	0%	0%	0.5%	-	0.4%
<b>Pedestrians</b>	-	-	-	-	-	54	-	-	-	-	-	21	-	-	-	-	-	31	-	-	-	-	-	27	-
<b>% Pedestrians</b>	-	-	-	-	-	85.7%	-	-	-	-	-	87.5%	-	-	-	-	-	88.6%	-	-	-	-	-	93.1%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	9	-	-	-	-	-	3	-	-	-	-	-	4	-	-	-	-	-	2	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	14.3%	-	-	-	-	-	12.5%	-	-	-	-	-	11.4%	-	-	-	-	-	6.9%	-

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (3) Brook Road (Route 28) @ St Mary Rd - TMC

Thu Oct 15, 2020

AM Peak (Oct 15 2020 7:30AM - 8:30 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 792078, Location: 42.262544, -71.08996, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Driveway Southbound						Brook Road (Route 28) Westbound						St Marys Road Northbound						Brook Road (Route 28) Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 7:30AM	0	0	0	0	0	2	0	161	17	0	178	0	2	0	1	0	3	0	8	106	0	0	114	0	295
7:45AM	0	0	0	0	0	1	0	136	4	0	140	1	10	0	1	0	11	0	2	102	0	0	104	1	255
8:00AM	0	0	0	0	0	2	0	111	5	0	116	0	3	0	0	0	3	4	0	125	0	0	125	0	244
8:15AM	0	0	0	0	0	1	0	144	9	0	153	0	5	0	0	0	5	1	3	116	0	0	119	0	277
<b>Total</b>	0	0	0	0	0	6	0	552	35	0	587	1	20	0	2	0	22	5	13	449	0	0	462	1	1071
<b>% Approach</b>	0%	0%	0%	0%	0%	-	0%	94.0%	6.0%	0%	-	-	90.9%	0%	9.1%	0%	-	-	2.8%	97.2%	0%	0%	-	-	-
<b>% Total</b>	0%	0%	0%	0%	0%	0%	0%	51.5%	3.3%	0%	54.8%	-	1.9%	0%	0.2%	0%	2.1%	-	1.2%	41.9%	0%	0%	43.1%	-	-
<b>PHF</b>	-	-	-	-	-	-	-	0.856	0.500	-	0.822	-	0.500	-	0.500	-	0.500	-	0.406	0.912	-	-	0.939	-	0.903
<b>Motorcycles</b>	0	0	0	0	0	0	0	1	0	0	1	-	0	0	0	0	0	-	0	1	0	0	1	-	2
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0.2%
<b>Lights</b>	0	0	0	0	0	0	0	527	33	0	560	-	19	0	2	0	21	-	13	422	0	0	435	-	1016
<b>% Lights</b>	0%	0%	0%	0%	0%	-	0%	95.5%	94.3%	0%	95.4%	-	95.0%	0%	100%	0%	95.5%	-	100%	94.0%	0%	0%	94.2%	-	94.9%
<b>Single-Unit Trucks</b>	0	0	0	0	0	0	0	19	1	0	20	-	0	0	0	0	0	-	0	11	0	0	11	-	31
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	0%	3.4%	2.9%	0%	3.4%	-	0%	0%	0%	0%	0%	-	0%	2.4%	0%	0%	2.4%	-	2.9%
<b>Articulated Trucks</b>	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0.1%
<b>Buses</b>	0	0	0	0	0	0	0	4	0	0	4	-	1	0	0	0	1	-	0	10	0	0	10	-	15
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0.7%	0%	0%	0.7%	-	5.0%	0%	0%	0%	4.5%	-	0%	2.2%	0%	0%	2.2%	-	1.4%
<b>Bicycles on Road</b>	0	0	0	0	0	0	0	1	1	0	2	-	0	0	0	0	0	-	0	4	0	0	4	-	6
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0.2%	2.9%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0%	0.9%	0%	0%	0.9%	-	0.6%
<b>Pedestrians</b>	-	-	-	-	-	6	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	1	-	1
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	100%	-	-	-	-	-	60.0%	-	-	-	-	-	100%	-	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	0
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-	40.0%	-	-	-	-	-	0%	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (3) Brook Road (Route 28) @ St Mary Rd - TMC

Thu Oct 15, 2020

PM Peak (Oct 15 2020 4:15PM - 5:15 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 792078, Location: 42.262544, -71.08996, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street,  
Framingham, MA, MA, 01702, US

Leg Direction	Driveway Southbound						Brook Road (Route 28) Westbound						St Marys Road Northbound						Brook Road (Route 28) Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 4:15PM	0	0	0	0	0	1	0	141	5	0	146	0	2	0	5	0	7	1	3	159	0	0	162	1	315
4:30PM	0	0	0	0	0	2	0	140	2	0	142	0	3	0	4	0	7	0	2	142	0	0	144	5	293
4:45PM	0	0	0	0	0	1	1	123	2	0	126	0	3	0	3	0	6	4	3	184	0	0	187	0	319
5:00PM	0	0	0	0	0	1	1	147	8	0	156	0	2	0	3	0	5	2	5	156	0	0	161	0	322
<b>Total</b>	0	0	0	0	0	5	2	551	17	0	570	0	10	0	15	0	25	7	13	641	0	0	654	6	1249
<b>% Approach</b>	0%	0%	0%	0%	-	-	0.4%	96.7%	3.0%	0%	-	-	40.0%	0%	60.0%	0%	-	-	2.0%	98.0%	0%	0%	-	-	-
<b>% Total</b>	0%	0%	0%	0%	0%	-	0.2%	44.1%	1.4%	0%	45.6%	-	0.8%	0%	1.2%	0%	2.0%	-	1.0%	51.3%	0%	0%	52.4%	-	-
<b>PHF</b>	-	-	-	-	-	-	0.500	0.938	0.571	-	0.919	-	0.833	-	0.750	-	0.893	-	0.650	0.874	-	-	0.878	-	0.972
<b>Motorcycles</b>	0	0	0	0	0	-	0	3	0	0	3	-	0	0	0	0	0	-	0	3	0	0	3	-	6
<b>% Motorcycles</b>	0%	0%	0%	0%	-	-	0%	0.5%	0%	0%	0.5%	-	0%	0%	0%	0%	0%	-	0%	0.5%	0%	0%	0.5%	-	0.5%
<b>Lights</b>	0	0	0	0	0	-	2	532	16	0	550	-	10	0	15	0	25	-	13	615	0	0	628	-	1203
<b>% Lights</b>	0%	0%	0%	0%	-	-	100%	96.6%	94.1%	0%	96.5%	-	100%	0%	100%	0%	100%	-	100%	95.9%	0%	0%	96.0%	-	96.3%
<b>Single-Unit Trucks</b>	0	0	0	0	0	-	0	7	0	0	7	-	0	0	0	0	0	-	0	8	0	0	8	-	15
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	-	-	0%	1.3%	0%	0%	1.2%	-	0%	0%	0%	0%	0%	-	0%	1.2%	0%	0%	1.2%	-	1.2%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	2	0	0	2	-	0	0	0	0	0	-	0	1	0	0	1	-	3
<b>% Articulated Trucks</b>	0%	0%	0%	0%	-	-	0%	0.4%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0.2%
<b>Buses</b>	0	0	0	0	0	-	0	4	0	0	4	-	0	0	0	0	0	-	0	13	0	0	13	-	17
<b>% Buses</b>	0%	0%	0%	0%	-	-	0%	0.7%	0%	0%	0.7%	-	0%	0%	0%	0%	0%	-	0%	2.0%	0%	0%	2.0%	-	1.4%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	3	1	0	4	-	0	0	0	0	0	-	0	1	0	0	1	-	5
<b>% Bicycles on Road</b>	0%	0%	0%	0%	-	-	0%	0.5%	5.9%	0%	0.7%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0.4%
<b>Pedestrians</b>	-	-	-	-	-	4	-	-	-	-	0	-	-	-	-	-	7	-	-	-	-	-	-	5	-
<b>% Pedestrians</b>	-	-	-	-	-	80.0%	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	83.3%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	1	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	1	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	20.0%	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	16.7%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (3) Brook Road (Route 28) @ St Mary Rd - TMC

Sat Oct 17, 2020

Midday Peak (WKND) (Oct 17 2020 11:45AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 792078, Location: 42.262544, -71.08996, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Driveway Southbound						Brook Road (Route 28) Westbound						St Marys Road Northbound						Brook Road (Route 28) Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-17 11:45AM	0	0	2	0	2	0	0	93	5	0	98	4	2	0	1	0	3	3	4	123	0	0	127	0	230
12:00PM	0	0	0	0	0	3	0	102	4	1	107	2	3	0	1	0	4	2	4	125	0	0	129	0	240
12:15PM	0	0	0	0	0	1	0	114	6	0	120	0	3	0	1	0	4	1	5	137	0	0	142	2	266
12:30PM	0	0	0	0	0	1	0	113	4	0	117	0	1	0	3	0	4	0	1	117	0	0	118	0	239
<b>Total</b>	0	0	2	0	2	5	0	422	19	1	442	6	9	0	6	0	15	6	14	502	0	0	516	2	975
<b>% Approach</b>	0%	0%	100%	0%	-	-	0%	95.5%	4.3%	0.2%	-	-	60.0%	0%	40.0%	0%	-	-	2.7%	97.3%	0%	0%	-	-	-
<b>% Total</b>	0%	0%	0.2%	0%	0.2%	-	0%	43.3%	1.9%	0.1%	45.3%	-	0.9%	0%	0.6%	0%	1.5%	-	1.4%	51.5%	0%	0%	52.9%	-	-
<b>PHF</b>	-	-	0.250	-	-0.250	-	-	0.925	0.792	0.250	0.921	-	0.750	-	0.500	-	-0.938	-	0.750	0.916	-	-	0.918	-	0.921
<b>Motorcycles</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	1
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0.1%
<b>Lights</b>	0	0	2	0	2	-	0	415	19	1	435	-	9	0	6	0	15	-	12	499	0	0	511	-	963
<b>% Lights</b>	0%	0%	100%	0%	100%	-	0%	98.3%	100%	100%	98.4%	-	100%	0%	100%	0%	100%	-	85.7%	99.4%	0%	0%	99.0%	-	98.8%
<b>Single-Unit Trucks</b>	0	0	0	0	0	-	0	5	0	0	5	-	0	0	0	0	0	-	0	2	0	0	2	-	7
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	0%	1.2%	0%	0%	1.1%	-	0%	0%	0%	0%	0%	-	0%	0.4%	0%	0%	0.4%	-	0.7%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Buses</b>	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	1
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	2	0	0	0	2	-	2
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	14.3%	0%	0%	0%	0.4%	-	0.2%
<b>Pedestrians</b>	-	-	-	-	-	4	-	-	-	-	-	6	-	-	-	-	-	6	-	-	-	-	-	-	2
<b>% Pedestrians</b>	-	-	-	-	-	80.0%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	100%
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	20.0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	0%

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



207528 (3) Brook Road (Route 28) @ St Mary Rd - TMC

Sat Oct 17, 2020

PM Peak (WKND) (Oct 17 2020 1PM - 2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 792078, Location: 42.262544, -71.08996, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Driveway Southbound						Brook Road (Route 28) Westbound						St Marys Road Northbound						Brook Road (Route 28) Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-17 1:00PM	0	0	0	0	0	1	0	103	5	0	108	0	3	0	3	0	6	0	2	113	0	0	115	1	229
1:15PM	0	0	0	0	0	1	0	106	3	0	109	2	4	0	0	0	4	0	3	127	0	0	130	0	243
1:30PM	0	0	0	0	0	4	0	120	6	0	126	0	1	0	1	0	2	1	7	128	0	0	135	2	263
1:45PM	0	0	0	0	0	2	1	106	7	0	114	0	4	0	1	0	5	2	3	131	0	0	134	3	253
<b>Total</b>	0	0	0	0	0	8	1	435	21	0	457	2	12	0	5	0	17	3	15	499	0	0	514	6	988
<b>% Approach</b>	0%	0%	0%	0%	0%	-	0.2%	95.2%	4.6%	0%	-	-	70.6%	0%	29.4%	0%	-	-	2.9%	97.1%	0%	0%	-	-	-
<b>% Total</b>	0%	0%	0%	0%	0%	-	0.1%	44.0%	2.1%	0%	46.3%	-	1.2%	0%	0.5%	0%	1.7%	-	1.5%	50.5%	0%	0%	52.0%	-	-
<b>PHF</b>	-	-	-	-	-	-	0.250	0.906	0.750	-	0.907	-	0.688	-	0.417	-	0.667	-	0.536	0.957	-	-	0.957	-	0.941
<b>Motorcycles</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	1
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0.1%
<b>Lights</b>	0	0	0	0	0	-	1	427	20	0	448	-	11	0	5	0	16	-	15	481	0	0	496	-	960
<b>% Lights</b>	0%	0%	0%	0%	0%	-	100%	98.2%	95.2%	0%	98.0%	-	91.7%	0%	100%	0%	94.1%	-	100%	96.4%	0%	0%	96.5%	-	97.2%
<b>Single-Unit Trucks</b>	0	0	0	0	0	-	0	8	1	0	9	-	0	0	0	0	0	-	0	9	0	0	9	-	18
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	0%	1.8%	4.8%	0%	2.0%	-	0%	0%	0%	0%	0%	-	0%	1.8%	0%	0%	1.8%	-	1.8%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0.1%
<b>Buses</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	2	0	0	2	-	2
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.4%	0%	0%	0.4%	-	0.2%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	1	0	0	0	1	-	0	5	0	0	5	-	6
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	8.3%	0%	0%	0%	5.9%	-	0%	1.0%	0%	0%	1.0%	-	0.6%
<b>Pedestrians</b>	-	-	-	-	-	7	-	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	6	6
<b>% Pedestrians</b>	-	-	-	-	-	87.5%	-	-	-	-	-	100%	-	-	-	-	-	66.7%	-	-	-	-	-	100%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	0
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	12.5%	-	-	-	-	-	0%	-	-	-	-	-	33.3%	-	-	-	-	-	0%	-

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (4) Brook Road (Route 28) @ Standish ... - TMC

Thu Oct 15, 2020

Full Length (6 AM-9 AM, 3 PM-6 PM, 11 AM-2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791918, Location: 42.260055, -71.085545, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street,  
Framingham, MA, MA, 01702, US

Leg Direction	Standish Road Southbound						Brook Road (Route 28) Westbound						Kelly Field Access Northbound						Brook Road (Route 28) Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 6:00AM	0	0	1	0	1	0	2	592	0	0	594	0	0	0	0	0	0	9	0	183	0	0	183	4	778
7:00AM	6	0	1	0	7	1	9	620	1	0	630	1	1	0	1	0	2	5	3	355	4	0	362	6	1001
8:00AM	5	1	9	0	15	14	11	570	0	0	581	1	1	3	1	0	5	10	7	441	7	0	455	3	1056
3:00PM	8	1	12	0	21	13	16	525	4	0	545	6	2	0	1	0	3	17	8	585	11	0	604	14	1173
4:00PM	4	3	7	0	14	14	7	535	6	0	548	15	3	2	2	0	7	33	10	653	10	0	673	21	1242
5:00PM	4	2	8	0	14	6	16	544	12	0	572	7	3	0	3	0	6	13	12	553	8	1	574	13	1166
2020-10-17 11:00AM	2	1	9	0	12	10	9	394	10	0	413	4	1	0	1	0	2	4	8	436	6	0	450	11	877
12:00PM	4	1	3	0	8	14	12	438	4	0	454	0	2	0	5	0	7	15	3	492	7	0	502	27	971
1:00PM	6	2	8	0	16	14	6	467	10	0	483	3	0	0	0	0	0	14	10	505	1	0	516	16	1015
<b>Total</b>	39	11	58	0	108	86	88	4685	47	0	4820	37	13	5	14	0	32	120	61	4203	54	1	4319	115	9279
<b>% Approach</b>	36.1%	10.2%	53.7%	0%	-	-	1.8%	97.2%	1.0%	0%	-	-	40.6%	15.6%	43.8%	0%	-	-	1.4%	97.3%	1.3%	0%	-	-	-
<b>% Total</b>	0.4%	0.1%	0.6%	0%	1.2%	-	0.9%	50.5%	0.5%	0%	51.9%	-	0.1%	0.1%	0.2%	0%	0.3%	-	0.7%	45.3%	0.6%	0%	46.5%	-	-
<b>Motorcycles</b>	0	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	0	0	11	0	0	11	0	19
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.3%	0%	0%	0.3%	-	0.2%
<b>Lights</b>	38	5	56	0	99	-	84	4521	46	0	4651	-	11	1	13	0	25	-	52	4006	49	0	4107	-	8882
<b>% Lights</b>	97.4%	45.5%	96.6%	0%	91.7%	-	95.5%	96.5%	97.9%	0%	96.5%	-	84.6%	20.0%	92.9%	0%	78.1%	-	85.2%	95.3%	90.7%	0%	95.1%	-	95.7%
<b>Single-Unit Trucks</b>	1	0	2	0	3	-	3	92	0	0	95	-	0	0	0	0	0	-	4	89	0	0	93	-	191
<b>% Single-Unit Trucks</b>	2.6%	0%	3.4%	0%	2.8%	-	3.4%	2.0%	0%	0%	2.0%	-	0%	0%	0%	0%	0%	-	6.6%	2.1%	0%	0%	2.2%	-	2.1%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	11	0	0	11	-	1	0	0	0	1	-	0	15	0	0	15	-	27
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	7.7%	0%	0%	0%	3.1%	-	0%	0.4%	0%	0%	0.3%	-	0.3%
<b>Buses</b>	0	0	0	0	0	-	1	42	0	0	43	-	0	0	0	0	0	-	1	62	0	1	64	-	107
<b>% Buses</b>	0%	0%	0%	0%	0%	-	1.1%	0.9%	0%	0%	0.9%	-	0%	0%	0%	0%	0%	-	1.6%	1.5%	0%	100%	1.5%	-	1.2%
<b>Bicycles on Road</b>	0	6	0	0	6	-	0	11	1	0	12	-	1	4	1	0	6	-	4	20	5	0	29	-	53
<b>% Bicycles on Road</b>	0%	54.5%	0%	0%	5.6%	-	0%	0.2%	2.1%	0%	0.2%	-	7.7%	80.0%	7.1%	0%	18.8%	-	6.6%	0.5%	9.3%	0%	0.7%	-	0.6%
<b>Pedestrians</b>	-	-	-	-	-	73	-	-	-	-	-	34	-	-	-	-	-	106	-	-	-	-	-	102	-
<b>% Pedestrians</b>	-	-	-	-	-	84.9%	-	-	-	-	-	91.9%	-	-	-	-	-	88.3%	-	-	-	-	-	88.7%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	13	-	-	-	-	-	3	-	-	-	-	-	14	-	-	-	-	-	13	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	15.1%	-	-	-	-	-	8.1%	-	-	-	-	-	11.7%	-	-	-	-	-	11.3%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (4) Brook Road (Route 28) @ Standish ... - TMC

Thu Oct 15, 2020

AM Peak (Oct 15 2020 7:30AM - 8:30 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791918, Location: 42.260055, -71.085545, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Standish Road Southbound						Brook Road (Route 28) Westbound						Kelly Field Access Northbound						Brook Road (Route 28) Eastbound						Int
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 7:30AM	3	0	0	0	3	0	4	166	0	0	170	0	0	0	0	0	0	0	0	104	2	0	106	3	279
7:45AM	1	0	1	0	2	1	4	144	0	0	148	1	1	0	0	0	1	2	1	97	2	0	100	0	251
8:00AM	0	0	1	0	1	2	2	112	0	0	114	1	0	0	0	0	0	1	2	110	3	0	115	1	230
8:15AM	1	0	1	0	2	2	3	174	0	0	177	0	1	2	0	0	3	1	1	120	1	0	122	0	304
<b>Total</b>	5	0	3	0	8	5	13	596	0	0	609	2	2	2	0	0	4	4	4	431	8	0	443	4	1064
<b>% Approach</b>	62.5%	0%	37.5%	0%	-	-	2.1%	97.9%	0%	0%	-	-	50.0%	50.0%	0%	0%	-	-	0.9%	97.3%	1.8%	0%	-	-	-
<b>% Total</b>	0.5%	0%	0.3%	0%	0.8%	-	1.2%	56.0%	0%	0%	57.2%	-	0.2%	0.2%	0%	0%	0.4%	-	0.4%	40.5%	0.8%	0%	41.6%	-	-
<b>PHF</b>	0.417	-	0.750	-	0.667	-	0.813	0.853	-	-	0.857	-	0.500	-	-	-	0.500	-	0.500	0.895	0.875	-	0.903	-	0.875
<b>Motorcycles</b>	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	0	1	0	0	1	-	2
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0.2%
<b>Lights</b>	5	0	3	0	8	-	11	565	0	0	576	-	1	0	0	0	1	-	3	399	7	0	409	-	994
<b>% Lights</b>	100%	0%	100%	0%	100%	-	84.6%	94.8%	0%	0%	94.6%	-	50.0%	0%	0%	0%	25.0%	-	75.0%	92.6%	87.5%	0%	92.3%	-	93.4%
<b>Single-Unit Trucks</b>	0	0	0	0	0	-	2	20	0	0	22	-	0	0	0	0	0	-	1	12	0	0	13	-	35
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	15.4%	3.4%	0%	0%	3.6%	-	0%	0%	0%	0%	0%	-	25.0%	2.8%	0%	0%	2.9%	-	3.3%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	4	0	0	4	-	1	0	0	0	1	-	0	2	0	0	2	-	7
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0.7%	0%	0%	0.7%	-	50.0%	0%	0%	0%	25.0%	-	0%	0.5%	0%	0%	0.5%	-	0.7%
<b>Buses</b>	0	0	0	0	0	-	0	4	0	0	4	-	0	0	0	0	0	-	0	12	0	0	12	-	16
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0.7%	0%	0%	0.7%	-	0%	0%	0%	0%	0%	-	0%	2.8%	0%	0%	2.7%	-	1.5%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	2	0	0	2	-	0	2	0	0	2	-	0	5	1	0	6	-	10
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0.3%	0%	0%	0.3%	-	0%	100%	0%	0%	50.0%	-	0%	1.2%	12.5%	0%	1.4%	-	0.9%
<b>Pedestrians</b>	-	-	-	-	-	5	-	-	-	-	-	2	-	-	-	-	-	4	-	-	-	-	-	4	
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (4) Brook Road (Route 28) @ Standish ... - TMC

Thu Oct 15, 2020

PM Peak (Oct 15 2020 4:15PM - 5:15 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791918, Location: 42.260055, -71.085545, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Standish Road Southbound						Brook Road (Route 28) Westbound						Kelly Field Access Northbound						Brook Road (Route 28) Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 4:15PM	2	0	1	0	3	1	2	145	3	0	150	4	1	0	1	0	2	6	0	159	2	0	161	5	316
4:30PM	0	3	2	0	5	4	2	152	0	0	154	3	1	0	1	0	2	7	5	143	1	0	149	8	310
4:45PM	1	0	3	0	4	6	0	116	3	0	119	3	0	1	0	0	1	15	2	174	5	0	181	6	305
5:00PM	2	1	3	0	6	2	6	153	4	0	163	0	2	0	0	0	2	5	0	154	2	1	157	0	328
<b>Total</b>	5	4	9	0	18	13	10	566	10	0	586	10	4	1	2	0	7	33	7	630	10	1	648	19	1259
<b>% Approach</b>	27.8%	22.2%	50.0%	0%	-	-	1.7%	96.6%	1.7%	0%	-	-	57.1%	14.3%	28.6%	0%	-	-	1.1%	97.2%	1.5%	0.2%	-	-	-
<b>% Total</b>	0.4%	0.3%	0.7%	0%	1.4%	-	0.8%	45.0%	0.8%	0%	46.5%	-	0.3%	0.1%	0.2%	0%	0.6%	-	0.6%	50.0%	0.8%	0.1%	51.5%	-	-
<b>PHF</b>	0.625	0.250	0.750	-	0.750	-	0.417	0.928	0.750	-	0.905	-	0.500	-	0.500	-	0.750	-	0.375	0.909	0.500	0.250	0.899	-	0.960
<b>Motorcycles</b>	0	0	0	0	0	-	0	2	0	0	2	-	0	0	0	0	0	-	0	3	0	0	3	-	5
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0.4%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0%	0.5%	0%	0%	0.5%	-	0.4%
<b>Lights</b>	5	1	9	0	15	-	10	550	9	0	569	-	4	0	2	0	6	-	6	602	8	0	616	-	1206
<b>% Lights</b>	100%	25.0%	100%	0%	83.3%	-	100%	97.2%	90.0%	0%	97.1%	-	100%	0%	100%	0%	85.7%	-	85.7%	95.6%	80.0%	0%	95.1%	-	95.8%
<b>Single-Unit Trucks</b>	0	0	0	0	0	-	0	7	0	0	7	-	0	0	0	0	0	-	0	10	0	0	10	-	17
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	0%	1.2%	0%	0%	1.2%	-	0%	0%	0%	0%	0%	-	0%	1.6%	0%	0%	1.5%	-	1.4%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	0	1	0	0	1	-	2
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0.2%
<b>Buses</b>	0	0	0	0	0	-	0	4	0	0	4	-	0	0	0	0	0	-	0	13	0	1	14	-	18
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0.7%	0%	0%	0.7%	-	0%	0%	0%	0%	0%	-	0%	2.1%	0%	100%	2.2%	-	1.4%
<b>Bicycles on Road</b>	0	3	0	0	3	-	0	2	1	0	3	-	0	1	0	0	1	-	1	1	2	0	4	-	11
<b>% Bicycles on Road</b>	0%	75.0%	0%	0%	16.7%	-	0%	0.4%	10.0%	0%	0.5%	-	0%	100%	0%	0%	14.3%	-	14.3%	0.2%	20.0%	0%	0.6%	-	0.9%
<b>Pedestrians</b>	-	-	-	-	-	9	-	-	-	-	-	10	-	-	-	-	-	31	-	-	-	-	-	14	-
<b>% Pedestrians</b>	-	-	-	-	-	69.2%	-	-	-	-	-	100%	-	-	-	-	-	93.9%	-	-	-	-	-	73.7%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	5	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	30.8%	-	-	-	-	-	0%	-	-	-	-	-	6.1%	-	-	-	-	-	26.3%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (4) Brook Road (Route 28) @ Standish ... - TMC

Sat Oct 17, 2020

Midday Peak (WKND) (Oct 17 2020 11:45AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791918, Location: 42.260055, -71.085545, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Standish Road Southbound						Brook Road (Route 28) Westbound						Kelly Field Access Northbound						Brook Road (Route 28) Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-17 11:45AM	0	1	3	0	4	2	1	101	0	0	102	0	0	0	0	0	0	2	0	130	3	0	133	2	239
12:00PM	1	1	1	0	3	7	4	102	0	0	106	0	0	0	0	0	0	3	0	116	2	0	118	8	227
12:15PM	2	0	1	0	3	1	2	133	0	0	135	0	0	0	0	0	0	2	1	139	1	0	141	3	279
12:30PM	0	0	1	0	1	3	2	111	2	0	115	0	1	0	5	0	6	8	0	117	2	0	119	10	241
<b>Total</b>	3	2	6	0	11	13	9	447	2	0	458	0	1	0	5	0	6	15	1	502	8	0	511	23	986
<b>% Approach</b>	27.3%	18.2%	54.5%	0%	-	-	2.0%	97.6%	0.4%	0%	-	-	16.7%	0%	83.3%	0%	-	-	0.2%	98.2%	1.6%	0%	-	-	-
<b>% Total</b>	0.3%	0.2%	0.6%	0%	1.1%	-	0.9%	45.3%	0.2%	0%	46.5%	-	0.1%	0%	0.5%	0%	0.6%	-	0.1%	50.9%	0.8%	0%	51.8%	-	-
<b>PHF</b>	0.375	-	0.500	-	0.750	-	0.563	0.836	0.250	-	0.844	-	0.250	-	0.250	-	0.250	-	0.250	0.903	0.750	-	0.902	-	0.878
<b>Motorcycles</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	1
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0.1%
<b>Lights</b>	3	0	6	0	9	-	8	438	2	0	448	-	1	0	5	0	6	-	1	499	6	0	506	-	969
<b>% Lights</b>	100%	0%	100%	0%	81.8%	-	88.9%	98.0%	100%	0%	97.8%	-	100%	0%	100%	0%	100%	-	100%	99.4%	75.0%	0%	99.0%	-	98.3%
<b>Single-Unit Trucks</b>	0	0	0	0	0	-	1	5	0	0	6	-	0	0	0	0	0	-	0	1	0	0	1	-	7
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	11.1%	1.1%	0%	0%	1.3%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0.7%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Buses</b>	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	0	1	0	0	1	-	2
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0.2%
<b>Bicycles on Road</b>	0	2	0	0	2	-	0	2	0	0	2	-	0	0	0	0	0	-	0	0	2	0	2	-	6
<b>% Bicycles on Road</b>	0%	100%	0%	0%	18.2%	-	0%	0.4%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0%	0%	25.0%	0%	0.4%	-	0.6%
<b>Pedestrians</b>	-	-	-	-	-	12	-	-	-	-	-	0	-	-	-	-	-	11	-	-	-	-	-	22	-
<b>% Pedestrians</b>	-	-	-	-	-	92.3%	-	-	-	-	-	-	-	-	-	-	-	73.3%	-	-	-	-	-	95.7%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	1	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	7.7%	-	-	-	-	-	-	-	-	-	-	-	26.7%	-	-	-	-	-	4.3%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



207528 (4) Brook Road (Route 28) @ Standish ... - TMC

Sat Oct 17, 2020

PM Peak (WKND) (Oct 17 2020 1PM - 2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791918, Location: 42.260055, -71.085545, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Standish Road Southbound						Brook Road (Route 28) Westbound						Kelly Field Access Northbound						Brook Road (Route 28) Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-17 1:00PM	2	0	3	0	5	2	0	118	5	0	123	0	0	0	0	0	0	3	3	120	0	0	123	5	251
1:15PM	1	0	1	0	2	6	2	108	3	0	113	1	0	0	0	0	0	4	4	120	0	0	124	6	239
1:30PM	2	0	4	0	6	4	0	130	2	0	132	0	0	0	0	0	0	7	0	129	1	0	130	4	268
1:45PM	1	2	0	0	3	2	4	111	0	0	115	2	0	0	0	0	0	0	3	136	0	0	139	1	257
<b>Total</b>	6	2	8	0	16	14	6	467	10	0	483	3	0	0	0	0	0	14	10	505	1	0	516	16	1015
<b>% Approach</b>	37.5%	12.5%	50.0%	0%	-	-	1.2%	96.7%	2.1%	0%	-	-	0%	0%	0%	0%	-	-	1.9%	97.9%	0.2%	0%	-	-	-
<b>% Total</b>	0.6%	0.2%	0.8%	0%	1.6%	-	0.6%	46.0%	1.0%	0%	47.6%	-	0%	0%	0%	0%	0%	-	1.0%	49.8%	0.1%	0%	50.8%	-	-
<b>PHF</b>	0.750	0.250	0.500	-	0.667	-	0.375	0.898	0.500	-	0.915	-	-	-	-	-	-	-	0.625	0.933	0.250	-	0.932	-	0.946
<b>Motorcycles</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Lights</b>	5	2	7	0	14	-	6	459	10	0	475	-	0	0	0	0	0	-	10	486	1	0	497	-	986
<b>% Lights</b>	83.3%	100%	87.5%	0%	87.5%	-	100%	98.3%	100%	0%	98.3%	-	0%	0%	0%	0%	0%	-	100%	96.2%	100%	0%	96.3%	-	97.1%
<b>Single-Unit Trucks</b>	1	0	1	0	2	-	0	7	0	0	7	-	0	0	0	0	0	-	0	10	0	0	10	-	19
<b>% Single-Unit Trucks</b>	16.7%	0%	12.5%	0%	12.5%	-	0%	1.5%	0%	0%	1.4%	-	0%	0%	0%	0%	0%	-	0%	2.0%	0%	0%	1.9%	-	1.9%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	0	2	0	0	2	-	3
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.4%	0%	0%	0.4%	-	0.3%
<b>Buses</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	2	0	0	2	-	2
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.4%	0%	0%	0.4%	-	0.2%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	5	0	0	5	-	5
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	1.0%	0%	0%	1.0%	-	0.5%
<b>Pedestrians</b>	-	-	-	-	-	12	-	-	-	-	-	2	-	-	-	-	-	12	-	-	-	-	-	13	-
<b>% Pedestrians</b>	-	-	-	-	-	85.7%	-	-	-	-	-	66.7%	-	-	-	-	-	85.7%	-	-	-	-	-	81.3%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	3	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	14.3%	-	-	-	-	-	33.3%	-	-	-	-	-	14.3%	-	-	-	-	-	18.8%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (5) Central Ave @ Reedsdale Rd) - TMC

Thu Oct 15, 2020

Full Length (6 AM-9 AM, 3 PM-6 PM, 11 AM-2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 792240, Location: 42.258308, -71.081139, Site Code: 207528

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Central Avenue Southbound								Brook Road Westbound								Reedsdale Road (Route 28) Northbound							
	R	BR	T	L	U	App	Ped*	R	T	BL	L	U	App	Ped*	R	T	L	HL	U	App	Ped*			
2020-10-15 6:00AM	3	11	50	9	0	73	9	5	135	19	2	0	161	3	2	64	449	2	0	517	5			
7:00AM	5	37	92	24	0	158	3	20	211	46	4	0	281	4	3	96	408	4	0	511	8			
8:00AM	7	32	115	37	0	191	6	48	241	85	9	0	383	7	7	125	360	2	0	494	11			
3:00PM	8	84	274	36	0	402	5	47	291	123	6	0	467	8	3	98	257	6	0	364	4			
4:00PM	5	100	231	27	0	363	7	24	283	130	14	0	451	1	5	89	238	9	0	341	4			
5:00PM	12	77	242	36	0	367	12	39	282	132	4	0	457	4	10	109	274	2	1	396	8			
2020-10-17 11:00AM	11	58	132	20	1	222	8	27	168	80	5	0	280	7	4	80	199	1	0	284	6			
12:00PM	12	64	144	25	0	245	10	26	162	64	3	0	255	4	3	98	255	4	0	360	3			
1:00PM	6	49	154	23	0	232	4	37	217	90	10	0	354	4	8	103	279	5	0	395	5			
<b>Total</b>	69	512	1434	237	1	2253	64	273	1990	769	57	0	3089	42	45	862	2719	35	1	3662	54			
<b>% Approach</b>	3.1%	22.7%	63.6%	10.5%	0%	-	-	8.8%	64.4%	24.9%	1.8%	0%	-	-	1.2%	23.5%	74.2%	1.0%	0%	-	-			
<b>% Total</b>	0.5%	3.5%	9.9%	1.6%	0%	15.5%	-	1.9%	13.7%	5.3%	0.4%	0%	21.2%	-	0.3%	5.9%	18.7%	0.2%	0%	25.2%	-			
<b>Motorcycles</b>	2	1	3	0	0	6	-	0	4	0	1	0	5	-	0	4	4	0	0	8	-			
<b>% Motorcycles</b>	2.9%	0.2%	0.2%	0%	0%	0.3%	-	0%	0.2%	0%	1.8%	0%	0.2%	-	0%	0.5%	0.1%	0%	0%	0.2%	-			
<b>Lights</b>	64	502	1362	236	1	2165	-	269	1926	761	51	0	3007	-	43	806	2633	34	1	3517	-			
<b>% Lights</b>	92.8%	98.0%	95.0%	99.6%	100%	96.1%	-	98.5%	96.8%	99.0%	89.5%	0%	97.3%	-	95.6%	93.5%	96.8%	97.1%	100%	96.0%	-			
<b>Single-Unit Trucks</b>	0	4	18	0	0	22	-	0	32	8	5	0	45	-	2	3	50	1	0	56	-			
<b>% Single-Unit Trucks</b>	0%	0.8%	1.3%	0%	0%	1.0%	-	0%	1.6%	1.0%	8.8%	0%	1.5%	-	4.4%	0.3%	1.8%	2.9%	0%	1.5%	-			
<b>Articulated Trucks</b>	0	0	1	0	0	1	-	0	0	0	0	0	0	-	0	0	7	0	0	7	-			
<b>% Articulated Trucks</b>	0%	0%	0.1%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0.3%	0%	0%	0.2%	-			
<b>Buses</b>	2	0	49	1	0	52	-	1	14	0	0	0	15	-	0	49	23	0	0	72	-			
<b>% Buses</b>	2.9%	0%	3.4%	0.4%	0%	2.3%	-	0.4%	0.7%	0%	0%	0%	0.5%	-	0%	5.7%	0.8%	0%	0%	2.0%	-			
<b>Bicycles on Road</b>	1	5	1	0	0	7	-	3	14	0	0	0	17	-	0	0	2	0	0	2	-			
<b>% Bicycles on Road</b>	1.4%	1.0%	0.1%	0%	0%	0.3%	-	1.1%	0.7%	0%	0%	0%	0.6%	-	0%	0%	0.1%	0%	0%	0.1%	-			
<b>Pedestrians</b>	-	-	-	-	-	-	53	-	-	-	-	-	-	40	-	-	-	-	-	-	51			
<b>% Pedestrians</b>	-	-	-	-	-	-	82.8%	-	-	-	-	-	-	95.2%	-	-	-	-	-	-	94.4%			
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	-	11	-	-	-	-	-	-	2	-	-	-	-	-	-	3			
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	17.2%	-	-	-	-	-	-	4.8%	-	-	-	-	-	-	5.6%			

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (5) Central Ave @ Reedsdale Rd) - TMC

Thu Oct 15, 2020

Full Length (6 AM-9 AM, 3 PM-6 PM, 11 AM-2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 792240, Location: 42.258308, -71.081139, Site Code: 207528

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Central Avenue Northeastbound							Brook Road (Route 28) Eastbound							Int
	HR	BR	BL	HL	U	App	Ped*	HR	R	T	L	U	App	Ped*	
2020-10-15 6:00AM	4	20	17	0	0	41	7	3	67	126	12	0	208	6	1000
7:00AM	1	49	33	1	0	84	5	8	152	239	22	0	421	8	1455
8:00AM	0	65	32	1	0	98	4	13	198	270	31	0	512	1	1678
3:00PM	5	47	35	3	0	90	5	9	314	316	25	0	664	3	1987
4:00PM	4	48	49	5	0	106	4	10	301	396	22	0	729	12	1990
5:00PM	2	53	33	3	0	91	12	9	315	301	18	0	643	11	1954
2020-10-17 11:00AM	4	39	19	8	0	70	7	8	186	292	13	0	499	6	1355
12:00PM	6	49	25	4	0	84	5	10	253	295	25	0	583	9	1527
1:00PM	0	33	26	4	0	63	4	6	246	281	19	0	552	4	1596
<b>Total</b>	26	403	269	29	0	727	53	76	2032	2516	187	0	4811	60	14542
<b>% Approach</b>	3.6%	55.4%	37.0%	4.0%	0%	-	-	1.6%	42.2%	52.3%	3.9%	0%	-	-	-
<b>% Total</b>	0.2%	2.8%	1.8%	0.2%	0%	5.0%	-	0.5%	14.0%	17.3%	1.3%	0%	33.1%	-	-
<b>Motorcycles</b>	0	1	0	0	0	1	-	0	4	6	2	0	12	-	32
<b>% Motorcycles</b>	0%	0.2%	0%	0%	0%	0.1%	-	0%	0.2%	0.2%	1.1%	0%	0.2%	-	0.2%
<b>Lights</b>	23	393	263	28	0	707	-	69	1961	2411	181	0	4622	-	14018
<b>% Lights</b>	88.5%	97.5%	97.8%	96.6%	0%	97.2%	-	90.8%	96.5%	95.8%	96.8%	0%	96.1%	-	96.4%
<b>Single-Unit Trucks</b>	0	4	5	0	0	9	-	3	25	60	2	0	90	-	222
<b>% Single-Unit Trucks</b>	0%	1.0%	1.9%	0%	0%	1.2%	-	3.9%	1.2%	2.4%	1.1%	0%	1.9%	-	1.5%
<b>Articulated Trucks</b>	2	1	0	0	0	3	-	1	3	4	0	0	8	-	19
<b>% Articulated Trucks</b>	7.7%	0.2%	0%	0%	0%	0.4%	-	1.3%	0.1%	0.2%	0%	0%	0.2%	-	0.1%
<b>Buses</b>	0	2	0	1	0	3	-	0	36	20	1	0	57	-	199
<b>% Buses</b>	0%	0.5%	0%	3.4%	0%	0.4%	-	0%	1.8%	0.8%	0.5%	0%	1.2%	-	1.4%
<b>Bicycles on Road</b>	1	2	1	0	0	4	-	3	3	15	1	0	22	-	52
<b>% Bicycles on Road</b>	3.8%	0.5%	0.4%	0%	0%	0.6%	-	3.9%	0.1%	0.6%	0.5%	0%	0.5%	-	0.4%
<b>Pedestrians</b>	-	-	-	-	-	-	42	-	-	-	-	-	-	51	-
<b>% Pedestrians</b>	-	-	-	-	-	-	79.2%	-	-	-	-	-	-	85.0%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	-	11	-	-	-	-	-	-	9	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	20.8%	-	-	-	-	-	-	15.0%	-

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (5) Central Ave @ Reedsdale Rd) - TMC

Thu Oct 15, 2020

AM Peak (Oct 15 2020 8AM - 9 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 792240, Location: 42.258308, -71.081139, Site Code: 207528

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Central Avenue Southbound							Brook Road Westbound							Reedsdale Road (Route 28) Northbound						
Time	R	BR	T	L	U	App	Ped*	R	T	BL	L	U	App	Ped*	R	T	L	HL	U	App	Ped*
2020-10-15 8:00AM	1	8	29	9	0	47	1	5	45	24	0	0	74	1	0	26	64	0	0	90	3
8:15AM	1	11	29	11	0	52	2	15	73	22	1	0	111	2	2	25	101	0	0	128	3
8:30AM	3	7	31	11	0	52	2	20	70	17	3	0	110	2	3	40	103	2	0	148	4
8:45AM	2	6	26	6	0	40	1	8	53	22	5	0	88	2	2	34	92	0	0	128	1
<b>Total</b>	7	32	115	37	0	191	6	48	241	85	9	0	383	7	7	125	360	2	0	494	11
<b>% Approach</b>	3.7%	16.8%	60.2%	19.4%	0%	-	-	12.5%	62.9%	22.2%	2.3%	0%	-	-	1.4%	25.3%	72.9%	0.4%	0%	-	-
<b>% Total</b>	0.4%	1.9%	6.9%	2.2%	0%	11.4%	-	2.9%	14.4%	5.1%	0.5%	0%	22.8%	-	0.4%	7.4%	21.5%	0.1%	0%	29.4%	-
<b>PHF</b>	0.583	0.727	0.919	0.841	-	0.913	-	0.600	0.818	0.885	0.450	-	0.858	-	0.583	0.781	0.874	0.250	-	0.834	-
<b>Motorcycles</b>	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-
<b>Lights</b>	7	31	107	36	0	181	-	48	234	84	5	0	371	-	7	119	342	2	0	470	-
<b>% Lights</b>	100%	96.9%	93.0%	97.3%	0%	94.8%	-	100%	97.1%	98.8%	55.6%	0%	96.9%	-	100%	95.2%	95.0%	100%	0%	95.1%	-
<b>Single-Unit Trucks</b>	0	1	1	0	0	2	-	0	2	1	4	0	7	-	0	0	13	0	0	13	-
<b>% Single-Unit Trucks</b>	0%	3.1%	0.9%	0%	0%	1.0%	-	0%	0.8%	1.2%	44.4%	0%	1.8%	-	0%	0%	3.6%	0%	0%	2.6%	-
<b>Articulated Trucks</b>	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	3	0	0	3	-
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0.8%	0%	0%	0.6%	-
<b>Buses</b>	0	0	6	1	0	7	-	0	3	0	0	0	3	-	0	6	2	0	0	8	-
<b>% Buses</b>	0%	0%	5.2%	2.7%	0%	3.7%	-	0%	1.2%	0%	0%	0%	0.8%	-	0%	4.8%	0.6%	0%	0%	1.6%	-
<b>Bicycles on Road</b>	0	0	1	0	0	1	-	0	2	0	0	0	2	-	0	0	0	0	0	0	-
<b>% Bicycles on Road</b>	0%	0%	0.9%	0%	0%	0.5%	-	0%	0.8%	0%	0%	0%	0.5%	-	0%	0%	0%	0%	0%	0%	-
<b>Pedestrians</b>	-	-	-	-	-	-	4	-	-	-	-	-	-	7	-	-	-	-	-	-	11
<b>% Pedestrians</b>	-	-	-	-	-	-	66.7%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	-	2	-	-	-	-	-	-	0	-	-	-	-	-	-	0
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	33.3%	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (5) Central Ave @ Reedsdale Rd) - TMC

Thu Oct 15, 2020

AM Peak (Oct 15 2020 8AM - 9 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 792240, Location: 42.258308, -71.081139, Site Code: 207528

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Central Avenue Northeastbound							Brook Road (Route 28) Eastbound							
Time	HR	BR	BL	HL	U	App	Ped*	HR	R	T	L	U	App	Ped*	Int
2020-10-15 8:00AM	0	18	6	0	0	24	1	1	46	71	7	0	125	1	360
8:15AM	0	20	7	1	0	28	1	0	44	67	5	0	116	0	435
8:30AM	0	11	12	0	0	23	1	4	36	65	10	0	115	0	448
8:45AM	0	16	7	0	0	23	1	8	72	67	9	0	156	0	435
<b>Total</b>	0	65	32	1	0	98	4	13	198	270	31	0	512	1	1678
<b>% Approach</b>	0%	66.3%	32.7%	1.0%	0%	-	-	2.5%	38.7%	52.7%	6.1%	0%	-	-	-
<b>% Total</b>	0%	3.9%	1.9%	0.1%	0%	5.8%	-	0.8%	11.8%	16.1%	1.8%	0%	30.5%	-	-
<b>PHF</b>	-	0.813	0.667	0.250	-	0.875	-	0.375	0.688	0.964	0.775	-	0.818	-	0.934
<b>Motorcycles</b>	0	1	0	0	0	1	-	0	0	0	0	0	0	-	1
<b>% Motorcycles</b>	0%	1.5%	0%	0%	0%	1.0%	-	0%	0%	0%	0%	0%	0%	-	0.1%
<b>Lights</b>	0	62	30	1	0	93	-	12	183	258	30	0	483	-	1598
<b>% Lights</b>	0%	95.4%	93.8%	100%	0%	94.9%	-	92.3%	92.4%	95.6%	96.8%	0%	94.3%	-	95.2%
<b>Single-Unit Trucks</b>	0	0	2	0	0	2	-	0	1	7	1	0	9	-	33
<b>% Single-Unit Trucks</b>	0%	0%	6.3%	0%	0%	2.0%	-	0%	0.5%	2.6%	3.2%	0%	1.8%	-	2.0%
<b>Articulated Trucks</b>	0	0	0	0	0	0	-	0	0	0	0	0	0	-	3
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0.2%
<b>Buses</b>	0	2	0	0	0	2	-	0	14	1	0	0	15	-	35
<b>% Buses</b>	0%	3.1%	0%	0%	0%	2.0%	-	0%	7.1%	0.4%	0%	0%	2.9%	-	2.1%
<b>Bicycles on Road</b>	0	0	0	0	0	0	-	1	0	4	0	0	5	-	8
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	0%	-	7.7%	0%	1.5%	0%	0%	1.0%	-	0.5%
Pedestrians	-	-	-	-	-	-	4	-	-	-	-	-	-	-	1
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	100%
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	0%

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn



207528 (5) Central Ave @ Reedsdale Rd) - TMC

Thu Oct 15, 2020

PM Peak (Oct 15 2020 4:15PM - 5:15 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 792240, Location: 42.258308, -71.081139, Site Code: 207528

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Central Avenue Southbound							Brook Road Westbound							Reedsdale Road (Route 28) Northbound						
Time	R	BR	T	L	U	App	Ped*	R	T	BL	L	U	App	Ped*	R	T	L	HL	U	App	Ped*
2020-10-15 4:15PM	1	26	73	2	0	102	1	2	65	35	2	0	104	1	3	16	67	1	0	87	2
4:30PM	2	27	47	7	0	83	4	6	76	31	4	0	117	0	0	25	68	4	0	97	1
4:45PM	1	22	49	9	0	81	1	4	70	27	5	0	106	0	1	22	49	2	0	74	0
5:00PM	5	14	70	6	0	95	3	16	75	22	2	0	115	2	3	28	83	1	0	115	4
<b>Total</b>	9	89	239	24	0	361	9	28	286	115	13	0	442	3	7	91	267	8	0	373	7
<b>% Approach</b>	2.5%	24.7%	66.2%	6.6%	0%	-	-	6.3%	64.7%	26.0%	2.9%	0%	-	-	1.9%	24.4%	71.6%	2.1%	0%	-	-
<b>% Total</b>	0.4%	4.4%	11.8%	1.2%	0%	17.8%	-	1.4%	14.1%	5.7%	0.6%	0%	21.8%	-	0.3%	4.5%	13.2%	0.4%	0%	18.4%	-
<b>PHF</b>	0.500	0.815	0.818	0.667	-	0.889	-	0.438	0.947	0.821	0.650	-	0.957	-	0.583	0.813	0.811	0.500	-	0.816	-
<b>Motorcycles</b>	0	0	0	0	0	0	-	0	1	0	0	0	1	-	0	2	2	0	0	4	-
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	0%	-	0%	0.3%	0%	0%	0%	0.2%	-	0%	2.2%	0.7%	0%	0%	1.1%	-
<b>Lights</b>	7	88	230	24	0	349	-	27	279	113	13	0	432	-	7	84	258	8	0	357	-
<b>% Lights</b>	77.8%	98.9%	96.2%	100%	0%	96.7%	-	96.4%	97.6%	98.3%	100%	0%	97.7%	-	100%	92.3%	96.6%	100%	0%	95.7%	-
<b>Single-Unit Trucks</b>	0	0	4	0	0	4	-	0	2	2	0	0	4	-	0	0	3	0	0	3	-
<b>% Single-Unit Trucks</b>	0%	0%	1.7%	0%	0%	1.1%	-	0%	0.7%	1.7%	0%	0%	0.9%	-	0%	0%	1.1%	0%	0%	0.8%	-
<b>Articulated Trucks</b>	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	2	0	0	2	-
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0.7%	0%	0%	0.5%	-
<b>Buses</b>	1	0	5	0	0	6	-	1	2	0	0	0	3	-	0	5	1	0	0	6	-
<b>% Buses</b>	11.1%	0%	2.1%	0%	0%	1.7%	-	3.6%	0.7%	0%	0%	0%	0.7%	-	0%	5.5%	0.4%	0%	0%	1.6%	-
<b>Bicycles on Road</b>	1	1	0	0	0	2	-	0	2	0	0	0	2	-	0	0	1	0	0	1	-
<b>% Bicycles on Road</b>	11.1%	1.1%	0%	0%	0%	0.6%	-	0%	0.7%	0%	0%	0%	0.5%	-	0%	0%	0.4%	0%	0%	0.3%	-
Pedestrians	-	-	-	-	-	-	6	-	-	-	-	-	-	3	-	-	-	-	-	-	7
<b>% Pedestrians</b>	-	-	-	-	-	-	66.7%	-	-	-	-	-	100%	-	-	-	-	-	-	-	100%
Bicycles on Crosswalk	-	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	-	-	0
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	33.3%	-	-	-	-	-	0%	-	-	-	-	-	-	-	0%

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (5) Central Ave @ Reedsdale Rd) - TMC

Thu Oct 15, 2020

PM Peak (Oct 15 2020 4:15PM - 5:15 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 792240, Location: 42.258308, -71.081139, Site Code: 207528

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Central Avenue Northeastbound							Brook Road (Route 28) Eastbound							
Time	HR	BR	BL	HL	U	App	Ped*	HR	R	T	L	U	App	Ped*	Int
2020-10-15 4:15PM	0	13	14	2	0	29	2	3	78	113	5	0	199	3	521
4:30PM	1	11	9	1	0	22	1	2	69	88	4	0	163	8	482
4:45PM	1	12	14	1	0	28	0	2	88	97	6	0	193	1	482
5:00PM	0	19	10	2	0	31	4	1	87	92	7	0	187	3	543
<b>Total</b>	2	55	47	6	0	110	7	8	322	390	22	0	742	15	2028
<b>% Approach</b>	1.8%	50.0%	42.7%	5.5%	0%	-	-	1.1%	43.4%	52.6%	3.0%	0%	-	-	-
<b>% Total</b>	0.1%	2.7%	2.3%	0.3%	0%	5.4%	-	0.4%	15.9%	19.2%	1.1%	0%	36.6%	-	-
<b>PHF</b>	0.500	0.724	0.839	0.750	-	0.887	-	0.667	0.912	0.861	0.786	-	0.934	-	0.934
<b>Motorcycles</b>	0	0	0	0	0	0	-	0	1	2	0	0	3	-	8
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	0%	-	0%	0.3%	0.5%	0%	0%	0.4%	-	0.4%
<b>Lights</b>	2	55	46	6	0	109	-	7	305	376	22	0	710	-	1957
<b>% Lights</b>	100%	100%	97.9%	100%	0%	99.1%	-	87.5%	94.7%	96.4%	100%	0%	95.7%	-	96.5%
<b>Single-Unit Trucks</b>	0	0	1	0	0	1	-	1	6	6	0	0	13	-	25
<b>% Single-Unit Trucks</b>	0%	0%	2.1%	0%	0%	0.9%	-	12.5%	1.9%	1.5%	0%	0%	1.8%	-	1.2%
<b>Articulated Trucks</b>	0	0	0	0	0	0	-	0	0	1	0	0	1	-	3
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0.3%	0%	0%	0.1%	-	0.1%
<b>Buses</b>	0	0	0	0	0	0	-	0	9	4	0	0	13	-	28
<b>% Buses</b>	0%	0%	0%	0%	0%	0%	-	0%	2.8%	1.0%	0%	0%	1.8%	-	1.4%
<b>Bicycles on Road</b>	0	0	0	0	0	0	-	0	1	1	0	0	2	-	7
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	0%	-	0%	0.3%	0.3%	0%	0%	0.3%	-	0.3%
Pedestrians	-	-	-	-	-	-	7	-	-	-	-	-	-	-	13
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	86.7%
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	-	2
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	13.3%

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (5) Central Ave @ Reedsdale Rd) - TMC

Sat Oct 17, 2020

Midday Peak (WKND) (Oct 17 2020 11:45AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 792240, Location: 42.258308, -71.081139, Site Code: 207528

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Central Avenue Southbound								Brook Road Westbound								Reedsdale Road (Route 28) Northbound							
	R	BR	T	L	U	App	Ped*	R	T	BL	L	U	App	Ped*	R	T	L	HL	U	App	Ped*			
2020-10-17 11:45AM	4	11	36	3	0	54	0	6	43	21	4	0	74	1	1	19	54	0	0	74	0			
12:00PM	0	15	44	11	0	70	4	5	53	17	2	0	77	1	0	22	51	0	0	73	1			
12:15PM	9	20	34	7	0	70	3	2	39	13	1	0	55	1	2	28	86	3	0	119	0			
12:30PM	1	12	29	3	0	45	1	10	37	19	0	0	66	0	0	24	68	0	0	92	2			
<b>Total</b>	14	58	143	24	0	239	8	23	172	70	7	0	272	3	3	93	259	3	0	358	3			
<b>% Approach</b>	5.9%	24.3%	59.8%	10.0%	0%	-	-	8.5%	63.2%	25.7%	2.6%	0%	-	-	0.8%	26.0%	72.3%	0.8%	0%	-	-			
<b>% Total</b>	0.9%	3.8%	9.3%	1.6%	0%	15.5%	-	1.5%	11.2%	4.5%	0.5%	0%	17.7%	-	0.2%	6.0%	16.8%	0.2%	0%	23.2%	-			
<b>PHF</b>	0.389	0.713	0.813	0.545	-	0.850	-	0.575	0.822	0.833	0.438	-	0.891	-	0.375	0.830	0.753	0.250	-	0.752	-			
<b>Motorcycles</b>	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-			
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-			
<b>Lights</b>	14	56	138	24	0	232	-	23	168	69	7	0	267	-	2	89	256	3	0	350	-			
<b>% Lights</b>	100%	96.6%	96.5%	100%	0%	97.1%	-	100%	97.7%	98.6%	100%	0%	98.2%	-	66.7%	95.7%	98.8%	100%	0%	97.8%	-			
<b>Single-Unit Trucks</b>	0	1	1	0	0	2	-	0	3	1	0	0	4	-	1	1	2	0	0	4	-			
<b>% Single-Unit Trucks</b>	0%	1.7%	0.7%	0%	0%	0.8%	-	0%	1.7%	1.4%	0%	0%	1.5%	-	33.3%	1.1%	0.8%	0%	0%	1.1%	-			
<b>Articulated Trucks</b>	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	1	0	0	1	-			
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0.4%	0%	0%	0.3%	-			
<b>Buses</b>	0	0	4	0	0	4	-	0	0	0	0	0	0	-	0	3	0	0	0	3	-			
<b>% Buses</b>	0%	0%	2.8%	0%	0%	1.7%	-	0%	0%	0%	0%	0%	0%	-	0%	3.2%	0%	0%	0%	0.8%	-			
<b>Bicycles on Road</b>	0	1	0	0	0	1	-	0	1	0	0	0	1	-	0	0	0	0	0	0	-			
<b>% Bicycles on Road</b>	0%	1.7%	0%	0%	0%	0.4%	-	0%	0.6%	0%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	0%	-			
<b>Pedestrians</b>	-	-	-	-	-	-	8	-	-	-	-	-	-	3	-	-	-	-	-	-	3			
<b>% Pedestrians</b>	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%			
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0			
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%			

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (5) Central Ave @ Reedsdale Rd) - TMC

Sat Oct 17, 2020

Midday Peak (WKND) (Oct 17 2020 11:45AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 792240, Location: 42.258308, -71.081139, Site Code: 207528

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Central Avenue Northeastbound								Brook Road (Route 28) Eastbound						
Time	HR	BR	BL	HL	U	App	Ped*	HR	R	T	L	U	App	Ped*	Int
2020-10-17 11:45AM	1	12	9	1	0	23	2	2	44	89	0	0	135	0	360
12:00PM	1	14	4	0	0	19	3	2	60	83	8	0	153	3	392
12:15PM	1	9	4	1	0	15	1	1	65	82	4	0	152	3	411
12:30PM	2	14	12	1	0	29	0	3	65	70	7	0	145	2	377
<b>Total</b>	5	49	29	3	0	86	6	8	234	324	19	0	585	8	1540
<b>% Approach</b>	5.8%	57.0%	33.7%	3.5%	0%	-	-	1.4%	40.0%	55.4%	3.2%	0%	-	-	-
<b>% Total</b>	0.3%	3.2%	1.9%	0.2%	0%	5.6%	-	0.5%	15.2%	21.0%	1.2%	0%	38.0%	-	-
<b>PHF</b>	0.625	0.839	0.604	0.750	-	0.778	-	0.667	0.900	0.918	0.594	-	0.954	-	0.934
<b>Motorcycles</b>	0	0	0	0	0	0	-	0	0	1	0	0	1	-	1
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0.3%	0%	0%	0.2%	-	0.1%
<b>Lights</b>	5	46	29	3	0	83	-	8	234	320	19	0	581	-	1513
<b>% Lights</b>	100%	93.9%	100%	100%	0%	96.5%	-	100%	100%	98.8%	100%	0%	99.3%	-	98.2%
<b>Single-Unit Trucks</b>	0	1	0	0	0	1	-	0	0	2	0	0	2	-	13
<b>% Single-Unit Trucks</b>	0%	2.0%	0%	0%	0%	1.2%	-	0%	0%	0.6%	0%	0%	0.3%	-	0.8%
<b>Articulated Trucks</b>	0	0	0	0	0	0	-	0	0	0	0	0	0	-	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0.1%
<b>Buses</b>	0	0	0	0	0	0	-	0	0	0	0	0	0	-	7
<b>% Buses</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0.5%
<b>Bicycles on Road</b>	0	2	0	0	0	2	-	0	0	1	0	0	1	-	5
<b>% Bicycles on Road</b>	0%	4.1%	0%	0%	0%	2.3%	-	0%	0%	0.3%	0%	0%	0.2%	-	0.3%
Pedestrians	-	-	-	-	-	-	6	-	-	-	-	-	-	-	8
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	100%
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	0%

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (5) Central Ave @ Reedsdale Rd) - TMC

Sat Oct 17, 2020

PM Peak (WKND) (Oct 17 2020 1PM - 2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 792240, Location: 42.258308, -71.081139, Site Code: 207528

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Central Avenue Southbound								Brook Road Westbound								Reedsdale Road (Route 28) Northbound							
Time	R	BR	T	L	U	App	Ped*	R	T	BL	L	U	App	Ped*	R	T	L	HL	U	App	Ped*			
2020-10-17 1:00PM	4	14	39	7	0	64	0	9	63	22	4	0	98	0	4	30	60	2	0	96	0			
1:15PM	1	11	31	4	0	47	2	6	48	27	2	0	83	4	2	25	76	1	0	104	0			
1:30PM	1	12	41	5	0	59	2	10	52	22	3	0	87	0	0	23	78	1	0	102	1			
1:45PM	0	12	43	7	0	62	0	12	54	19	1	0	86	0	2	25	65	1	0	93	4			
<b>Total</b>	6	49	154	23	0	232	4	37	217	90	10	0	354	4	8	103	279	5	0	395	5			
<b>% Approach</b>	2.6%	21.1%	66.4%	9.9%	0%	-	-	10.5%	61.3%	25.4%	2.8%	0%	-	-	2.0%	26.1%	70.6%	1.3%	0%	-	-			
<b>% Total</b>	0.4%	3.1%	9.6%	1.4%	0%	14.5%	-	2.3%	13.6%	5.6%	0.6%	0%	22.2%	-	0.5%	6.5%	17.5%	0.3%	0%	24.7%	-			
<b>PHF</b>	0.375	0.875	0.895	0.821	-	0.906	-	0.771	0.849	0.833	0.625	-	0.895	-	0.500	0.858	0.894	0.625	-	0.950	-			
<b>Motorcycles</b>	0	0	1	0	0	1	-	0	0	0	0	0	0	-	0	1	0	0	0	1	-			
<b>% Motorcycles</b>	0%	0%	0.6%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	0%	-	0%	1.0%	0%	0%	0%	0.3%	-			
<b>Lights</b>	6	49	145	23	0	223	-	37	214	88	9	0	348	-	8	97	273	5	0	383	-			
<b>% Lights</b>	100%	100%	94.2%	100%	0%	96.1%	-	100%	98.6%	97.8%	90.0%	0%	98.3%	-	100%	94.2%	97.8%	100%	0%	97.0%	-			
<b>Single-Unit Trucks</b>	0	0	3	0	0	3	-	0	0	2	1	0	3	-	0	2	5	0	0	7	-			
<b>% Single-Unit Trucks</b>	0%	0%	1.9%	0%	0%	1.3%	-	0%	0%	2.2%	10.0%	0%	0.8%	-	0%	1.9%	1.8%	0%	0%	1.8%	-			
<b>Articulated Trucks</b>	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-			
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-			
<b>Buses</b>	0	0	5	0	0	5	-	0	0	0	0	0	0	-	0	3	1	0	0	4	-			
<b>% Buses</b>	0%	0%	3.2%	0%	0%	2.2%	-	0%	0%	0%	0%	0%	0%	-	0%	2.9%	0.4%	0%	0%	1.0%	-			
<b>Bicycles on Road</b>	0	0	0	0	0	0	-	0	3	0	0	0	3	-	0	0	0	0	0	0	-			
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	0%	-	0%	1.4%	0%	0%	0%	0.8%	-	0%	0%	0%	0%	0%	0%	-			
<b>Pedestrians</b>	-	-	-	-	-	-	4	-	-	-	-	-	-	4	-	-	-	-	-	-	5			
<b>% Pedestrians</b>	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%			
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0			
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%			

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn



207528 (5) Central Ave @ Reedsdale Rd) - TMC

Sat Oct 17, 2020

PM Peak (WKND) (Oct 17 2020 1PM - 2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 792240, Location: 42.258308, -71.081139, Site Code: 207528

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Central Avenue Northeastbound							Brook Road (Route 28) Eastbound							
Time	HR	BR	BL	HL	U	App	Ped*	HR	R	T	L	U	App	Ped*	Int
2020-10-17 1:00PM	0	9	7	0	0	16	0	2	53	60	5	0	120	0	394
1:15PM	0	7	6	0	0	13	1	1	58	76	3	0	138	2	385
1:30PM	0	9	7	2	0	18	3	2	59	74	5	0	140	2	406
1:45PM	0	8	6	2	0	16	0	1	76	71	6	0	154	0	411
<b>Total</b>	0	33	26	4	0	63	4	6	246	281	19	0	552	4	1596
<b>% Approach</b>	0%	52.4%	41.3%	6.3%	0%	-	-	1.1%	44.6%	50.9%	3.4%	0%	-	-	-
<b>% Total</b>	0%	2.1%	1.6%	0.3%	0%	3.9%	-	0.4%	15.4%	17.6%	1.2%	0%	34.6%	-	-
<b>PHF</b>	-	0.917	0.893	0.500	-	0.861	-	0.750	0.809	0.918	0.750	-	0.903	-	0.974
<b>Motorcycles</b>	0	0	0	0	0	0	-	0	1	1	0	0	2	-	4
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	0%	-	0%	0.4%	0.4%	0%	0%	0.4%	-	0.3%
<b>Lights</b>	0	33	25	4	0	62	-	6	241	272	17	0	536	-	1552
<b>% Lights</b>	0%	100%	96.2%	100%	0%	98.4%	-	100%	98.0%	96.8%	89.5%	0%	97.1%	-	97.2%
<b>Single-Unit Trucks</b>	0	0	0	0	0	0	-	0	2	5	1	0	8	-	21
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	0%	0%	-	0%	0.8%	1.8%	5.3%	0%	1.4%	-	1.3%
<b>Articulated Trucks</b>	0	0	0	0	0	0	-	0	0	1	0	0	1	-	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0.4%	0%	0%	0.2%	-	0.1%
<b>Buses</b>	0	0	0	0	0	0	-	0	2	0	0	0	2	-	11
<b>% Buses</b>	0%	0%	0%	0%	0%	0%	-	0%	0.8%	0%	0%	0%	0.4%	-	0.7%
<b>Bicycles on Road</b>	0	0	1	0	0	1	-	0	0	2	1	0	3	-	7
<b>% Bicycles on Road</b>	0%	0%	3.8%	0%	0%	1.6%	-	0%	0%	0.7%	5.3%	0%	0.5%	-	0.4%
Pedestrians	-	-	-	-	-	-	1	-	-	-	-	-	-	2	-
% Pedestrians	-	-	-	-	-	-	25.0%	-	-	-	-	-	-	50.0%	-
Bicycles on Crosswalk	-	-	-	-	-	-	3	-	-	-	-	-	-	2	-
% Bicycles on Crosswalk	-	-	-	-	-	-	75.0%	-	-	-	-	-	-	50.0%	-

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

**207528 (6) Reedsdale Rd @Canton Ave - TMC**

Thu Oct 15, 2020

Full Length (6 AM-9 AM, 3 PM-6 PM, 11 AM-2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791931, Location: 42.254562, -71.077503, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Reedsdale Road (Route 28) Southbound							Centre Street Southwestbound							Canton Avenue Westbound						
Time	R	T	L	HL	U	App	Ped*	HR	BR	BL	HL	U	App	Ped*	HR	R	T	L	U	App	Ped*
2020-10-15 6:00AM	5	112	2	0	0	119	2	0	21	6	0	0	27	6	0	2	124	20	0	146	5
7:00AM	21	215	12	1	0	249	0	0	53	21	0	0	74	4	1	5	210	24	0	240	4
8:00AM	32	290	10	2	0	334	1	0	37	30	3	0	70	5	1	9	223	43	0	276	6
3:00PM	47	570	10	1	0	628	6	1	106	38	4	0	149	3	0	7	244	23	0	274	6
4:00PM	54	504	8	1	0	567	2	4	129	38	3	0	174	6	1	7	287	31	0	326	6
5:00PM	41	520	9	2	0	572	9	3	90	26	0	0	119	4	0	5	231	31	0	267	9
2020-10-17 11:00AM	35	293	11	1	0	340	9	5	63	12	1	0	81	7	1	5	198	11	0	215	5
12:00PM	37	371	21	2	0	431	3	2	59	13	0	0	74	3	1	14	178	11	0	204	3
1:00PM	32	382	11	0	0	425	16	5	63	15	0	0	83	3	2	12	228	19	0	261	3
<b>Total</b>	304	3257	94	10	0	3665	48	20	621	199	11	0	851	41	7	66	1923	213	0	2209	47
<b>% Approach</b>	8.3%	88.9%	2.6%	0.3%	0%	-	-	2.4%	73.0%	23.4%	1.3%	0%	-	-	0.3%	3.0%	87.1%	9.6%	0%	-	-
<b>% Total</b>	2.1%	22.1%	0.6%	0.1%	0%	24.8%	-	0.1%	4.2%	1.3%	0.1%	0%	5.8%	-	0%	0.4%	13.0%	1.4%	0%	15.0%	-
<b>Motorcycles</b>	0	8	0	0	0	8	-	0	1	0	0	0	1	-	0	0	5	0	0	5	-
<b>% Motorcycles</b>	0%	0.2%	0%	0%	0%	0.2%	-	0%	0.2%	0%	0%	0%	0.1%	-	0%	0%	0.3%	0%	0%	0.2%	-
<b>Lights</b>	299	3110	92	9	0	3510	-	20	609	195	11	0	835	-	7	64	1870	206	0	2147	-
<b>% Lights</b>	98.4%	95.5%	97.9%	90.0%	0%	95.8%	-	100%	98.1%	98.0%	100%	0%	98.1%	-	100%	97.0%	97.2%	96.7%	0%	97.2%	-
<b>Single-Unit Trucks</b>	3	43	0	1	0	47	-	0	2	2	0	0	4	-	0	1	26	7	0	34	-
<b>% Single-Unit Trucks</b>	1.0%	1.3%	0%	10.0%	0%	1.3%	-	0%	0.3%	1.0%	0%	0%	0.5%	-	0%	1.5%	1.4%	3.3%	0%	1.5%	-
<b>Articulated Trucks</b>	0	8	0	0	0	8	-	0	0	0	0	0	0	-	0	0	4	0	0	4	-
<b>% Articulated Trucks</b>	0%	0.2%	0%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0.2%	0%	0%	0.2%	-
<b>Buses</b>	0	87	0	0	0	87	-	0	7	2	0	0	9	-	0	0	16	0	0	16	-
<b>% Buses</b>	0%	2.7%	0%	0%	0%	2.4%	-	0%	1.1%	1.0%	0%	0%	1.1%	-	0%	0%	0.8%	0%	0%	0.7%	-
<b>Bicycles on Road</b>	2	1	2	0	0	5	-	0	2	0	0	0	2	-	0	1	2	0	0	3	-
<b>% Bicycles on Road</b>	0.7%	0%	2.1%	0%	0%	0.1%	-	0%	0.3%	0%	0%	0%	0.2%	-	0%	1.5%	0.1%	0%	0%	0.1%	-
Pedestrians	-	-	-	-	-	-	42	-	-	-	-	-	-	40	-	-	-	-	-	-	44
<b>% Pedestrians</b>	-	-	-	-	-	-	87.5%	-	-	-	-	-	-	97.6%	-	-	-	-	-	-	93.6%
Bicycles on Crosswalk	-	-	-	-	-	-	6	-	-	-	-	-	-	1	-	-	-	-	-	-	3
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	12.5%	-	-	-	-	-	-	2.4%	-	-	-	-	-	-	6.4%

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (6) Reedsdale Rd @Canton Ave - TMC

Thu Oct 15, 2020

Full Length (6 AM-9 AM, 3 PM-6 PM, 11 AM-2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791931, Location: 42.254562, -71.077503, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Reedsdale Road (Route 28) Northbound							Canton Avenue Eastbound							Int
	R	BR	T	L	U	App	Ped*	R	T	BL	L	U	App	Ped*	
2020-10-15 6:00AM	6	8	510	30	0	554	0	26	126	49	9	0	210	2	1056
7:00AM	29	20	489	122	0	660	1	82	202	51	15	0	350	0	1573
8:00AM	35	21	462	94	0	612	1	76	163	50	14	0	303	1	1595
3:00PM	37	14	319	118	0	488	10	133	249	62	26	0	470	3	2009
4:00PM	22	16	328	104	0	470	23	99	237	66	24	0	426	7	1963
5:00PM	37	15	365	105	0	522	3	163	265	68	25	0	521	7	2001
2020-10-17 11:00AM	16	9	278	74	0	377	8	126	189	45	19	0	379	3	1392
12:00PM	15	10	318	112	0	455	2	104	194	48	30	0	376	2	1540
1:00PM	15	8	359	98	0	480	1	123	174	55	27	0	379	10	1628
<b>Total</b>	212	121	3428	857	0	4618	49	932	1799	494	189	0	3414	35	14757
<b>% Approach</b>	4.6%	2.6%	74.2%	18.6%	0%	-	-	27.3%	52.7%	14.5%	5.5%	0%	-	-	-
<b>% Total</b>	1.4%	0.8%	23.2%	5.8%	0%	31.3%	-	6.3%	12.2%	3.3%	1.3%	0%	23.1%	-	-
<b>Motorcycles</b>	1	0	10	0	0	11	-	2	0	2	1	0	5	-	30
<b>% Motorcycles</b>	0.5%	0%	0.3%	0%	0%	0.2%	-	0.2%	0%	0.4%	0.5%	0%	0.1%	-	0.2%
<b>Lights</b>	207	114	3282	825	0	4428	-	902	1763	483	185	0	3333	-	14253
<b>% Lights</b>	97.6%	94.2%	95.7%	96.3%	0%	95.9%	-	96.8%	98.0%	97.8%	97.9%	0%	97.6%	-	96.6%
<b>Single-Unit Trucks</b>	2	4	57	20	0	83	-	15	19	4	1	0	39	-	207
<b>% Single-Unit Trucks</b>	0.9%	3.3%	1.7%	2.3%	0%	1.8%	-	1.6%	1.1%	0.8%	0.5%	0%	1.1%	-	1.4%
<b>Articulated Trucks</b>	1	0	8	3	0	12	-	3	2	1	0	0	6	-	30
<b>% Articulated Trucks</b>	0.5%	0%	0.2%	0.4%	0%	0.3%	-	0.3%	0.1%	0.2%	0%	0%	0.2%	-	0.2%
<b>Buses</b>	0	2	67	8	0	77	-	10	13	2	0	0	25	-	214
<b>% Buses</b>	0%	1.7%	2.0%	0.9%	0%	1.7%	-	1.1%	0.7%	0.4%	0%	0%	0.7%	-	1.5%
<b>Bicycles on Road</b>	1	1	4	1	0	7	-	0	2	2	2	0	6	-	23
<b>% Bicycles on Road</b>	0.5%	0.8%	0.1%	0.1%	0%	0.2%	-	0%	0.1%	0.4%	1.1%	0%	0.2%	-	0.2%
Pedestrians	-	-	-	-	-	-	49	-	-	-	-	-	-	22	-
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	62.9%	-
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	13	-
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	37.1%	-

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (6) Reedsdale Rd @Canton Ave - TMC

Thu Oct 15, 2020

AM Peak (Oct 15 2020 7:30AM - 8:30 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791931, Location: 42.254562, -71.077503, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Reedsdale Road (Route 28) Southbound							Centre Street Southwestbound							Canton Avenue Westbound						
	R	T	L	HL	U	App	Ped*	HR	BR	BL	HL	U	App	Ped*	HR	R	T	L	U	App	Ped*
2020-10-15 7:30AM	9	60	1	1	0	71	0	0	19	7	0	0	26	0	0	3	63	4	0	70	0
7:45AM	6	66	7	0	0	79	0	0	11	3	0	0	14	2	1	1	43	5	0	50	1
8:00AM	5	60	5	1	0	71	0	0	10	6	1	0	17	2	0	0	60	16	0	76	2
8:15AM	6	69	2	1	0	78	1	0	8	8	2	0	18	0	1	4	60	15	0	80	1
<b>Total</b>	26	255	15	3	0	299	1	0	48	24	3	0	75	4	2	8	226	40	0	276	4
<b>% Approach</b>	8.7%	85.3%	5.0%	1.0%	0%	-	-	0%	64.0%	32.0%	4.0%	0%	-	-	0.7%	2.9%	81.9%	14.5%	0%	-	-
<b>% Total</b>	1.5%	15.2%	0.9%	0.2%	0%	17.8%	-	0%	2.9%	1.4%	0.2%	0%	4.5%	-	0.1%	0.5%	13.4%	2.4%	0%	16.4%	-
<b>PHF</b>	0.694	0.924	0.464	0.750	-	0.937	-	-	0.632	0.750	0.375	-	0.721	-	0.500	0.500	0.897	0.625	-	0.863	-
<b>Motorcycles</b>	0	1	0	0	0	1	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-
<b>% Motorcycles</b>	0%	0.4%	0%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-
<b>Lights</b>	25	235	13	2	0	275	-	0	47	23	3	0	73	-	2	7	223	39	0	271	-
<b>% Lights</b>	96.2%	92.2%	86.7%	66.7%	0%	92.0%	-	0%	97.9%	95.8%	100%	0%	97.3%	-	100%	87.5%	98.7%	97.5%	0%	98.2%	-
<b>Single-Unit Trucks</b>	0	3	0	1	0	4	-	0	0	1	0	0	1	-	0	1	2	1	0	4	-
<b>% Single-Unit Trucks</b>	0%	1.2%	0%	33.3%	0%	1.3%	-	0%	0%	4.2%	0%	0%	1.3%	-	0%	12.5%	0.9%	2.5%	0%	1.4%	-
<b>Articulated Trucks</b>	0	1	0	0	0	1	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-
<b>% Articulated Trucks</b>	0%	0.4%	0%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-
<b>Buses</b>	0	15	0	0	0	15	-	0	1	0	0	0	1	-	0	0	1	0	0	1	-
<b>% Buses</b>	0%	5.9%	0%	0%	0%	5.0%	-	0%	2.1%	0%	0%	0%	1.3%	-	0%	0%	0.4%	0%	0%	0.4%	-
<b>Bicycles on Road</b>	1	0	2	0	0	3	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-
<b>% Bicycles on Road</b>	3.8%	0%	13.3%	0%	0%	1.0%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-
Pedestrians	-	-	-	-	-	-	1	-	-	-	-	-	-	4	-	-	-	-	-	-	4
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (6) Reedsdale Rd @Canton Ave - TMC

Thu Oct 15, 2020

AM Peak (Oct 15 2020 7:30AM - 8:30 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791931, Location: 42.254562, -71.077503, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Reedsdale Road (Route 28) Northbound							Canton Avenue Eastbound							Int
	R	BR	T	L	U	App	Ped*	R	T	BL	L	U	App	Ped*	
2020-10-15 7:30AM	8	1	144	49	0	202	1	25	45	15	6	0	91	0	460
7:45AM	13	9	107	29	0	158	0	39	91	19	3	0	152	0	453
8:00AM	9	6	99	18	0	132	1	18	44	13	1	0	76	0	372
8:15AM	14	7	101	25	0	147	0	19	41	10	3	0	73	1	396
<b>Total</b>	44	23	451	121	0	639	2	101	221	57	13	0	392	1	1681
<b>% Approach</b>	6.9%	3.6%	70.6%	18.9%	0%	-	-	25.8%	56.4%	14.5%	3.3%	0%	-	-	-
<b>% Total</b>	2.6%	1.4%	26.8%	7.2%	0%	38.0%	-	6.0%	13.1%	3.4%	0.8%	0%	23.3%	-	-
<b>PHF</b>	0.786	0.639	0.781	0.617	-	0.790	-	0.647	0.607	0.750	0.542	-	0.645	-	0.911
<b>Motorcycles</b>	0	0	0	0	0	0	-	0	0	0	0	0	0	-	1
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0.1%
<b>Lights</b>	43	21	422	117	0	603	-	98	212	57	13	0	380	-	1602
<b>% Lights</b>	97.7%	91.3%	93.6%	96.7%	0%	94.4%	-	97.0%	95.9%	100%	100%	0%	96.9%	-	95.3%
<b>Single-Unit Trucks</b>	0	1	16	2	0	19	-	2	3	0	0	0	5	-	33
<b>% Single-Unit Trucks</b>	0%	4.3%	3.5%	1.7%	0%	3.0%	-	2.0%	1.4%	0%	0%	0%	1.3%	-	2.0%
<b>Articulated Trucks</b>	1	0	3	0	0	4	-	1	1	0	0	0	2	-	7
<b>% Articulated Trucks</b>	2.3%	0%	0.7%	0%	0%	0.6%	-	1.0%	0.5%	0%	0%	0%	0.5%	-	0.4%
<b>Buses</b>	0	1	9	2	0	12	-	0	5	0	0	0	5	-	34
<b>% Buses</b>	0%	4.3%	2.0%	1.7%	0%	1.9%	-	0%	2.3%	0%	0%	0%	1.3%	-	2.0%
<b>Bicycles on Road</b>	0	0	1	0	0	1	-	0	0	0	0	0	0	-	4
<b>% Bicycles on Road</b>	0%	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	0%	-	0.2%
Pedestrians	-	-	-	-	-	-	2	-	-	-	-	-	-	-	1
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	100%
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	0%

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn



207528 (6) Reedsdale Rd @Canton Ave - TMC

Thu Oct 15, 2020

PM Peak (Oct 15 2020 3PM - 4 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791931, Location: 42.254562, -71.077503, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Reedsdale Road (Route 28) Southbound							Centre Street Southwestbound							Canton Avenue Westbound						
	R	T	L	HL	U	App	Ped*	HR	BR	BL	HL	U	App	Ped*	HR	R	T	L	U	App	Ped*
2020-10-15 3:00PM	15	143	2	0	0	160	0	0	29	5	2	0	36	0	0	4	47	6	0	57	1
3:15PM	19	126	3	0	0	148	1	0	33	11	2	0	46	0	0	2	78	1	0	81	1
3:30PM	7	144	2	1	0	154	5	0	24	10	0	0	34	0	0	0	60	5	0	65	2
3:45PM	6	157	3	0	0	166	0	1	20	12	0	0	33	3	0	1	59	11	0	71	2
<b>Total</b>	47	570	10	1	0	628	6	1	106	38	4	0	149	3	0	7	244	23	0	274	6
<b>% Approach</b>	7.5%	90.8%	1.6%	0.2%	0%	-	-	0.7%	71.1%	25.5%	2.7%	0%	-	-	0%	2.6%	89.1%	8.4%	0%	-	-
<b>% Total</b>	2.3%	28.4%	0.5%	0%	0%	31.3%	-	0%	5.3%	1.9%	0.2%	0%	7.4%	-	0%	0.3%	12.1%	1.1%	0%	13.6%	-
<b>PHF</b>	0.605	0.908	0.833	0.250	-	0.944	-	0.250	0.803	0.792	0.500	-	0.810	-	-	0.438	0.782	0.523	-	0.846	-
<b>Motorcycles</b>	0	2	0	0	0	2	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-
<b>% Motorcycles</b>	0%	0.4%	0%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-
<b>Lights</b>	44	544	10	1	0	599	-	1	105	38	4	0	148	-	0	7	238	22	0	267	-
<b>% Lights</b>	93.6%	95.4%	100%	100%	0%	95.4%	-	100%	99.1%	100%	100%	0%	99.3%	-	0%	100%	97.5%	95.7%	0%	97.4%	-
<b>Single-Unit Trucks</b>	2	13	0	0	0	15	-	0	1	0	0	0	1	-	0	0	3	1	0	4	-
<b>% Single-Unit Trucks</b>	4.3%	2.3%	0%	0%	0%	2.4%	-	0%	0.9%	0%	0%	0%	0.7%	-	0%	0%	1.2%	4.3%	0%	1.5%	-
<b>Articulated Trucks</b>	0	2	0	0	0	2	-	0	0	0	0	0	0	-	0	0	1	0	0	1	-
<b>% Articulated Trucks</b>	0%	0.4%	0%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0.4%	0%	0%	0.4%	-
<b>Buses</b>	0	9	0	0	0	9	-	0	0	0	0	0	0	-	0	0	2	0	0	2	-
<b>% Buses</b>	0%	1.6%	0%	0%	0%	1.4%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0.8%	0%	0%	0.7%	-
<b>Bicycles on Road</b>	1	0	0	0	0	1	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-
<b>% Bicycles on Road</b>	2.1%	0%	0%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-
Pedestrians	-	-	-	-	-	-	3	-	-	-	-	-	-	3	-	-	-	-	-	-	5
% Pedestrians	-	-	-	-	-	-	50.0%	-	-	-	-	-	-	100%	-	-	-	-	-	-	83.3%
Bicycles on Crosswalk	-	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	-	-	1
% Bicycles on Crosswalk	-	-	-	-	-	-	50.0%	-	-	-	-	-	0%	-	-	-	-	-	-	-	16.7%

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (6) Reedsdale Rd @Canton Ave - TMC

Thu Oct 15, 2020

PM Peak (Oct 15 2020 3PM - 4 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791931, Location: 42.254562, -71.077503, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Reedsdale Road (Route 28) Northbound								Canton Avenue Eastbound								Int
	R	BR	T	L	U	App	Ped*	R	T	BL	L	U	App	Ped*			
2020-10-15 3:00PM	15	5	89	30	0	139	3	37	69	16	7	0	129	0	521		
3:15PM	7	2	59	34	0	102	2	42	59	16	7	0	124	0	501		
3:30PM	9	7	92	29	0	137	5	29	60	14	6	0	109	0	499		
3:45PM	6	0	79	25	0	110	0	25	61	16	6	0	108	3	488		
<b>Total</b>	37	14	319	118	0	488	10	133	249	62	26	0	470	3	2009		
<b>% Approach</b>	7.6%	2.9%	65.4%	24.2%	0%	-	-	28.3%	53.0%	13.2%	5.5%	0%	-	-	-		
<b>% Total</b>	1.8%	0.7%	15.9%	5.9%	0%	24.3%	-	6.6%	12.4%	3.1%	1.3%	0%	23.4%	-	-		
<b>PHF</b>	0.617	0.500	0.867	0.868	-	0.878	-	0.792	0.902	0.969	0.893	-	0.909	-	0.965		
<b>Motorcycles</b>	1	0	1	0	0	2	-	1	0	0	0	0	1	-	5		
<b>% Motorcycles</b>	2.7%	0%	0.3%	0%	0%	0.4%	-	0.8%	0%	0%	0%	0%	0.2%	-	0.2%		
<b>Lights</b>	36	13	303	115	0	467	-	127	242	62	25	0	456	-	1937		
<b>% Lights</b>	97.3%	92.9%	95.0%	97.5%	0%	95.7%	-	95.5%	97.2%	100%	96.2%	0%	97.0%	-	96.4%		
<b>Single-Unit Trucks</b>	0	0	7	0	0	7	-	0	3	0	0	0	3	-	30		
<b>% Single-Unit Trucks</b>	0%	0%	2.2%	0%	0%	1.4%	-	0%	1.2%	0%	0%	0%	0.6%	-	1.5%		
<b>Articulated Trucks</b>	0	0	0	0	0	0	-	1	0	0	0	0	1	-	4		
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	0%	-	0.8%	0%	0%	0%	0%	0.2%	-	0.2%		
<b>Buses</b>	0	1	8	3	0	12	-	4	4	0	0	0	8	-	31		
<b>% Buses</b>	0%	7.1%	2.5%	2.5%	0%	2.5%	-	3.0%	1.6%	0%	0%	0%	1.7%	-	1.5%		
<b>Bicycles on Road</b>	0	0	0	0	0	0	-	0	0	0	1	0	1	-	2		
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	3.8%	0%	0.2%	-	0.1%		
Pedestrians	-	-	-	-	-	-	10	-	-	-	-	-	-	-	0		
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	0%		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	-	3		
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	100%		

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (6) Reedsdale Rd @Canton Ave - TMC

Sat Oct 17, 2020

Midday Peak (WKND) (Oct 17 2020 11:45AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791931, Location: 42.254562, -71.077503, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Reedsdale Road (Route 28) Southbound								Centre Street Southwestbound								Canton Avenue Westbound							
	R	T	L	HL	U	App	Ped*	HR	BR	BL	HL	U	App	Ped*	HR	R	T	L	U	App	Ped*			
2020-10-17 11:45AM	11	80	4	0	0	95	0	2	22	2	0	0	26	1	0	0	59	5	0	64	1			
12:00PM	11	94	4	1	0	110	0	0	12	5	0	0	17	1	0	7	38	2	0	47	2			
12:15PM	8	87	7	0	0	102	0	0	19	2	0	0	21	2	0	6	42	4	0	52	1			
12:30PM	5	96	1	1	0	103	2	0	18	3	0	0	21	0	0	1	45	2	0	48	0			
<b>Total</b>	35	357	16	2	0	410	2	2	71	12	0	0	85	4	0	14	184	13	0	211	4			
<b>% Approach</b>	8.5%	87.1%	3.9%	0.5%	0%	-	-	2.4%	83.5%	14.1%	0%	0%	-	-	0%	6.6%	87.2%	6.2%	0%	-	-			
<b>% Total</b>	2.3%	23.2%	1.0%	0.1%	0%	26.6%	-	0.1%	4.6%	0.8%	0%	0%	5.5%	-	0%	0.9%	11.9%	0.8%	0%	13.7%	-			
<b>PHF</b>	0.795	0.930	0.571	0.500	-	0.932	-	0.250	0.807	0.600	-	-	0.817	-	-	0.500	0.780	0.650	-	0.824	-			
<b>Motorcycles</b>	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	2	0	0	2	-			
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	1.1%	0%	0%	0.9%	-			
<b>Lights</b>	35	352	16	2	0	405	-	2	70	12	0	0	84	-	0	14	177	13	0	204	-			
<b>% Lights</b>	100%	98.6%	100%	100%	0%	98.8%	-	100%	98.6%	100%	0%	0%	98.8%	-	0%	100%	96.2%	100%	0%	96.7%	-			
<b>Single-Unit Trucks</b>	0	1	0	0	0	1	-	0	1	0	0	0	1	-	0	0	4	0	0	4	-			
<b>% Single-Unit Trucks</b>	0%	0.3%	0%	0%	0%	0.2%	-	0%	1.4%	0%	0%	0%	1.2%	-	0%	0%	2.2%	0%	0%	1.9%	-			
<b>Articulated Trucks</b>	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-			
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-			
<b>Buses</b>	0	4	0	0	0	4	-	0	0	0	0	0	0	-	0	0	1	0	0	1	-			
<b>% Buses</b>	0%	1.1%	0%	0%	0%	1.0%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0.5%	0%	0%	0.5%	-			
<b>Bicycles on Road</b>	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-			
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-			
Pedestrians	-	-	-	-	-	-	2	-	-	-	-	-	-	4	-	-	-	-	-	-	4			
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%			
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	-	0			
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	-	0%			

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (6) Reedsdale Rd @Canton Ave - TMC

Sat Oct 17, 2020

Midday Peak (WKND) (Oct 17 2020 11:45AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791931, Location: 42.254562, -71.077503, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Reedsdale Road (Route 28) Northbound							Canton Avenue Eastbound							Int
	R	BR	T	L	U	App	Ped*	R	T	BL	L	U	App	Ped*	
2020-10-17 11:45AM	4	3	67	21	0	95	3	46	57	12	4	0	119	0	399
12:00PM	2	3	67	26	0	98	0	27	56	12	6	0	101	1	373
12:15PM	2	1	93	25	0	121	1	28	47	11	12	0	98	1	394
12:30PM	4	0	85	27	0	116	0	25	44	14	4	0	87	0	375
<b>Total</b>	12	7	312	99	0	430	4	126	204	49	26	0	405	2	1541
<b>% Approach</b>	2.8%	1.6%	72.6%	23.0%	0%	-	-	31.1%	50.4%	12.1%	6.4%	0%	-	-	-
<b>% Total</b>	0.8%	0.5%	20.2%	6.4%	0%	27.9%	-	8.2%	13.2%	3.2%	1.7%	0%	26.3%	-	-
<b>PHF</b>	0.750	0.583	0.839	0.917	-	0.888	-	0.685	0.895	0.857	0.542	-	0.856	-	0.967
<b>Motorcycles</b>	0	0	0	0	0	0	-	0	0	0	0	0	0	-	2
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0.1%
<b>Lights</b>	12	6	305	97	0	420	-	123	202	47	26	0	398	-	1511
<b>% Lights</b>	100%	85.7%	97.8%	98.0%	0%	97.7%	-	97.6%	99.0%	95.9%	100%	0%	98.3%	-	98.1%
<b>Single-Unit Trucks</b>	0	1	3	2	0	6	-	1	1	1	0	0	3	-	15
<b>% Single-Unit Trucks</b>	0%	14.3%	1.0%	2.0%	0%	1.4%	-	0.8%	0.5%	2.0%	0%	0%	0.7%	-	1.0%
<b>Articulated Trucks</b>	0	0	1	0	0	1	-	1	0	0	0	0	1	-	2
<b>% Articulated Trucks</b>	0%	0%	0.3%	0%	0%	0.2%	-	0.8%	0%	0%	0%	0%	0.2%	-	0.1%
<b>Buses</b>	0	0	3	0	0	3	-	1	1	0	0	0	2	-	10
<b>% Buses</b>	0%	0%	1.0%	0%	0%	0.7%	-	0.8%	0.5%	0%	0%	0%	0.5%	-	0.6%
<b>Bicycles on Road</b>	0	0	0	0	0	0	-	0	0	1	0	0	1	-	1
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	2.0%	0%	0%	0.2%	-	0.1%
Pedestrians	-	-	-	-	-	-	4	-	-	-	-	-	-	2	-
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (6) Reedsdale Rd @Canton Ave - TMC

Sat Oct 17, 2020

PM Peak (WKND) (Oct 17 2020 1PM - 2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791931, Location: 42.254562, -71.077503, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Reedsdale Road (Route 28) Southbound							Centre Street Southwestbound							Canton Avenue Westbound						
Time	R	T	L	HL	U	App	Ped*	HR	BR	BL	HL	U	App	Ped*	HR	R	T	L	U	App	Ped*
2020-10-17 1:00PM	7	85	5	0	0	97	0	3	19	4	0	0	26	2	1	0	56	4	0	61	1
1:15PM	8	94	0	0	0	102	6	1	12	3	0	0	16	1	1	2	47	4	0	54	1
1:30PM	8	97	3	0	0	108	5	0	16	5	0	0	21	0	0	5	69	6	0	80	1
1:45PM	9	106	3	0	0	118	5	1	16	3	0	0	20	0	0	5	56	5	0	66	0
<b>Total</b>	32	382	11	0	0	425	16	5	63	15	0	0	83	3	2	12	228	19	0	261	3
<b>% Approach</b>	7.5%	89.9%	2.6%	0%	0%	-	-	6.0%	75.9%	18.1%	0%	0%	-	-	0.8%	4.6%	87.4%	7.3%	0%	-	-
<b>% Total</b>	2.0%	23.5%	0.7%	0%	0%	26.1%	-	0.3%	3.9%	0.9%	0%	0%	5.1%	-	0.1%	0.7%	14.0%	1.2%	0%	16.0%	-
<b>PHF</b>	0.889	0.901	0.550	-	-	0.900	-	0.417	0.829	0.750	-	-	0.798	-	0.500	0.550	0.831	0.792	-	0.816	-
<b>Motorcycles</b>	0	2	0	0	0	2	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-
<b>% Motorcycles</b>	0%	0.5%	0%	0%	0%	0.5%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-
<b>Lights</b>	32	366	11	0	0	409	-	5	63	15	0	0	83	-	2	11	223	19	0	255	-
<b>% Lights</b>	100%	95.8%	100%	0%	0%	96.2%	-	100%	100%	100%	0%	0%	100%	-	100%	91.7%	97.8%	100%	0%	97.7%	-
<b>Single-Unit Trucks</b>	0	6	0	0	0	6	-	0	0	0	0	0	0	-	0	0	1	0	0	1	-
<b>% Single-Unit Trucks</b>	0%	1.6%	0%	0%	0%	1.4%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0.4%	0%	0%	0.4%	-
<b>Articulated Trucks</b>	0	1	0	0	0	1	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-
<b>% Articulated Trucks</b>	0%	0.3%	0%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-
<b>Buses</b>	0	7	0	0	0	7	-	0	0	0	0	0	0	-	0	0	2	0	0	2	-
<b>% Buses</b>	0%	1.8%	0%	0%	0%	1.6%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0.9%	0%	0%	0.8%	-
<b>Bicycles on Road</b>	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	1	2	0	0	3	-
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%	8.3%	0.9%	0%	0%	1.1%	-
<b>Pedestrians</b>	-	-	-	-	-	-	13	-	-	-	-	-	-	3	-	-	-	-	-	-	3
<b>% Pedestrians</b>	-	-	-	-	-	-	81.3%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	-	3	-	-	-	-	-	-	0	-	-	-	-	-	-	0
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	18.8%	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn



207528 (6) Reedsdale Rd @Canton Ave - TMC

Sat Oct 17, 2020

PM Peak (WKND) (Oct 17 2020 1PM - 2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791931, Location: 42.254562, -71.077503, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Reedsdale Road (Route 28) Northbound								Canton Avenue Eastbound								Int
	R	BR	T	L	U	App	Ped*	R	T	BL	L	U	App	Ped*			
2020-10-17 1:00PM	5	1	84	33	0	123	0	19	34	15	9	0	77	0	384		
1:15PM	3	2	103	22	0	130	0	37	41	15	5	0	98	4	400		
1:30PM	0	3	99	17	0	119	0	23	44	12	5	0	84	2	412		
1:45PM	7	2	73	26	0	108	1	44	55	13	8	0	120	4	432		
<b>Total</b>	15	8	359	98	0	480	1	123	174	55	27	0	379	10	1628		
<b>% Approach</b>	3.1%	1.7%	74.8%	20.4%	0%	-	-	32.5%	45.9%	14.5%	7.1%	0%	-	-	-		
<b>% Total</b>	0.9%	0.5%	22.1%	6.0%	0%	29.5%	-	7.6%	10.7%	3.4%	1.7%	0%	23.3%	-	-		
<b>PHF</b>	0.536	0.667	0.871	0.742	-	0.923	-	0.699	0.786	0.917	0.722	-	0.792	-	0.944		
<b>Motorcycles</b>	0	0	0	0	0	0	-	0	0	1	1	0	2	-	4		
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	1.8%	3.7%	0%	0.5%	-	0.2%		
<b>Lights</b>	14	8	348	97	0	467	-	120	171	54	25	0	370	-	1584		
<b>% Lights</b>	93.3%	100%	96.9%	99.0%	0%	97.3%	-	97.6%	98.3%	98.2%	92.6%	0%	97.6%	-	97.3%		
<b>Single-Unit Trucks</b>	1	0	8	1	0	10	-	2	2	0	0	0	4	-	21		
<b>% Single-Unit Trucks</b>	6.7%	0%	2.2%	1.0%	0%	2.1%	-	1.6%	1.1%	0%	0%	0%	1.1%	-	1.3%		
<b>Articulated Trucks</b>	0	0	0	0	0	0	-	0	0	0	0	0	0	-	1		
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0.1%		
<b>Buses</b>	0	0	3	0	0	3	-	1	0	0	0	0	1	-	13		
<b>% Buses</b>	0%	0%	0.8%	0%	0%	0.6%	-	0.8%	0%	0%	0%	0%	0.3%	-	0.8%		
<b>Bicycles on Road</b>	0	0	0	0	0	0	-	0	1	0	1	0	2	-	5		
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	0%	-	0%	0.6%	0%	3.7%	0%	0.5%	-	0.3%		
Pedestrians	-	-	-	-	-	-	1	-	-	-	-	-	-	-	6		
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	60.0%	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	-	4		
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	40.0%	-		

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

207528 (7) Reedsdale Rd @ Beth Isreal Hospit... - TMC

Thu Oct 15, 2020

Full Length (6 AM-9 AM, 3 PM-6 PM, 11 AM-2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791941, Location: 42.252491, -71.075425, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Reedsdale Road (Route 28) Southbound						Driveway Westbound						Reedsdale Road (Route 28) Northbound						Beth Isreal Hospital Drive Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 6:00AM	35	127	1	0	163	1	1	0	0	0	1	6	0	556	82	0	638	0	14	0	9	0	23	2	825
7:00AM	39	313	1	0	353	2	0	0	0	0	0	7	0	644	94	0	738	0	43	0	14	0	57	7	1148
8:00AM	48	392	0	0	440	0	0	0	0	0	0	8	0	583	114	0	697	0	27	0	11	0	38	8	1175
3:00PM	32	736	0	0	768	4	1	0	0	0	1	12	0	456	55	0	511	0	105	0	33	0	138	7	1418
4:00PM	22	651	1	0	674	1	0	0	0	0	0	5	0	447	23	0	470	2	68	0	29	0	97	6	1241
5:00PM	13	724	0	0	737	0	1	0	0	0	1	16	0	470	22	0	492	3	66	0	29	0	95	7	1325
2020-10-17 11:00AM	13	441	0	0	454	0	0	0	0	0	0	13	0	365	14	0	379	1	10	0	0	0	10	7	843
12:00PM	12	490	0	0	502	3	0	0	0	0	0	5	0	446	11	0	457	0	12	0	12	0	24	4	983
1:00PM	11	527	0	0	538	2	0	0	0	0	0	10	1	451	11	1	464	2	12	0	12	0	24	8	1026
<b>Total</b>	225	4401	3	0	4629	13	3	0	0	0	3	82	1	4418	426	1	4846	8	357	0	149	0	506	56	9984
<b>% Approach</b>	4.9%	95.1%	0.1%	0%	-	-	100%	0%	0%	0%	-	-	0%	91.2%	8.8%	0%	-	-	70.6%	0%	29.4%	0%	-	-	-
<b>% Total</b>	2.3%	44.1%	0%	0%	46.4%	-	0%	0%	0%	0%	0%	-	0%	44.3%	4.3%	0%	48.5%	-	3.6%	0%	1.5%	0%	5.1%	-	-
<b>Motorcycles</b>	0	7	0	0	7	-	0	0	0	0	0	-	0	8	0	0	8	-	0	0	0	0	0	-	15
<b>% Motorcycles</b>	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0.2%
<b>Lights</b>	221	4201	3	0	4425	-	3	0	0	0	3	-	1	4224	386	1	4612	-	311	0	147	0	458	-	9498
<b>% Lights</b>	98.2%	95.5%	100%	0%	95.6%	-	100%	0%	0%	0%	100%	-	100%	95.6%	90.6%	100%	95.2%	-	87.1%	0%	98.7%	0%	90.5%	-	95.1%
<b>Single-Unit Trucks</b>	4	84	0	0	88	-	0	0	0	0	0	-	0	86	2	0	88	-	4	0	1	0	5	-	181
<b>% Single-Unit Trucks</b>	1.8%	1.9%	0%	0%	1.9%	-	0%	0%	0%	0%	0%	-	0%	1.9%	0.5%	0%	1.8%	-	1.1%	0%	0.7%	0%	1.0%	-	1.8%
<b>Articulated Trucks</b>	0	10	0	0	10	-	0	0	0	0	0	-	0	12	3	0	15	-	2	0	1	0	3	-	28
<b>% Articulated Trucks</b>	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.3%	0.7%	0%	0.3%	-	0.6%	0%	0.7%	0%	0.6%	-	0.3%
<b>Buses</b>	0	98	0	0	98	-	0	0	0	0	0	-	0	79	35	0	114	-	40	0	0	0	40	-	252
<b>% Buses</b>	0%	2.2%	0%	0%	2.1%	-	0%	0%	0%	0%	0%	-	0%	1.8%	8.2%	0%	2.4%	-	11.2%	0%	0%	0%	7.9%	-	2.5%
<b>Bicycles on Road</b>	0	1	0	0	1	-	0	0	0	0	0	-	0	9	0	0	9	-	0	0	0	0	0	-	10
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Pedestrians</b>	-	-	-	-	-	13	-	-	-	-	-	72	-	-	-	-	-	8	-	-	-	-	-	43	
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	87.8%	-	-	-	-	-	100%	-	-	-	-	-	76.8%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	10	-	-	-	-	-	0	-	-	-	-	-	13	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	12.2%	-	-	-	-	-	0%	-	-	-	-	-	23.2%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (7) Reedsdale Rd @ Beth Isreal Hospit... - TMC

Thu Oct 15, 2020

AM Peak (Oct 15 2020 7:30AM - 8:30 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791941, Location: 42.252491, -71.075425, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Reedsdale Road (Route 28) Southbound						Driveway Westbound						Reedsdale Road (Route 28) Northbound						Beth Isreal Hospital Drive Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 7:30AM	7	84	0	0	91	0	0	0	0	0	0	0	0	186	17	0	203	0	14	0	2	0	16	0	310
7:45AM	6	111	0	0	117	0	0	0	0	0	0	1	0	164	36	0	200	0	9	0	1	0	10	1	327
8:00AM	15	87	0	0	102	0	0	0	0	0	0	3	0	127	23	0	150	0	11	0	2	0	13	0	265
8:15AM	14	92	0	0	106	0	0	0	0	0	0	1	0	157	28	0	185	0	5	0	1	0	6	1	297
<b>Total</b>	42	374	0	0	416	0	0	0	0	0	0	5	0	634	104	0	738	0	39	0	6	0	45	2	1199
<b>% Approach</b>	10.1%	89.9%	0%	0%	-	-	0%	0%	0%	0%	-	-	0%	85.9%	14.1%	0%	-	-	86.7%	0%	13.3%	0%	-	-	-
<b>% Total</b>	3.5%	31.2%	0%	0%	34.7%	-	0%	0%	0%	0%	0%	-	0%	52.9%	8.7%	0%	61.6%	-	3.3%	0%	0.5%	0%	3.8%	-	-
<b>PHF</b>	0.700	0.842	-	-	0.889	-	-	-	-	-	-	-	-	0.849	0.722	-	0.906	-	0.696	-	0.750	-	0.703	-	0.921
<b>Motorcycles</b>	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	1
<b>% Motorcycles</b>	0%	0.3%	0%	0%	0.2%	-	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Lights</b>	41	346	0	0	387	-	0	0	0	0	0	-	0	594	97	0	691	-	32	0	5	0	37	-	1115
<b>% Lights</b>	97.6%	92.5%	0%	0%	93.0%	-	0%	0%	0%	0%	-	-	0%	93.7%	93.3%	0%	93.6%	-	82.1%	0%	83.3%	0%	82.2%	-	93.0%
<b>Single-Unit Trucks</b>	1	10	0	0	11	-	0	0	0	0	0	-	0	22	0	0	22	-	0	0	0	0	0	-	33
<b>% Single-Unit Trucks</b>	2.4%	2.7%	0%	0%	2.6%	-	0%	0%	0%	0%	-	-	0%	3.5%	0%	0%	3.0%	-	0%	0%	0%	0%	0%	-	2.8%
<b>Articulated Trucks</b>	0	2	0	0	2	-	0	0	0	0	0	-	0	2	0	0	2	-	0	0	1	0	1	-	5
<b>% Articulated Trucks</b>	0%	0.5%	0%	0%	0.5%	-	0%	0%	0%	0%	-	-	0%	0.3%	0%	0%	0.3%	-	0%	0%	16.7%	0%	2.2%	-	0.4%
<b>Buses</b>	0	15	0	0	15	-	0	0	0	0	0	-	0	14	7	0	21	-	7	0	0	0	7	-	43
<b>% Buses</b>	0%	4.0%	0%	0%	3.6%	-	0%	0%	0%	0%	-	-	0%	2.2%	6.7%	0%	2.8%	-	17.9%	0%	0%	0%	15.6%	-	3.6%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	2	0	0	2	-	0	0	0	0	0	-	2
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	-	-	0%	0.3%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0.2%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	5	-	-	-	-	-	0	-	-	-	-	-	-	2	-
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



207528 (7) Reedsdale Rd @ Beth Isreal Hospit... - TMC

Thu Oct 15, 2020

PM Peak (Oct 15 2020 3PM - 4 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791941, Location: 42.252491, -71.075425, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Reedsdale Road (Route 28) Southbound						Driveway Westbound						Reedsdale Road (Route 28) Northbound						Beth Isreal Hospital Drive Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 3:00PM	7	176	0	0	183	0	1	0	0	0	1	1	0	121	19	0	140	0	24	0	13	0	37	0	361
3:15PM	8	177	0	0	185	2	0	0	0	0	0	4	0	113	17	0	130	0	33	0	5	0	38	1	353
3:30PM	12	172	0	0	184	2	0	0	0	0	0	3	0	119	12	0	131	0	25	0	8	0	33	2	348
3:45PM	5	211	0	0	216	0	0	0	0	0	0	4	0	103	7	0	110	0	23	0	7	0	30	4	356
<b>Total</b>	<b>32</b>	<b>736</b>	<b>0</b>	<b>0</b>	<b>768</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>12</b>	<b>0</b>	<b>456</b>	<b>55</b>	<b>0</b>	<b>511</b>	<b>0</b>	<b>105</b>	<b>0</b>	<b>33</b>	<b>0</b>	<b>138</b>	<b>7</b>	<b>1418</b>
<b>% Approach</b>	4.2%	95.8%	0%	0%	-	-	100%	0%	0%	0%	-	-	0%	89.2%	10.8%	0%	-	-	76.1%	0%	23.9%	0%	-	-	-
<b>% Total</b>	2.3%	51.9%	0%	0%	54.2%	-	0.1%	0%	0%	0%	0.1%	-	0%	32.2%	3.9%	0%	36.0%	-	7.4%	0%	2.3%	0%	9.7%	-	-
<b>PHF</b>	0.667	0.872	-	-	0.889	-	0.250	-	-	-	0.250	-	-	0.942	0.724	-	0.913	-	0.795	-	0.635	-	0.908	-	0.982
<b>Motorcycles</b>	0	2	0	0	2	-	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	3
<b>% Motorcycles</b>	0%	0.3%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0.2%
<b>Lights</b>	32	698	0	0	730	-	1	0	0	0	1	-	0	435	47	0	482	-	96	0	33	0	129	-	1342
<b>% Lights</b>	100%	94.8%	0%	0%	95.1%	-	100%	0%	0%	0%	100%	-	0%	95.4%	85.5%	0%	94.3%	-	91.4%	0%	100%	0%	93.5%	-	94.6%
<b>Single-Unit Trucks</b>	0	23	0	0	23	-	0	0	0	0	0	-	0	6	0	0	6	-	0	0	0	0	0	-	29
<b>% Single-Unit Trucks</b>	0%	3.1%	0%	0%	3.0%	-	0%	0%	0%	0%	0%	-	0%	1.3%	0%	0%	1.2%	-	0%	0%	0%	0%	0%	-	2.0%
<b>Articulated Trucks</b>	0	1	0	0	1	-	0	0	0	0	0	-	0	2	0	0	2	-	1	0	0	0	1	-	4
<b>% Articulated Trucks</b>	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0.4%	0%	0%	0.4%	-	1.0%	0%	0%	0%	0.7%	-	0.3%
<b>Buses</b>	0	12	0	0	12	-	0	0	0	0	0	-	0	12	8	0	20	-	8	0	0	0	8	-	40
<b>% Buses</b>	0%	1.6%	0%	0%	1.6%	-	0%	0%	0%	0%	0%	-	0%	2.6%	14.5%	0%	3.9%	-	7.6%	0%	0%	0%	5.8%	-	2.8%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Pedestrians</b>	-	-	-	-	-	4	-	-	-	-	-	10	-	-	-	-	-	0	-	-	-	-	-	3	-
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	83.3%	-	-	-	-	-	-	-	-	-	-	-	42.9%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	4	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	16.7%	-	-	-	-	-	-	-	-	-	-	-	57.1%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (7) Reedsdale Rd @ Beth Isreal Hospit... - TMC

Sat Oct 17, 2020

Midday Peak (WKND) (Oct 17 2020 12PM - 1 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791941, Location: 42.252491, -71.075425, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Reedsdale Road (Route 28) Southbound						Driveway Westbound						Reedsdale Road (Route 28) Northbound						Beth Isreal Hospital Drive Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-17 12:00PM	2	127	0	0	129	0	0	0	0	0	0	2	0	93	3	0	96	0	3	0	5	0	8	0	233
12:15PM	4	115	0	0	119	1	0	0	0	0	0	1	0	128	3	0	131	0	3	0	1	0	4	0	254
12:30PM	2	128	0	0	130	2	0	0	0	0	0	0	0	112	2	0	114	0	2	0	3	0	5	3	249
12:45PM	4	120	0	0	124	0	0	0	0	0	0	2	0	113	3	0	116	0	4	0	3	0	7	1	247
<b>Total</b>	12	490	0	0	502	3	0	0	0	0	0	5	0	446	11	0	457	0	12	0	12	0	24	4	983
<b>% Approach</b>	2.4%	97.6%	0%	0%	-	-	0%	0%	0%	0%	-	-	0%	97.6%	2.4%	0%	-	-	50.0%	0%	50.0%	0%	-	-	-
<b>% Total</b>	1.2%	49.8%	0%	0%	51.1%	-	0%	0%	0%	0%	0%	-	0%	45.4%	1.1%	0%	46.5%	-	1.2%	0%	1.2%	0%	2.4%	-	-
<b>PHF</b>	0.750	0.957	-	-	0.965	-	-	-	-	-	-	-	-	0.871	0.917	-	0.872	-	0.750	-	0.600	-	0.750	-	0.968
<b>Motorcycles</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Lights</b>	11	484	0	0	495	-	0	0	0	0	0	-	0	435	11	0	446	-	12	0	12	0	24	-	965
<b>% Lights</b>	91.7%	98.8%	0%	0%	98.6%	-	0%	0%	0%	0%	-	-	0%	97.5%	100%	0%	97.6%	-	100%	0%	100%	0%	100%	-	98.2%
<b>Single-Unit Trucks</b>	1	2	0	0	3	-	0	0	0	0	0	-	0	6	0	0	6	-	0	0	0	0	0	-	9
<b>% Single-Unit Trucks</b>	8.3%	0.4%	0%	0%	0.6%	-	0%	0%	0%	0%	-	-	0%	1.3%	0%	0%	1.3%	-	0%	0%	0%	0%	0%	-	0.9%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	-	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Buses</b>	0	4	0	0	4	-	0	0	0	0	0	-	0	4	0	0	4	-	0	0	0	0	0	-	8
<b>% Buses</b>	0%	0.8%	0%	0%	0.8%	-	0%	0%	0%	0%	-	-	0%	0.9%	0%	0%	0.9%	-	0%	0%	0%	0%	0%	-	0.8%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Pedestrians</b>	-	-	-	-	-	3	-	-	-	-	-	5	-	-	-	-	-	0	-	-	-	-	-	4	
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	100%	
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	0%	

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (7) Reedsdale Rd @ Beth Isreal Hospit... - TMC

Sat Oct 17, 2020

PM Peak (WKND) (Oct 17 2020 1PM - 2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791941, Location: 42.252491, -71.075425, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Reedsdale Road (Route 28) Southbound						Driveway Westbound						Reedsdale Road (Route 28) Northbound						Beth Isreal Hospital Drive Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-17 1:00PM	5	106	0	0	111	0	0	0	0	0	0	2	1	118	3	0	122	0	2	0	3	0	5	2	238
1:15PM	2	134	0	0	136	0	0	0	0	0	0	4	0	108	5	0	113	0	5	0	2	0	7	2	256
1:30PM	3	115	0	0	118	0	0	0	0	0	0	1	0	118	2	0	120	0	2	0	3	0	5	3	243
1:45PM	1	172	0	0	173	2	0	0	0	0	0	3	0	107	1	1	109	2	3	0	4	0	7	1	289
<b>Total</b>	11	527	0	0	538	2	0	0	0	0	0	10	1	451	11	1	464	2	12	0	12	0	24	8	1026
<b>% Approach</b>	2.0%	98.0%	0%	0%	-	-	0%	0%	0%	0%	-	-	0.2%	97.2%	2.4%	0.2%	-	-	50.0%	0%	50.0%	0%	-	-	-
<b>% Total</b>	1.1%	51.4%	0%	0%	52.4%	-	0%	0%	0%	0%	0%	-	0.1%	44.0%	1.1%	0.1%	45.2%	-	1.2%	0%	1.2%	0%	2.3%	-	-
<b>PHF</b>	0.550	0.766	-	-	0.777	-	-	-	-	-	-	-	0.250	0.951	0.550	0.250	0.947	-	0.600	-	0.750	-	0.857	-	0.886
<b>Motorcycles</b>	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	1
<b>% Motorcycles</b>	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Lights</b>	11	508	0	0	519	-	0	0	0	0	0	-	1	439	11	1	452	-	12	0	11	0	23	-	994
<b>% Lights</b>	100%	96.4%	0%	0%	96.5%	-	0%	0%	0%	0%	-	-	100%	97.3%	100%	100%	97.4%	-	100%	0%	91.7%	0%	95.8%	-	96.9%
<b>Single-Unit Trucks</b>	0	10	0	0	10	-	0	0	0	0	0	-	0	6	0	0	6	-	0	0	1	0	1	-	17
<b>% Single-Unit Trucks</b>	0%	1.9%	0%	0%	1.9%	-	0%	0%	0%	0%	-	-	0%	1.3%	0%	0%	1.3%	-	0%	0%	8.3%	0%	4.2%	-	1.7%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Buses</b>	0	8	0	0	8	-	0	0	0	0	0	-	0	4	0	0	4	-	0	0	0	0	0	-	12
<b>% Buses</b>	0%	1.5%	0%	0%	1.5%	-	0%	0%	0%	0%	-	-	0%	0.9%	0%	0%	0.9%	-	0%	0%	0%	0%	0%	-	1.2%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	2	0	0	2	-	0	0	0	0	0	-	2
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	-	-	0%	0.4%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0.2%
<b>Pedestrians</b>	-	-	-	-	-	2	-	-	-	-	-	7	-	-	-	-	-	2	-	-	-	-	-	-	4
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	70.0%	-	-	-	-	-	100%	-	-	-	-	-	-	50.0%
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	-	4
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	30.0%	-	-	-	-	-	0%	-	-	-	-	-	-	50.0%

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



207528 (8) Reedsdale Road (Route 28) @ Rando... - TMC

Thu Oct 15, 2020

Full Length (6 AM-9 AM, 3 PM-6 PM, 11 AM-2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791955, Location: 42.248591, -71.069222, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street,  
Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue Southbound						Reedsdale Road Westbound						Randolph Avenue (Route 28) Northbound						Reedsdale Road (Route 28) Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 6:00AM	4	83	3	0	90	6	4	46	48	0	98	1	7	479	593	0	1079	1	112	35	5	0	152	1	1419
7:00AM	12	168	9	0	189	9	6	131	101	0	238	2	17	400	639	0	1056	8	242	114	10	0	366	0	1849
8:00AM	19	221	9	0	249	8	5	156	125	0	286	0	7	365	600	0	972	6	320	136	11	0	467	0	1974
3:00PM	20	323	2	0	345	6	4	144	255	0	403	3	10	276	365	0	651	5	630	194	10	0	834	4	2233
4:00PM	9	337	9	0	355	8	7	152	205	0	364	2	19	277	352	0	648	5	570	198	4	1	773	3	2140
5:00PM	9	313	2	0	324	7	5	143	170	0	318	2	20	344	369	0	733	7	594	234	8	0	836	2	2211
2020-10-17 11:00AM	16	190	13	0	219	10	9	118	109	0	236	6	16	227	316	0	559	6	328	150	9	0	487	3	1501
12:00PM	15	211	9	0	235	5	10	123	103	0	236	0	12	242	347	0	601	1	376	132	7	0	515	0	1587
1:00PM	13	270	12	0	295	5	11	129	155	0	295	0	26	281	367	0	674	4	410	152	11	0	573	1	1837
<b>Total</b>	117	2116	68	0	2301	64	61	1142	1271	0	2474	16	134	2891	3948	0	6973	43	3582	1345	75	1	5003	14	16751
<b>% Approach</b>	5.1%	92.0%	3.0%	0%	-	-	2.5%	46.2%	51.4%	0%	-	-	1.9%	41.5%	56.6%	0%	-	-	71.6%	26.9%	1.5%	0%	-	-	-
<b>% Total</b>	0.7%	12.6%	0.4%	0%	13.7%	-	0.4%	6.8%	7.6%	0%	14.8%	-	0.8%	17.3%	23.6%	0%	41.6%	-	21.4%	8.0%	0.4%	0%	29.9%	-	-
<b>Motorcycles</b>	0	4	0	0	4	-	0	0	3	0	3	-	0	5	10	0	15	-	6	2	0	0	8	-	30
<b>% Motorcycles</b>	0%	0.2%	0%	0%	0.2%	-	0%	0%	0.2%	0%	0.1%	-	0%	0.2%	0.3%	0%	0.2%	-	0.2%	0.1%	0%	0%	0.2%	-	0.2%
<b>Lights</b>	113	2052	65	0	2230	-	60	1114	1233	0	2407	-	120	2805	3775	0	6700	-	3421	1318	70	1	4810	-	16147
<b>% Lights</b>	96.6%	97.0%	95.6%	0%	96.9%	-	98.4%	97.5%	97.0%	0%	97.3%	-	89.6%	97.0%	95.6%	0%	96.1%	-	95.5%	98.0%	93.3%	100%	96.1%	-	96.4%
<b>Single-Unit Trucks</b>	2	45	2	0	49	-	0	6	25	0	31	-	10	54	81	0	145	-	62	10	2	0	74	-	299
<b>% Single-Unit Trucks</b>	1.7%	2.1%	2.9%	0%	2.1%	-	0%	0.5%	2.0%	0%	1.3%	-	7.5%	1.9%	2.1%	0%	2.1%	-	1.7%	0.7%	2.7%	0%	1.5%	-	1.8%
<b>Articulated Trucks</b>	1	3	0	0	4	-	0	3	3	0	6	-	1	9	9	0	19	-	7	3	1	0	11	-	40
<b>% Articulated Trucks</b>	0.9%	0.1%	0%	0%	0.2%	-	0%	0.3%	0.2%	0%	0.2%	-	0.7%	0.3%	0.2%	0%	0.3%	-	0.2%	0.2%	1.3%	0%	0.2%	-	0.2%
<b>Buses</b>	1	11	0	0	12	-	0	12	6	0	18	-	2	16	73	0	91	-	85	10	2	0	97	-	218
<b>% Buses</b>	0.9%	0.5%	0%	0%	0.5%	-	0%	1.1%	0.5%	0%	0.7%	-	1.5%	0.6%	1.8%	0%	1.3%	-	2.4%	0.7%	2.7%	0%	1.9%	-	1.3%
<b>Bicycles on Road</b>	0	1	1	0	2	-	1	7	1	0	9	-	1	2	0	0	3	-	1	2	0	0	3	-	17
<b>% Bicycles on Road</b>	0%	0%	1.5%	0%	0.1%	-	1.6%	0.6%	0.1%	0%	0.4%	-	0.7%	0.1%	0%	0%	0%	-	0%	0.1%	0%	0%	0.1%	-	0.1%
<b>Pedestrians</b>	-	-	-	-	-	60	-	-	-	-	-	14	-	-	-	-	-	27	-	-	-	-	-	13	
<b>% Pedestrians</b>	-	-	-	-	-	93.8%	-	-	-	-	-	87.5%	-	-	-	-	-	62.8%	-	-	-	-	-	92.9%	
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	4	-	-	-	-	-	2	-	-	-	-	-	16	-	-	-	-	-	1	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	6.3%	-	-	-	-	-	12.5%	-	-	-	-	-	37.2%	-	-	-	-	-	7.1%	

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (8) Reedsdale Road (Route 28) @ Rando... - TMC

Thu Oct 15, 2020

AM Peak (Oct 15 2020 7:30AM - 8:30 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791955, Location: 42.248591, -71.069222, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue Southbound						Reedsdale Road Westbound						Randolph Avenue (Route 28) Northbound						Reedsdale Road (Route 28) Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 7:30AM	4	41	2	0	47	4	2	55	25	0	82	0	1	105	158	0	264	3	61	42	3	0	106	0	499
7:45AM	3	61	5	0	69	3	2	24	32	0	58	1	7	105	175	0	287	0	67	38	4	0	109	0	523
8:00AM	7	54	2	0	63	2	1	36	35	0	72	0	3	102	142	0	247	1	70	44	1	0	115	0	497
8:15AM	4	78	3	0	85	1	2	50	38	0	90	0	0	94	144	0	238	5	83	27	3	0	113	0	526
<b>Total</b>	18	234	12	0	264	10	7	165	130	0	302	1	11	406	619	0	1036	9	281	151	11	0	443	0	2045
<b>% Approach</b>	6.8%	88.6%	4.5%	0%	-	-	2.3%	54.6%	43.0%	0%	-	-	1.1%	39.2%	59.7%	0%	-	-	63.4%	34.1%	2.5%	0%	-	-	-
<b>% Total</b>	0.9%	11.4%	0.6%	0%	12.9%	-	0.3%	8.1%	6.4%	0%	14.8%	-	0.5%	19.9%	30.3%	0%	50.7%	-	13.7%	7.4%	0.5%	0%	21.7%	-	-
<b>PHF</b>	0.643	0.750	0.600	-	0.776	-	0.875	0.759	0.855	-	0.836	-	0.393	0.967	0.884	-	0.902	-	0.843	0.858	0.688	-	0.961	-	0.971
<b>Motorcycles</b>	0	2	0	0	2	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	2
<b>% Motorcycles</b>	0%	0.9%	0%	0%	0.8%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Lights</b>	17	224	12	0	253	-	7	158	122	0	287	-	7	387	583	0	977	-	260	147	10	0	417	-	1934
<b>% Lights</b>	94.4%	95.7%	100%	0%	95.8%	-	100%	95.8%	93.8%	0%	95.0%	-	63.6%	95.3%	94.2%	0%	94.3%	-	92.5%	97.4%	90.9%	0%	94.1%	-	94.6%
<b>Single-Unit Trucks</b>	1	3	0	0	4	-	0	0	2	0	2	-	4	12	23	0	39	-	6	2	0	0	8	-	53
<b>% Single-Unit Trucks</b>	5.6%	1.3%	0%	0%	1.5%	-	0%	0%	1.5%	0%	0.7%	-	36.4%	3.0%	3.7%	0%	3.8%	-	2.1%	1.3%	0%	0%	1.8%	-	2.6%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	4	3	0	7	-	1	1	0	0	2	-	9
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	1.0%	0.5%	0%	0.7%	-	0.4%	0.7%	0%	0%	0.5%	-	0.4%
<b>Buses</b>	0	5	0	0	5	-	0	6	6	0	12	-	0	3	10	0	13	-	13	1	1	0	15	-	45
<b>% Buses</b>	0%	2.1%	0%	0%	1.9%	-	0%	3.6%	4.6%	0%	4.0%	-	0%	0.7%	1.6%	0%	1.3%	-	4.6%	0.7%	9.1%	0%	3.4%	-	2.2%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	1	0	0	0	1	-	2
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0.6%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0.4%	0%	0%	0%	0.2%	-	0.1%
Pedestrians	-	-	-	-	-	10	-	-	-	-	-	1	-	-	-	-	-	9	-	-	-	-	-	0	0
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	0
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (8) Reedsdale Road (Route 28) @ Rando... - TMC

Thu Oct 15, 2020

PM Peak (Oct 15 2020 3:15PM - 4:15 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791955, Location: 42.248591, -71.069222, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue Southbound						Reedsdale Road Westbound						Randolph Avenue (Route 28) Northbound						Reedsdale Road (Route 28) Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 3:15PM	6	74	0	0	80	0	1	39	64	0	104	0	1	73	91	0	165	0	168	51	4	0	223	2	572
3:30PM	5	90	0	0	95	2	1	28	76	0	105	0	4	66	106	0	176	0	157	41	2	0	200	1	576
3:45PM	1	88	2	0	91	4	1	26	63	0	90	3	4	76	79	0	159	5	164	53	1	0	218	0	558
4:00PM	0	92	0	0	92	3	2	44	81	0	127	2	6	79	92	0	177	2	147	49	1	0	197	0	593
<b>Total</b>	12	344	2	0	358	9	5	137	284	0	426	5	15	294	368	0	677	7	636	194	8	0	838	3	2299
<b>% Approach</b>	3.4%	96.1%	0.6%	0%	-	-	1.2%	32.2%	66.7%	0%	-	-	2.2%	43.4%	54.4%	0%	-	-	75.9%	23.2%	1.0%	0%	-	-	-
<b>% Total</b>	0.5%	15.0%	0.1%	0%	15.6%	-	0.2%	6.0%	12.4%	0%	18.5%	-	0.7%	12.8%	16.0%	0%	29.4%	-	27.7%	8.4%	0.3%	0%	36.5%	-	-
<b>PHF</b>	0.500	0.935	0.250	-	0.942	-	0.625	0.778	0.877	-	0.839	-	0.625	0.930	0.868	-	0.956	-	0.946	0.928	0.500	-	0.938	-	0.969
<b>Motorcycles</b>	0	1	0	0	1	-	0	0	1	0	1	-	0	1	3	0	4	-	2	0	0	0	2	-	8
<b>% Motorcycles</b>	0%	0.3%	0%	0%	0.3%	-	0%	0%	0.4%	0%	0.2%	-	0%	0.3%	0.8%	0%	0.6%	-	0.3%	0%	0%	0%	0.2%	-	0.3%
<b>Lights</b>	12	329	2	0	343	-	5	134	272	0	411	-	13	288	354	0	655	-	604	191	6	0	801	-	2210
<b>% Lights</b>	100%	95.6%	100%	0%	95.8%	-	100%	97.8%	95.8%	0%	96.5%	-	86.7%	98.0%	96.2%	0%	96.8%	-	95.0%	98.5%	75.0%	0%	95.6%	-	96.1%
<b>Single-Unit Trucks</b>	0	14	0	0	14	-	0	2	11	0	13	-	2	1	4	0	7	-	19	1	1	0	21	-	55
<b>% Single-Unit Trucks</b>	0%	4.1%	0%	0%	3.9%	-	0%	1.5%	3.9%	0%	3.1%	-	13.3%	0.3%	1.1%	0%	1.0%	-	3.0%	0.5%	12.5%	0%	2.5%	-	2.4%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	1	0	0	0	1	-	2
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.3%	0%	0%	0.1%	-	0.2%	0%	0%	0%	0.1%	-	0.1%
<b>Buses</b>	0	0	0	0	0	-	0	1	0	0	1	-	0	3	7	0	10	-	10	1	1	0	12	-	23
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0.7%	0%	0%	0.2%	-	0%	1.0%	1.9%	0%	1.5%	-	1.6%	0.5%	12.5%	0%	1.4%	-	1.0%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	1
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.5%	0%	0%	0.1%	-	0%
<b>Pedestrians</b>	-	-	-	-	-	8	-	-	-	-	-	4	-	-	-	-	-	1	-	-	-	-	-	3	-
<b>% Pedestrians</b>	-	-	-	-	-	88.9%	-	-	-	-	-	80.0%	-	-	-	-	-	14.3%	-	-	-	-	-	100%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	6	-	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	11.1%	-	-	-	-	-	20.0%	-	-	-	-	-	85.7%	-	-	-	-	-	0%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



207528 (8) Reedsdale Road (Route 28) @ Rando... - TMC

Sat Oct 17, 2020

Midday Peak (WKND) (Oct 17 2020 11:45AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791955, Location: 42.248591, -71.069222, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue Southbound						Reedsdale Road Westbound						Randolph Avenue (Route 28) Northbound						Reedsdale Road (Route 28) Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-17 11:45AM	3	61	4	0	68	0	3	26	35	0	64	3	6	68	83	0	157	2	108	42	3	0	153	0	442
12:00PM	3	53	1	0	57	0	3	25	41	0	69	0	3	64	73	0	140	1	94	38	1	0	133	0	399
12:15PM	4	59	2	0	65	0	1	32	19	0	52	0	4	56	104	0	164	0	90	22	3	0	115	0	396
12:30PM	2	44	1	0	47	3	2	34	22	0	58	0	4	72	93	0	169	0	107	31	2	0	140	0	414
<b>Total</b>	12	217	8	0	237	3	9	117	117	0	243	3	17	260	353	0	630	3	399	133	9	0	541	0	1651
<b>% Approach</b>	5.1%	91.6%	3.4%	0%	-	-	3.7%	48.1%	48.1%	0%	-	-	2.7%	41.3%	56.0%	0%	-	-	73.8%	24.6%	1.7%	0%	-	-	-
<b>% Total</b>	0.7%	13.1%	0.5%	0%	14.4%	-	0.5%	7.1%	7.1%	0%	14.7%	-	1.0%	15.7%	21.4%	0%	38.2%	-	24.2%	8.1%	0.5%	0%	32.8%	-	-
<b>PHF</b>	0.750	0.889	0.500	-	0.871	-	0.750	0.860	0.707	-	0.877	-	0.708	0.903	0.849	-	0.932	-	0.924	0.792	0.750	-	0.884	-	0.933
<b>Motorcycles</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Lights</b>	11	214	8	0	233	-	9	116	114	0	239	-	16	259	346	0	621	-	392	132	9	0	533	-	1626
<b>% Lights</b>	91.7%	98.6%	100%	0%	98.3%	-	100%	99.1%	97.4%	0%	98.4%	-	94.1%	99.6%	98.0%	0%	98.6%	-	98.2%	99.2%	100%	0%	98.5%	-	98.5%
<b>Single-Unit Trucks</b>	1	3	0	0	4	-	0	1	2	0	3	-	1	1	3	0	5	-	1	0	0	0	1	-	13
<b>% Single-Unit Trucks</b>	8.3%	1.4%	0%	0%	1.7%	-	0%	0.9%	1.7%	0%	1.2%	-	5.9%	0.4%	0.8%	0%	0.8%	-	0.3%	0%	0%	0%	0.2%	-	0.8%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	1	-	1	0	0	0	1	-	2
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0.3%	0%	0.2%	-	0.3%	0%	0%	0%	0.2%	-	0.1%
<b>Buses</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	3	0	3	-	5	1	0	0	6	-	9
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0.8%	0%	0.5%	-	1.3%	0.8%	0%	0%	1.1%	-	0.5%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	1	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	1
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0.9%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Pedestrians</b>	-	-	-	-	-	3	-	-	-	-	-	3	-	-	-	-	-	2	-	-	-	-	-	0	-
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	66.7%	-	-	-	-	-	-	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	33.3%	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (8) Reedsdale Road (Route 28) @ Rando... - TMC

Sat Oct 17, 2020

PM Peak (WKND) (Oct 17 2020 1PM - 2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791955, Location: 42.248591, -71.069222, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue Southbound						Reedsdale Road Westbound						Randolph Avenue (Route 28) Northbound						Reedsdale Road (Route 28) Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-17 1:00PM	3	57	5	0	65	1	0	36	30	0	66	0	6	74	90	0	170	0	101	29	3	0	133	0	434
1:15PM	3	54	4	0	61	3	1	30	38	0	69	0	9	70	107	0	186	1	91	41	2	0	134	1	450
1:30PM	3	81	2	0	86	1	5	28	44	0	77	0	7	76	98	0	181	3	103	35	4	0	142	0	486
1:45PM	4	78	1	0	83	0	5	35	43	0	83	0	4	61	72	0	137	0	115	47	2	0	164	0	467
<b>Total</b>	13	270	12	0	295	5	11	129	155	0	295	0	26	281	367	0	674	4	410	152	11	0	573	1	1837
<b>% Approach</b>	4.4%	91.5%	4.1%	0%	-	-	3.7%	43.7%	52.5%	0%	-	-	3.9%	41.7%	54.5%	0%	-	-	71.6%	26.5%	1.9%	0%	-	-	-
<b>% Total</b>	0.7%	14.7%	0.7%	0%	16.1%	-	0.6%	7.0%	8.4%	0%	16.1%	-	1.4%	15.3%	20.0%	0%	36.7%	-	22.3%	8.3%	0.6%	0%	31.2%	-	-
<b>PHF</b>	0.813	0.833	0.600	-	0.858	-	0.550	0.896	0.881	-	0.889	-	0.722	0.921	0.857	-	0.909	-	0.891	0.809	0.688	-	0.873	-	0.944
<b>Motorcycles</b>	0	0	0	0	0	-	0	0	1	0	1	-	0	0	0	0	0	-	1	1	0	0	2	-	3
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0%	0.6%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0.2%	0.7%	0%	0%	0.3%	-	0.2%
<b>Lights</b>	13	266	11	0	290	-	11	128	153	0	292	-	26	280	358	0	664	-	399	148	11	0	558	-	1804
<b>% Lights</b>	100%	98.5%	91.7%	0%	98.3%	-	100%	99.2%	98.7%	0%	99.0%	-	100%	99.6%	97.5%	0%	98.5%	-	97.3%	97.4%	100%	0%	97.4%	-	98.2%
<b>Single-Unit Trucks</b>	0	4	1	0	5	-	0	1	1	0	2	-	0	0	5	0	5	-	5	3	0	0	8	-	20
<b>% Single-Unit Trucks</b>	0%	1.5%	8.3%	0%	1.7%	-	0%	0.8%	0.6%	0%	0.7%	-	0%	0%	1.4%	0%	0.7%	-	1.2%	2.0%	0%	0%	1.4%	-	1.1%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Buses</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	4	0	4	-	5	0	0	0	5	-	9
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	1.1%	0%	0.6%	-	1.2%	0%	0%	0%	0.9%	-	0.5%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	1
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.4%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Pedestrians</b>	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-
<b>% Pedestrians</b>	-	-	-	-	-	60.0%	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	100%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	40.0%	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	0%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (9) Randolph Avenue (Route 28) @ Reed... - TMC

Thu Oct 15, 2020

Full Length (6 AM-9 AM, 3 PM-6 PM, 11 AM-2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791957, Location: 42.242814, -71.069414, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound						Access Road Westbound						Randolph Avenue (Route 28) Northbound						Reed Street Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 6:00AM	0	220	0	0	220	0	0	0	0	0	0	2	0	1247	35	0	1282	0	0	0	4	0	4	0	1506
7:00AM	8	503	0	0	511	0	0	0	0	0	0	1	0	1200	7	0	1207	0	3	0	12	0	15	1	1733
8:00AM	6	636	0	0	642	0	0	0	0	0	0	1	0	1054	10	0	1064	0	18	0	34	0	52	1	1758
3:00PM	12	1182	0	0	1194	0	0	0	0	0	0	3	0	743	35	0	778	0	8	0	15	0	23	1	1995
4:00PM	17	1074	1	0	1092	1	1	0	0	0	1	1	0	805	35	0	840	1	9	0	22	0	31	0	1964
5:00PM	5	1057	0	0	1062	0	0	0	0	0	0	4	0	852	28	0	880	0	5	0	9	0	14	2	1956
2020-10-17 11:00AM	5	613	0	0	618	0	0	0	0	0	0	0	0	676	21	0	697	1	1	0	10	0	11	0	1326
12:00PM	4	682	0	0	686	0	0	0	0	0	0	3	0	767	28	1	796	1	2	0	3	0	5	0	1487
1:00PM	5	820	0	0	825	0	0	0	0	2	2	1	0	853	31	1	885	0	2	0	8	0	10	2	1722
<b>Total</b>	62	6787	1	0	6850	1	1	0	0	2	3	16	0	8197	230	2	8429	3	48	0	117	0	165	7	15447
<b>% Approach</b>	0.9%	99.1%	0%	0%	-	-	33.3%	0%	0%	66.7%	-	-	0%	97.2%	2.7%	0%	-	-	29.1%	0%	70.9%	0%	-	-	-
<b>% Total</b>	0.4%	43.9%	0%	0%	44.3%	-	0%	0%	0%	0%	0%	-	0%	53.1%	1.5%	0%	54.6%	-	0.3%	0%	0.8%	0%	1.1%	-	-
<b>Motorcycles</b>	0	12	0	0	12	-	0	0	0	0	0	-	0	16	0	0	16	-	0	0	0	0	0	-	28
<b>% Motorcycles</b>	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0.2%
<b>Lights</b>	58	6539	1	0	6598	-	1	0	0	2	3	-	0	7913	229	2	8144	-	48	0	112	0	160	-	14905
<b>% Lights</b>	93.5%	96.3%	100%	0%	96.3%	-	100%	0%	0%	100%	100%	-	0%	96.5%	99.6%	100%	96.6%	-	100%	0%	95.7%	0%	97.0%	-	96.5%
<b>Single-Unit Trucks</b>	4	112	0	0	116	-	0	0	0	0	0	-	0	139	0	0	139	-	0	0	1	0	1	-	256
<b>% Single-Unit Trucks</b>	6.5%	1.7%	0%	0%	1.7%	-	0%	0%	0%	0%	0%	-	0%	1.7%	0%	0%	1.6%	-	0%	0%	0.9%	0%	0.6%	-	1.7%
<b>Articulated Trucks</b>	0	11	0	0	11	-	0	0	0	0	0	-	0	23	0	0	23	-	0	0	1	0	1	-	35
<b>% Articulated Trucks</b>	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.3%	0%	0%	0.3%	-	0%	0%	0.9%	0%	0.6%	-	0.2%
<b>Buses</b>	0	106	0	0	106	-	0	0	0	0	0	-	0	100	1	0	101	-	0	0	3	0	3	-	210
<b>% Buses</b>	0%	1.6%	0%	0%	1.5%	-	0%	0%	0%	0%	0%	-	0%	1.2%	0.4%	0%	1.2%	-	0%	0%	2.6%	0%	1.8%	-	1.4%
<b>Bicycles on Road</b>	0	7	0	0	7	-	0	0	0	0	0	-	0	6	0	0	6	-	0	0	0	0	0	-	13
<b>% Bicycles on Road</b>	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Pedestrians</b>	-	-	-	-	-	1	-	-	-	-	-	9	-	-	-	-	-	3	-	-	-	-	-	5	
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	56.3%	-	-	-	-	-	100%	-	-	-	-	-	71.4%	
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	7	-	-	-	-	-	0	-	-	-	-	-	2	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	43.8%	-	-	-	-	-	0%	-	-	-	-	-	28.6%	

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



207528 (9) Randolph Avenue (Route 28) @ Reed... - TMC

Thu Oct 15, 2020

AM Peak (Oct 15 2020 7:30AM - 8:30 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791957, Location: 42.242814, -71.069414, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound						Access Road Westbound						Randolph Avenue (Route 28) Northbound						Reed Street Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 7:30AM	3	126	0	0	129	0	0	0	0	0	0	1	0	330	4	0	334	0	1	0	4	0	5	0	468
7:45AM	5	159	0	0	164	0	0	0	0	0	0	0	0	300	1	0	301	0	2	0	4	0	6	1	471
8:00AM	2	159	0	0	161	0	0	0	0	0	0	0	0	275	2	0	277	0	5	0	9	0	14	0	452
8:15AM	0	182	0	0	182	0	0	0	0	0	0	0	0	260	3	0	263	0	5	0	5	0	10	0	455
<b>Total</b>	10	626	0	0	636	0	0	0	0	0	0	1	0	1165	10	0	1175	0	13	0	22	0	35	1	1846
<b>% Approach</b>	1.6%	98.4%	0%	0%	-	-	0%	0%	0%	0%	-	-	0%	99.1%	0.9%	0%	-	-	37.1%	0%	62.9%	0%	-	-	-
<b>% Total</b>	0.5%	33.9%	0%	0%	34.5%	-	0%	0%	0%	0%	0%	-	0%	63.1%	0.5%	0%	63.7%	-	0.7%	0%	1.2%	0%	1.9%	-	-
<b>PHF</b>	0.500	0.860	-	-	0.874	-	-	-	-	-	-	-	-	0.882	0.625	-	0.879	-	0.650	-	0.611	-	0.625	-	0.981
<b>Motorcycles</b>	0	3	0	0	3	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	3
<b>% Motorcycles</b>	0%	0.5%	0%	0%	0.5%	-	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.2%
<b>Lights</b>	7	586	0	0	593	-	0	0	0	0	0	-	0	1108	10	0	1118	-	13	0	19	0	32	-	1743
<b>% Lights</b>	70.0%	93.6%	0%	0%	93.2%	-	0%	0%	0%	0%	-	-	0%	95.1%	100%	0%	95.1%	-	100%	0%	86.4%	0%	91.4%	-	94.4%
<b>Single-Unit Trucks</b>	3	10	0	0	13	-	0	0	0	0	0	-	0	35	0	0	35	-	0	0	0	0	0	-	48
<b>% Single-Unit Trucks</b>	30.0%	1.6%	0%	0%	2.0%	-	0%	0%	0%	0%	-	-	0%	3.0%	0%	0%	3.0%	-	0%	0%	0%	0%	0%	-	2.6%
<b>Articulated Trucks</b>	0	2	0	0	2	-	0	0	0	0	0	-	0	7	0	0	7	-	0	0	0	0	0	-	9
<b>% Articulated Trucks</b>	0%	0.3%	0%	0%	0.3%	-	0%	0%	0%	0%	-	-	0%	0.6%	0%	0%	0.6%	-	0%	0%	0%	0%	0%	-	0.5%
<b>Buses</b>	0	25	0	0	25	-	0	0	0	0	0	-	0	14	0	0	14	-	0	0	3	0	3	-	42
<b>% Buses</b>	0%	4.0%	0%	0%	3.9%	-	0%	0%	0%	0%	-	-	0%	1.2%	0%	0%	1.2%	-	0%	0%	13.6%	0%	8.6%	-	2.3%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	1
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	-	-	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	100%
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	-	0%

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (9) Randolph Avenue (Route 28) @ Reed... - TMC

Thu Oct 15, 2020

PM Peak (Oct 15 2020 3:15PM - 4:15 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791957, Location: 42.242814, -71.069414, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound						Access Road Westbound						Randolph Avenue (Route 28) Northbound						Reed Street Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 3:15PM	2	297	0	0	299	0	0	0	0	0	0	1	0	168	7	0	175	0	1	0	3	0	4	1	478
3:30PM	6	325	0	0	331	0	0	0	0	0	0	2	0	209	11	0	220	0	2	0	5	0	7	0	558
3:45PM	2	309	0	0	311	0	0	0	0	0	0	0	0	187	5	0	192	0	2	0	3	0	5	0	508
4:00PM	4	319	1	0	324	0	1	0	0	0	1	0	0	203	7	0	210	0	2	0	6	0	8	0	543
<b>Total</b>	14	1250	1	0	1265	0	1	0	0	0	1	3	0	767	30	0	797	0	7	0	17	0	24	1	2087
<b>% Approach</b>	1.1%	98.8%	0.1%	0%	-	-	100%	0%	0%	0%	-	-	0%	96.2%	3.8%	0%	-	-	29.2%	0%	70.8%	0%	-	-	-
<b>% Total</b>	0.7%	59.9%	0%	0%	60.6%	-	0%	0%	0%	0%	0%	-	0%	36.8%	1.4%	0%	38.2%	-	0.3%	0%	0.8%	0%	1.1%	-	-
<b>PHF</b>	0.583	0.964	0.250	-	0.958	-	0.250	-	-	-	0.250	-	-	0.919	0.682	-	0.908	-	0.875	-	0.708	-	0.750	-	0.937
<b>Motorcycles</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	2	0	0	2	-	0	0	0	0	0	-	2
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.3%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Lights</b>	14	1196	1	0	1211	-	1	0	0	0	1	-	0	744	30	0	774	-	7	0	17	0	24	-	2010
<b>% Lights</b>	100%	95.7%	100%	0%	95.7%	-	100%	0%	0%	0%	100%	-	0%	97.0%	100%	0%	97.1%	-	100%	0%	100%	0%	100%	-	96.3%
<b>Single-Unit Trucks</b>	0	38	0	0	38	-	0	0	0	0	0	-	0	8	0	0	8	-	0	0	0	0	0	-	46
<b>% Single-Unit Trucks</b>	0%	3.0%	0%	0%	3.0%	-	0%	0%	0%	0%	0%	-	0%	1.0%	0%	0%	1.0%	-	0%	0%	0%	0%	0%	-	2.2%
<b>Articulated Trucks</b>	0	1	0	0	1	-	0	0	0	0	0	-	0	2	0	0	2	-	0	0	0	0	0	-	3
<b>% Articulated Trucks</b>	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0.3%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Buses</b>	0	11	0	0	11	-	0	0	0	0	0	-	0	9	0	0	9	-	0	0	0	0	0	-	20
<b>% Buses</b>	0%	0.9%	0%	0%	0.9%	-	0%	0%	0%	0%	0%	-	0%	1.2%	0%	0%	1.1%	-	0%	0%	0%	0%	0%	-	1.0%
<b>Bicycles on Road</b>	0	4	0	0	4	-	0	0	0	0	0	-	0	2	0	0	2	-	0	0	0	0	0	-	6
<b>% Bicycles on Road</b>	0%	0.3%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0%	0.3%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0.3%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	0%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	1	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	100%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (9) Randolph Avenue (Route 28) @ Reed... - TMC

Sat Oct 17, 2020

Midday Peak (WKND) (Oct 17 2020 11:45AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791957, Location: 42.242814, -71.069414, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound						Access Road Westbound						Randolph Avenue (Route 28) Northbound						Reed Street Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-17 11:45AM	2	197	0	0	199	0	0	0	0	0	0	0	0	182	4	0	186	0	0	0	2	0	2	0	387
12:00PM	1	190	0	0	191	0	0	0	0	0	0	1	0	187	6	0	193	0	0	0	1	0	1	0	385
12:15PM	1	162	0	0	163	0	0	0	0	0	0	0	0	216	8	1	225	1	0	0	1	0	1	0	389
12:30PM	2	167	0	0	169	0	0	0	0	0	0	2	0	196	6	0	202	0	0	0	0	0	0	0	371
<b>Total</b>	6	716	0	0	722	0	0	0	0	0	0	3	0	781	24	1	806	1	0	0	4	0	4	0	1532
<b>% Approach</b>	0.8%	99.2%	0%	0%	-	-	0%	0%	0%	0%	-	-	0%	96.9%	3.0%	0.1%	-	-	0%	0%	100%	0%	-	-	-
<b>% Total</b>	0.4%	46.7%	0%	0%	47.1%	-	0%	0%	0%	0%	0%	-	0%	51.0%	1.6%	0.1%	52.6%	-	0%	0%	0.3%	0%	0.3%	-	-
<b>PHF</b>	0.750	0.907	-	-	0.906	-	-	-	-	-	-	-	-	0.904	0.750	0.250	0.896	-	-	-	0.500	-	0.500	-	0.986
<b>Motorcycles</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Lights</b>	6	703	0	0	709	-	0	0	0	0	0	-	0	770	24	1	795	-	0	0	4	0	4	-	1508
<b>% Lights</b>	100%	98.2%	0%	0%	98.2%	-	0%	0%	0%	0%	-	-	0%	98.6%	100%	100%	98.6%	-	0%	0%	100%	0%	100%	-	98.4%
<b>Single-Unit Trucks</b>	0	6	0	0	6	-	0	0	0	0	0	-	0	7	0	0	7	-	0	0	0	0	0	-	13
<b>% Single-Unit Trucks</b>	0%	0.8%	0%	0%	0.8%	-	0%	0%	0%	0%	-	-	0%	0.9%	0%	0%	0.9%	-	0%	0%	0%	0%	0%	-	0.8%
<b>Articulated Trucks</b>	0	1	0	0	1	-	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	2
<b>% Articulated Trucks</b>	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	-	-	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Buses</b>	0	5	0	0	5	-	0	0	0	0	0	-	0	3	0	0	3	-	0	0	0	0	0	-	8
<b>% Buses</b>	0%	0.7%	0%	0%	0.7%	-	0%	0%	0%	0%	-	-	0%	0.4%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0.5%
<b>Bicycles on Road</b>	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	1
<b>% Bicycles on Road</b>	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	0	
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



207528 (9) Randolph Avenue (Route 28) @ Reed... - TMC

Sat Oct 17, 2020

PM Peak (WKND) (Oct 17 2020 1PM - 2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791957, Location: 42.242814, -71.069414, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound						Access Road Westbound						Randolph Avenue (Route 28) Northbound						Reed Street Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-17 1:00PM	2	183	0	0	185	0	0	0	0	1	1	0	0	205	4	0	209	0	0	0	3	0	3	1	398
1:15PM	0	193	0	0	193	0	0	0	0	0	0	0	0	212	14	1	227	0	0	0	2	0	2	1	422
1:30PM	2	210	0	0	212	0	0	0	0	1	1	1	0	223	4	0	227	0	1	0	2	0	3	0	443
1:45PM	1	234	0	0	235	0	0	0	0	0	0	0	0	213	9	0	222	0	1	0	1	0	2	0	459
<b>Total</b>	5	820	0	0	825	0	0	0	0	2	2	1	0	853	31	1	885	0	2	0	8	0	10	2	1722
<b>% Approach</b>	0.6%	99.4%	0%	0%	-	-	0%	0%	0%	100%	-	-	0%	96.4%	3.5%	0.1%	-	-	20.0%	0%	80.0%	0%	-	-	-
<b>% Total</b>	0.3%	47.6%	0%	0%	47.9%	-	0%	0%	0%	0.1%	0.1%	-	0%	49.5%	1.8%	0.1%	51.4%	-	0.1%	0%	0.5%	0%	0.6%	-	-
<b>PHF</b>	0.625	0.876	-	-	0.878	-	-	-	-	0.500	0.500	-	-	0.955	0.554	0.250	0.974	-	0.500	-	0.667	-	0.833	-	0.937
<b>Motorcycles</b>	0	2	0	0	2	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	2
<b>% Motorcycles</b>	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Lights</b>	5	802	0	0	807	-	0	0	0	2	2	-	0	843	31	1	875	-	2	0	8	0	10	-	1694
<b>% Lights</b>	100%	97.8%	0%	0%	97.8%	-	0%	0%	0%	100%	100%	-	0%	98.8%	100%	100%	98.9%	-	100%	0%	100%	0%	100%	-	98.4%
<b>Single-Unit Trucks</b>	0	9	0	0	9	-	0	0	0	0	0	-	0	5	0	0	5	-	0	0	0	0	0	-	14
<b>% Single-Unit Trucks</b>	0%	1.1%	0%	0%	1.1%	-	0%	0%	0%	0%	0%	-	0%	0.6%	0%	0%	0.6%	-	0%	0%	0%	0%	0%	-	0.8%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Buses</b>	0	7	0	0	7	-	0	0	0	0	0	-	0	4	0	0	4	-	0	0	0	0	0	-	11
<b>% Buses</b>	0%	0.9%	0%	0%	0.8%	-	0%	0%	0%	0%	0%	-	0%	0.5%	0%	0%	0.5%	-	0%	0%	0%	0%	0%	-	0.6%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	1
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0.1%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	2	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	100%
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	-	0%

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (10) Randolph Avenue (Route 28) @ Hal... - TMC

Thu Oct 15, 2020

Full Length (6 AM-9 AM, 3 PM-6 PM, 11 AM-2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791960, Location: 42.238601, -71.06961, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound					Randolph Avenue (Route 28) Northbound					Hallen Avenue Eastbound					Int
	R	T	U	App	Ped*	T	L	U	App	Ped*	R	L	U	App	Ped*	
2020-10-15 6:00AM	1	237	0	<b>238</b>	0	1239	38	0	<b>1277</b>	0	10	2	0	<b>12</b>	1	<b>1527</b>
7:00AM	1	541	0	<b>542</b>	0	1175	11	0	<b>1186</b>	0	25	2	0	<b>27</b>	0	<b>1755</b>
8:00AM	1	658	0	<b>659</b>	0	1060	14	0	<b>1074</b>	0	32	3	0	<b>35</b>	1	<b>1768</b>
3:00PM	5	1299	0	<b>1304</b>	0	783	46	0	<b>829</b>	0	88	0	0	<b>88</b>	2	<b>2221</b>
4:00PM	4	1172	0	<b>1176</b>	0	793	47	0	<b>840</b>	0	82	5	0	<b>87</b>	0	<b>2103</b>
5:00PM	3	1161	0	<b>1164</b>	0	875	46	0	<b>921</b>	0	72	1	0	<b>73</b>	2	<b>2158</b>
2020-10-17 11:00AM	3	683	0	<b>686</b>	0	688	39	0	<b>727</b>	0	45	5	0	<b>50</b>	1	<b>1463</b>
12:00PM	4	739	0	<b>743</b>	0	788	54	0	<b>842</b>	0	56	2	0	<b>58</b>	0	<b>1643</b>
1:00PM	0	883	0	<b>883</b>	0	883	48	0	<b>931</b>	0	64	4	0	<b>68</b>	2	<b>1882</b>
<b>Total</b>	22	7373	0	<b>7395</b>	0	8284	343	0	<b>8627</b>	0	474	24	0	<b>498</b>	9	<b>16520</b>
<b>% Approach</b>	0.3%	99.7%	0%	-	-	96.0%	4.0%	0%	-	-	95.2%	4.8%	0%	-	-	-
<b>% Total</b>	0.1%	44.6%	0%	<b>44.8%</b>	-	50.1%	2.1%	0%	<b>52.2%</b>	-	2.9%	0.1%	0%	<b>3.0%</b>	-	-
<b>Motorcycles</b>	0	16	0	<b>16</b>	-	12	1	0	<b>13</b>	-	0	0	0	<b>0</b>	-	29
<b>% Motorcycles</b>	0%	0.2%	0%	<b>0.2%</b>	-	0.1%	0.3%	0%	<b>0.2%</b>	-	0%	0%	0%	<b>0%</b>	-	0.2%
<b>Lights</b>	22	7130	0	<b>7152</b>	-	8021	339	0	<b>8360</b>	-	469	23	0	<b>492</b>	-	16004
<b>% Lights</b>	100%	96.7%	0%	<b>96.7%</b>	-	96.8%	98.8%	0%	<b>96.9%</b>	-	98.9%	95.8%	0%	<b>98.8%</b>	-	96.9%
<b>Single-Unit Trucks</b>	0	105	0	<b>105</b>	-	137	1	0	<b>138</b>	-	3	1	0	<b>4</b>	-	247
<b>% Single-Unit Trucks</b>	0%	1.4%	0%	<b>1.4%</b>	-	1.7%	0.3%	0%	<b>1.6%</b>	-	0.6%	4.2%	0%	<b>0.8%</b>	-	1.5%
<b>Articulated Trucks</b>	0	14	0	<b>14</b>	-	8	1	0	<b>9</b>	-	0	0	0	<b>0</b>	-	23
<b>% Articulated Trucks</b>	0%	0.2%	0%	<b>0.2%</b>	-	0.1%	0.3%	0%	<b>0.1%</b>	-	0%	0%	0%	<b>0%</b>	-	0.1%
<b>Buses</b>	0	105	0	<b>105</b>	-	100	1	0	<b>101</b>	-	1	0	0	<b>1</b>	-	207
<b>% Buses</b>	0%	1.4%	0%	<b>1.4%</b>	-	1.2%	0.3%	0%	<b>1.2%</b>	-	0.2%	0%	0%	<b>0.2%</b>	-	1.3%
<b>Bicycles on Road</b>	0	3	0	<b>3</b>	-	6	0	0	<b>6</b>	-	1	0	0	<b>1</b>	-	10
<b>% Bicycles on Road</b>	0%	0%	0%	<b>0%</b>	-	0.1%	0%	0%	<b>0.1%</b>	-	0.2%	0%	0%	<b>0.2%</b>	-	0.1%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	6
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66.7%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	3
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33.3%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (10) Randolph Avenue (Route 28) @ Hal... - TMC

Thu Oct 15, 2020

AM Peak (Oct 15 2020 7:30AM - 8:30 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791960, Location: 42.238601, -71.06961, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound					Randolph Avenue (Route 28) Northbound					Hallen Avenue Eastbound					Int
	R	T	U	App	Ped*	T	L	U	App	Ped*	R	L	U	App	Ped*	
2020-10-15 7:30AM	0	139	0	139	0	326	5	0	331	0	6	0	0	6	0	476
7:45AM	0	171	0	171	0	291	1	0	292	0	10	2	0	12	0	475
8:00AM	0	165	0	165	0	278	3	0	281	0	8	1	0	9	0	455
8:15AM	1	189	0	190	0	262	2	0	264	0	7	1	0	8	0	462
<b>Total</b>	1	664	0	665	0	1157	11	0	1168	0	31	4	0	35	0	1868
<b>% Approach</b>	0.2%	99.8%	0%	-	-	99.1%	0.9%	0%	-	-	88.6%	11.4%	0%	-	-	-
<b>% Total</b>	0.1%	35.5%	0%	35.6%	-	61.9%	0.6%	0%	62.5%	-	1.7%	0.2%	0%	1.9%	-	-
<b>PHF</b>	0.250	0.878	-	0.875	-	0.887	0.550	-	0.881	-	0.775	0.500	-	0.729	-	0.981
<b>Motorcycles</b>	0	3	0	3	-	0	0	0	0	-	0	0	0	0	-	3
<b>% Motorcycles</b>	0%	0.5%	0%	0.5%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0.2%
<b>Lights</b>	1	626	0	627	-	1103	10	0	1113	-	30	4	0	34	-	1774
<b>% Lights</b>	100%	94.3%	0%	94.3%	-	95.3%	90.9%	0%	95.3%	-	96.8%	100%	0%	97.1%	-	95.0%
<b>Single-Unit Trucks</b>	0	7	0	7	-	38	0	0	38	-	0	0	0	0	-	45
<b>% Single-Unit Trucks</b>	0%	1.1%	0%	1.1%	-	3.3%	0%	0%	3.3%	-	0%	0%	0%	0%	-	2.4%
<b>Articulated Trucks</b>	0	2	0	2	-	1	0	0	1	-	0	0	0	0	-	3
<b>% Articulated Trucks</b>	0%	0.3%	0%	0.3%	-	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	-	0.2%
<b>Buses</b>	0	26	0	26	-	14	1	0	15	-	1	0	0	1	-	42
<b>% Buses</b>	0%	3.9%	0%	3.9%	-	1.2%	9.1%	0%	1.3%	-	3.2%	0%	0%	2.9%	-	2.2%
<b>Bicycles on Road</b>	0	0	0	0	-	1	0	0	1	-	0	0	0	0	-	1
<b>% Bicycles on Road</b>	0%	0%	0%	0%	-	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	-	0.1%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



207528 (10) Randolph Avenue (Route 28) @ Hal... - TMC

Thu Oct 15, 2020

PM Peak (Oct 15 2020 3:15PM - 4:15 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791960, Location: 42.238601, -71.06961, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street,  
Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound					Randolph Avenue (Route 28) Northbound					Hallen Avenue Eastbound					Int
	R	T	U	App	Ped*	T	L	U	App	Ped*	R	L	U	App	Ped*	
2020-10-15 3:15PM	2	321	0	323	0	177	10	0	187	0	16	0	0	16	2	526
3:30PM	2	350	0	352	0	224	12	0	236	0	21	0	0	21	0	609
3:45PM	1	341	0	342	0	202	13	0	215	0	25	0	0	25	0	582
4:00PM	2	341	0	343	0	195	16	0	211	0	21	2	0	23	0	577
<b>Total</b>	7	1353	0	1360	0	798	51	0	849	0	83	2	0	85	2	2294
<b>% Approach</b>	0.5%	99.5%	0%	-	-	94.0%	6.0%	0%	-	-	97.6%	2.4%	0%	-	-	-
<b>% Total</b>	0.3%	59.0%	0%	59.3%	-	34.8%	2.2%	0%	37.0%	-	3.6%	0.1%	0%	3.7%	-	-
<b>PHF</b>	0.875	0.966	-	0.966	-	0.893	0.797	-	0.902	-	0.820	0.250	-	0.840	-	0.942
<b>Motorcycles</b>	0	4	0	4	-	4	0	0	4	-	0	0	0	0	-	8
<b>% Motorcycles</b>	0%	0.3%	0%	0.3%	-	0.5%	0%	0%	0.5%	-	0%	0%	0%	0%	-	0.3%
<b>Lights</b>	7	1299	0	1306	-	778	51	0	829	-	81	2	0	83	-	2218
<b>% Lights</b>	100%	96.0%	0%	96.0%	-	97.5%	100%	0%	97.6%	-	97.6%	100%	0%	97.6%	-	96.7%
<b>Single-Unit Trucks</b>	0	36	0	36	-	5	0	0	5	-	1	0	0	1	-	42
<b>% Single-Unit Trucks</b>	0%	2.7%	0%	2.6%	-	0.6%	0%	0%	0.6%	-	1.2%	0%	0%	1.2%	-	1.8%
<b>Articulated Trucks</b>	0	3	0	3	-	1	0	0	1	-	0	0	0	0	-	4
<b>% Articulated Trucks</b>	0%	0.2%	0%	0.2%	-	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	-	0.2%
<b>Buses</b>	0	11	0	11	-	9	0	0	9	-	0	0	0	0	-	20
<b>% Buses</b>	0%	0.8%	0%	0.8%	-	1.1%	0%	0%	1.1%	-	0%	0%	0%	0%	-	0.9%
<b>Bicycles on Road</b>	0	0	0	0	-	1	0	0	1	-	1	0	0	1	-	2
<b>% Bicycles on Road</b>	0%	0%	0%	0%	-	0.1%	0%	0%	0.1%	-	1.2%	0%	0%	1.2%	-	0.1%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	2
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (10) Randolph Avenue (Route 28) @ Hal... - TMC

Sat Oct 17, 2020

Midday Peak (WKND) (Oct 17 2020 11:45AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791960, Location: 42.238601, -71.06961, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street,  
Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound					Randolph Avenue (Route 28) Northbound					Hallen Avenue Eastbound					Int
	R	T	U	App	Ped*	T	L	U	App	Ped*	R	L	U	App	Ped*	
2020-10-17 11:45AM	2	211	0	213	0	187	12	0	199	0	11	2	0	13	0	425
12:00PM	3	208	0	211	0	193	7	0	200	0	9	0	0	9	0	420
12:15PM	0	181	0	181	0	222	10	0	232	0	24	0	0	24	0	437
12:30PM	0	171	0	171	0	196	16	0	212	0	14	1	0	15	0	398
<b>Total</b>	5	771	0	776	0	798	45	0	843	0	58	3	0	61	0	1680
<b>% Approach</b>	0.6%	99.4%	0%	-	-	94.7%	5.3%	0%	-	-	95.1%	4.9%	0%	-	-	-
<b>% Total</b>	0.3%	45.9%	0%	46.2%	-	47.5%	2.7%	0%	50.2%	-	3.5%	0.2%	0%	3.6%	-	-
<b>PHF</b>	0.417	0.912	-	0.910	-	0.899	0.703	-	0.908	-	0.604	0.375	-	0.635	-	0.963
<b>Motorcycles</b>	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
<b>% Motorcycles</b>	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
<b>Lights</b>	5	760	0	765	-	787	45	0	832	-	58	3	0	61	-	1658
<b>% Lights</b>	100%	98.6%	0%	98.6%	-	98.6%	100%	0%	98.7%	-	100%	100%	0%	100%	-	98.7%
<b>Single-Unit Trucks</b>	0	4	0	4	-	6	0	0	6	-	0	0	0	0	-	10
<b>% Single-Unit Trucks</b>	0%	0.5%	0%	0.5%	-	0.8%	0%	0%	0.7%	-	0%	0%	0%	0%	-	0.6%
<b>Articulated Trucks</b>	0	1	0	1	-	2	0	0	2	-	0	0	0	0	-	3
<b>% Articulated Trucks</b>	0%	0.1%	0%	0.1%	-	0.3%	0%	0%	0.2%	-	0%	0%	0%	0%	-	0.2%
<b>Buses</b>	0	5	0	5	-	3	0	0	3	-	0	0	0	0	-	8
<b>% Buses</b>	0%	0.6%	0%	0.6%	-	0.4%	0%	0%	0.4%	-	0%	0%	0%	0%	-	0.5%
<b>Bicycles on Road</b>	0	1	0	1	-	0	0	0	0	-	0	0	0	0	-	1
<b>% Bicycles on Road</b>	0%	0.1%	0%	0.1%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0.1%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (10) Randolph Avenue (Route 28) @ Hal... - TMC

Sat Oct 17, 2020

PM Peak (WKND) (Oct 17 2020 1PM - 2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791960, Location: 42.238601, -71.06961, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street,  
Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound					Randolph Avenue (Route 28) Northbound					Hallen Avenue Eastbound					Int
	R	T	U	App	Ped*	T	L	U	App	Ped*	R	L	U	App	Ped*	
2020-10-17 1:00PM	0	195	0	195	0	205	11	0	216	0	13	1	0	14	1	425
1:15PM	0	212	0	212	0	244	10	0	254	0	25	2	0	27	0	493
1:30PM	0	222	0	222	0	212	11	0	223	0	12	0	0	12	1	457
1:45PM	0	254	0	254	0	222	16	0	238	0	14	1	0	15	0	507
<b>Total</b>	0	883	0	883	0	883	48	0	931	0	64	4	0	68	2	1882
<b>% Approach</b>	0%	100%	0%	-	-	94.8%	5.2%	0%	-	-	94.1%	5.9%	0%	-	-	-
<b>% Total</b>	0%	46.9%	0%	46.9%	-	46.9%	2.6%	0%	49.5%	-	3.4%	0.2%	0%	3.6%	-	-
<b>PHF</b>	-	0.868	-	0.868	-	0.907	0.750	-	0.919	-	0.640	0.500	-	0.630	-	0.927
<b>Motorcycles</b>	0	1	0	1	-	0	1	0	1	-	0	0	0	0	-	2
<b>% Motorcycles</b>	0%	0.1%	0%	0.1%	-	0%	2.1%	0%	0.1%	-	0%	0%	0%	0%	-	0.1%
<b>Lights</b>	0	867	0	867	-	870	47	0	917	-	64	4	0	68	-	1852
<b>% Lights</b>	0%	98.2%	0%	98.2%	-	98.5%	97.9%	0%	98.5%	-	100%	100%	0%	100%	-	98.4%
<b>Single-Unit Trucks</b>	0	7	0	7	-	8	0	0	8	-	0	0	0	0	-	15
<b>% Single-Unit Trucks</b>	0%	0.8%	0%	0.8%	-	0.9%	0%	0%	0.9%	-	0%	0%	0%	0%	-	0.8%
<b>Articulated Trucks</b>	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
<b>% Articulated Trucks</b>	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
<b>Buses</b>	0	7	0	7	-	4	0	0	4	-	0	0	0	0	-	11
<b>% Buses</b>	0%	0.8%	0%	0.8%	-	0.5%	0%	0%	0.4%	-	0%	0%	0%	0%	-	0.6%
<b>Bicycles on Road</b>	0	1	0	1	-	1	0	0	1	-	0	0	0	0	-	2
<b>% Bicycles on Road</b>	0%	0.1%	0%	0.1%	-	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	-	0.1%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	2
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



207528 (11) Randolph Avenue (Route 28) @ Hil... - TMC

Thu Oct 15, 2020

Full Length (6 AM-9 AM, 3 PM-6 PM, 11 AM-2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791963, Location: 42.231002, -71.071072, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound						Driveway Westbound						Randolph Avenue (Route 28) Northbound						Hillside Street Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 6:00AM	9	242	0	0	251	0	0	0	0	0	0	0	0	1273	8	0	1281	0	7	0	18	0	25	0	1557
7:00AM	24	513	0	0	537	0	0	0	0	0	0	0	0	1124	28	0	1152	0	18	0	58	0	76	0	1765
8:00AM	39	619	0	0	658	0	0	0	1	0	1	0	0	987	14	0	1001	0	12	0	54	0	66	0	1726
3:00PM	51	1310	0	0	1361	0	0	0	1	0	1	0	0	764	26	1	791	0	20	0	55	1	76	0	2229
4:00PM	56	1165	0	0	1221	0	0	0	0	0	0	0	0	816	41	0	857	5	10	0	59	1	70	0	2148
5:00PM	47	1175	1	0	1223	4	0	0	0	0	0	3	0	847	32	0	879	2	9	0	62	0	71	1	2173
2020-10-17 11:00AM	25	681	0	0	706	0	1	0	0	0	1	0	1	697	17	0	715	0	27	0	29	0	56	0	1478
12:00PM	30	726	0	0	756	0	0	0	1	0	1	3	0	796	18	0	814	0	24	0	38	0	62	6	1633
1:00PM	28	901	0	0	929	0	1	0	1	0	2	1	2	908	30	0	940	0	27	0	40	0	67	2	1938
<b>Total</b>	309	7332	1	0	7642	4	2	0	4	0	6	7	3	8212	214	1	8430	7	154	0	413	2	569	9	16647
<b>% Approach</b>	4.0%	95.9%	0%	0%	-	-	33.3%	0%	66.7%	0%	-	-	0%	97.4%	2.5%	0%	-	-	27.1%	0%	72.6%	0.4%	-	-	-
<b>% Total</b>	1.9%	44.0%	0%	0%	45.9%	-	0%	0%	0%	0%	0%	-	0%	49.3%	1.3%	0%	50.6%	-	0.9%	0%	2.5%	0%	3.4%	-	-
<b>Motorcycles</b>	0	15	0	0	15	-	0	0	0	0	0	-	0	14	0	0	14	-	1	0	0	0	1	-	30
<b>% Motorcycles</b>	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0.6%	0%	0%	0%	0.2%	-	0.2%
<b>Lights</b>	301	7081	1	0	7383	-	1	0	4	0	5	-	2	7914	202	1	8119	-	144	0	405	2	551	-	16058
<b>% Lights</b>	97.4%	96.6%	100%	0%	96.6%	-	50.0%	0%	100%	0%	83.3%	-	66.7%	96.4%	94.4%	100%	96.3%	-	93.5%	0%	98.1%	100%	96.8%	-	96.5%
<b>Single-Unit Trucks</b>	4	115	0	0	119	-	1	0	0	0	1	-	1	155	7	0	163	-	5	0	4	0	9	-	292
<b>% Single-Unit Trucks</b>	1.3%	1.6%	0%	0%	1.6%	-	50.0%	0%	0%	0%	16.7%	-	33.3%	1.9%	3.3%	0%	1.9%	-	3.2%	0%	1.0%	0%	1.6%	-	1.8%
<b>Articulated Trucks</b>	1	18	0	0	19	-	0	0	0	0	0	-	0	19	3	0	22	-	1	0	2	0	3	-	44
<b>% Articulated Trucks</b>	0.3%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.2%	1.4%	0%	0.3%	-	0.6%	0%	0.5%	0%	0.5%	-	0.3%
<b>Buses</b>	0	102	0	0	102	-	0	0	0	0	0	-	0	104	2	0	106	-	3	0	0	0	3	-	211
<b>% Buses</b>	0%	1.4%	0%	0%	1.3%	-	0%	0%	0%	0%	0%	-	0%	1.3%	0.9%	0%	1.3%	-	1.9%	0%	0%	0%	0.5%	-	1.3%
<b>Bicycles on Road</b>	3	1	0	0	4	-	0	0	0	0	0	-	0	6	0	0	6	-	0	0	2	0	2	-	12
<b>% Bicycles on Road</b>	1.0%	0%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0.1%	0%	0%	0.1%	-	0%	0%	0.5%	0%	0.4%	-	0.1%
<b>Pedestrians</b>	-	-	-	-	-	4	-	-	-	-	-	7	-	-	-	-	-	7	-	-	-	-	-	9	
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (11) Randolph Avenue (Route 28) @ Hil... - TMC

Thu Oct 15, 2020

AM Peak (Oct 15 2020 7:30AM - 8:30 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791963, Location: 42.231002, -71.071072, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound						Driveway Westbound						Randolph Avenue (Route 28) Northbound						Hillside Street Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 7:30AM	7	127	0	0	134	0	0	0	0	0	0	0	0	305	12	0	317	0	7	0	22	0	29	0	480
7:45AM	5	168	0	0	173	0	0	0	0	0	0	0	0	264	10	0	274	0	9	0	19	0	28	0	475
8:00AM	8	152	0	0	160	0	0	0	0	0	0	0	0	247	2	0	249	0	1	0	19	0	20	0	429
8:15AM	11	180	0	0	191	0	0	0	0	0	0	0	0	252	5	0	257	0	4	0	17	0	21	0	469
<b>Total</b>	31	627	0	0	658	0	0	0	0	0	0	0	0	1068	29	0	1097	0	21	0	77	0	98	0	1853
<b>% Approach</b>	4.7%	95.3%	0%	0%	-	-	0%	0%	0%	0%	-	-	0%	97.4%	2.6%	0%	-	-	21.4%	0%	78.6%	0%	-	-	-
<b>% Total</b>	1.7%	33.8%	0%	0%	35.5%	-	0%	0%	0%	0%	0%	-	0%	57.6%	1.6%	0%	59.2%	-	1.1%	0%	4.2%	0%	5.3%	-	-
<b>PHF</b>	0.705	0.871	-	-	0.861	-	-	-	-	-	-	-	-	0.875	0.604	-	0.864	-	0.583	-	0.864	-	0.836	-	0.964
<b>Motorcycles</b>	0	3	0	0	3	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	3
<b>% Motorcycles</b>	0%	0.5%	0%	0%	0.5%	-	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.2%
<b>Lights</b>	31	592	0	0	623	-	0	0	0	0	0	-	0	1014	25	0	1039	-	19	0	74	0	93	-	1755
<b>% Lights</b>	100%	94.4%	0%	0%	94.7%	-	0%	0%	0%	0%	-	-	0%	94.9%	86.2%	0%	94.7%	-	90.5%	0%	96.1%	0%	94.9%	-	94.7%
<b>Single-Unit Trucks</b>	0	6	0	0	6	-	0	0	0	0	0	-	0	33	2	0	35	-	0	0	1	0	1	-	42
<b>% Single-Unit Trucks</b>	0%	1.0%	0%	0%	0.9%	-	0%	0%	0%	0%	-	-	0%	3.1%	6.9%	0%	3.2%	-	0%	0%	1.3%	0%	1.0%	-	2.3%
<b>Articulated Trucks</b>	0	2	0	0	2	-	0	0	0	0	0	-	0	5	2	0	7	-	0	0	1	0	1	-	10
<b>% Articulated Trucks</b>	0%	0.3%	0%	0%	0.3%	-	0%	0%	0%	0%	-	-	0%	0.5%	6.9%	0%	0.6%	-	0%	0%	1.3%	0%	1.0%	-	0.5%
<b>Buses</b>	0	24	0	0	24	-	0	0	0	0	0	-	0	15	0	0	15	-	2	0	0	0	2	-	41
<b>% Buses</b>	0%	3.8%	0%	0%	3.6%	-	0%	0%	0%	0%	-	-	0%	1.4%	0%	0%	1.4%	-	9.5%	0%	0%	0%	2.0%	-	2.2%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	0	0	1	0	1	-	2
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	-	-	0%	0.1%	0%	0%	0.1%	-	0%	0%	1.3%	0%	1.0%	-	0.1%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (11) Randolph Avenue (Route 28) @ Hil... - TMC

Thu Oct 15, 2020

PM Peak (Oct 15 2020 3:30PM - 4:30 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791963, Location: 42.231002, -71.071072, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound					Driveway Westbound					Randolph Avenue (Route 28) Northbound					Hillside Street Eastbound					Int		
	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*			
2020-10-15 3:30PM	14	359	0	0	373	0	0	0	0	0	0	222	7	0	229	0	4	0	15	0	19	0	621
3:45PM	12	327	0	0	339	0	0	0	0	0	0	197	7	0	204	0	6	0	16	1	23	0	566
4:00PM	22	286	0	0	308	0	0	0	0	0	0	210	13	0	223	1	3	0	12	0	15	0	546
4:15PM	12	319	0	0	331	0	0	0	0	0	0	196	8	0	204	4	3	0	17	0	20	0	555
<b>Total</b>	<b>60</b>	<b>1291</b>	<b>0</b>	<b>0</b>	<b>1351</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>825</b>	<b>35</b>	<b>0</b>	<b>860</b>	<b>5</b>	<b>16</b>	<b>0</b>	<b>60</b>	<b>1</b>	<b>77</b>	<b>0</b>	<b>2288</b>
<b>% Approach</b>	4.4%	95.6%	0%	0%	-	0%	0%	0%	0%	-	0%	95.9%	4.1%	0%	-	20.8%	0%	77.9%	1.3%	-	-	-	-
<b>% Total</b>	2.6%	56.4%	0%	0%	<b>59.0%</b>	0%	0%	0%	0%	<b>0%</b>	0%	36.1%	1.5%	0%	<b>37.6%</b>	0%	0.7%	0%	2.6%	0%	<b>3.4%</b>	-	-
<b>PHF</b>	0.682	0.899	-	-	<b>0.905</b>	-	-	-	-	-	-	0.930	0.673	-	<b>0.940</b>	-	0.667	-	0.882	0.250	<b>0.837</b>	-	0.921
<b>Motorcycles</b>	0	3	0	0	<b>3</b>	0	0	0	0	<b>0</b>	0	3	0	0	<b>3</b>	0	0	0	0	0	<b>0</b>	0	6
<b>% Motorcycles</b>	0%	0.2%	0%	0%	<b>0.2%</b>	0%	0%	0%	0%	-	0%	0.4%	0%	0%	<b>0.3%</b>	0%	0%	0%	0%	0%	<b>0%</b>	0%	0.3%
<b>Lights</b>	58	1259	0	0	<b>1317</b>	0	0	0	0	<b>0</b>	0	798	35	0	<b>833</b>	0	12	0	59	1	<b>72</b>	0	2222
<b>% Lights</b>	96.7%	97.5%	0%	0%	<b>97.5%</b>	0%	0%	0%	0%	-	0%	96.7%	100%	0%	<b>96.9%</b>	0%	75.0%	0%	98.3%	100%	<b>93.5%</b>	0%	97.1%
<b>Single-Unit Trucks</b>	2	19	0	0	<b>21</b>	0	0	0	0	<b>0</b>	0	10	0	0	<b>10</b>	0	4	0	0	0	<b>4</b>	0	35
<b>% Single-Unit Trucks</b>	3.3%	1.5%	0%	0%	<b>1.6%</b>	0%	0%	0%	0%	-	0%	1.2%	0%	0%	<b>1.2%</b>	0%	25.0%	0%	0%	0%	<b>5.2%</b>	0%	1.5%
<b>Articulated Trucks</b>	0	2	0	0	<b>2</b>	0	0	0	0	<b>0</b>	0	2	0	0	<b>2</b>	0	0	0	1	0	<b>1</b>	0	5
<b>% Articulated Trucks</b>	0%	0.2%	0%	0%	<b>0.1%</b>	0%	0%	0%	0%	-	0%	0.2%	0%	0%	<b>0.2%</b>	0%	0%	1.7%	0%	<b>1.3%</b>	0%	0.2%	0.2%
<b>Buses</b>	0	8	0	0	<b>8</b>	0	0	0	0	<b>0</b>	0	9	0	0	<b>9</b>	0	0	0	0	0	<b>0</b>	0	17
<b>% Buses</b>	0%	0.6%	0%	0%	<b>0.6%</b>	0%	0%	0%	0%	-	0%	1.1%	0%	0%	<b>1.0%</b>	0%	0%	0%	0%	0%	<b>0%</b>	0%	0.7%
<b>Bicycles on Road</b>	0	0	0	0	<b>0</b>	0	0	0	0	<b>0</b>	0	3	0	0	<b>3</b>	0	0	0	0	0	<b>0</b>	0	3
<b>% Bicycles on Road</b>	0%	0%	0%	0%	<b>0%</b>	0%	0%	0%	0%	-	0%	0.4%	0%	0%	<b>0.3%</b>	0%	0%	0%	0%	0%	<b>0%</b>	0%	0.1%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	5	-	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



207528 (11) Randolph Avenue (Route 28) @ Hil... - TMC

Sat Oct 17, 2020

Midday Peak (WKND) (Oct 17 2020 11:45AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791963, Location: 42.231002, -71.071072, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound						Driveway Westbound						Randolph Avenue (Route 28) Northbound						Hillside Street Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2020-10-17 11:45AM	7	199	0	0	206	0	1	0	0	0	1	0	1	197	6	0	204	0	2	0	7	0	9	0	420
12:00PM	8	187	0	0	195	0	0	0	0	0	0	0	0	194	4	0	198	0	5	0	10	0	15	3	408
12:15PM	11	177	0	0	188	0	0	0	1	0	1	0	0	223	5	0	228	0	10	0	7	0	17	0	434
12:30PM	5	194	0	0	199	0	0	0	0	0	0	0	0	182	7	0	189	0	4	0	10	0	14	0	402
<b>Total</b>	31	757	0	0	788	0	1	0	1	0	2	0	1	796	22	0	819	0	21	0	34	0	55	3	1664
<b>% Approach</b>	3.9%	96.1%	0%	0%	-	-	50.0%	0%	50.0%	0%	-	-	0.1%	97.2%	2.7%	0%	-	-	38.2%	0%	61.8%	0%	-	-	-
<b>% Total</b>	1.9%	45.5%	0%	0%	47.4%	-	0.1%	0%	0.1%	0%	0.1%	-	0.1%	47.8%	1.3%	0%	49.2%	-	1.3%	0%	2.0%	0%	3.3%	-	-
<b>PHF</b>	0.750	0.951	-	-	0.955	-	0.250	-	0.250	-	0.500	-	0.250	0.892	0.786	-	0.898	-	0.525	-	0.850	-	0.809	-	0.960
<b>Motorcycles</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Lights</b>	30	746	0	0	776	-	1	0	1	0	2	-	1	783	21	0	805	-	21	0	34	0	55	-	1638
<b>% Lights</b>	96.8%	98.5%	0%	0%	98.5%	-	100%	0%	100%	0%	100%	-	100%	98.4%	95.5%	0%	98.3%	-	100%	0%	100%	0%	100%	-	98.4%
<b>Single-Unit Trucks</b>	0	5	0	0	5	-	0	0	0	0	0	-	0	9	1	0	10	-	0	0	0	0	0	-	15
<b>% Single-Unit Trucks</b>	0%	0.7%	0%	0%	0.6%	-	0%	0%	0%	0%	0%	-	0%	1.1%	4.5%	0%	1.2%	-	0%	0%	0%	0%	0%	-	0.9%
<b>Articulated Trucks</b>	0	1	0	0	1	-	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	2
<b>% Articulated Trucks</b>	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Buses</b>	0	5	0	0	5	-	0	0	0	0	0	-	0	3	0	0	3	-	0	0	0	0	0	-	8
<b>% Buses</b>	0%	0.7%	0%	0%	0.6%	-	0%	0%	0%	0%	0%	-	0%	0.4%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0.5%
<b>Bicycles on Road</b>	1	0	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	1
<b>% Bicycles on Road</b>	3.2%	0%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	3	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (11) Randolph Avenue (Route 28) @ Hil... - TMC

Sat Oct 17, 2020

PM Peak (WKND) (Oct 17 2020 1PM - 2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791963, Location: 42.231002, -71.071072, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound						Driveway Westbound						Randolph Avenue (Route 28) Northbound						Hillside Street Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-17 1:00PM	2	203	0	0	205	0	0	0	0	0	0	1	0	227	6	0	233	0	9	0	7	0	16	1	454
1:15PM	6	213	0	0	219	0	0	0	0	0	0	0	0	227	8	0	235	0	6	0	12	0	18	0	472
1:30PM	10	223	0	0	233	0	1	0	1	0	2	0	1	234	11	0	246	0	7	0	8	0	15	1	496
1:45PM	10	262	0	0	272	0	0	0	0	0	0	0	1	220	5	0	226	0	5	0	13	0	18	0	516
<b>Total</b>	28	901	0	0	929	0	1	0	1	0	2	1	2	908	30	0	940	0	27	0	40	0	67	2	1938
<b>% Approach</b>	3.0%	97.0%	0%	0%	-	-	50.0%	0%	50.0%	0%	-	-	0.2%	96.6%	3.2%	0%	-	-	40.3%	0%	59.7%	0%	-	-	-
<b>% Total</b>	1.4%	46.5%	0%	0%	47.9%	-	0.1%	0%	0.1%	0%	0.1%	-	0.1%	46.9%	1.5%	0%	48.5%	-	1.4%	0%	2.1%	0%	3.5%	-	-
<b>PHF</b>	0.700	0.860	-	-	0.854	-	0.250	-	0.250	-	0.250	-	0.500	0.970	0.682	-	0.955	-	0.750	-	0.769	-	0.931	-	0.939
<b>Motorcycles</b>	0	2	0	0	2	-	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	3
<b>% Motorcycles</b>	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0.2%
<b>Lights</b>	28	881	0	0	909	-	0	0	1	0	1	-	1	890	30	0	921	-	27	0	40	0	67	-	1898
<b>% Lights</b>	100%	97.8%	0%	0%	97.8%	-	0%	0%	100%	0%	50.0%	-	50.0%	98.0%	100%	0%	98.0%	-	100%	0%	100%	0%	100%	-	97.9%
<b>Single-Unit Trucks</b>	0	11	0	0	11	-	1	0	0	0	1	-	1	12	0	0	13	-	0	0	0	0	0	-	25
<b>% Single-Unit Trucks</b>	0%	1.2%	0%	0%	1.2%	-	100%	0%	0%	0%	50.0%	-	50.0%	1.3%	0%	0%	1.4%	-	0%	0%	0%	0%	0%	-	1.3%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Buses</b>	0	7	0	0	7	-	0	0	0	0	0	-	0	5	0	0	5	-	0	0	0	0	0	-	12
<b>% Buses</b>	0%	0.8%	0%	0%	0.8%	-	0%	0%	0%	0%	0%	-	0%	0.6%	0%	0%	0.5%	-	0%	0%	0%	0%	0%	-	0.6%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	2	
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	100%	
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	0%	

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (12) Randolph Avenue (Route 28) @ Chi... - TMC

Thu Oct 15, 2020

Full Length (6 AM-9 AM, 3 PM-6 PM, 11 AM-2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791966, Location: 42.224238, -71.070676, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street,  
Framingham, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound						Chickatawbut Road Westbound						Randolph Avenue (Route 28) Northbound						Chickatawbut Road Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2020-10-15 6:00AM	5	230	17	0	252	0	39	18	1	0	58	0	3	1247	41	1	1292	0	6	15	15	0	36	0	1638
7:00AM	12	462	45	0	519	0	57	56	9	0	122	0	6	1061	76	0	1143	0	24	45	23	0	92	0	1876
8:00AM	18	586	41	0	645	0	54	70	16	0	140	0	8	952	67	0	1027	0	46	46	23	0	115	0	1927
3:00PM	13	1105	92	0	1210	0	77	115	193	0	385	0	23	647	40	0	710	1	166	115	34	0	315	0	2620
4:00PM	6	1128	77	0	1211	0	110	120	146	0	376	1	17	666	34	0	717	0	229	167	37	0	433	0	2737
5:00PM	17	1148	83	0	1248	0	97	90	66	0	253	0	9	732	35	0	776	0	147	131	25	0	303	0	2580
2020-10-17 11:00AM	17	611	62	0	690	0	17	13	59	0	89	0	19	649	39	0	707	2	63	10	26	0	99	0	1585
12:00PM	25	698	73	0	796	0	17	22	84	0	123	0	39	739	61	0	839	2	115	16	48	0	179	0	1937
1:00PM	27	807	67	0	901	0	32	21	110	0	163	0	43	844	84	0	971	6	92	21	47	0	160	0	2195
<b>Total</b>	140	6775	557	0	7472	0	500	525	684	0	1709	1	167	7537	477	1	8182	11	888	566	278	0	1732	0	19095
<b>% Approach</b>	1.9%	90.7%	7.5%	0%	-	-	29.3%	30.7%	40.0%	0%	-	-	2.0%	92.1%	5.8%	0%	-	-	51.3%	32.7%	16.1%	0%	-	-	-
<b>% Total</b>	0.7%	35.5%	2.9%	0%	39.1%	-	2.6%	2.7%	3.6%	0%	8.9%	-	0.9%	39.5%	2.5%	0%	42.8%	-	4.7%	3.0%	1.5%	0%	9.1%	-	-
<b>Motorcycles</b>	0	13	1	0	14	-	1	12	3	0	16	-	0	12	2	0	14	-	3	10	1	0	14	-	58
<b>% Motorcycles</b>	0%	0.2%	0.2%	0%	0.2%	-	0.2%	2.3%	0.4%	0%	0.9%	-	0%	0.2%	0.4%	0%	0.2%	-	0.3%	1.8%	0.4%	0%	0.8%	-	0.3%
<b>Lights</b>	136	6535	549	0	7220	-	496	491	678	0	1665	-	165	7270	470	1	7906	-	865	539	273	0	1677	-	18468
<b>% Lights</b>	97.1%	96.5%	98.6%	0%	96.6%	-	99.2%	93.5%	99.1%	0%	97.4%	-	98.8%	96.5%	98.5%	100%	96.6%	-	97.4%	95.2%	98.2%	0%	96.8%	-	96.7%
<b>Single-Unit Trucks</b>	2	104	4	0	110	-	2	1	3	0	6	-	1	131	2	0	134	-	11	2	3	0	16	-	266
<b>% Single-Unit Trucks</b>	1.4%	1.5%	0.7%	0%	1.5%	-	0.4%	0.2%	0.4%	0%	0.4%	-	0.6%	1.7%	0.4%	0%	1.6%	-	1.2%	0.4%	1.1%	0%	0.9%	-	1.4%
<b>Articulated Trucks</b>	0	19	1	0	20	-	0	1	0	0	1	-	0	22	1	0	23	-	2	0	0	0	2	-	46
<b>% Articulated Trucks</b>	0%	0.3%	0.2%	0%	0.3%	-	0%	0.2%	0%	0%	0.1%	-	0%	0.3%	0.2%	0%	0.3%	-	0.2%	0%	0%	0%	0.1%	-	0.2%
<b>Buses</b>	1	103	2	0	106	-	0	3	0	0	3	-	0	101	1	0	102	-	7	1	0	0	8	-	219
<b>% Buses</b>	0.7%	1.5%	0.4%	0%	1.4%	-	0%	0.6%	0%	0%	0.2%	-	0%	1.3%	0.2%	0%	1.2%	-	0.8%	0.2%	0%	0%	0.5%	-	1.1%
<b>Bicycles on Road</b>	1	1	0	0	2	-	1	17	0	0	18	-	1	1	1	0	3	-	0	14	1	0	15	-	38
<b>% Bicycles on Road</b>	0.7%	0%	0%	0%	0%	-	0.2%	3.2%	0%	0%	1.1%	-	0.6%	0%	0.2%	0%	0%	-	0%	2.5%	0.4%	0%	0.9%	-	0.2%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	10	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	90.9%	-	-	-	-	-	-	
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	9.1%	-	-	-	-	-	-	

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



207528 (12) Randolph Avenue (Route 28) @ Chi... - TMC

Thu Oct 15, 2020

AM Peak (Oct 15 2020 7:30AM - 8:30 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791966, Location: 42.224238, -71.070676, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound					Chickatawbut Road Westbound					Randolph Avenue (Route 28) Northbound					Chickatawbut Road Eastbound					Int				
	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*					
2020-10-15 7:30AM	1	126	11	0	138	0	13	15	1	0	29	0	1	295	23	0	319	0	7	12	9	0	28	0	514
7:45AM	5	152	20	0	177	0	10	12	2	0	24	0	1	254	16	0	271	0	10	13	5	0	28	0	500
8:00AM	7	148	8	0	163	0	18	21	4	0	43	0	0	234	16	0	250	0	11	16	3	0	30	0	486
8:15AM	5	161	15	0	181	0	12	16	3	0	31	0	2	239	21	0	262	0	10	10	10	0	30	0	504
<b>Total</b>	18	587	54	0	659	0	53	64	10	0	127	0	4	1022	76	0	1102	0	38	51	27	0	116	0	2004
<b>% Approach</b>	2.7%	89.1%	8.2%	0%	-	-	41.7%	50.4%	7.9%	0%	-	-	0.4%	92.7%	6.9%	0%	-	-	32.8%	44.0%	23.3%	0%	-	-	-
<b>% Total</b>	0.9%	29.3%	2.7%	0%	32.9%	-	2.6%	3.2%	0.5%	0%	6.3%	-	0.2%	51.0%	3.8%	0%	55.0%	-	1.9%	2.5%	1.3%	0%	5.8%	-	-
<b>PHF</b>	0.708	0.911	0.675	-	0.909	-	0.736	0.750	0.625	-	0.733	-	0.500	0.866	0.826	-	0.864	-	0.864	0.833	0.675	-	0.958	-	0.973
<b>Motorcycles</b>	0	2	0	0	2	-	0	0	0	0	0	-	0	0	1	0	1	-	0	0	0	0	0	-	3
<b>% Motorcycles</b>	0%	0.3%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0%	0%	1.3%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Lights</b>	16	549	53	0	618	-	52	63	10	0	125	-	4	969	73	0	1046	-	38	49	25	0	112	-	1901
<b>% Lights</b>	88.9%	93.5%	98.1%	0%	93.8%	-	98.1%	98.4%	100%	0%	98.4%	-	100%	94.8%	96.1%	0%	94.9%	-	100%	96.1%	92.6%	0%	96.6%	-	94.9%
<b>Single-Unit Trucks</b>	0	8	1	0	9	-	1	0	0	0	1	-	0	32	1	0	33	-	0	1	2	0	3	-	46
<b>% Single-Unit Trucks</b>	0%	1.4%	1.9%	0%	1.4%	-	1.9%	0%	0%	0%	0.8%	-	0%	3.1%	1.3%	0%	3.0%	-	0%	2.0%	7.4%	0%	2.6%	-	2.3%
<b>Articulated Trucks</b>	0	3	0	0	3	-	0	0	0	0	0	-	0	8	1	0	9	-	0	0	0	0	0	-	12
<b>% Articulated Trucks</b>	0%	0.5%	0%	0%	0.5%	-	0%	0%	0%	0%	0%	-	0%	0.8%	1.3%	0%	0.8%	-	0%	0%	0%	0%	0%	-	0.6%
<b>Buses</b>	1	25	0	0	26	-	0	0	0	0	0	-	0	13	0	0	13	-	0	0	0	0	0	-	39
<b>% Buses</b>	5.6%	4.3%	0%	0%	3.9%	-	0%	0%	0%	0%	0%	-	0%	1.3%	0%	0%	1.2%	-	0%	0%	0%	0%	0%	-	1.9%
<b>Bicycles on Road</b>	1	0	0	0	1	-	0	1	0	0	1	-	0	0	0	0	0	-	0	1	0	0	1	-	3
<b>% Bicycles on Road</b>	5.6%	0%	0%	0%	0.2%	-	0%	1.6%	0%	0%	0.8%	-	0%	0%	0%	0%	0%	-	0%	2.0%	0%	0%	0.9%	-	0.1%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (12) Randolph Avenue (Route 28) @ Chi... - TMC

Thu Oct 15, 2020

PM Peak (Oct 15 2020 3:30PM - 4:30 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791966, Location: 42.224238, -71.070676, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound					Chickatawbut Road Westbound					Randolph Avenue (Route 28) Northbound					Chickatawbut Road Eastbound					Int				
	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*					
2020-10-15 3:30PM	3	289	22	0	314	0	22	26	66	0	114	0	3	176	9	0	188	0	44	21	15	0	80	0	696
3:45PM	2	258	18	0	278	0	21	26	60	0	107	0	11	169	5	0	185	0	52	33	4	0	89	0	659
4:00PM	0	277	20	0	297	0	36	49	40	0	125	0	4	164	5	0	173	0	62	36	4	0	102	0	697
4:15PM	3	297	22	0	322	0	19	31	34	0	84	0	4	158	7	0	169	0	54	44	10	0	108	0	683
<b>Total</b>	8	1121	82	0	1211	0	98	132	200	0	430	0	22	667	26	0	715	0	212	134	33	0	379	0	2735
<b>% Approach</b>	0.7%	92.6%	6.8%	0%	-	-	22.8%	30.7%	46.5%	0%	-	-	3.1%	93.3%	3.6%	0%	-	-	55.9%	35.4%	8.7%	0%	-	-	-
<b>% Total</b>	0.3%	41.0%	3.0%	0%	44.3%	-	3.6%	4.8%	7.3%	0%	15.7%	-	0.8%	24.4%	1.0%	0%	26.1%	-	7.8%	4.9%	1.2%	0%	13.9%	-	-
<b>PHF</b>	0.667	0.944	0.932	-	0.940	-	0.681	0.658	0.758	-	0.854	-	0.500	0.947	0.722	-	0.951	-	0.855	0.756	0.571	-	0.873	-	0.981
<b>Motorcycles</b>	0	3	0	0	3	-	1	4	0	0	5	-	0	3	0	0	3	-	1	1	0	0	2	-	13
<b>% Motorcycles</b>	0%	0.3%	0%	0%	0.2%	-	1.0%	3.0%	0%	0%	1.2%	-	0%	0.4%	0%	0%	0.4%	-	0.5%	0.7%	0%	0%	0.5%	-	0.5%
<b>Lights</b>	8	1089	80	0	1177	-	96	123	199	0	418	-	22	648	26	0	696	-	204	131	32	0	367	-	2658
<b>% Lights</b>	100%	97.1%	97.6%	0%	97.2%	-	98.0%	93.2%	99.5%	0%	97.2%	-	100%	97.2%	100%	0%	97.3%	-	96.2%	97.8%	97.0%	0%	96.8%	-	97.2%
<b>Single-Unit Trucks</b>	0	19	2	0	21	-	1	0	1	0	2	-	0	5	0	0	5	-	3	1	0	0	4	-	32
<b>% Single-Unit Trucks</b>	0%	1.7%	2.4%	0%	1.7%	-	1.0%	0%	0.5%	0%	0.5%	-	0%	0.7%	0%	0%	0.7%	-	1.4%	0.7%	0%	0%	1.1%	-	1.2%
<b>Articulated Trucks</b>	0	3	0	0	3	-	0	0	0	0	0	-	0	2	0	0	2	-	2	0	0	0	2	-	7
<b>% Articulated Trucks</b>	0%	0.3%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.3%	0%	0%	0.3%	-	0.9%	0%	0%	0%	0.5%	-	0.3%
<b>Buses</b>	0	7	0	0	7	-	0	2	0	0	2	-	0	9	0	0	9	-	2	0	0	0	2	-	20
<b>% Buses</b>	0%	0.6%	0%	0%	0.6%	-	0%	1.5%	0%	0%	0.5%	-	0%	1.3%	0%	0%	1.3%	-	0.9%	0%	0%	0%	0.5%	-	0.7%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	3	0	0	3	-	0	0	0	0	0	-	0	1	1	0	2	-	5
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	2.3%	0%	0%	0.7%	-	0%	0%	0%	0%	0%	-	0%	0.7%	3.0%	0%	0.5%	-	0.2%
<b>Pedestrians</b>	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

207528 (12) Randolph Avenue (Route 28) @ Chi... - TMC

Sat Oct 17, 2020

Midday Peak (WKND) (Oct 17 2020 12PM - 1 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791966, Location: 42.224238, -71.070676, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound					Chickatawbut Road Westbound					Randolph Avenue (Route 28) Northbound					Chickatawbut Road Eastbound					Int				
	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*					
2020-10-17 12:00PM	2	181	20	0	203	0	8	5	22	0	35	0	12	170	13	0	195	0	27	6	12	0	45	0	478
12:15PM	7	167	26	0	200	0	7	6	29	0	42	0	12	203	17	0	232	0	25	6	12	0	43	0	517
12:30PM	3	178	14	0	195	0	2	9	18	0	29	0	11	176	18	0	205	2	30	2	11	0	43	0	472
12:45PM	13	172	13	0	198	0	0	2	15	0	17	0	4	190	13	0	207	0	33	2	13	0	48	0	470
<b>Total</b>	25	698	73	0	796	0	17	22	84	0	123	0	39	739	61	0	839	2	115	16	48	0	179	0	1937
<b>% Approach</b>	3.1%	87.7%	9.2%	0%	-	-	13.8%	17.9%	68.3%	0%	-	-	4.6%	88.1%	7.3%	0%	-	-	64.2%	8.9%	26.8%	0%	-	-	-
<b>% Total</b>	1.3%	36.0%	3.8%	0%	41.1%	-	0.9%	1.1%	4.3%	0%	6.4%	-	2.0%	38.2%	3.1%	0%	43.3%	-	5.9%	0.8%	2.5%	0%	9.2%	-	-
<b>PHF</b>	0.481	0.964	0.702	-	0.980	-	0.531	0.611	0.724	-	0.732	-	0.813	0.910	0.847	-	0.904	-	0.871	0.583	0.923	-	0.941	-	0.936
<b>Motorcycles</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	1	-	0	0	0	0	0	-	1
<b>% Motorcycles</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	1.6%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Lights</b>	25	692	73	0	790	-	17	21	84	0	122	-	39	727	60	0	826	-	114	14	48	0	176	-	1914
<b>% Lights</b>	100%	99.1%	100%	0%	99.2%	-	100%	95.5%	100%	0%	99.2%	-	100%	98.4%	98.4%	0%	98.5%	-	99.1%	87.5%	100%	0%	98.3%	-	98.8%
<b>Single-Unit Trucks</b>	0	2	0	0	2	-	0	0	0	0	0	-	0	6	0	0	6	-	1	0	0	0	1	-	9
<b>% Single-Unit Trucks</b>	0%	0.3%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0%	0.8%	0%	0%	0.7%	-	0.9%	0%	0%	0%	0.6%	-	0.5%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	1	0	0	1	-	0	1	0	0	1	-	0	0	0	0	0	-	2
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	4.5%	0%	0%	0.8%	-	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Buses</b>	0	4	0	0	4	-	0	0	0	0	0	-	0	5	0	0	5	-	0	0	0	0	0	-	9
<b>% Buses</b>	0%	0.6%	0%	0%	0.5%	-	0%	0%	0%	0%	0%	-	0%	0.7%	0%	0%	0.6%	-	0%	0%	0%	0%	0%	-	0.5%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	2	0	0	2	-	2
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	12.5%	0%	0%	1.1%	-	0.1%
<b>Pedestrians</b>	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	0
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	0
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



207528 (12) Randolph Avenue (Route 28) @ Chi... - TMC

Sat Oct 17, 2020

PM Peak (WKND) (Oct 17 2020 1PM - 2 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 791966, Location: 42.224238, -71.070676, Site Code: S20-003

Provided by: Precision Data Industries, LLC (PDI)  
46 Morton Street, Framingham, MA, MA, 01702, US

Leg Direction	Randolph Avenue (Route 28) Southbound					Chickatawbut Road Westbound					Randolph Avenue (Route 28) Northbound					Chickatawbut Road Eastbound					Int				
	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*					
2020-10-17 1:00PM	7	179	16	0	202	0	8	4	20	0	32	0	8	214	18	0	240	1	22	3	13	0	38	0	512
1:15PM	9	188	22	0	219	0	11	6	31	0	48	0	12	226	22	0	260	4	18	8	8	0	34	0	561
1:30PM	4	206	15	0	225	0	8	6	23	0	37	0	14	206	24	0	244	0	34	3	14	0	51	0	557
1:45PM	7	234	14	0	255	0	5	5	36	0	46	0	9	198	20	0	227	1	18	7	12	0	37	0	565
<b>Total</b>	27	807	67	0	901	0	32	21	110	0	163	0	43	844	84	0	971	6	92	21	47	0	160	0	2195
<b>% Approach</b>	3.0%	89.6%	7.4%	0%	-	-	19.6%	12.9%	67.5%	0%	-	-	4.4%	86.9%	8.7%	0%	-	-	57.5%	13.1%	29.4%	0%	-	-	-
<b>% Total</b>	1.2%	36.8%	3.1%	0%	41.0%	-	1.5%	1.0%	5.0%	0%	7.4%	-	2.0%	38.5%	3.8%	0%	44.2%	-	4.2%	1.0%	2.1%	0%	7.3%	-	-
<b>PHF</b>	0.750	0.862	0.761	-	0.883	-	0.727	0.750	0.764	-	0.833	-	0.768	0.934	0.875	-	0.934	-	0.676	0.563	0.839	-	0.785	-	0.974
<b>Motorcycles</b>	0	2	0	0	2	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	2
<b>% Motorcycles</b>	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Lights</b>	27	790	67	0	884	-	32	17	110	0	159	-	43	834	84	0	961	-	92	18	46	0	156	-	2160
<b>% Lights</b>	100%	97.9%	100%	0%	98.1%	-	100%	81.0%	100%	0%	97.5%	-	100%	98.8%	100%	0%	99.0%	-	100%	85.7%	97.9%	0%	97.5%	-	98.4%
<b>Single-Unit Trucks</b>	0	8	0	0	8	-	0	0	0	0	0	-	0	5	0	0	5	-	0	0	1	0	1	-	14
<b>% Single-Unit Trucks</b>	0%	1.0%	0%	0%	0.9%	-	0%	0%	0%	0%	0%	-	0%	0.6%	0%	0%	0.5%	-	0%	0%	2.1%	0%	0.6%	-	0.6%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%
<b>Buses</b>	0	7	0	0	7	-	0	1	0	0	1	-	0	4	0	0	4	-	0	0	0	0	0	-	12
<b>% Buses</b>	0%	0.9%	0%	0%	0.8%	-	0%	4.8%	0%	0%	0.6%	-	0%	0.5%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0.5%
<b>Bicycles on Road</b>	0	0	0	0	0	-	0	3	0	0	3	-	0	0	0	0	0	-	0	3	0	0	3	-	6
<b>% Bicycles on Road</b>	0%	0%	0%	0%	0%	-	0%	14.3%	0%	0%	1.8%	-	0%	0%	0%	0%	0%	-	0%	14.3%	0%	0%	1.9%	-	0.3%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	5	-	-	-	-	-	0	
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-83.3%	-	-	-	-	-	-	
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-16.7%	-	-	-	-	-	-	

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

## **Part 2: Automatic Traffic Recorder (ATR) Data**

Mass Highway Department

WEEKLY SUMMARY FOR LANE 1  
Starting: 10/26/2020

Page: 1

Station #: 000000000065  
Site ID: 000000000101  
Location: Thacher St. NB, south of Laurel Rd.  
Direction: NORTH

STA. 1 NB

File: D1026001.prn  
City: Milton  
County: Volume

TIME	MON 26	TUE 27	WED 28	THU 29	FRI 30	WKDAY AVG	SAT 31	SUN	WEEK AVG	TOTAL
01:00		1	9	3	3	4	5		4	21
02:00		2	3	2	2	2			2	9
03:00		0	1	3	4	2			2	8
04:00		3	3	2	1	2			2	9
05:00		6	5	6	8	6			6	25
06:00		16	12	14	16	14			14	58
07:00		43	42	31	30	36			36	146
08:00		38	41	40	36	39			39	155
09:00		23	43	35	31	33			33	132
10:00		49	33	55	30	42			42	167
11:00	37	51	58	47	39	46			46	232
12:00	42	50	62	54	45	51			51	253
13:00	65	63	60	69	49	61			61	306
14:00	40	53	53	59	37	48			48	242
15:00	52	79	65	60	43	60			60	299
16:00	28	69	71	58	59	57			57	285
17:00	57	57	57	63	46	56			56	280
18:00	60	70	73	61	45	62			62	309
19:00	46	57	45	42	45	47			47	235
20:00	39	33	39	32	44	37			37	187
21:00	24	28	15	25	27	24			24	119
22:00	21	16	20	22	29	22			22	108
23:00	18	15	8	16	16	15			15	73
24:00	13	13	15	7	22	14			14	70
TOTALS	542	835	833	806	707	780	5		780	3728
% AVG WKDY	69.5	107.1	106.8	103.3	90.6		0.6			
% AVG WEEK	69.5	107.1	106.8	103.3	90.6		0.6			
AM Times	12:00	11:00	12:00	10:00	12:00	12:00	01:00		12:00	
AM Peaks	42	51	62	55	45	51	5		51	
PM Times	13:00	15:00	18:00	13:00	16:00	18:00			18:00	
PM Peaks	65	79	73	69	59	62			62	

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NB 780  
SB 1351  
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Comb AWD 2131  
FAC .94(.99)  
Comb ADT 2,000

Mass Highway Department

WEEKLY SUMMARY FOR LANE 1  
Starting: 10/26/2020

Page: 1

Station #: 000000000160  
Site ID: 000000000102  
Location: Thacher St. SB, south of Laurel Rd.  
Direction: SOUTH

STA. 1 SB

File: D1026002.prn  
City: Milton  
County: Volume

TIME	MON 26	TUE 27	WED 28	THU 29	FRI 30	WKDAY AVG	SAT 31	SUN 1	WEEK AVG	TOTAL
01:00		6	15	11	9	10	16	22	13	79
02:00		6	8	2	11	7	12	21	10	60
03:00		5	8	3	2	4	6	8	5	32
04:00		2	2	6	2	3	6	1	3	19
05:00		3	3	1	3	2	2	2	2	14
06:00		10	8	10	6	8	6	11	8	51
07:00		43	37	35	36	38	18	13	30	182
08:00		65	63	57	48	58	31	25	48	289
09:00		73	64	71	67	69	36	45	59	356
10:00		66	67	67	37	59	58	43	56	338
11:00	89	64	52	62	66	67	65	64	66	462
12:00	107	85	68	90	83	87	98	72	86	603
13:00	92	91	82	85	82	86	114	85	90	631
14:00	80	90	87	91	89	87	103	84	89	624
15:00	111	85	97	111	87	98	107	101	100	699
16:00	192	134	121	152	119	144	117	90	132	925
17:00	133	149	137	120	113	130	109	63	118	824
18:00	106	130	107	118	95	111	123	72	107	751
19:00	84	95	84	89	80	86	103	54	84	589
20:00	52	67	60	67	70	63	89	43	64	448
21:00	39	47	41	32	49	42	65	42	45	315
22:00	38	41	36	26	30	34	55	28	36	254
23:00	39	26	29	28	26	30	39	14	29	201
24:00	24	24	29	27	38	28	33		29	175
TOTALS	1186	1407	1305	1361	1248	1351	1411	1003	1309	8921
% AVG WKDY	87.8	104.1	96.6	100.7	92.4		104.4	74.2		
% AVG WEEK	90.6	107.5	99.7	104.0	95.3		107.8	76.6		
AM Times	12:00	12:00	12:00	12:00	12:00	12:00	12:00	12:00	12:00	
AM Peaks	107	85	68	90	83	87	98	72	86	
PM Times	16:00	17:00	17:00	16:00	16:00	16:00	18:00	15:00	16:00	
PM Peaks	192	149	137	152	119	144	123	101	132	



STA. 2 NB

NO. DATA

Mass Highway Department

WEEKLY SUMMARY FOR LANE 1  
Starting: 10/26/2020

Page: 1

Station #: 000000000082  
Site ID: 000000000202  
Location: Route 28 SB, south of Ridge Rd.  
Direction: SOUTH

STA. 2 SB

File: D1026006.prn  
City: Milton  
County: Speed

TIME	MON 26	TUE 27	WED 28	THU 29	FRI 30	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		49	64	57	63	58			58	233
02:00		20	37	42	35	34			34	134
03:00		29	14	29	26	24			24	98
04:00		19	20	24	21	21			21	84
05:00		37	42	32	39	38			38	150
06:00		101	87	95	97	95			95	380
07:00		196	189	187	173	186			186	745
08:00		384	375	393	388	385			385	1540
09:00		385	370	378	345	370			370	1478
10:00		355	292	308	303	314			314	1258
11:00	292	347	358	336	286	324			324	1619
12:00	386	397	397	408	388	395			395	1976
13:00	362	425	380	416	409	398			398	1992
14:00	406	427	415	404	429	416			416	2081
15:00	514	499	479	511		501			501	2003
16:00	538	555	532	530		539			539	2155
17:00	551	582	546	572		563			563	2251
18:00	511	591	537	527		542			542	2166
19:00	412	418	450	456		434			434	1736
20:00	267	331	313	322		308			308	1233
21:00	211	248	230	223		228			228	912
22:00	174	192	206	194		192			192	766
23:00	166	157	172	180		169			169	675
24:00	141	136	157	136		142			142	570
TOTALS	4931	6880	6662	6760	3002	6676			6676	28235
% AVG WKDY	73.9	103.1	99.8	101.3	45.0					
% AVG WEEK	73.9	103.1	99.8	101.3	45.0					
AM Times	12:00	12:00	12:00	12:00	08:00	12:00			12:00	
AM Peaks	386	397	397	408	388	395			395	
PM Times	17:00	18:00	17:00	17:00	14:00	17:00			17:00	
PM Peaks	551	591	546	572	429	563			563	

NB = NO DATA

Mass Highway Department

WEEKLY SUMMARY FOR LANE 1  
Starting: 10/26/2020

Page: 1

Station #: 600000000020  
Site ID: 000000000301  
Location: Route 28 NB, north of Walnut St.  
Direction: NORTH

STA 3 NB

File: D1026007.prn  
City: Milton  
County: Volume

TIME	MON 26	TUE 27	WED 28	THU 29	FRI 30	WKDAY AVG	SAT 31	SUN 1	WEEK AVG	TOTAL
01:00		32	36	38	43	37	74	101	54	324
02:00		17	30	30	29	26	51	90	41	247
03:00		17	17	16	21	18	34	26	22	131
04:00		15	23	18	20	19	26	30	22	132
05:00		62	55	58	58	58	31	36	50	300
06:00		288	273	277	261	275	74	53	204	1226
07:00		519	471	493	437	480	148	106	362	2174
08:00		458	442	425	423	437	136	102	331	1986
09:00		385	355	353	314	352	164	125	283	1696
10:00		318	348	313	337	329	240	218	296	1774
11:00		286	285	261	289	280	272	263	276	1656
12:00	309	290	295	345	282	304	295	254	296	2070
13:00	277	288	286	289	309	290	340	280	296	2069
14:00	291	303	273	297	324	298	329	326	306	2143
15:00	358	320	309	326	342	331	384	304	335	2343
16:00	308	333	344	337	369	338	367	288	335	2346
17:00	327	312	333	314	314	320	327	289	317	2216
18:00	352	364	333	337	295	336	368	282	333	2331
19:00	277	304	316	294	282	295	350	236	294	2059
20:00	191	212	236	202	250	218	263	188	220	1542
21:00	160	151	161	149	162	157	218	152	165	1153
22:00	113	113	146	132	146	130	191	123	138	964
23:00	141	126	142	150	156	143	215	100	147	1030
24:00	76	77	78	90	124	89	123		95	568
TOTALS	3180	5590	5587	5544	5587	5560	5020	3972	5218	34480
% AVG WKDY	57.2	100.5	100.5	99.7	100.5		90.3	71.4		
% AVG WEEK	60.9	107.1	107.1	106.2	107.1		96.2	76.1		
AM Times	12:00	07:00	07:00	07:00	07:00	07:00	12:00	11:00	07:00	
AM Peaks	309	519	471	493	437	480	295	263	362	
PM Times	15:00	18:00	16:00	16:00	16:00	16:00	15:00	14:00	15:00	
PM Peaks	358	364	344	337	369	338	384	326	335	

W3

NB 5560

SB 5312

COMB AWD 10872

FAC .93(.98)

COMB ADT 9,900

Mass Highway Department

WEEKLY SUMMARY FOR LANE 1  
Starting: 10/26/2020

Page: 1

Station #: 000000000157  
Site ID: 000000000302  
Location: Route 28 SB, north of Walnut St.  
Direction: SOUTH

STA. 35B

File: D1026008.prn  
City: Milton  
County: Volume

TIME	MON 26	TUE 27	WED 28	THU 29	FRI 30	WKDAY AVG	SAT 31	SUN 1	WEEK AVG	TOTAL
01:00		49	53	55	55	53	92	111	69	415
02:00		19	30	33	25	27	49	138	49	294
03:00		22	14	26	26	22	38	49	29	175
04:00		13	14	14	8	12	27	24	17	100
05:00		9	13	17	17	14	15	18	15	89
06:00		70	54	59	54	59	25	30	49	292
07:00		140	123	142	124	132	62	62	109	653
08:00		266	246	271	248	258	139	110	213	1280
09:00		278	257	282	259	269	171	127	229	1374
10:00		257	226	242	224	237	243	198	232	1390
11:00		233	241	249	209	233	272	246	242	1450
12:00	282	265	251	282	277	271	321	270	278	1948
13:00	302	312	315	355	396	336	370	281	333	2331
14:00	306	341	289	301	332	314	420	326	331	2315
15:00	451	414	385	430	413	419	379	351	403	2823
16:00	534	512	471	486	509	502	448	319	468	3279
17:00	498	527	479	550	441	499	424	274	456	3193
18:00	445	436	419	450	427	435	379	245	400	2801
19:00	330	359	350	350	349	348	347	229	331	2314
20:00	212	239	266	247	249	243	313	194	246	1720
21:00	193	208	182	196	220	200	271	185	208	1455
22:00	134	157	174	153	175	159	224	136	165	1153
23:00	117	125	126	148	152	134	198	95	137	961
24:00	121	129	144	137	148	136	194		146	873
TOTALS	3925	5380	5122	5475	5337	5312	5421	4018	5155	34678
% AVG WKDY	73.9	101.3	96.4	103.1	100.5		102.1	75.6		
% AVG WEEK	76.1	104.4	99.4	106.2	103.5		105.2	77.9		
AM Times	12:00	09:00	09:00	09:00	12:00	12:00	12:00	12:00	12:00	
AM Peaks	282	278	257	282	277	271	321	270	278	
PM Times	16:00	17:00	17:00	17:00	16:00	16:00	16:00	15:00	16:00	
PM Peaks	534	527	479	550	509	502	448	351	468	



Mass Highway Department

WEEKLY SUMMARY FOR LANE 1  
Starting: 10/26/2020

Page: 1

Station #: 000000000099  
Site ID: 000000000401  
Location: Route 28 NB, north of Spafford Rd.  
Direction: NORTH

STA 4NB

File: D1026009.prn  
City: Milton  
County: Volume

TIME	MON 26	TUE 27	WED 28	THU 29	FRI 30	WKDAY AVG	SAT 31	SUN 1	WEEK AVG	TOTAL
01:00		36	41	37	45	40	80	117	59	356
02:00		16	29	29	33	27	48	102	43	257
03:00		20	19	16	21	19	34	34	24	144
04:00		16	23	19	24	20	23	35	23	140
05:00		71	59	63	67	65	36	37	56	333
06:00		320	312	325	291	312	89	58	232	1395
07:00		640	613	624	535	603	175	135	454	2722
08:00		641	646	638	585	628	163	126	466	2799
09:00		598	557	566	493	554	221	181	436	2616
10:00		457	481	441	427	452	306	272	397	2384
11:00		383	390	365	403	385	376	347	377	2264
12:00	425	440	471	474	438	450	371	364	426	2983
13:00	391	388	430	420	387	403	448	380	406	2844
14:00	419	417	406	425	384	410	422	387	409	2860
15:00	481	459	448	465	443	459	480	386	452	3162
16:00	423	474	478	467	448	458	403	373	438	3066
17:00	405	417	414	377	389	400	437	353	399	2792
18:00	412	419	399	382	377	398	455	319	395	2763
19:00	335	356	394	356	355	359	417	297	359	2510
20:00	243	243	271	227	289	255	306	225	258	1804
21:00	189	173	195	170	188	183	253	184	193	1352
22:00	115	123	157	142	165	140	227	139	153	1068
23:00	146	138	157	164	189	159	237	118	164	1149
24:00	82	85	87	100	128	96	142		104	624
TOTALS	4066	7330	7477	7292	7104	7275	6149	4969	6723	44387
% AVG WKDY	55.9	100.8	102.8	100.2	97.6		84.5	68.3		
% AVG WEEK	60.5	109.0	111.2	108.5	105.7		91.5	73.9		
AM Times	12:00	08:00	08:00	08:00	08:00	08:00	11:00	12:00	08:00	
AM Peaks	425	641	646	638	585	628	376	364	466	
PM Times	15:00	16:00	16:00	16:00	16:00	15:00	15:00	14:00	15:00	
PM Peaks	481	474	478	467	448	459	480	387	452	

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NB 7275

SB 7068

Comb AWD 14343

FAE .93 (.98)

Comb ADT 13,100

Mass Highway Department

WEEKLY SUMMARY FOR LANE 1  
Starting: 10/26/2020

Page: 1

Station #: 000000000146  
Site ID: 000000000402  
Location: Route 28 SB, north of Spafford Rd.  
Direction: SOUTH

STA 45B

File: D1026016.prn  
City: Milton  
County: Volume

TIME	MON 26	TUE 27	WED 28	THU 29	FRI 30	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		50	59	62	62	58			58	233
02:00		23	30	31	30	28			28	114
03:00		22	16	24	26	22			22	88
04:00		20	18	16	9	16			16	63
05:00		13	12	17		14			14	42
06:00		69	57	64		63			63	190
07:00		154	147	168		156			156	469
08:00		384	381	393		386			386	1158
09:00		387	356	377		373			373	1120
10:00		355	333	326		338			338	1014
11:00		369	373	395		379			379	1137
12:00	457	429	432	431		437			437	1749
13:00	437	450	429	478		448			448	1794
14:00	416	424	387	408		409			409	1635
15:00	580	536	527	559		550			550	2202
16:00	760	749	665	691		716			716	2865
17:00	652	707	687	724		692			692	2770
18:00	582	574	567	588		578			578	2311
19:00	393	418	434	415		415			415	1660
20:00	282	321	329	306		310			310	1238
21:00	221	238	207	229		224			224	895
22:00	155	172	186	179		173			173	692
23:00	120	138	131	158		137			137	547
24:00	131	140	157	154		146			146	582
TOTALS	5186	7142	6920	7193	127	7068			7068	26568
% AVG WKDY	73.4	101.0	97.9	101.8	1.8					
% AVG WEEK	73.4	101.0	97.9	101.8	1.8					
AM Times	12:00	12:00	12:00	12:00	01:00	12:00			12:00	
AM Peaks	457	429	432	431	62	437			437	
PM Times	16:00	16:00	17:00	17:00		16:00			16:00	
PM Peaks	760	749	687	724		716			716	

Mass Highway Department

WEEKLY SUMMARY FOR LANE 1  
Starting: 10/26/2020

Page: 1

Station #: 000000000055  
Site ID: 000000000501  
Location: Randolph Ave. NB, north of Artwill St.  
Direction: NORTH

STA. 5 NB

File: D1026017.prn  
City: Milton  
County: Volume

TIME	MON 26	TUE 27	WED 28	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		18	35			26			26	53
02:00		10	11			10			10	21
03:00		22	14			18			18	36
04:00		12	15			14			14	27
05:00		49	39			44			44	88
06:00		255	256			256			256	511
07:00		488	478			483			483	966
08:00		418	430			424			424	848
09:00		615	332			474			474	947
10:00		230	222			226			226	452
11:00		242	228			235			235	470
12:00	239	220				230			230	459
13:00	224	239				232			232	463
14:00	277	238				258			258	515
15:00	316	325				320			320	641
16:00	340	297				318			318	637
17:00	305	286				296			296	591
18:00	469	288				378			378	757
19:00	293	232				262			262	525
20:00	162	158				160			160	320
21:00	89	109				99			99	198
22:00	96	98				97			97	194
23:00	87	77				82			82	164
24:00	49	40				44			44	89
TOTALS	2946	4966	2060			4986			4986	9972
% AVG WKDY	59.1	99.6	41.3							
% AVG WEEK	59.1	99.6	41.3							
AM Times	12:00	09:00	07:00			07:00			07:00	
AM Peaks	239	615	478			483			483	
PM Times	18:00	15:00				18:00			18:00	
PM Peaks	469	325				378			378	

U3

NB 4986

SB 3579

comb AWD 8565

FAC 193(.98)

comb ADT 7,800

Mass Highway Department

WEEKLY SUMMARY FOR LANE 1  
Starting: 10/26/2020

Page: 1

Station #: 000000000037

Site ID: 000000000502

Location: Randolph Ave. SB, north of Artwill St.

Direction: SOUTH

STA. 5SB

File: D1026018.prn

City: Milton

County: Volume

TIME	MON 26	TUE 27	WED 28	THU 29	FRI 30	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		21	33	43	31	32			32	128
02:00		10	20	22	21	18			18	73
03:00		17	9	13	16	14			14	55
04:00		11	9	13	6	10			10	39
05:00		11	12	12	10	11			11	45
06:00		38	37	31	36	36			36	142
07:00		93	91	99	77	90			90	360
08:00		217	197	215	195	206			206	824
09:00		207	237	270	220	234			234	934
10:00		139	144	147	149	145			145	579
11:00		184	161	204	137	172			172	686
12:00	181	166	160	167	202	175			175	876
13:00	204	170	211	195		195			195	780
14:00	180	213	196	216		201			201	805
15:00	316	364	337	361		344			344	1378
16:00	348	394	320	406		367			367	1468
17:00	341	301	292	304		310			310	1238
18:00	268	306	258	322		288			288	1154
19:00	233	194	203	206		209			209	836
20:00	142	150	132	125		137			137	549
21:00	112	129	111	123		119			119	475
22:00	91	97	89	99		94			94	376
23:00	67	86	79	66		74			74	298
24:00	100	87	101	102		98			98	390
TOTALS	2583	3605	3439	3761	1100	3579			3579	14488
% AVG WKDY	72.2	100.7	96.1	105.1	30.7					
% AVG WEEK	72.2	100.7	96.1	105.1	30.7					
AM Times	12:00	08:00	09:00	09:00	09:00	09:00			09:00	
AM Peaks	181	217	237	270	220	234			234	
PM Times	16:00	16:00	15:00	16:00		16:00			16:00	
PM Peaks	348	394	337	406		367			367	



Mass Highway Department

WEEKLY SUMMARY FOR LANE 1  
Starting: 10/26/2020

Page: 1

Station #: 60000000021  
Site ID: 000000000601  
Location: Route 28 NB, south of PleasanSt.  
Direction: NORTH

STA. 6 NB

File: D1026021.prn  
City: Milton  
County: Volume

TIME	MON 26	TUE 27	WED 28	THU 29	FRI 30	WKDAY AVG	SAT 31	SUN 1	WEEK AVG	TOTAL
01:00		131	164	171	185	163	270	332	209	1253
02:00		58	91	105	96	88	179	368	150	897
03:00		72	55	68	72	67	101	116	81	484
04:00		57	56	55	46	54	71	95	63	380
05:00		100	102	107	119	107	89	94	102	611
06:00		536	525	550	569	545	167	131	413	2478
07:00		1182	1235	1174	1075	1166	344		1002	5010
08:00		1399	1488	1452	1357	1424	473		1234	6169
09:00		1320	1292	1335	1234	1295	658		1168	5839
10:00		944	998	983	986	978	825		947	4736
11:00		994	961	986	971	978	1000		982	4912
12:00	1031	998	1071	1042	1072	1043	1096		1052	6310
13:00	1095	1077	1142	1115	1171	1120	1209		1135	6809
14:00	1030	1080	1058	1172	1329	1134	1347		1169	7016
15:00	1380	1408	1357	1473	1579	1439	1406		1434	8603
16:00	1619	1769	1538	1686	1684	1659	1380		1613	9676
17:00	1576	1503	1491	1595	1398	1513	1298		1477	8861
18:00	1704	1425	1380	1575	1542	1525	1282		1485	8908
19:00	1222	1128	1139	1155	1145	1158	1107		1149	6896
20:00	706	799	880	762	820	793	911		813	4878
21:00	561	603	565	612	646	597	767		626	3754
22:00	434	459	450	473	564	476	651		505	3031
23:00	379	388	409	425	577	436	619		466	2797
24:00	348	336	369	410	512	395	511		414	2486
TOTALS	13085	19766	19816	20481	20749	20153	17761	1136	19689	112794
% AVG WKDY	64.9	98.1	98.3	101.6	103.0		88.1	5.6		
% AVG WEEK	66.5	100.4	100.6	104.0	105.4		90.2	5.8		
AM Times	12:00	08:00	08:00	08:00	08:00	08:00	12:00	02:00	08:00	
AM Peaks	1031	1399	1488	1452	1357	1424	1096	368	1234	
PM Times	18:00	16:00	16:00	16:00	16:00	16:00	15:00		16:00	
PM Peaks	1704	1769	1538	1686	1684	1659	1406		1613	

U3

NB 20153

SB 21201

COMB AWD 41354

FAC .93 (.98)

COMB ADT 37,700

Mass Highway Department

WEEKLY SUMMARY FOR LANE 1  
Starting: 10/26/2020

Page: 1

Station #: 00000000122  
Site ID: 00000000602  
Location: Route 28 SB, south of PleasanSt.  
Direction: SOUTH

STA. 6SB

File: D1026022.prn  
City: Milton  
County: Volume

TIME	MON 26	TUE 27	WED 28	THU 29	FRI 30	WKDAY AVG	SAT 31	SUN 1	WEEK AVG	TOTAL
01:00		136	173	175	193	169	275	350	217	1302
02:00		59	97	109	99	91	181	380	154	925
03:00		76	58	70	72	69	103	120	83	499
04:00		62	59	59	54	58	73	97	67	404
05:00		126	125	121	132	126	89	96	115	689
06:00		693	662	690	631	669	169	137	497	2982
07:00		1375	1345	1330	1145	1299	354	284	972	5833
08:00		1522	1559	1553	1411	1511	480	416	1157	6941
09:00		1408	1367	1399	1240	1354	667	492	1096	6573
10:00		1056	1069	1056	1000	1045	834	749	961	5764
11:00		1080	1029	1056	981	1036	1030	970	1024	6146
12:00	1072	1086	1133	1101	1069	1092	1180	1048	1098	7689
13:00	1160	1125	1181	1166	1199	1166	1314	1074	1174	8219
14:00	1114	1166	1131	1202	1348	1192	1423	1129	1216	8513
15:00	1489	1510	1460	1505	1612	1515	1451	1155	1455	10182
16:00	1670	1816	1598	1724	1699	1701	1416	1112	1576	11035
17:00	1624	1565	1547	1613	1421	1554	1357	1062	1456	10189
18:00	1769	1468	1422	1588	1553	1560	1327	957	1441	10084
19:00	1264	1173	1185	1174	1146	1188	1118	805	1124	7865
20:00	747	852	925	781	828	827	933	641	815	5707
21:00	588	634	600	624	645	618	791	577	637	4459
22:00	455	477	492	487	563	495	665	422	509	3561
23:00	408	421	442	453	582	461	642	321	467	3269
24:00	356	338	391	419	520	405	521		424	2545
TOTALS	13716	21224	21050	21455	21143	21201	18393	14394	19735	131375
% AVG WKDY	64.7	100.1	99.3	101.2	99.7		86.8	67.9		
% AVG WEEK	69.5	107.5	106.7	108.7	107.1		93.2	72.9		
AM Times	12:00	08:00	08:00	08:00	08:00	08:00	12:00	12:00	08:00	
AM Peaks	1072	1522	1559	1553	1411	1511	1180	1048	1157	
PM Times	18:00	16:00	16:00	16:00	16:00	16:00	15:00	15:00	16:00	
PM Peaks	1769	1816	1598	1724	1699	1701	1451	1155	1576	

Mass Highway Department

WEEKLY SUMMARY FOR LANE 1  
Starting: 10/26/2020

Page: 1

Station #: 000000000104  
Site ID: 000000000701  
Location: Route 28 NB, south of Hillside St.  
Direction: NORTH

STA. 7 NB

File: D1026025.prn  
City: Milton  
County: Volume

TIME	MON 26	TUE 27	WED 28	THU 29	FRI 30	WKDAY AVG	SAT 31	SUN 1	WEEK AVG	TOTAL
01:00		60	76	62	87	71	123	197	101	605
02:00		29	48	52	48	44	101	175	76	453
03:00		40	33	28	37	34	55	59	42	252
04:00		33	36	32	31	33	42	46	37	220
05:00		105	105	102	105	104	71	64	92	552
06:00		583	575	603	563	581	135	94	426	2553
07:00		1185	1183	1178	1004	1138	295	203	841	5048
08:00		976	1034	1033	972	1004	259	207	747	4481
09:00		795	788	799	713	774	363	265	620	3723
10:00		664	664	722	681	683	450	444	604	3625
11:00		652	612	578	630	618	608	544	604	3624
12:00		607	696	691	629	656	693	656	662	3972
13:00	639	623	657	696	598	643	768	670	664	4651
14:00	649	654	657	717	900	715	803	693	725	5073
15:00	802	792	825	837	830	817	921	729	819	5736
16:00	777	763	726	724	766	751	820	655	747	5231
17:00	784	698	718	728	680	722	766	651	718	5025
18:00	1094	757	706	822	826	841	751	605	794	5561
19:00	652	636	677	646	646	651	671	472	629	4400
20:00	414	436	511	411	462	447	527	357	445	3118
21:00	296	308	328	321	370	325	442	319	341	2384
22:00	222	233	241	251	313	252	351	237	264	1848
23:00	240	227	245	262	355	266	374	185	270	1888
24:00	131	130	141	183	274	172	248		184	1107
TOTALS	6700	11986	12282	12478	12520	12342	10637	8527	11452	75130
% AVG WKDY	54.3	97.1	99.5	101.1	101.4		86.2	69.1		
% AVG WEEK	58.5	104.7	107.2	109.0	109.3		92.9	74.5		
AM Times		07:00	07:00	07:00	07:00	07:00	12:00	12:00	07:00	
AM Peaks		1185	1183	1178	1004	1138	693	656	841	
PM Times	18:00	15:00	15:00	15:00	14:00	18:00	15:00	15:00	15:00	
PM Peaks	1094	792	825	837	900	841	921	729	819	

UB

NB 12342

SB 9385

COMB AWD 21727

FAC .93(.98)

COMB ADT 19,800

Mass Highway Department

WEEKLY SUMMARY FOR LANE 1  
Starting: 10/26/2020

Page: 1

STA. 7SB

Station #: 000000000015  
Site ID: 000000000702  
Location: Route 28 NB, south of Hillside St.  
Direction: SOUTH

File: D1026001.prn  
City: Milton  
County: Volume

TIME	MON 26	TUE 27	WED 28	THU 29	FRI 30	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		70	84	95	105	88			88	354
02:00		37	53	47	57	48			48	194
03:00		31	24	31		29			29	86
04:00		24	22	31		26			26	77
05:00		16	23	25		21			21	64
06:00		85	86	84		85			85	255
07:00		214	215	245		225			225	674
08:00		421	473	534		476			476	1428
09:00		463	486	544		498			498	1493
10:00		455	404	431		430			430	1290
11:00		445	447	508		467			467	1400
12:00	576	487	482	563		527			527	2108
13:00	527	438	574	626		541			541	2165
14:00	491	479	537	580		522			522	2087
15:00	711	658	746	855		742			742	2970
16:00	980	1038	1001	1173		1048			1048	4192
17:00	899	849	855	1052		914			914	3655
18:00	731	739	751	925		786			786	3146
19:00	560	511	565	666		576			576	2302
20:00	334	367	397	409		377			377	1507
21:00	267	304	273	350		298			298	1194
22:00	201	236	249	272		240			240	958
23:00	173	179	187	213		188			188	752
24:00	204	212	244	272		233			233	932
TOTALS	6654	8758	9178	10531	162	9385			9385	35283
% AVG WKDY	70.9	93.3	97.8	112.2	1.7					
% AVG WEEK	70.9	93.3	97.8	112.2	1.7					
AM Times	12:00	12:00	09:00	12:00	01:00	12:00			12:00	
AM Peaks	576	487	486	563	105	527			527	
PM Times	16:00	16:00	16:00	16:00		16:00			16:00	
PM Peaks	980	1038	1001	1173		1048			1048	



## **Part 3: Speed Data**

STA. 2NB

NO SPEED DATA

Mass Highway Department

SPEED SUMMARY  
Mon 10/26/2020

Page: 1

STA. 2 SB  
SPEED

Station #: 000000000082  
Site ID: 000000000202  
Location: Route 28 SB, south of Ridge Rd.  
Direction: SOUTH  
Lane: 1

File: D1026006.prn  
City: Milton  
County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
11:00	14	22	16	17	50	100	60	9	4	0	0	0	0	0	292
12:00	4	2	5	13	95	172	82	13	0	0	0	0	0	0	386
13:00	1	2	4	14	65	171	93	12	0	0	0	0	0	0	362
14:00	0	1	4	11	67	159	136	27	0	1	0	0	0	0	406
15:00	44	40	36	85	142	114	49	3	1	0	0	0	0	0	514
16:00	0	2	4	15	135	221	134	24	2	0	0	1	0	0	538
17:00	1	1	0	18	160	220	141	8	1	0	1	0	0	0	551
18:00	2	0	1	18	156	218	107	9	0	0	0	0	0	0	511
19:00	1	0	0	0	91	189	107	19	5	0	0	0	0	0	412
20:00	0	0	0	1	23	125	105	12	1	0	0	0	0	0	267
21:00	0	1	1	6	19	81	84	18	1	0	0	0	0	0	211
22:00	0	0	0	0	11	79	64	17	3	0	0	0	0	0	174
23:00	0	0	0	1	6	65	63	23	6	2	0	0	0	0	166
24:00	0	0	0	0	8	36	71	25	1	0	0	0	0	0	141
DAY TOTAL	67	71	71	199	1028	1950	1296	219	25	3	1	1	0	0	4931
PERCENTS	1.4%	1.4%	1.4%	4.0%	20.8%	39.5%	26.3%	4.4%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
26.9 mph

85th Percentile Speed  
38.2 mph

Median Speed  
32.7 mph

Average Speed  
32.4 mph

10 MPH Pace Speed  
25 mph to 35 mph  
1950 vehicles in pace  
Representing 40.1% of the total vehicles

Vehicles > 65 MPH  
0  
0.0%

Mass Highway Department

SPEED SUMMARY  
Tue 10/27/2020

Page: 2

Station #: 000000000082  
Site ID: 000000000202  
Location: Route 28 SB, south of Ridge Rd.  
Direction: SOUTH  
Lane: 1

File: D1026006.prn  
City: Milton  
County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	2	18	20	6	3	0	0	0	0	0	49
02:00	0	0	0	0	2	7	7	4	0	0	0	0	0	0	20
03:00	0	0	0	0	2	9	9	6	2	1	0	0	0	0	29
04:00	0	0	0	0	0	5	9	4	1	0	0	0	0	0	19
05:00	0	0	0	0	8	10	12	5	2	0	0	0	0	0	37
06:00	0	1	0	0	4	24	47	22	2	0	0	1	0	0	101
07:00	0	0	2	0	28	75	57	31	3	0	0	0	0	0	196
08:00	1	1	3	7	57	167	124	19	4	1	0	0	0	0	384
09:00	0	1	4	19	67	186	90	15	3	0	0	0	0	0	385
10:00	0	2	3	4	65	142	110	28	1	0	0	0	0	0	355
11:00	0	0	1	13	53	139	117	21	2	1	0	0	0	0	347
12:00	0	0	1	2	49	171	149	21	2	2	0	0	0	0	397
13:00	3	4	5	9	114	184	95	8	0	2	0	0	0	1	425
14:00	0	1	1	3	54	185	142	36	5	0	0	0	0	0	427
15:00	1	1	1	1	91	250	135	16	3	0	0	0	0	0	499
16:00	0	3	0	12	115	240	154	27	4	0	0	0	0	0	555
17:00	3	3	3	22	138	252	139	22	0	0	0	0	0	0	582
18:00	0	0	2	9	130	307	126	16	1	0	0	0	0	0	591
19:00	0	2	0	12	87	191	102	22	1	1	0	0	0	0	418
20:00	0	0	1	2	41	143	117	23	4	0	0	0	0	0	331
21:00	0	1	0	2	20	106	98	19	2	0	0	0	0	0	248
22:00	0	1	0	5	11	74	69	28	4	0	0	0	0	0	192
23:00	0	0	0	0	9	62	58	26	2	0	0	0	0	0	157
24:00	0	0	0	1	12	50	58	9	3	2	1	0	0	0	136
DAY TOTAL	8	21	27	123	1159	2997	2044	434	54	10	1	1	0	1	6880
PERCENTS	0.1%	0.3%	0.4%	1.8%	16.8%	43.6%	29.7%	6.3%	0.8%	0.1%	0.0%	0.0%	0.0%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
28.7 mph

85th Percentile Speed  
38.7 mph

Median Speed  
33.5 mph

Average Speed  
33.6 mph

10 MPH Pace Speed  
25 mph to 35 mph  
2997 vehicles in pace  
Representing 43.6% of the total vehicles

Vehicles > 65 MPH  
0  
0.0%



Mass Highway Department

SPEED SUMMARY  
Wed 10/28/2020

Station #: 000000000082  
Site ID: 000000000202  
Location: Route 28 SB, south of Ridge Rd.  
Direction: SOUTH  
Lane: 1

File: D1026006.prn  
City: Milton  
County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	5	17	26	14	2	0	0	0	0	0	64
02:00	0	0	0	0	1	13	16	7	0	0	0	0	0	0	37
03:00	0	0	0	0	1	3	4	4	2	0	0	0	0	0	14
04:00	0	0	0	0	1	4	8	4	3	0	0	0	0	0	20
05:00	0	0	0	0	3	10	16	11	0	1	1	0	0	0	42
06:00	0	1	1	0	5	21	44	13	2	0	0	0	0	0	87
07:00	0	3	2	1	18	63	66	34	2	0	0	0	0	0	189
08:00	0	3	3	5	68	168	103	22	3	0	0	0	0	0	375
09:00	0	0	1	8	75	208	64	10	4	0	0	0	0	0	370
10:00	0	0	0	6	37	130	102	11	6	0	0	0	0	0	292
11:00	0	0	2	13	74	150	99	18	2	0	0	0	0	0	358
12:00	1	0	0	17	85	174	108	11	1	0	0	0	0	0	397
13:00	0	0	2	10	74	169	106	17	2	0	0	0	0	0	380
14:00	0	0	0	4	111	160	112	26	2	0	0	0	0	0	415
15:00	0	2	0	6	75	207	164	23	2	0	0	0	0	0	479
16:00	0	0	0	15	110	233	152	18	4	0	0	0	0	0	532
17:00	0	3	1	21	91	237	177	15	1	0	0	0	0	0	546
18:00	1	2	0	3	116	250	146	17	2	0	0	0	0	0	537
19:00	1	2	4	8	72	234	117	10	2	0	0	0	0	0	450
20:00	0	0	2	7	50	136	93	19	4	2	0	0	0	0	313
21:00	0	0	3	1	29	80	89	25	2	1	0	0	0	0	230
22:00	0	0	0	1	18	65	91	29	1	1	0	0	0	0	206
23:00	0	0	1	0	9	57	65	35	4	1	0	0	0	0	172
24:00	0	0	0	0	11	63	60	22	1	0	0	0	0	0	157
DAY TOTAL	3	16	22	126	1139	2852	2028	415	54	6	1	0	0	0	6662
PERCENTS	0.0%	0.2%	0.3%	1.9%	17.1%	42.8%	30.4%	6.2%	0.8%	0.1%	0.0%	0.0%	0.0%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
28.7 mph

85th Percentile Speed  
38.7 mph

Median Speed  
33.6 mph

Average Speed  
33.7 mph

10 MPH Pace Speed  
25 mph to 35 mph  
2852 vehicles in pace  
Representing 42.8% of the total vehicles

Vehicles > 65 MPH  
0  
0.0%

Mass Highway Department

SPEED SUMMARY  
Thu 10/29/2020

Page: 4

Station #: 000000000082  
Site ID: 000000000202  
Location: Route 28 SB, south of Ridge Rd.  
Direction: SOUTH  
Lane: 1

File: D1026006.prn  
City: Milton  
County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	2	24	19	10	2	0	0	0	0	0	57
02:00	0	0	0	0	4	18	10	9	1	0	0	0	0	0	42
03:00	0	0	0	0	0	8	15	4	2	0	0	0	0	0	29
04:00	0	0	0	0	2	5	10	5	2	0	0	0	0	0	24
05:00	0	0	0	0	0	8	13	7	3	1	0	0	0	0	32
06:00	0	1	0	0	3	27	41	17	1	5	0	0	0	0	95
07:00	0	0	1	3	11	72	64	29	6	1	0	0	0	0	187
08:00	1	4	0	13	63	147	134	26	5	0	0	0	0	0	393
09:00	0	1	2	14	55	192	96	18	0	0	0	0	0	0	378
10:00	0	0	0	3	58	145	85	15	2	0	0	0	0	0	308
11:00	0	0	7	3	46	145	119	15	1	0	0	0	0	0	336
12:00	1	1	2	15	78	173	118	13	7	0	0	0	0	0	408
13:00	0	0	0	9	100	180	102	23	2	0	0	0	0	0	416
14:00	0	0	3	3	49	191	138	17	3	0	0	0	0	0	404
15:00	3	2	3	7	68	232	166	27	3	0	0	0	0	0	511
16:00	0	0	2	17	97	250	137	26	1	0	0	0	0	0	530
17:00	2	0	0	14	139	269	131	16	1	0	0	0	0	0	572
18:00	1	4	3	14	127	250	119	8	1	0	0	0	0	0	527
19:00	0	0	0	13	120	224	88	11	0	0	0	0	0	0	456
20:00	0	1	1	4	61	154	83	14	3	1	0	0	0	0	322
21:00	0	0	0	1	31	110	70	11	0	0	0	0	0	0	223
22:00	0	0	0	3	27	101	53	9	0	1	0	0	0	0	194
23:00	0	0	0	0	14	70	78	13	3	1	1	0	0	0	180
24:00	0	0	0	0	22	61	43	10	0	0	0	0	0	0	136
DAY TOTAL	8	14	24	136	1177	3056	1932	353	49	10	1	0	0	0	6760
PERCENTS	0.1%	0.2%	0.4%	2.0%	17.4%	45.2%	28.6%	5.2%	0.7%	0.1%	0.0%	0.0%	0.0%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
28.6 mph

85th Percentile Speed  
38.5 mph

Median Speed  
33.3 mph

Average Speed  
33.4 mph

10 MPH Pace Speed  
25 mph to 35 mph  
3056 vehicles in pace  
Representing 45.3% of the total vehicles

Vehicles > 65 MPH  
0  
0.0%

Mass Highway Department

SPEED SUMMARY  
 Fri 10/30/2020

Page: 5

Station #: 000000000082  
 Site ID: 000000000202  
 Location: Route 28 SB, south of Ridge Rd.  
 Direction: SOUTH  
 Lane: 1

File: D1026006.prn  
 City: Milton  
 County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	2	6	25	19	8	2	1	0	0	0	0	63
02:00	0	0	0	1	3	15	10	4	2	0	0	0	0	0	35
03:00	0	0	0	0	0	8	12	6	0	0	0	0	0	0	26
04:00	0	0	0	0	0	6	8	6	1	0	0	0	0	0	21
05:00	0	0	0	0	4	9	15	10	1	0	0	0	0	0	39
06:00	0	0	2	1	9	29	45	11	0	0	0	0	0	0	97
07:00	0	2	0	3	19	63	68	17	1	0	0	0	0	0	173
08:00	0	1	5	7	78	177	104	14	1	1	0	0	0	0	388
09:00	0	0	0	10	70	138	112	11	3	1	0	0	0	0	345
10:00	1	0	2	5	54	117	106	18	0	0	0	0	0	0	303
11:00	0	0	3	24	59	132	62	6	0	0	0	0	0	0	286
12:00	0	0	2	25	140	164	50	7	0	0	0	0	0	0	388
13:00	1	0	6	21	134	160	74	11	0	0	0	2	0	0	409
14:00	2	1	3	5	130	202	80	5	0	1	0	0	0	0	429
DAY TOTAL	4	4	23	104	706	1245	765	134	11	4	0	2	0	0	3002
PERCENTS	0.1%	0.1%	0.8%	3.5%	23.5%	41.5%	25.5%	4.5%	0.4%	0.1%	0.0%	0.1%	0.0%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
 27.3 mph

85th Percentile Speed  
 38.1 mph

Median Speed  
 32.7 mph

Average Speed  
 32.7 mph

10 MPH Pace Speed  
 25 mph to 35 mph  
 1245 vehicles in pace  
 Representing 41.5% of the total vehicles

Vehicles > 65 MPH  
 0  
 0.0%

Mass Highway Department

SPEED SUMMARY  
Tue 10/27/2020

Page: 1

STA. 4 NB  
SPEED

Station #: 000000000141  
Site ID: 000000000401  
Location: Route 28 NB, north of Spafford St.  
Direction: NORTH  
Lane: 1

File: D1027002APPEND.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	1	0	0	1	2	3	3	2	1	0	0	0	13
02:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
04:00	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2
05:00	0	0	0	0	0	1	3	2	1	1	1	1	0	1	11
06:00	0	0	0	0	0	1	8	17	18	21	26	4	4	5	104
07:00	0	0	0	2	5	3	18	45	67	52	27	5	1	2	227
08:00	1	1	3	2	3	16	42	100	80	37	13	3	4	0	305
09:00	1	0	1	2	2	17	49	89	73	25	8	1	1	0	269
10:00	0	1	2	9	2	6	27	60	33	17	4	4	0	1	166
11:00	0	1	2	6	0	10	23	48	40	11	5	7	0	1	154
12:00	0	2	9	3	1	5	43	49	40	21	5	1	1	0	180
13:00	0	0	4	4	5	6	37	49	35	8	7	3	0	0	158
14:00	0	1	5	3	2	4	24	50	42	20	9	2	0	0	162
15:00	0	0	4	1	1	8	35	83	67	18	6	1	0	1	225
16:00	0	3	7	6	10	16	40	47	62	17	7	0	0	1	216
17:00	0	0	7	5	4	6	27	70	35	18	7	7	0	0	186
18:00	0	0	7	5	6	11	44	58	31	18	13	6	0	2	201
19:00	0	3	5	1	1	7	31	44	36	17	8	1	2	0	156
20:00	0	0	5	1	1	7	23	34	30	13	5	0	0	0	119
21:00	0	0	2	0	0	1	13	25	14	4	4	4	1	0	68
22:00	0	0	0	0	0	1	5	14	12	9	5	0	1	0	47
23:00	0	0	1	0	1	3	4	14	9	4	6	5	0	2	49
24:00	0	0	0	0	0	0	1	8	4	5	3	1	3	1	26
DAY TOTAL	2	12	65	50	44	130	499	910	732	338	171	56	19	18	3046
PERCENTS	0.1%	0.4%	2.1%	1.6%	1.4%	4.3%	16.4%	29.9%	24.0%	11.1%	5.6%	1.8%	0.6%	0.6%	100.0%

Statistical Information...

15th Percentile Speed  
36.5 mph

85th Percentile Speed  
51.9 mph

Median Speed  
43.9 mph

Average Speed  
43.8 mph

10 MPH Pace Speed  
35 mph to 45 mph  
910 vehicles in pace  
Representing 30.1% of the total vehicles

Vehicles > 65 MPH  
19  
0.6%



Mass Highway Department

SPEED SUMMARY  
Wed 10/28/2020

Page: 2

Station #: 000000000141  
Site ID: 000000000401  
Location: Route 28 NB, north of Spafford St.  
Direction: NORTH  
Lane: 1

File: D1027002APPEND.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	0	2	3	3	2	2	0	1	0	0	13
02:00	0	0	0	0	0	0	1	2	2	3	0	1	0	0	9
03:00	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3
04:00	0	0	0	0	0	0	0	0	2	0	1	0	0	0	3
05:00	0	0	0	0	1	1	1	1	2	3	1	1	0	0	11
06:00	0	0	0	0	0	1	1	25	20	15	16	9	2	2	91
07:00	0	1	1	0	2	20	26	44	62	39	13	6	0	1	215
08:00	0	0	2	1	3	12	72	113	63	16	6	0	0	0	288
09:00	0	0	3	6	7	15	53	113	45	16	6	3	0	0	267
10:00	1	0	8	4	4	14	29	53	36	16	7	3	1	1	177
11:00	0	0	4	2	1	6	33	55	38	15	12	2	0	0	168
12:00	0	1	7	7	2	6	45	44	30	14	4	1	0	0	161
13:00	0	2	2	1	4	9	36	59	53	10	4	2	0	0	182
14:00	0	1	4	4	1	7	23	59	37	17	7	3	0	1	164
15:00	0	0	8	2	2	14	30	46	43	17	8	3	0	0	173
16:00	1	0	9	2	1	10	44	73	45	16	10	2	1	2	216
17:00	0	2	6	3	2	7	28	70	46	20	5	1	0	0	190
18:00	0	0	7	6	1	6	46	58	33	13	6	1	1	0	178
19:00	0	1	9	2	3	15	36	41	32	13	5	2	2	2	163
20:00	0	0	10	0	1	13	27	31	23	10	3	1	0	0	119
21:00	0	0	3	1	2	8	14	17	24	9	7	3	0	1	89
22:00	0	0	0	0	0	2	12	20	18	11	1	0	0	0	64
23:00	0	0	1	0	0	1	7	15	14	8	3	0	0	0	49
24:00	0	0	0	0	0	1	5	3	10	3	2	2	1	1	28
DAY TOTAL	2	8	84	41	37	170	572	945	680	289	127	47	8	11	3021
PERCENTS	0.1%	0.3%	2.8%	1.4%	1.2%	5.6%	18.9%	31.3%	22.5%	9.6%	4.2%	1.6%	0.3%	0.4%	100.0%

Statistical Information...

15th Percentile Speed  
36.0 mph

85th Percentile Speed  
50.4 mph

Median Speed  
43.1 mph

Average Speed  
42.9 mph

10 MPH Pace Speed  
35 mph to 45 mph  
945 vehicles in pace  
Representing 31.4% of the total vehicles

Vehicles > 65 MPH  
8  
0.3%

Mass Highway Department

SPEED SUMMARY  
Thu 10/29/2020

Station #: 000000000141  
Site ID: 000000000401  
Location: Route 28 NB, north of Spafford St.  
Direction: NORTH  
Lane: 1

File: D1027002APPEND.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	0	2	3	3	2	2	0	1	0	0	13
02:00	0	0	0	0	0	0	1	2	2	3	0	1	0	0	9
03:00	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3
04:00	0	0	0	0	0	0	0	0	2	0	1	0	0	0	3
05:00	0	0	0	0	1	1	1	1	2	3	1	1	0	0	11
06:00	0	0	0	0	0	1	1	25	20	15	16	9	2	2	91
07:00	0	1	1	0	2	20	26	44	62	39	13	6	0	1	215
08:00	0	0	2	1	3	12	72	113	63	16	6	0	0	0	288
09:00	0	0	3	6	7	15	53	113	45	16	6	3	0	0	267
10:00	1	0	8	4	4	14	29	53	36	16	7	3	1	1	177
11:00	0	0	4	2	1	6	33	55	38	15	12	2	0	0	168
12:00	0	1	7	7	2	6	45	44	30	14	4	1	0	0	161
13:00	0	2	2	1	4	9	36	59	53	10	4	2	0	0	182
14:00	0	1	4	4	1	7	23	59	37	17	7	3	0	1	164
15:00	0	0	8	2	2	14	30	46	43	17	8	3	0	0	173
16:00	1	0	9	2	1	10	44	73	45	16	10	2	1	2	216
17:00	0	2	6	3	2	7	28	70	46	20	5	1	0	0	190
18:00	0	0	7	6	1	6	46	58	33	13	6	1	1	0	178
19:00	0	1	9	2	3	15	36	41	32	13	5	2	2	2	163
20:00	0	0	10	0	1	13	27	31	23	10	3	1	0	0	119
21:00	0	0	3	1	2	8	14	17	24	9	7	3	0	1	89
22:00	0	0	0	0	0	2	12	20	18	11	1	0	0	0	64
23:00	0	0	1	0	0	1	7	15	14	8	3	0	0	0	49
24:00	0	0	0	0	0	1	5	3	10	3	2	2	1	1	28
DAY TOTAL	2	8	84	41	37	170	572	945	680	289	127	47	8	11	3021
PERCENTS	0.1%	0.3%	2.8%	1.4%	1.2%	5.6%	18.9%	31.3%	22.5%	9.6%	4.2%	1.6%	0.3%	0.4%	100.0%

Statistical Information...

15th Percentile Speed  
36.0 mph

85th Percentile Speed  
50.4 mph

Median Speed  
43.1 mph

Average Speed  
42.9 mph

10 MPH Pace Speed  
35 mph to 45 mph  
945 vehicles in pace  
Representing 31.4% of the total vehicles

Vehicles > 65 MPH  
8  
0.3%

Mass Highway Department

SPEED SUMMARY  
Fri 10/30/2020

Page: 4

Station #: 000000000141  
Site ID: 000000000401  
Location: Route 28 NB, north of Spafford St.  
Direction: NORTH  
Lane: 1

File: D1027002APPEND.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	0	0	2	5	5	3	0	0	0	0	15
02:00	0	0	0	0	0	0	4	4	2	0	0	0	0	0	10
03:00	0	0	0	0	0	1	1	1	1	0	0	1	0	1	6
04:00	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
05:00	0	0	0	0	0	0	1	3	2	2	0	-1	0	0	9
06:00	0	0	0	0	1	1	6	15	12	30	12	8	0	1	86
07:00	1	0	1	1	2	5	26	46	60	38	27	8	1	0	216
08:00	1	1	4	2	5	15	51	96	72	20	8	1	1	0	277
09:00	3	0	5	4	2	12	42	82	54	29	12	2	1	0	248
10:00	0	1	1	2	2	9	21	56	45	22	10	4	0	1	174
11:00	0	0	5	4	1	8	29	58	24	14	3	1	0	1	148
12:00	0	1	6	3	9	21	49	51	24	7	1	1	0	0	173
13:00	0	3	5	4	5	11	37	53	19	9	2	1	0	0	149
14:00	0	2	4	3	5	20	44	43	30	4	0	0	0	1	156
15:00	0	2	4	2	2	13	58	62	27	13	2	1	0	0	186
16:00	0	2	8	2	8	30	77	53	20	3	1	0	0	0	204
17:00	0	1	10	2	8	38	71	29	11	1	0	1	0	0	172
18:00	2	3	7	6	8	44	57	40	14	2	0	0	0	0	183
19:00	0	4	8	2	15	37	48	33	7	0	0	0	0	0	154
20:00	0	1	7	3	10	20	30	23	7	1	0	0	0	0	102
21:00	0	1	2	0	4	13	26	10	5	0	1	0	0	0	62
22:00	0	0	0	1	2	15	19	13	3	0	0	0	0	0	53
23:00	0	0	0	0	3	3	18	10	11	1	1	0	1	0	48
24:00	0	1	0	0	1	8	4	8	3	1	0	0	0	0	26
DAY TOTAL	7	23	77	41	93	324	721	795	459	200	80	30	4	5	2859
PERCENTS	0.2%	0.8%	2.7%	1.4%	3.3%	11.3%	25.2%	27.8%	16.1%	7.0%	2.8%	1.0%	0.1%	0.2%	100.0%

Statistical Information...

15th Percentile Speed  
33.0 mph

85th Percentile Speed  
48.8 mph

Median Speed  
40.9 mph

Average Speed  
40.6 mph

10 MPH Pace Speed  
35 mph to 45 mph  
795 vehicles in pace  
Representing 27.9% of the total vehicles

Vehicles > 65 MPH  
4  
0.1%

Mass Highway Department

SPEED SUMMARY  
Sat 10/31/2020

Page: 5

Station #: 00000000141  
Site ID: 00000000401  
Location: Route 28 NB, north of Spafford St.  
Direction: NORTH  
Lane: 1

File: D1027002APPEND.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	0	0	5	9	2	3	2	0	0	0	21
02:00	0	0	0	0	1	0	3	5	4	0	0	0	0	0	13
03:00	0	0	0	0	0	0	0	5	1	0	1	0	1	0	8
04:00	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3
05:00	0	0	0	0	0	0	1	2	0	1	0	0	0	0	4
06:00	0	0	0	0	0	2	1	2	3	2	1	2	0	0	13
07:00	0	0	0	0	1	1	13	13	6	4	4	2	0	0	44
08:00	0	0	1	0	0	4	4	21	12	2	0	2	0	0	46
09:00	0	0	3	1	4	7	8	13	20	6	4	1	1	0	68
10:00	0	1	9	0	0	5	21	36	17	11	7	0	2	0	109
11:00	0	0	3	3	3	7	22	39	45	13	11	3	0	0	149
12:00	0	0	4	7	3	9	29	41	38	17	6	4	0	1	159
13:00	1	0	5	10	1	8	23	58	44	18	9	4	1	3	185
14:00	0	2	5	1	9	6	24	59	53	24	8	2	0	1	194
15:00	0	0	9	5	3	8	21	53	68	16	13	9	1	3	209
16:00	1	0	10	2	0	4	25	55	46	15	11	2	0	0	171
17:00	0	0	10	2	3	12	25	60	45	14	6	3	0	0	180
18:00	0	2	5	2	6	15	34	45	33	11	5	1	0	0	159
19:00	0	2	10	0	2	7	33	46	36	20	9	1	0	0	166
20:00	0	0	4	0	1	3	30	48	27	13	10	2	1	1	140
21:00	0	1	3	2	1	4	20	29	26	6	11	3	0	0	106
22:00	0	0	2	1	0	1	13	29	14	11	5	5	0	0	81
23:00	0	0	0	3	1	6	8	27	27	12	6	1	0	0	91
24:00	0	0	0	0	0	1	9	13	13	7	2	2	0	0	47
DAY TOTAL	2	8	83	39	39	110	372	708	581	228	131	49	7	9	2366
PERCENTS	0.1%	0.3%	3.5%	1.6%	1.6%	4.6%	15.7%	29.9%	24.6%	9.6%	5.5%	2.1%	0.3%	0.4%	100.0%

Statistical Information...

15th Percentile Speed  
36.0 mph

85th Percentile Speed  
51.4 mph

Median Speed  
43.7 mph

Average Speed  
43.2 mph

10 MPH Pace Speed  
35 mph to 45 mph  
708 vehicles in pace  
Representing 30.1% of the total vehicles

Vehicles > 65 MPH  
7  
0.3%



Mass Highway Department

SPEED SUMMARY  
Sun 11/1/2020

Page: 6

Station #: 00000000141  
Site ID: 00000000401  
Location: Route 28 NB, north of Spafford St.  
Direction: NORTH  
Lane: 1

File: D1027002APPEND.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	1	0	0	0	7	11	7	7	1	0	1	1	36
02:00	0	0	0	0	0	0	5	9	8	6	2	2	0	0	32
03:00	0	0	0	1	0	0	0	1	7	0	1	0	0	0	10
04:00	0	0	0	0	0	0	3	1	3	1	0	0	0	0	8
05:00	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
06:00	0	0	0	0	0	0	1	3	1	2	2	1	0	1	11
07:00	0	0	0	0	1	2	2	4	5	6	6	0	0	0	26
08:00	0	0	3	0	2	1	6	8	8	6	7	1	0	0	42
09:00	0	1	6	0	0	3	7	15	9	3	2	1	0	1	48
10:00	0	0	2	1	1	9	8	22	26	13	5	6	1	1	95
11:00	0	1	5	2	1	6	17	35	40	14	7	2	1	0	131
12:00	0	3	8	2	0	5	25	37	33	17	8	4	1	0	143
13:00	0	0	1	0	0	4	19	53	35	21	17	2	1	2	155
14:00	0	1	7	2	3	5	18	41	50	17	6	5	0	1	156
15:00	0	0	0	4	1	4	19	45	48	32	6	4	0	1	164
16:00	0	2	6	2	1	7	34	57	15	20	5	0	1	0	150
17:00	0	1	4	3	2	7	33	43	31	13	3	0	1	0	141
18:00	0	0	5	1	3	15	31	44	16	7	2	0	1	1	126
19:00	0	1	2	1	1	6	20	33	27	8	2	6	0	0	107
20:00	0	0	4	1	1	6	31	25	14	3	2	2	1	0	90
21:00	0	0	1	0	1	7	18	21	11	2	3	1	0	0	65
22:00	0	0	1	0	1	4	9	19	8	2	0	1	0	0	45
23:00	1	0	1	1	1	3	3	4	5	3	5	0	0	0	27
DAY TOTAL	1	10	57	21	20	94	316	532	407	203	92	40	9	9	1811
PERCENTS	0.1%	0.6%	3.1%	1.2%	1.1%	5.2%	17.4%	29.4%	22.5%	11.2%	5.1%	2.2%	0.5%	0.5%	100.0%

Statistical Information...

15th Percentile Speed  
36.1 mph

85th Percentile Speed  
51.8 mph

Median Speed  
43.6 mph

Average Speed  
43.3 mph

10 MPH Pace Speed  
35 mph to 45 mph  
532 vehicles in pace  
Representing 29.5% of the total vehicles

Vehicles > 65 MPH  
9  
0.5%

Mass Highway Department

SPEED SUMMARY  
 Mon 10/26/2020

Page: 1

STA. 45B

File: D1026015.prn  
 City: Milton  
 County: Speed

Station #: 000000000023  
 Site ID: 000000000402  
 Location: Route 28 SB, north of Spafford Rd.  
 Direction: SOUTH  
 Lane: 1

SPEED

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
12:00	0	0	6	6	21	73	80	43	12	3	0	0	0	0	244
13:00	0	0	1	4	17	72	104	55	18	2	0	0	0	0	273
14:00	2	0	5	1	15	44	92	55	22	3	1	0	0	1	241
15:00	0	0	4	5	30	97	123	70	16	5	3	1	0	0	354
16:00	1	0	3	11	20	96	180	100	31	6	2	0	0	0	450
17:00	1	0	1	4	23	103	157	80	20	6	10	1	0	0	406
18:00	0	0	0	6	29	109	132	70	17	2	1	0	1	0	367
19:00	1	0	2	2	12	73	102	51	19	5	4	0	0	0	271
20:00	2	1	1	2	4	26	72	54	11	3	1	0	0	0	177
21:00	1	0	0	0	4	17	49	60	12	8	2	0	0	1	154
22:00	0	0	0	1	2	8	29	39	19	1	3	0	0	1	103
23:00	0	0	0	1	0	8	20	23	16	6	2	1	1	0	78
24:00	0	0	0	0	1	11	27	41	13	0	0	1	0	0	94
DAY TOTAL	8	1	23	43	178	737	1167	741	226	50	29	4	2	3	3212
PERCENTS	0.2%	0.0%	0.7%	1.3%	5.5%	22.9%	36.3%	23.1%	7.0%	1.6%	0.9%	0.1%	0.1%	0.1%	100.0%

Statistical Information...

15th Percentile Speed  
 31.6 mph

85th Percentile Speed  
 43.9 mph

Median Speed  
 37.7 mph

Average Speed  
 37.8 mph

10 MPH Pace Speed  
 30 mph to 40 mph  
 1167 vehicles in pace  
 Representing 36.5% of the total vehicles

Vehicles > 65 MPH  
 2  
 0.1%

Mass Highway Department

SPEED SUMMARY  
Tue 10/27/2020

Page: 2

Station #: 000000000023  
Site ID: 000000000402  
Location: Route 28 SB, north of Spafford Rd.  
Direction: SOUTH  
Lane: 1

File: D1026015.prn  
City: Milton  
County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	1	0	0	0	0	6	9	13	2	1	2	1	0	0	35
02:00	0	0	0	0	1	3	4	5	0	2	0	0	0	0	15
03:00	0	0	0	0	1	3	2	4	2	2	0	0	0	0	14
04:00	0	0	0	0	1	4	2	2	0	0	1	0	0	0	10
05:00	0	0	0	0	0	0	4	1	0	0	0	0	0	0	5
06:00	1	1	0	1	2	3	8	17	13	3	0	1	0	1	51
07:00	0	0	1	0	1	7	26	42	14	4	3	1	0	0	99
08:00	1	0	2	2	12	26	64	63	32	8	4	3	0	1	218
09:00	0	0	2	3	20	51	84	50	22	5	5	0	0	0	242
10:00	0	0	3	3	10	49	75	57	18	3	1	0	0	0	219
11:00	2	2	7	3	6	45	69	40	16	6	0	0	0	0	196
12:00	0	0	2	5	8	58	91	59	15	0	0	0	0	0	238
13:00	0	0	1	3	13	56	102	50	24	3	3	0	0	1	256
14:00	0	0	6	4	18	37	102	60	21	3	3	2	1	1	258
15:00	0	0	1	4	11	63	118	85	25	6	3	2	1	0	319
16:00	1	0	2	3	45	95	198	89	20	10	2	1	0	0	466
17:00	0	0	1	10	31	103	172	88	18	2	2	1	0	0	428
18:00	0	0	2	3	24	87	131	70	27	1	2	0	0	0	347
19:00	0	0	2	1	22	80	110	64	21	5	3	0	0	0	308
20:00	0	0	0	0	4	36	85	56	12	4	1	1	0	0	199
21:00	0	0	1	0	4	27	70	51	18	8	0	1	0	0	180
22:00	0	0	1	1	3	19	33	42	19	5	1	0	0	0	124
23:00	0	0	0	0	1	13	22	30	14	3	1	3	0	2	89
24:00	0	0	0	0	5	14	39	28	10	1	2	0	1	1	101
DAY TOTAL	6	3	34	46	243	885	1620	1066	363	85	39	17	3	7	4417
PERCENTS	0.1%	0.1%	0.8%	1.0%	5.5%	20.0%	36.7%	24.1%	8.2%	1.9%	0.9%	0.4%	0.1%	0.2%	100.0%

Statistical Information...

15th Percentile Speed  
31.9 mph

85th Percentile Speed  
44.3 mph

Median Speed  
38.1 mph

Average Speed  
38.2 mph

10 MPH Pace Speed  
30 mph to 40 mph  
1620 vehicles in pace  
Representing 36.8% of the total vehicles

Vehicles > 65 MPH  
3  
0.1%

Mass Highway Department

SPEED SUMMARY  
Wed 10/28/2020

Station #: 000000000023  
Site ID: 000000000402  
Location: Route 28 SB, north of Spafford Rd.  
Direction: SOUTH  
Lane: 1

File: D1026015.prn  
City: Milton  
County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	1	3	14	10	8	3	0	0	0	0	39
02:00	0	0	0	0	0	3	3	5	1	2	0	0	0	0	14
03:00	0	0	0	0	0	0	3	4	2	1	1	0	0	1	12
04:00	0	0	0	0	1	2	2	3	0	0	0	0	0	0	8
05:00	0	0	0	0	1	1	1	4	1	1	0	0	0	0	9
06:00	0	1	0	0	1	8	11	7	6	2	0	0	0	0	36
07:00	0	0	0	0	3	12	38	23	6	3	3	1	0	0	89
08:00	0	0	4	2	8	42	82	54	19	2	1	0	0	0	214
09:00	1	1	1	7	16	42	74	57	16	3	2	0	0	0	220
10:00	0	0	0	11	15	65	59	35	8	8	1	1	0	0	203
11:00	2	1	1	6	23	70	59	34	8	3	1	0	0	1	209
12:00	8	0	1	3	16	54	85	37	7	1	0	1	0	0	213
13:00	0	0	0	3	14	83	100	48	6	3	1	1	0	2	261
14:00	3	0	0	2	21	67	85	38	10	4	1	0	0	1	232
15:00	1	2	4	8	21	101	97	47	25	7	1	0	0	0	314
16:00	8	0	6	13	33	126	130	84	19	3	1	1	0	0	424
17:00	8	0	2	2	39	121	146	72	16	3	1	1	0	0	411
18:00	2	0	0	4	32	93	142	85	16	3	0	0	0	1	378
19:00	4	0	0	1	15	81	123	56	11	2	2	1	0	2	298
20:00	7	0	0	2	11	62	100	47	15	3	2	1	1	0	251
21:00	0	0	0	0	2	20	59	34	24	5	1	1	1	0	147
22:00	2	0	0	0	3	13	40	44	13	11	2	0	0	0	128
23:00	0	1	0	1	2	3	27	24	16	7	4	0	0	0	85
24:00	1	0	0	0	5	15	39	29	22	2	1	0	0	1	115
DAY TOTAL	47	6	19	65	283	1087	1519	881	275	82	26	9	2	9	4310
PERCENTS	1.1%	0.1%	0.4%	1.5%	6.6%	25.2%	35.2%	20.4%	6.4%	1.9%	0.6%	0.2%	0.0%	0.2%	100.0%

Statistical Information...

15th Percentile Speed  
31.2 mph

85th Percentile Speed  
43.6 mph

Median Speed  
37.2 mph

Average Speed  
37.4 mph

10 MPH Pace Speed  
30 mph to 40 mph  
1519 vehicles in pace  
Representing 35.7% of the total vehicles

Vehicles > 65 MPH  
2  
0.0%



Mass Highway Department

SPEED SUMMARY  
 Mon 10/26/2020

Page: 1

STA. 6 NB  
 SPEED

Station #: 000000000153  
 Site ID: 000000000601  
 Location: Randolph Ave. NB, south of Pleasant St.  
 Direction: NORTH  
 Lane: 1

File: D1026020.prn  
 City: Milton  
 County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
12:00	10	2	8	9	36	77	101	51	12	6	1	2	0	0	315
13:00	0	1	2	1	18	57	131	73	26	4	2	0	0	0	315
14:00	2	3	0	6	11	56	129	90	27	6	1	0	1	0	332
15:00	2	2	1	2	26	67	168	103	30	8	1	1	0	0	411
16:00	0	2	2	5	33	84	177	108	28	3	2	0	0	0	444
17:00	2	1	0	5	42	150	175	84	20	2	3	1	0	0	485
18:00	3	7	13	19	113	234	193	64	12	0	1	0	0	0	659
19:00	1	0	0	12	49	85	112	58	15	1	4	0	2	0	339
20:00	1	2	0	3	5	39	67	45	13	7	0	2	0	0	184
21:00	0	2	0	0	6	27	46	27	7	2	0	0	0	0	117
22:00	1	0	0	1	5	12	24	36	6	4	1	2	0	0	92
23:00	0	0	0	0	6	10	26	23	15	6	1	2	0	0	89
24:00	0	0	1	0	0	2	11	8	4	3	2	1	0	0	32
DAY TOTAL	22	22	27	63	350	900	1360	770	215	52	19	11	3	0	3814
PERCENTS	0.6%	0.6%	0.7%	1.7%	9.2%	23.6%	35.7%	20.2%	5.6%	1.4%	0.5%	0.3%	0.1%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
 30.6 mph

85th Percentile Speed  
 43.3 mph

Median Speed  
 37.0 mph

Average Speed  
 36.8 mph

10 MPH Pace Speed  
 30 mph to 40 mph  
 1360 vehicles in pace  
 Representing 35.9% of the total vehicles

Vehicles > 65 MPH  
 3  
 0.1%

Mass Highway Department

SPEED SUMMARY  
Tue 10/27/2020

Page: 2

Station #: 000000000153  
Site ID: 000000000601  
Location: Randolph Ave. NB, south of Pleasant St.  
Direction: NORTH  
Lane: 1

File: D1026020.prn  
City: Milton  
County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	2	3	6	7	1	0	0	0	0	0	19
02:00	0	0	0	0	1	0	2	1	2	0	0	0	0	0	6
03:00	2	0	0	0	0	1	2	2	1	1	1	0	0	0	10
04:00	0	0	0	0	1	0	3	2	2	1	0	0	0	0	9
05:00	0	0	1	0	1	2	8	8	8	2	2	0	0	0	32
06:00	0	1	0	0	3	36	93	107	55	11	5	4	0	0	315
07:00	0	1	2	13	30	138	203	139	53	15	5	0	0	0	599
08:00	3	6	3	9	67	181	178	101	21	9	1	1	0	0	580
09:00	2	1	0	15	42	89	190	90	20	3	2	0	0	0	454
10:00	1	2	0	0	6	72	125	82	26	8	0	1	0	0	323
11:00	3	1	2	1	23	78	129	63	26	4	0	0	0	0	330
12:00	1	2	1	5	39	60	99	71	24	6	3	0	0	0	311
13:00	30	18	17	43	58	67	69	48	14	3	0	0	0	0	367
14:00	1	2	5	4	24	81	108	91	35	5	0	2	0	2	360
15:00	4	1	0	6	13	61	179	111	22	6	1	0	0	0	404
16:00	3	4	11	13	29	102	150	78	20	6	0	1	0	0	417
17:00	2	2	17	7	39	78	148	66	32	7	1	1	0	0	400
18:00	1	1	0	12	81	141	133	56	20	1	2	0	0	0	448
19:00	2	6	2	4	32	84	94	51	14	3	3	0	0	0	295
20:00	0	2	0	1	8	44	76	55	13	5	1	0	0	0	205
21:00	0	0	0	0	7	20	44	31	18	2	3	0	0	0	125
22:00	0	0	0	1	4	19	26	33	10	8	2	1	0	0	104
23:00	1	0	0	0	3	10	10	25	13	4	5	1	0	0	72
24:00	0	0	0	0	0	5	13	10	2	2	1	1	0	0	34
DAY TOTAL	56	50	61	134	513	1372	2088	1328	452	112	38	13	0	2	6219
PERCENTS	0.9%	0.8%	1.0%	2.2%	8.2%	22.1%	33.6%	21.4%	7.3%	1.8%	0.6%	0.2%	0.0%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
30.6 mph

85th Percentile Speed  
43.8 mph

Median Speed  
37.3 mph

Average Speed  
37.1 mph

10 MPH Pace Speed  
30 mph to 40 mph  
2088 vehicles in pace  
Representing 33.9% of the total vehicles

Vehicles > 65 MPH  
0  
0.0%

Mass Highway Department

SPEED SUMMARY  
Wed 10/28/2020

Page: 3

Station #: 000000000153  
Site ID: 000000000601  
Location: Randolph Ave. NB, south of Pleasant St.  
Direction: NORTH  
Lane: 1

File: D1026020.prn  
City: Milton  
County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	2	6	8	7	2	1	0	0	0	0	26
02:00	0	0	0	0	0	0	3	0	2	0	0	0	0	0	5
03:00	0	0	0	0	0	1	0	2	2	0	1	0	0	0	6
04:00	0	0	0	0	1	2	1	4	2	0	0	0	0	0	10
05:00	0	0	0	1	2	3	5	10	10	3	0	0	0	0	34
06:00	0	0	1	1	0	26	93	122	50	8	9	1	0	0	311
07:00	0	0	8	16	81	161	186	102	23	3	4	1	0	0	585
08:00	0	5	0	14	98	183	190	88	20	1	0	0	0	0	599
09:00	3	2	0	11	49	136	137	81	20	7	0	0	0	0	446
10:00	3	2	0	2	24	63	125	74	19	12	2	0	0	0	326
11:00	4	1	0	1	21	78	126	44	24	1	0	2	0	0	302
12:00	5	1	5	23	52	87	117	55	16	2	0	0	0	0	363
13:00	1	3	0	5	35	84	115	51	17	3	0	0	0	0	314
14:00	2	0	1	11	24	70	132	80	19	7	3	0	0	0	349
15:00	2	1	1	4	32	100	182	95	18	2	1	2	0	0	440
16:00	0	1	1	4	19	115	168	83	29	5	1	0	0	0	426
17:00	1	5	1	2	27	106	165	78	17	5	0	0	0	0	407
18:00	1	2	0	1	32	131	149	60	14	6	0	0	1	0	397
19:00	0	0	0	3	44	95	111	62	20	4	1	0	0	0	340
20:00	1	2	0	1	9	56	90	47	23	5	1	0	0	0	235
21:00	0	0	0	0	5	24	48	36	17	2	1	0	0	0	133
22:00	0	0	0	1	1	9	23	37	18	4	0	0	0	0	93
23:00	0	0	0	0	0	9	27	32	13	4	2	0	0	0	87
24:00	0	1	0	0	0	1	11	15	13	2	3	1	0	0	47
DAY TOTAL	23	26	18	101	558	1546	2212	1265	408	87	29	7	1	0	6281
PERCENTS	0.4%	0.4%	0.3%	1.6%	8.9%	24.6%	35.2%	20.1%	6.5%	1.4%	0.5%	0.1%	0.0%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
30.8 mph

85th Percentile Speed  
43.4 mph

Median Speed  
37.0 mph

Average Speed  
37.0 mph

10 MPH Pace Speed  
30 mph to 40 mph  
2212 vehicles in pace  
Representing 35.3% of the total vehicles

Vehicles > 65 MPH  
1  
0.0%

Mass Highway Department

SPEED SUMMARY  
Thu 10/29/2020

Page: 14

Station #: 000000000153  
Site ID: 000000000601  
Location: Randolph Ave. NB, south of Pleasant St.  
Direction: NORTH  
Lane: 1

File: D1026020.prn  
City: Milton  
County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	1	1	6	3	2	2	0	1	0	0	16
02:00	0	1	0	0	0	1	2	3	4	0	0	1	0	0	12
03:00	0	0	0	0	1	1	2	0	1	0	0	0	0	0	5
04:00	0	0	0	0	0	0	1	0	1	1	0	0	0	0	3
05:00	0	0	0	2	0	0	13	8	5	6	0	0	0	0	34
06:00	0	0	0	0	4	46	100	115	38	16	6	1	0	0	326
07:00	0	1	0	7	55	123	197	130	32	7	4	0	1	2	559
08:00	5	5	9	24	53	159	214	89	19	7	1	0	0	0	585
09:00	1	3	1	1	52	133	142	78	28	2	0	1	0	0	442
10:00	3	2	2	8	48	100	95	72	11	7	2	0	0	0	350
11:00	1	0	1	7	25	72	98	56	21	1	1	0	0	0	283
12:00	5	5	2	18	27	81	124	61	15	5	1	0	0	0	344
13:00	0	2	4	2	45	91	109	62	23	4	1	1	0	0	344
14:00	4	10	5	18	26	104	106	38	4	0	0	0	0	0	315
15:00	0	3	1	9	43	114	154	91	19	1	1	0	0	0	436
16:00	2	3	4	6	70	117	146	60	14	2	0	0	0	0	424
17:00	1	0	11	14	42	146	135	59	9	1	0	1	0	0	419
18:00	2	0	1	16	105	183	134	41	11	1	0	0	0	0	494
19:00	0	1	2	10	51	119	86	30	5	0	1	0	0	0	305
20:00	0	1	0	3	11	43	87	37	4	1	1	0	0	0	188
21:00	0	2	0	1	18	28	26	20	8	0	0	0	0	0	103
22:00	0	1	1	2	5	17	26	17	5	2	1	0	0	0	77
23:00	0	0	0	0	6	12	23	33	13	0	1	0	0	0	88
24:00	0	0	1	0	1	8	12	24	6	1	2	0	0	0	55
DAY TOTAL	24	40	45	148	689	1699	2038	1127	298	67	23	6	1	2	6207
PERCENTS	0.4%	0.6%	0.7%	2.4%	11.1%	27.4%	32.8%	18.2%	4.8%	1.1%	0.4%	0.1%	0.0%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
30.0 mph

85th Percentile Speed  
42.6 mph

Median Speed  
36.2 mph

Average Speed  
36.0 mph

10 MPH Pace Speed  
30 mph to 40 mph  
2038 vehicles in pace  
Representing 33.0% of the total vehicles

Vehicles > 65 MPH  
1  
0.0%



Mass Highway Department

SPEED SUMMARY  
Fri 10/30/2020

Page: 5

Station #: 000000000153  
Site ID: 000000000601  
Location: Randolph Ave. NB, south of Pleasant St.  
Direction: NORTH  
Lane: 1

File: D1026020.prn  
City: Milton  
County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	1	0	3	10	3	4	1	0	0	0	0	22
02:00	0	0	0	0	0	1	1	3	0	0	0	0	0	0	5
03:00	0	0	0	0	1	0	0	2	0	0	0	0	0	0	3
04:00	0	0	0	0	0	0	2	1	2	2	1	0	0	0	8
05:00	0	0	0	0	2	4	10	2	5	1	0	0	0	0	24
06:00	0	0	0	2	21	56	93	90	25	8	1	0	1	0	297
DAY TOTAL	0	0	0	3	24	64	116	101	36	12	2	0	1	0	359
PERCENTS	0.0%	0.0%	0.0%	0.8%	6.7%	17.8%	32.3%	28.1%	10.0%	3.3%	0.6%	0.0%	0.3%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
32.1 mph

85th Percentile Speed  
44.9 mph

Median Speed  
38.8 mph

Average Speed  
38.9 mph

10 MPH Pace Speed  
30 mph to 40 mph  
116 vehicles in pace  
Representing 32.3% of the total vehicles

Vehicles > 65 MPH  
1  
0.3%

Mass Highway Department

SPEED SUMMARY  
 Mon 10/26/2020

Page: 1

STA. 6SB  
 SPEED

Station #: 000000000127  
 Site ID: 000000000602  
 Location: Route 28 SB, south of PleasanSt.  
 Direction: SOUTH  
 Lane: 1

File: D1026024.prn  
 City: Milton  
 County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
12:00	12	2	7	5	6	15	57	82	41	10	5	5	0	0	247
13:00	1	0	1	3	3	24	61	101	68	22	5	2	0	0	291
14:00	0	0	1	1	3	10	56	97	72	26	11	4	0	1	282
15:00	0	0	0	0	0	12	74	159	109	36	16	3	1	1	411
16:00	1	0	1	2	4	30	100	184	113	60	17	4	0	2	518
17:00	1	0	1	2	5	22	106	175	114	33	15	5	2	1	482
18:00	0	0	0	1	5	25	121	180	82	25	11	2	0	0	452
19:00	0	0	1	1	2	27	85	104	81	23	10	2	0	0	336
20:00	0	0	0	0	1	3	35	65	43	15	10	5	0	0	177
21:00	0	0	0	0	1	5	26	48	34	22	9	5	0	2	152
22:00	0	0	0	1	2	1	14	34	33	13	4	5	0	4	111
23:00	0	0	0	0	0	2	8	20	17	13	2	1	0	3	66
24:00	0	0	0	0	0	2	10	40	24	13	8	2	2	0	101
DAY TOTAL	15	2	12	16	32	178	753	1289	831	311	123	45	5	14	3626
PERCENTS	0.4%	0.1%	0.3%	0.4%	0.9%	4.9%	20.8%	35.5%	22.9%	8.6%	3.4%	1.2%	0.1%	0.4%	100.0%

Statistical Information...

15th Percentile Speed  
 37.0 mph

85th Percentile Speed  
 49.7 mph

Median Speed  
 43.1 mph

Average Speed  
 43.5 mph

10 MPH Pace Speed  
 35 mph to 45 mph  
 1289 vehicles in pace  
 Representing 35.8% of the total vehicles

Vehicles > 65 MPH  
 5  
 0.1%

Mass Highway Department

SPEED SUMMARY  
Tue 10/27/2020

Station #: 000000000127  
Site ID: 000000000602  
Location: Route 28 SB, south of PleasanSt.  
Direction: SOUTH  
Lane: 1

File: D1026024.prn  
City: Milton  
County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	1	1	2	7	5	3	2	1	0	0	22
02:00	0	0	0	0	0	0	0	0	3	2	1	0	0	0	6
03:00	0	0	0	0	0	1	3	3	2	5	1	1	0	1	17
04:00	0	0	0	0	0	1	2	3	1	1	0	0	0	0	8
05:00	0	0	0	0	0	0	1	3	0	1	0	2	1	0	8
06:00	0	0	0	1	0	1	2	10	18	5	8	1	0	1	47
07:00	0	0	0	0	0	4	25	40	40	21	9	3	1	1	144
08:00	2	0	0	1	5	11	43	100	71	37	18	2	1	1	292
09:00	3	0	3	0	6	15	56	122	74	23	11	5	0	0	318
10:00	0	0	2	0	3	8	45	102	61	24	9	5	3	0	262
11:00	1	1	0	2	5	11	49	86	41	18	8	3	0	0	225
12:00	0	0	1	2	4	15	46	99	77	18	16	3	1	1	283
13:00	1	0	1	2	21	60	88	98	58	21	5	1	0	0	356
14:00	0	0	0	0	13	29	45	98	73	26	10	2	1	2	299
15:00	0	0	0	0	1	6	55	155	121	55	20	6	0	1	420
16:00	1	0	0	0	3	11	102	222	189	60	29	8	0	1	626
17:00	0	0	0	3	3	9	104	202	130	38	19	5	0	0	513
18:00	0	1	0	0	7	13	93	159	96	31	20	4	3	2	429
19:00	0	0	0	0	1	14	77	122	70	27	16	5	0	0	332
20:00	1	0	0	0	0	7	26	75	49	13	6	5	1	0	183
21:00	0	0	0	0	1	6	31	58	46	16	6	6	2	2	174
22:00	0	0	1	0	1	4	22	37	35	12	11	5	2	1	131
23:00	0	0	0	0	1	4	10	30	23	9	4	4	1	2	88
24:00	0	0	1	0	0	2	21	23	19	20	7	2	0	0	95
DAY TOTAL	9	2	9	11	76	233	948	1854	1302	486	236	79	17	16	5278
PERCENTS	0.2%	0.0%	0.2%	0.2%	1.4%	4.4%	18.0%	35.1%	24.7%	9.2%	4.5%	1.5%	0.3%	0.3%	100.0%

Statistical Information...

15th Percentile Speed  
37.4 mph

85th Percentile Speed  
50.3 mph

Median Speed  
43.6 mph

Average Speed  
44.1 mph

10 MPH Pace Speed  
35 mph to 45 mph  
1854 vehicles in pace  
Representing 35.3% of the total vehicles

Vehicles > 65 MPH  
17  
0.3%

Mass Highway Department

SPEED SUMMARY  
Wed 10/28/2020

Page: 3

Station #: 000000000127  
Site ID: 000000000602  
Location: Route 28 SB, south of PleasanSt.  
Direction: SOUTH  
Lane: 1

File: D1026024.prn  
City: Milton  
County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	0	0	7	7	15	2	4	1	1	0	37
02:00	1	0	0	0	0	0	2	3	4	2	0	0	0	1	13
03:00	0	0	0	0	0	0	0	2	1	0	3	0	0	0	6
04:00	0	0	0	0	0	0	0	0	3	0	1	0	0	0	4
05:00	0	0	0	0	0	0	1	5	1	2	1	2	0	0	12
06:00	0	1	0	0	1	1	8	13	13	4	4	1	0	0	46
07:00	0	0	0	1	5	5	24	55	36	10	3	1	0	0	140
08:00	0	0	0	2	5	17	71	103	63	21	9	2	0	1	294
09:00	0	0	0	0	4	31	75	119	62	16	6	2	2	0	317
10:00	0	1	1	0	4	15	67	80	36	14	8	1	0	0	227
11:00	0	1	0	2	1	15	51	79	40	15	1	3	0	0	208
12:00	0	0	0	4	2	16	65	81	43	14	6	0	0	0	231
13:00	0	1	0	1	3	25	79	100	56	22	1	4	0	0	292
14:00	0	0	0	0	4	25	58	105	47	22	7	2	0	0	270
15:00	2	1	0	2	8	32	74	111	66	32	9	5	1	0	343
16:00	1	0	0	0	4	16	129	178	118	44	14	2	2	0	508
17:00	0	0	1	1	4	14	122	180	114	33	10	1	4	0	484
18:00	0	0	0	2	5	34	97	168	80	17	11	1	2	0	417
19:00	0	0	0	0	3	20	81	128	56	24	7	4	1	0	324
20:00	0	0	0	0	1	10	55	86	51	21	11	1	1	0	237
21:00	0	0	0	0	0	4	22	47	34	19	7	3	0	0	136
22:00	0	0	0	0	1	2	18	34	24	15	9	6	1	1	111
23:00	0	0	0	0	1	4	9	23	20	8	10	3	1	0	79
24:00	1	0	0	0	0	0	11	21	25	11	4	6	1	2	82
DAY TOTAL	5	5	2	15	56	286	1126	1728	1008	368	146	51	17	5	4818
PERCENTS	0.1%	0.1%	0.0%	0.3%	1.2%	5.9%	23.4%	35.9%	20.9%	7.6%	3.0%	1.1%	0.4%	0.1%	100.0%

Statistical Information...

15th Percentile Speed  
36.6 mph

85th Percentile Speed  
49.3 mph

Median Speed  
42.7 mph

Average Speed  
43.0 mph

10 MPH Pace Speed  
35 mph to 45 mph  
1728 vehicles in pace  
Representing 35.9% of the total vehicles

Vehicles > 65 MPH  
17  
0.4%



Mass Highway Department

SPEED SUMMARY  
Thu 10/29/2020

Station #: 000000000127  
Site ID: 000000000602  
Location: Route 28 SB, south of PleasanSt.  
Direction: SOUTH  
Lane: 1

File: D1026024.prn  
City: Milton  
County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	0	2	6	13	13	3	2	2	0	1	42
02:00	1	0	0	0	0	0	2	5	2	4	1	2	0	1	18
03:00	1	0	0	0	0	0	1	2	2	3	0	2	0	0	11
04:00	0	0	0	0	0	0	2	0	0	1	0	0	0	0	3
05:00	0	0	0	0	0	0	1	1	3	3	1	1	0	0	10
06:00	0	0	0	0	0	0	6	6	15	5	2	1	0	0	35
07:00	0	1	0	0	0	3	14	47	46	20	9	2	2	1	145
08:00	1	0	0	2	4	15	36	85	85	44	17	5	0	1	295
09:00	0	0	1	1	6	19	90	125	74	21	11	9	1	1	359
10:00	0	1	1	0	4	21	51	83	44	14	8	4	1	0	232
11:00	1	2	1	1	5	25	67	73	51	13	3	1	1	0	244
12:00	0	0	1	3	6	32	69	86	55	11	5	4	0	0	272
13:00	0	0	0	0	11	28	77	97	52	11	2	2	1	0	281
14:00	2	0	0	2	12	21	76	113	52	13	3	3	0	0	297
15:00	0	0	3	0	6	35	96	148	91	19	7	4	0	0	409
16:00	0	0	3	7	16	34	128	213	110	34	12	4	1	0	562
17:00	0	2	1	6	13	69	159	151	73	17	8	0	0	1	500
18:00	0	1	0	1	9	47	169	178	56	19	9	2	0	0	491
19:00	1	1	0	3	7	43	112	65	39	5	4	0	0	0	280
20:00	0	0	0	2	0	18	52	68	35	12	3	1	0	1	192
21:00	0	0	1	0	0	13	47	55	25	10	3	1	0	1	156
22:00	0	0	0	0	4	12	24	43	17	8	3	1	0	0	112
23:00	1	0	0	1	1	5	22	36	19	3	1	1	1	0	91
24:00	0	0	1	0	1	3	17	40	28	10	3	0	0	0	103
DAY TOTAL	8	8	13	29	105	445	1324	1733	987	303	117	52	8	8	5140
PERCENTS	0.2%	0.2%	0.3%	0.6%	2.0%	8.7%	25.8%	33.7%	19.2%	5.9%	2.3%	1.0%	0.2%	0.2%	100.0%

Statistical Information...

15th Percentile Speed  
35.6 mph

85th Percentile Speed  
48.5 mph

Median Speed  
41.9 mph

Average Speed  
42.0 mph

10 MPH Pace Speed  
35 mph to 45 mph  
1733 vehicles in pace  
Representing 33.8% of the total vehicles

Vehicles > 65 MPH  
8  
0.2%

Mass Highway Department

SPEED SUMMARY  
Fri 10/30/2020

Page: 5

Station #: 000000000127  
Site ID: 000000000602  
Location: Route 28 SB, south of PleasanSt.  
Direction: SOUTH  
Lane: 1

File: D1026024.prn  
City: Milton  
County: Speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	2	2	11	14	14	0	1	0	0	0	44
02:00	0	0	0	0	0	0	3	5	2	4	1	0	0	0	15
03:00	0	0	0	0	0	0	1	4	1	1	0	0	0	0	7
04:00	0	0	0	0	0	0	1	2	0	0	1	0	0	0	4
05:00	0	0	0	0	0	0	3	2	4	1	0	0	1	0	11
06:00	0	0	0	0	1	2	5	14	12	1	3	0	0	0	38
07:00	1	0	0	0	1	8	21	40	31	11	4	2	1	0	120
08:00	1	0	3	1	7	10	73	93	50	19	9	3	0	0	269
09:00	0	0	0	2	10	36	112	105	32	19	4	1	0	0	321
10:00	1	1	0	1	8	16	72	58	44	6	2	0	0	0	209
11:00	0	1	0	2	13	44	76	70	17	5	0	0	0	0	228
12:00	1	0	0	1	8	44	101	80	32	6	0	0	0	0	273
13:00	0	0	0	0	4	14	82	128	82	20	5	4	0	0	339
14:00	0	0	1	1	1	17	46	108	65	30	8	3	1	0	281
15:00	0	0	2	3	6	8	73	143	120	41	17	5	0	1	419
16:00	1	0	0	0	6	15	77	201	150	53	22	8	2	5	540
17:00	1	0	0	1	2	10	63	145	129	55	26	12	1	1	446
18:00	0	0	1	1	5	21	91	157	101	38	10	7	2	0	434
19:00	2	0	0	0	1	9	39	109	109	39	10	3	0	1	322
20:00	0	0	0	0	2	6	22	57	70	31	10	10	0	1	209
21:00	1	0	0	0	0	4	32	45	39	17	5	6	1	2	152
22:00	0	0	0	1	0	4	13	46	38	16	9	3	0	1	131
23:00	0	0	0	0	0	3	11	38	32	10	2	2	2	0	100
24:00	0	0	0	0	0	3	22	32	27	9	8	3	0	2	106
DAY TOTAL	9	2	7	14	77	276	1050	1696	1201	432	157	72	11	14	5018
PERCENTS	0.2%	0.0%	0.1%	0.3%	1.5%	5.5%	20.9%	33.8%	23.9%	8.6%	3.1%	1.4%	0.2%	0.3%	100.0%

Statistical Information...

15th Percentile Speed  
36.8 mph

85th Percentile Speed  
49.7 mph

Median Speed  
43.2 mph

Average Speed  
43.5 mph

10 MPH Pace Speed  
35 mph to 45 mph  
1696 vehicles in pace  
Representing 34.0% of the total vehicles

Vehicles > 65 MPH  
11  
0.2%

Mass Highway Department

SPEED SUMMARY  
 Mon 10/26/2020

Page: 1

Station #: 000000000150  
 Site ID: 000000000701  
 Location: Route 28 NB, south of Hillside St.  
 Direction: NORTH  
 Lane: 1

STA. 7 NB  
 SPEED

File: D1026027.prn  
 City: Milton  
 County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
13:00	0	0	1	4	12	27	68	103	75	18	10	1	0	0	319
14:00	0	0	1	4	9	22	66	122	74	14	15	3	0	0	330
15:00	1	0	4	7	8	45	96	156	73	20	9	5	0	0	424
16:00	2	0	4	8	18	51	94	124	54	29	9	2	0	0	395
17:00	0	0	5	12	25	49	118	130	65	21	6	2	0	1	434
18:00	0	7	22	27	52	108	175	177	54	17	4	1	0	0	644
19:00	1	0	0	3	14	32	114	116	58	13	5	1	0	0	357
20:00	0	0	0	1	5	10	31	77	45	14	15	3	0	0	201
21:00	0	2	1	0	2	8	21	48	41	17	3	2	0	0	145
22:00	0	0	0	0	1	5	12	33	23	15	9	3	0	0	101
23:00	0	0	0	0	0	4	10	28	34	13	6	4	0	0	99
24:00	0	0	0	1	0	0	4	14	15	5	5	3	0	0	47
DAY TOTAL	4	9	38	67	146	361	809	1128	611	196	96	30	0	1	3496
PERCENTS	0.1%	0.3%	1.1%	1.9%	4.2%	10.3%	23.1%	32.3%	17.5%	5.6%	2.7%	0.9%	0.0%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
 33.7 mph

85th Percentile Speed  
 48.4 mph

Median Speed  
 41.4 mph

Average Speed  
 41.0 mph

10 MPH Pace Speed  
 35 mph to 45 mph  
 1128 vehicles in pace  
 Representing 32.3% of the total vehicles

Vehicles > 65 MPH  
 0  
 0.0%

Mass Highway Department

SPEED SUMMARY  
Tue 10/27/2020

Page: 2

Station #: 000000000150  
Site ID: 000000000701  
Location: Route 28 NB, south of Hillside St.  
Direction: NORTH  
Lane: 1

File: D1026027.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	0	1	4	9	6	1	0	0	0	0	21
02:00	0	0	0	0	0	0	0	1	1	1	0	0	0	1	4
03:00	0	0	0	0	0	0	0	1	3	1	0	0	0	0	5
04:00	0	0	0	0	0	1	4	2	0	0	0	0	0	1	8
05:00	0	0	0	1	0	1	5	5	5	5	3	0	0	0	25
06:00	0	0	0	0	0	2	18	35	97	53	27	9	6	1	248
07:00	1	0	0	7	6	34	82	184	162	62	22	6	0	3	569
08:00	1	2	5	4	22	49	106	167	106	38	10	4	0	1	515
09:00	0	1	2	5	12	25	107	139	100	26	11	3	0	0	431
10:00	0	0	3	8	12	26	87	115	60	12	5	2	0	0	330
11:00	0	0	3	12	18	29	96	109	48	19	5	1	0	0	340
12:00	0	1	5	7	14	30	74	102	53	15	4	3	0	0	308
13:00	3	0	3	6	5	16	53	100	71	23	3	4	0	1	288
14:00	1	2	0	5	9	17	69	120	71	27	8	3	0	2	334
15:00	0	0	1	11	13	29	91	159	83	20	9	3	1	0	420
16:00	0	0	1	5	13	35	109	134	81	25	15	3	1	0	422
17:00	0	0	3	9	14	38	115	120	65	20	12	0	0	0	396
18:00	1	1	5	3	21	46	132	134	59	17	9	2	0	0	430
19:00	0	0	2	3	11	28	98	112	59	21	8	4	0	0	346
20:00	0	0	0	1	1	8	49	87	49	17	6	2	1	1	222
21:00	0	0	0	0	0	5	28	50	34	21	8	2	0	1	149
22:00	0	0	0	0	0	0	23	29	29	13	6	2	1	0	103
23:00	0	0	0	0	0	2	8	20	21	13	9	7	0	1	81
24:00	0	0	0	0	1	1	10	15	13	0	7	1	0	0	48
DAY TOTAL	7	7	33	87	172	423	1368	1949	1276	450	187	61	10	13	6043
PERCENTS	0.1%	0.1%	0.5%	1.4%	2.8%	7.0%	22.6%	32.3%	21.1%	7.4%	3.1%	1.0%	0.2%	0.2%	100.0%

Statistical Information...

15th Percentile Speed  
35.7 mph

85th Percentile Speed  
49.2 mph

Median Speed  
42.4 mph

Average Speed  
42.3 mph

10 MPH Pace Speed  
35 mph to 45 mph  
1949 vehicles in pace  
Representing 32.4% of the total vehicles

Vehicles > 65 MPH  
10  
0.2%



Mass Highway Department

SPEED SUMMARY  
Wed 10/28/2020

Page: 3

Station #: 000000000150  
Site ID: 000000000701  
Location: Route 28 NB, south of Hillside St.  
Direction: NORTH  
Lane: 1

File: D1026027.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	0	2	3	11	5	2	1	1	0	0	25
02:00	0	1	0	0	1	0	1	0	3	0	0	0	0	0	6
03:00	1	0	0	0	0	0	0	2	1	1	0	0	0	0	5
04:00	0	0	0	0	0	1	0	4	1	1	1	0	0	0	8
05:00	0	0	0	2	0	1	2	5	10	2	3	2	0	0	27
06:00	0	1	0	0	7	4	11	51	94	38	32	13	1	0	252
07:00	0	0	2	8	15	47	140	159	125	46	24	6	2	0	574
08:00	4	5	8	12	28	62	158	196	58	17	4	0	0	0	552
09:00	0	0	1	4	13	47	111	135	60	19	3	0	0	0	393
10:00	0	0	2	2	6	23	64	150	66	9	4	1	0	0	327
11:00	0	0	2	9	18	38	83	71	60	8	6	1	1	0	297
12:00	5	7	3	7	18	39	87	113	36	9	4	1	0	0	329
13:00	2	2	4	8	17	39	68	96	55	14	2	2	0	0	309
14:00	2	0	0	2	17	26	79	91	67	11	5	5	1	0	306
15:00	1	0	4	4	22	37	125	150	54	29	6	1	0	0	433
16:00	1	0	1	5	15	66	106	127	69	13	7	0	0	0	410
17:00	0	1	3	14	23	38	109	121	59	15	1	0	0	0	384
18:00	0	0	2	7	17	60	134	144	46	8	3	1	0	0	422
19:00	3	1	3	1	13	35	96	125	57	13	2	3	0	0	352
20:00	0	1	3	1	2	16	46	113	58	22	5	2	0	0	269
21:00	1	0	0	0	2	5	19	52	38	17	7	3	1	0	145
22:00	0	0	0	0	2	3	15	34	34	15	12	2	0	0	117
23:00	0	0	0	0	0	3	6	32	32	17	6	2	2	0	100
24:00	1	1	0	1	0	0	4	21	11	6	5	1	0	3	54
DAY TOTAL	21	20	38	87	236	592	1467	2003	1099	332	143	47	8	3	6096
PERCENTS	0.3%	0.3%	0.6%	1.4%	3.9%	9.7%	24.1%	32.9%	18.0%	5.4%	2.3%	0.8%	0.1%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
34.5 mph

85th Percentile Speed  
48.3 mph

Median Speed  
41.5 mph

Average Speed  
41.2 mph

10 MPH Pace Speed  
35 mph to 45 mph  
2003 vehicles in pace  
Representing 33.0% of the total vehicles

Vehicles > 65 MPH  
8  
0.1%

Mass Highway Department

SPEED SUMMARY  
Thu 10/29/2020

Page: 4

Station #: 00000000150  
Site ID: 00000000701  
Location: Route 28 NB, south of Hillside St.  
Direction: NORTH  
Lane: 1

File: D1026027.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	0	1	5	4	5	7	1	0	1	0	24
02:00	0	0	0	0	0	0	0	5	5	2	0	0	0	0	12
03:00	0	0	0	0	0	1	1	0	2	0	1	0	0	0	5
04:00	0	0	0	0	0	0	0	1	1	0	1	0	0	0	3
05:00	0	0	0	1	0	0	5	5	8	6	4	0	0	0	29
06:00	0	0	1	10	20	26	40	53	55	22	26	15	4	1	273
07:00	15	19	30	56	67	88	107	92	59	12	10	3	0	0	558
08:00	24	16	23	60	74	97	85	104	40	10	3	0	0	0	536
09:00	1	2	9	20	52	96	87	90	49	16	5	2	0	0	429
10:00	7	11	22	29	49	63	82	57	25	4	3	0	0	0	352
11:00	3	1	5	21	30	45	82	58	28	12	3	0	0	0	288
12:00	3	2	10	25	45	63	97	68	21	3	3	1	0	0	341
13:00	9	5	14	19	53	64	83	54	27	2	3	1	0	0	334
14:00	3	3	10	38	54	72	69	63	22	3	1	0	0	0	338
15:00	25	21	30	34	66	81	93	71	16	7	2	0	0	0	446
16:00	1	10	12	29	42	86	97	77	28	1	0	0	0	0	383
17:00	7	1	7	27	58	69	133	59	17	3	1	0	0	0	382
18:00	7	14	18	33	86	137	94	59	9	2	0	0	0	0	459
19:00	5	2	7	33	77	76	66	40	12	3	1	1	0	0	323
20:00	0	0	2	15	25	38	42	42	21	3	1	0	0	0	189
21:00	0	1	0	3	19	30	31	25	11	2	2	1	0	0	125
22:00	0	0	0	3	8	22	20	19	13	5	1	1	0	0	92
23:00	0	0	0	2	5	12	27	29	13	1	3	0	0	0	92
24:00	0	0	0	1	3	10	14	14	9	1	1	2	0	0	55
DAY TOTAL	110	108	200	459	833	1177	1360	1089	496	127	76	27	5	1	6068
PERCENTS	1.8%	1.8%	3.3%	7.6%	13.7%	19.4%	22.4%	17.9%	8.2%	2.1%	1.3%	0.4%	0.1%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
25.8 mph

85th Percentile Speed  
44.3 mph

Median Speed  
35.8 mph

Average Speed  
35.3 mph

10 MPH Pace Speed  
30 mph to 40 mph  
1360 vehicles in pace  
Representing 22.8% of the total vehicles

Vehicles > 65 MPH  
5  
0.1%

Mass Highway Department

SPEED SUMMARY  
Fri 10/30/2020

Page: 5

Station #: 000000000150  
Site ID: 000000000701  
Location: Route 28 NB, south of Hillside St.  
Direction: NORTH  
Lane: 1

File: D1026027.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	1	2	4	7	6	4	2	0	0	0	1	27
02:00	0	0	0	0	0	4	1	3	2	0	2	0	0	0	12
03:00	0	0	0	0	0	0	0	2	0	1	0	0	0	0	3
04:00	0	0	0	0	0	3	2	0	3	0	0	0	0	0	8
05:00	0	0	0	2	3	3	6	3	2	2	0	0	0	0	21
06:00	2	1	9	29	42	29	33	44	27	11	4	6	0	0	237
07:00	3	5	19	71	77	76	106	62	28	4	4	0	0	0	455
08:00	11	10	27	54	66	113	114	58	20	8	0	0	0	0	481
09:00	7	3	5	21	45	88	89	68	22	4	0	0	0	0	352
10:00	1	11	12	28	49	82	77	38	15	4	0	0	0	0	317
11:00	0	9	19	53	60	88	62	11	4	0	0	0	0	0	306
12:00	0	11	25	44	67	97	47	14	3	0	0	0	0	0	308
13:00	0	2	9	18	66	83	72	25	11	1	1	0	0	0	288
14:00	13	11	25	40	81	99	90	46	13	1	0	0	0	0	419
15:00	12	3	16	51	75	73	72	72	18	2	0	0	0	0	394
16:00	8	12	12	42	52	67	99	60	18	3	0	0	0	0	373
17:00	3	1	9	43	40	71	102	44	15	3	1	0	0	1	333
18:00	13	12	15	23	55	86	129	67	11	3	1	0	0	0	415
19:00	5	5	15	36	44	66	91	48	12	0	0	2	0	0	324
20:00	0	0	2	4	28	46	69	44	12	2	0	0	0	0	207
21:00	0	1	0	0	2	9	46	62	32	8	3	3	0	0	166
22:00	3	0	0	0	0	0	26	42	34	10	6	3	0	1	125
23:00	0	0	3	0	0	3	27	36	42	8	7	4	0	0	130
24:00	0	0	0	1	0	5	13	31	28	4	8	3	1	0	94
DAY TOTAL	81	97	222	561	854	1195	1380	886	376	81	37	21	1	3	5795
PERCENTS	1.4%	1.7%	3.8%	9.7%	14.7%	20.6%	23.8%	15.3%	6.5%	1.4%	0.6%	0.4%	0.0%	0.1%	100.0%

Statistical Information...

15th Percentile Speed  
24.8 mph

85th Percentile Speed  
43.1 mph

Median Speed  
34.7 mph

Average Speed  
34.2 mph

10 MPH Pace Speed  
30 mph to 40 mph  
1380 vehicles in pace  
Representing 24.2% of the total vehicles

Vehicles > 65 MPH  
1  
0.0%

Mass Highway Department

SPEED SUMMARY  
Sat 10/31/2020

Page: 6

Station #: 00000000150  
Site ID: 00000000701  
Location: Route 28 NB, south of Hillside St.  
Direction: NORTH  
Lane: 1

File: D1026027.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	0	1	5	13	6	6	1	1	0	0	33
02:00	0	0	0	0	1	1	4	4	10	3	1	0	0	0	24
03:00	0	0	0	0	0	1	1	2	1	2	0	2	0	2	11
04:00	0	0	0	0	0	0	0	3	2	1	0	0	0	0	6
05:00	0	0	0	3	1	0	5	3	2	2	2	0	1	0	19
06:00	0	0	1	0	1	1	3	15	11	3	1	1	0	0	37
07:00	0	0	0	0	0	4	10	32	37	9	8	2	0	0	102
08:00	0	0	0	0	2	3	11	31	32	14	5	5	0	0	103
09:00	0	0	0	2	4	8	31	60	45	17	7	0	1	0	175
10:00	0	0	1	6	10	15	36	74	35	17	10	0	0	2	206
11:00	0	0	3	12	14	33	74	83	40	14	2	2	0	0	277
12:00	3	6	9	18	33	61	82	84	49	7	6	1	1	0	360
13:00	2	0	7	12	26	47	106	73	45	10	2	0	0	0	330
14:00	3	5	11	15	42	63	106	69	35	14	4	4	1	1	373
15:00	2	2	17	30	34	71	116	106	50	17	6	0	0	0	451
16:00	2	11	12	23	57	62	90	98	46	14	7	1	0	0	423
17:00	8	8	24	30	53	46	84	80	39	11	2	1	0	0	386
18:00	3	8	12	35	66	52	90	89	25	9	0	0	0	0	389
19:00	0	3	9	30	75	58	74	48	18	6	1	1	0	1	324
20:00	2	2	2	1	12	23	60	77	47	12	5	3	0	0	246
21:00	0	0	0	0	1	10	43	64	39	18	12	2	0	0	189
22:00	0	0	0	1	0	5	22	46	50	17	5	4	0	1	151
23:00	0	0	0	0	2	8	18	49	41	19	13	3	1	0	154
24:00	1	0	0	0	4	8	15	30	23	9	6	2	0	1	99
DAY TOTAL	26	45	108	218	438	581	1086	1233	728	251	106	35	5	8	4868
PERCENTS	0.5%	0.9%	2.2%	4.5%	9.0%	11.9%	22.3%	25.3%	15.0%	5.2%	2.2%	0.7%	0.1%	0.2%	100.0%

Statistical Information...

15th Percentile Speed  
29.1 mph

85th Percentile Speed  
47.8 mph

Median Speed  
39.7 mph

Average Speed  
38.9 mph

10 MPH Pace Speed  
35 mph to 45 mph  
1233 vehicles in pace  
Representing 25.5% of the total vehicles

Vehicles > 65 MPH  
5  
0.1%



Mass Highway Department

SPEED SUMMARY  
Sun 11/1/2020

Station #: 00000000150  
Site ID: 00000000701  
Location: Route 28 NB, south of Hillside St.  
Direction: NORTH  
Lane: 1

File: D1026027.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	0	2	1	19	26	10	4	2	3	2	69
02:00	0	0	0	0	3	3	10	13	12	8	4	3	0	1	57
03:00	0	0	0	0	0	2	1	6	2	0	0	1	0	1	13
04:00	0	0	0	0	0	2	1	6	1	1	0	0	0	0	11
05:00	0	0	0	0	1	2	1	6	1	2	0	0	0	0	13
06:00	0	0	0	0	0	2	2	5	10	2	0	3	0	0	24
07:00	0	0	0	0	1	5	18	18	14	9	7	1	1	0	74
08:00	1	0	0	0	2	7	13	20	18	14	1	0	1	0	77
09:00	0	0	1	0	14	18	31	25	19	12	4	0	0	0	124
10:00	1	0	1	10	20	29	62	40	27	7	3	2	0	0	202
11:00	1	0	2	14	21	43	76	72	25	7	6	2	0	0	269
12:00	3	1	12	19	35	60	91	76	33	9	4	0	1	0	344
13:00	1	1	5	24	59	51	68	85	37	9	4	2	0	0	346
14:00	0	1	10	19	38	55	95	71	41	8	9	1	0	0	348
15:00	3	0	6	30	51	72	71	91	39	10	4	1	1	0	379
16:00	0	3	3	11	38	72	100	67	34	9	3	0	0	0	340
17:00	2	1	12	23	51	51	81	80	26	7	1	0	0	0	335
DAY TOTAL	12	7	52	150	334	476	722	700	365	124	54	18	7	4	3025
PERCENTS	0.4%	0.2%	1.7%	5.0%	11.0%	15.7%	23.9%	23.1%	12.1%	4.1%	1.8%	0.6%	0.2%	0.1%	100.0%

Statistical Information...

15th Percentile Speed  
28.6 mph

85th Percentile Speed  
46.6 mph

Median Speed  
38.4 mph

Average Speed  
38.0 mph

10 MPH Pace Speed  
30 mph to 40 mph  
722 vehicles in pace  
Representing 24.0% of the total vehicles

Vehicles > 65 MPH  
7  
0.2%

Mass Highway Department

SPEED SUMMARY  
Mon 10/26/2020

Page: 1

STA. 7SB

Station #: 000000000068  
Site ID: 000000000702  
Location: Route 28 SB, south of Hillside St.  
Direction: SOUTH  
Lane: 1

File: D1026029.prn  
City: Milton  
County: speed

SPEED

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
13:00	0	0	2	4	27	56	103	85	35	6	2	0	0	0	320
14:00	5	1	2	8	17	50	114	89	34	9	3	0	0	1	333
15:00	0	0	0	12	37	60	150	134	56	11	2	0	0	0	462
16:00	0	0	1	17	57	122	206	153	48	9	3	0	0	0	616
17:00	1	2	7	31	73	114	157	122	50	4	3	1	0	0	565
18:00	0	0	0	5	30	105	178	120	37	5	0	0	0	0	480
19:00	0	0	1	3	18	52	125	120	47	9	2	0	0	0	377
20:00	0	0	1	0	7	13	63	79	36	5	11	2	0	0	217
21:00	0	0	0	1	0	14	45	60	26	6	4	1	1	0	158
22:00	0	0	0	0	0	10	30	50	28	12	2	2	0	0	134
23:00	0	0	0	0	1	6	13	27	23	9	1	1	0	0	81
24:00	0	0	0	0	0	3	25	56	23	7	5	2	1	1	123
DAY TOTAL	6	3	14	81	267	605	1209	1095	443	92	38	9	2	2	3866
PERCENTS	0.2%	0.1%	0.4%	2.1%	6.9%	15.6%	31.3%	28.3%	11.5%	2.4%	1.0%	0.2%	0.1%	0.1%	100.0%

Statistical Information...

15th Percentile Speed  
31.8 mph

85th Percentile Speed  
45.1 mph

Median Speed  
39.0 mph

Average Speed  
38.8 mph

10 MPH Pace Speed  
30 mph to 40 mph  
1209 vehicles in pace  
Representing 31.3% of the total vehicles

Vehicles > 65 MPH  
2  
0.1%

Mass Highway Department

SPEED SUMMARY  
Tue 10/27/2020

Page: 2

Station #: 000000000068  
Site ID: 000000000702  
Location: Route 28 SB, south of Hillside St.  
Direction: SOUTH  
Lane: 1

File: D1026029.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	0	1	6	10	11	2	0	0	0	0	30
02:00	0	0	0	0	1	0	2	6	0	0	0	0	0	0	9
03:00	0	0	0	0	0	3	3	0	10	3	0	0	0	0	19
04:00	0	0	0	0	0	1	2	4	3	1	1	0	0	0	12
05:00	0	0	0	0	0	0	3	2	1	2	0	0	0	0	8
06:00	0	0	1	1	0	2	6	24	18	3	1	0	0	0	56
07:00	0	1	0	1	8	20	26	49	31	14	4	2	0	0	156
08:00	0	1	0	7	6	32	90	86	53	18	3	2	0	0	298
09:00	0	0	0	10	21	47	106	95	48	19	10	0	0	0	356
10:00	0	0	4	13	35	43	83	58	18	4	1	0	0	0	259
11:00	4	1	3	3	20	50	87	54	23	6	2	0	0	0	253
12:00	1	0	7	10	27	57	90	84	20	7	2	1	0	0	306
13:00	0	0	0	6	29	65	90	77	39	6	1	0	0	0	313
14:00	0	0	0	4	20	57	105	96	35	9	5	1	0	1	333
15:00	1	0	2	4	19	65	145	158	63	14	5	1	0	0	477
16:00	3	4	7	14	63	148	231	134	44	12	2	0	0	0	662
17:00	2	3	8	8	56	113	182	136	51	9	1	0	0	0	569
18:00	0	0	1	3	40	80	153	146	41	13	2	1	0	0	480
19:00	0	0	2	0	11	53	136	91	51	7	4	1	0	0	356
20:00	0	0	0	0	2	27	68	71	46	13	1	1	0	0	229
21:00	1	0	0	0	0	7	50	78	43	15	4	1	0	0	199
22:00	0	0	0	1	3	7	44	54	24	8	2	0	0	0	143
23:00	0	0	0	0	1	8	26	35	23	12	3	2	1	0	111
24:00	0	0	0	0	0	5	31	30	28	10	2	0	0	0	106
DAY TOTAL	12	10	35	85	362	891	1765	1578	724	207	56	13	1	1	5740
PERCENTS	0.2%	0.2%	0.6%	1.5%	6.3%	15.5%	30.7%	27.5%	12.6%	3.6%	1.0%	0.2%	0.0%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
32.1 mph

85th Percentile Speed  
46.0 mph

Median Speed  
39.2 mph

Average Speed  
39.2 mph

10 MPH Pace Speed  
30 mph to 40 mph  
1765 vehicles in pace  
Representing 30.8% of the total vehicles

Vehicles > 65 MPH  
1  
0.0%

Mass Highway Department

SPEED SUMMARY  
Wed 10/28/2020

Station #: 000000000068  
Site ID: 000000000702  
Location: Route 28 SB, south of Hillside St.  
Direction: SOUTH  
Lane: 1

File: D1026029.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	0	4	8	21	6	7	2	0	0	0	48
02:00	0	0	0	0	0	1	4	7	5	0	1	0	0	0	18
03:00	0	0	0	0	0	0	1	1	5	1	0	0	0	0	8
04:00	0	0	0	0	0	0	3	4	2	0	0	0	0	0	9
05:00	0	0	0	0	0	0	2	7	2	2	0	0	0	0	13
06:00	1	1	1	2	0	2	15	12	7	6	1	0	0	0	48
07:00	0	0	1	1	11	18	54	34	23	1	1	0	0	0	144
08:00	0	0	7	15	9	69	100	75	27	9	1	0	0	0	312
09:00	0	0	2	4	33	75	123	60	26	3	1	0	0	0	327
10:00	2	0	1	8	18	51	82	75	19	4	1	0	0	0	261
11:00	0	0	1	8	42	66	90	57	26	2	0	0	0	0	292
12:00	0	0	1	7	24	69	94	67	15	1	1	0	0	0	279
13:00	1	0	2	25	37	75	112	71	21	2	0	1	0	0	347
14:00	0	0	1	4	31	82	105	83	25	5	1	0	0	0	337
15:00	3	2	4	8	35	104	146	94	24	4	0	0	0	0	424
16:00	107	14	16	26	51	116	131	82	18	4	0	0	0	0	565
17:00	2	2	11	13	39	106	190	123	30	7	1	0	0	0	524
18:00	0	0	0	0	21	118	179	126	40	3	4	1	0	0	492
19:00	0	0	0	4	26	62	125	90	35	7	1	0	0	0	350
20:00	0	0	2	1	5	26	71	103	38	17	5	0	0	0	268
21:00	0	0	0	0	0	9	40	65	37	12	1	2	0	1	167
22:00	0	0	0	0	1	7	24	44	38	11	1	0	1	0	127
23:00	0	0	0	0	1	6	15	35	27	9	2	1	0	1	97
24:00	0	1	0	0	1	2	20	41	32	11	5	1	0	0	114
DAY TOTAL	116	20	50	126	385	1068	1734	1377	528	128	30	6	1	2	5571
PERCENTS	2.1%	0.4%	0.9%	2.3%	6.9%	19.2%	31.1%	24.7%	9.5%	2.3%	0.5%	0.1%	0.0%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
31.1 mph

85th Percentile Speed  
44.6 mph

Median Speed  
38.1 mph

Average Speed  
37.9 mph

10 MPH Pace Speed  
30 mph to 40 mph  
1734 vehicles in pace  
Representing 31.8% of the total vehicles

Vehicles > 65 MPH  
1  
0.0%



Mass Highway Department

SPEED SUMMARY  
Thu 10/29/2020

Page: 4

Station #: 000000000068  
Site ID: 000000000702  
Location: Route 28 SB, south of Hillside St.  
Direction: SOUTH  
Lane: 1

File: D1026029.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	1	0	0	0	1	1	13	14	14	6	2	0	0	0	52
02:00	0	0	0	0	1	0	2	5	3	2	1	1	0	0	15
03:00	0	0	0	0	0	0	0	3	6	1	2	1	0	1	14
04:00	0	0	0	0	0	0	2	2	1	2	0	0	0	0	7
05:00	0	0	0	0	0	0	1	5	3	1	0	0	0	0	10
06:00	0	0	0	1	0	11	15	11	5	7	2	0	0	0	52
07:00	0	1	1	1	6	25	63	30	10	2	1	1	0	0	141
08:00	2	0	3	2	32	79	94	42	11	7	3	0	0	0	275
09:00	0	0	3	9	67	116	98	39	13	2	0	0	0	0	347
10:00	1	4	10	23	58	58	53	21	9	1	1	0	0	0	239
11:00	3	0	4	25	69	98	55	23	7	1	0	0	0	0	285
12:00	3	3	6	21	108	74	57	13	3	0	0	0	0	0	288
13:00	0	0	7	49	116	100	53	13	0	0	0	0	0	0	338
14:00	2	0	1	13	71	130	80	25	4	0	0	0	0	0	326
15:00	6	5	18	47	131	166	65	11	5	0	0	0	0	0	454
16:00	2	2	44	102	194	160	78	14	2	0	0	0	0	0	598
17:00	3	6	46	107	224	122	50	7	0	0	0	0	0	0	565
18:00	2	0	14	59	207	165	44	17	2	0	0	0	0	0	510
19:00	1	0	7	26	129	134	68	14	2	1	0	0	0	0	382
20:00	0	0	2	4	41	89	80	21	5	0	0	0	0	0	242
21:00	0	0	1	2	22	68	66	25	10	1	0	0	0	0	195
22:00	0	0	0	2	12	37	57	18	5	2	0	0	0	0	133
23:00	0	0	0	0	4	38	44	10	9	0	0	0	0	0	105
24:00	0	0	0	0	13	38	57	20	0	1	1	0	0	0	130
DAY TOTAL	26	21	167	493	1506	1709	1195	403	129	37	13	3	0	1	5703
PERCENTS	0.5%	0.4%	2.9%	8.6%	26.4%	30.0%	21.0%	7.1%	2.3%	0.6%	0.2%	0.1%	0.0%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
25.6 mph

85th Percentile Speed  
38.9 mph

Median Speed  
31.9 mph

Average Speed  
32.1 mph

10 MPH Pace Speed  
25 mph to 35 mph  
1709 vehicles in pace  
Representing 30.1% of the total vehicles

Vehicles > 65 MPH  
0  
0.0%

Mass Highway Department

SPEED SUMMARY  
Fri 10/30/2020

Page: 5

Station #: 00000000068  
Site ID: 00000000702  
Location: Route 28 SB, south of Hillside St.  
Direction: SOUTH  
Lane: 1

File: D1026029.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	3	13	18	10	3	0	0	0	0	0	47
02:00	0	0	0	0	0	5	2	3	2	1	1	0	0	0	14
03:00	0	0	0	0	0	3	2	3	4	0	0	0	0	0	12
04:00	0	0	0	0	0	1	2	2	1	0	0	0	0	0	6
05:00	0	0	0	0	1	2	2	8	1	1	0	0	0	0	15
06:00	0	0	0	2	2	15	15	11	4	1	0	0	0	0	50
07:00	0	0	1	6	14	31	37	20	12	3	1	0	0	0	125
08:00	0	2	0	12	40	86	92	29	6	1	0	0	0	0	268
09:00	0	0	1	17	105	128	56	13	0	0	0	0	0	0	320
10:00	0	0	3	16	56	87	65	17	3	0	0	0	0	0	247
11:00	2	2	10	9	49	72	70	27	5	1	1	0	0	0	248
12:00	1	0	6	16	37	84	84	42	11	5	0	0	0	0	286
13:00	6	8	14	28	64	139	94	19	4	0	0	0	0	0	376
14:00	2	5	9	39	117	105	58	11	2	0	0	0	0	0	348
15:00	0	0	6	65	151	163	56	12	1	0	1	0	0	0	455
16:00	7	12	64	108	179	138	39	5	1	0	0	0	0	0	553
17:00	1	4	20	71	160	132	45	9	0	1	0	0	0	0	443
18:00	1	0	17	83	177	134	49	7	0	0	0	0	0	0	468
19:00	3	0	9	24	84	113	91	20	3	1	0	0	0	0	348
20:00	0	0	1	1	32	98	81	20	4	3	0	0	0	0	240
21:00	0	0	2	3	4	23	64	47	23	4	4	0	0	0	174
22:00	0	0	0	0	2	8	47	63	19	4	3	1	0	0	147
23:00	0	0	0	0	1	11	29	42	16	4	1	0	1	0	105
24:00	0	0	1	0	2	22	47	35	15	4	1	0	0	0	127
DAY TOTAL	23	33	164	500	1280	1613	1145	475	140	34	13	1	1	0	5422
PERCENTS	0.4%	0.6%	3.0%	9.2%	23.6%	29.7%	21.1%	8.8%	2.6%	0.6%	0.2%	0.0%	0.0%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
25.5 mph

85th Percentile Speed  
39.4 mph

Median Speed  
32.2 mph

Average Speed  
32.3 mph

10 MPH Pace Speed  
25 mph to 35 mph  
1613 vehicles in pace  
Representing 29.9% of the total vehicles

Vehicles > 65 MPH  
1  
0.0%

Mass Highway Department

SPEED SUMMARY  
Sat 10/31/2020

Page: 6

Station #: 00000000068  
Site ID: 00000000702  
Location: Route 28 SB, south of Hillside St.  
Direction: SOUTH  
Lane: 1

File: D1026029.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	1	1	3	17	25	9	1	0	1	0	0	58
02:00	0	0	0	0	1	2	6	12	5	1	0	0	0	0	27
03:00	0	0	0	0	0	0	2	8	6	0	0	1	0	0	17
04:00	0	0	0	1	0	3	6	3	1	0	0	0	0	0	14
05:00	0	0	0	0	0	1	3	5	0	0	0	0	0	0	9
06:00	0	1	2	2	3	3	7	6	2	0	0	0	0	0	26
07:00	0	0	0	1	2	4	10	14	3	2	0	0	0	0	36
08:00	0	0	1	4	4	12	36	42	19	8	2	0	0	0	128
09:00	0	0	1	2	4	24	55	63	15	4	0	0	0	0	168
10:00	1	0	3	5	27	55	52	48	17	9	1	1	0	0	219
11:00	0	0	4	15	59	88	73	16	8	5	0	0	0	0	268
12:00	1	0	7	25	76	119	66	16	3	0	0	0	0	0	313
13:00	3	3	26	49	109	114	68	22	3	1	3	0	0	0	401
14:00	2	0	15	26	88	162	90	27	2	1	0	0	0	0	413
15:00	2	1	6	23	75	150	125	26	7	1	1	0	0	0	417
16:00	1	2	3	21	71	162	103	36	6	1	0	0	0	0	406
17:00	0	0	8	15	86	115	105	36	7	2	0	0	0	0	374
18:00	2	0	0	12	92	151	94	30	6	1	1	0	0	0	389
19:00	0	0	0	1	75	117	84	26	10	0	0	0	0	0	313
20:00	0	0	1	4	20	54	102	62	27	4	0	0	0	0	274
21:00	0	0	0	1	8	33	67	63	30	7	0	0	0	0	209
22:00	0	0	0	0	3	24	67	74	21	7	4	0	0	0	200
23:00	0	0	0	0	2	13	46	50	25	6	0	0	0	0	142
24:00	0	0	0	0	2	30	46	40	16	4	2	0	0	0	140
DAY TOTAL	12	7	77	208	808	1439	1330	750	248	65	14	3	0	0	4961
PERCENTS	0.2%	0.1%	1.6%	4.2%	16.3%	29.0%	26.8%	15.1%	5.0%	1.3%	0.3%	0.1%	0.0%	0.0%	100.0%

Statistical Information...

15th Percentile Speed  
27.8 mph

85th Percentile Speed  
42.3 mph

Median Speed  
34.8 mph

Average Speed  
35.0 mph

10 MPH Pace Speed  
25 mph to 35 mph  
1439 vehicles in pace  
Representing 29.1% of the total vehicles

Vehicles > 65 MPH  
0  
0.0%

Mass Highway Department

SPEED SUMMARY  
Sun 11/1/2020

Page: 7

Station #: 000000000068  
Site ID: 000000000702  
Location: Route 28 SB, south of Hillside St.  
Direction: SOUTH  
Lane: 1

File: D1026029.prn  
City: Milton  
County: speed

TIME	<10	<15	<20	<25	<30	<35	<40	<45	<50	<55	<60	<65	<70	<120	Total
01:00	0	0	0	0	1	7	24	29	17	7	3	3	0	1	92
02:00	0	0	0	0	5	5	20	28	10	6	2	0	1	1	78
03:00	0	0	0	1	0	5	7	8	2	2	0	0	0	0	25
04:00	0	0	0	1	1	2	4	3	2	0	1	1	0	0	15
05:00	0	0	0	0	1	1	4	1	0	1	0	0	0	0	8
06:00	0	0	0	0	1	3	10	9	2	1	0	0	0	0	26
07:00	1	0	0	0	4	14	12	14	6	1	0	0	0	0	52
08:00	0	0	0	3	7	33	40	20	11	3	0	0	0	0	117
09:00	0	0	0	0	19	60	59	20	5	1	0	0	0	0	164
10:00	0	1	3	19	36	62	56	16	7	3	0	1	1	0	205
11:00	0	0	0	11	71	95	71	18	7	0	0	0	0	0	273
12:00	0	0	5	18	64	113	84	27	4	1	0	0	0	0	316
13:00	2	1	4	11	60	115	74	20	2	0	0	0	0	0	289
14:00	3	6	9	23	70	114	78	24	3	2	0	0	0	0	332
15:00	0	0	6	18	70	125	96	22	3	1	0	0	0	0	341
16:00	2	1	7	24	107	90	56	15	1	0	0	0	0	0	303
17:00	1	0	0	28	93	109	57	16	3	1	0	0	0	0	308
18:00	2	0	0	5	64	77	53	20	4	0	0	0	0	0	225
19:00	1	0	0	3	53	90	62	24	2	0	0	0	0	0	235
20:00	0	0	0	5	28	49	61	20	2	4	0	0	0	0	169
21:00	0	0	0	8	38	62	32	9	4	0	0	0	0	0	153
22:00	0	0	0	2	15	43	38	14	3	0	0	0	0	0	115
23:00	0	0	0	0	9	21	21	9	0	1	0	0	0	0	61
DAY TOTAL	12	9	34	180	817	1295	1019	386	100	35	6	5	2	2	3902
PERCENTS	0.3%	0.2%	0.9%	4.6%	20.9%	33.2%	26.1%	9.9%	2.6%	0.9%	0.2%	0.1%	0.1%	0.1%	100.0%

Statistical Information...

15th Percentile Speed  
27.2 mph

85th Percentile Speed  
39.8 mph

Median Speed  
33.5 mph

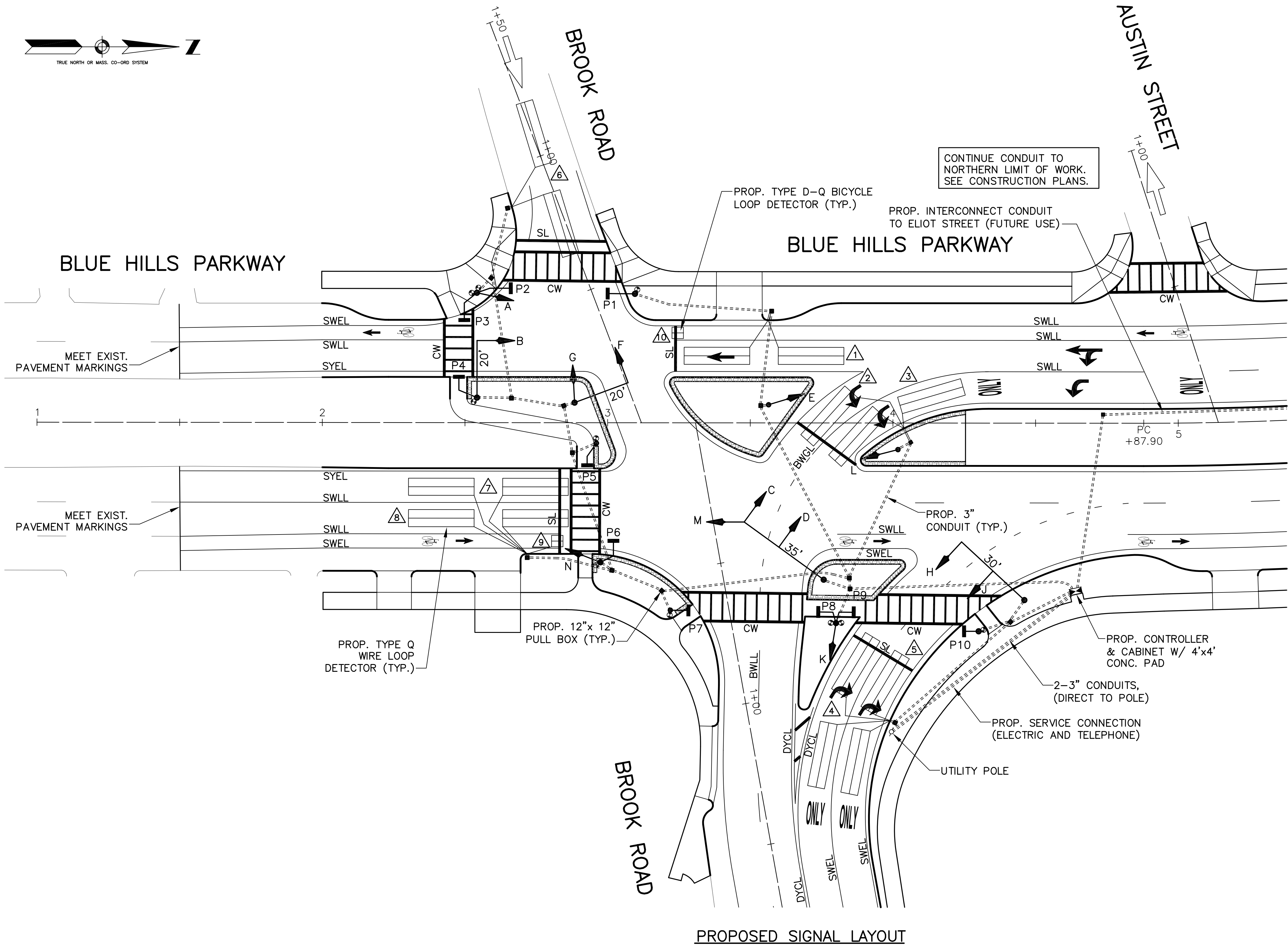
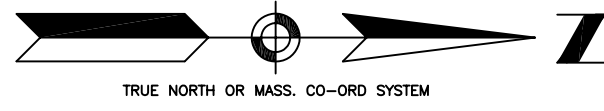
Average Speed  
33.8 mph

10 MPH Pace Speed  
25 mph to 35 mph  
1295 vehicles in pace  
Representing 33.3% of the total vehicles

Vehicles > 65 MPH  
2  
0.1%



## **Part 4: Signal Timing and Layout Information**



PROPOSED SIGNAL LAYOUT

C:\31006\3159 - Milton-Blue Hills Parkway\Drawing Files\Plan Set\base-bid\3159 15-Signal Plan.dwg Oct. 07, 2010 6:01pm

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS	DESCRIPTION

DRAWN BY:	DS
DESIGNED BY:	JF
CHECKED BY:	CMR

315 Norwood Park South  
Norwood, MA 02062  
781.255.1982 fax: 781.255.1974  
email: BETA@BETA-inc.com

SCALE:

SCALE: 1:20 (IN FEET)

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

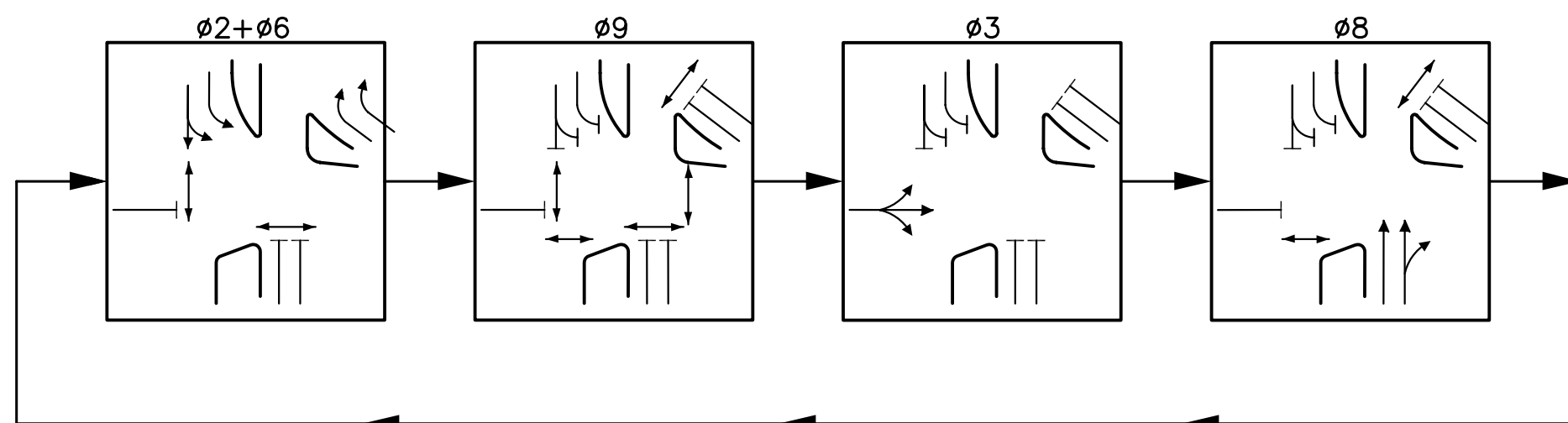
Blue Hills Parkway/Brook Road

## TRAFFIC SIGNAL PLAN

Milton, Massachusetts

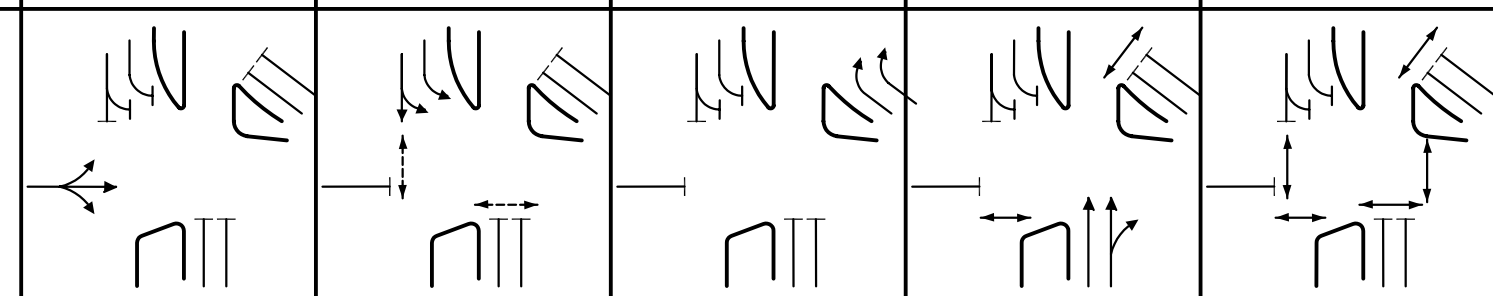
JOB	3159
FILE NO.	
PLOT DATE	October 07, 2010
SHEET	15 OF 27

**PREFERENTIAL SIGNAL PHASING**



**SEQUENCE AND TIMING FOR FULLY ACTUATED TRAFFIC SIGNAL CONTROL (ISOLATED)**

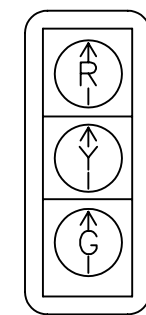
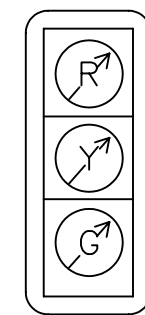
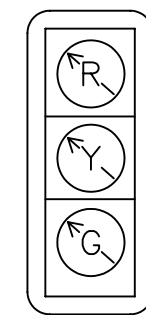
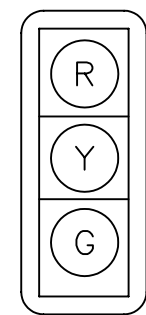
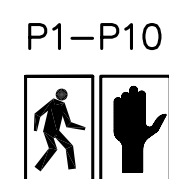
PHASE			ø3 (EB)			ø2 (SB)			ø6 (WB)			ø8 (NB)			ø9 (PED.)			FLASH
STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	13	14	15	16	17	18	OPER.
BROOK RD	EB	F,G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
BLUE HILLS PKWY	SB	A,B	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	FY
BLUE HILLS PKWY	SB	C,D,E	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	FR
BROOK RD	WB	H,J,K	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	FY
BLUE HILLS PKWY	NB	L	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	FR
BLUE HILLS PKWY	NB	M,N	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
PEDESTRIAN	-	P1-P2	DW	DW	DW	W/FDW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OFF
PEDESTRIAN	-	P3-P4	DW	DW	DW	DW	DW	DW	DW	DW	DW	W/FDW	DW	DW	W	FDW	DW	OFF
PEDESTRIAN	-	P5-P6	DW	DW	DW	W/FDW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OFF
PEDESTRIAN	-	P7-P8	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OFF
PEDESTRIAN	-	P9-P10	DW	DW	DW	DW	DW	DW	DW	DW	DW	W/FDW	DW	DW	W	FDW	DW	OFF
TIMING IN SECONDS																		
MINIMUM GREEN			10			10			10			10						EMERGENCY ONLY
VEHICLE EXTENSION			3			3			3			3						
MAXIMUM 1 TIMING (ALL OTHER TIMES)			40			40			40			40						
MAXIMUM 2 TIMING (3:30PM TO 6:30PM)			35			60			60			25						
YELLOW CLEARANCE				3.5			3.5			3.5			3.5					
RED CLEARANCE					4.5			2.0			2.0			3.5				
WALK INTERVAL/CLEARANCE							7/10						7/9			7	10	
RECALL (SOFT)			ON			OFF			ON			OFF			OFF			
MEMORY			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			N.A.			



**DETECTOR DATA**

DETECTOR GROUP NO.	NO. SECTION/ SIZE	NO. OF TURNS	OPERATIONS	CALL DELAY (SECONDS)	CALL PHASE	LOOP CONNECTION
1	2 - 6' X 23'	2-4-2	PRESENCE/BICYCLE	0	ø2	SERIES
2	1 - 6' X 23'	2-4-2	PRESENCE/BICYCLE	0	ø2	SERIES
3	2 - 6' X 23'	2-4-2	PRESENCE/BICYCLE	0	ø2	SERIES
4	2 - 6' X 23'	2-4-2	PRESENCE/BICYCLE	0	ø6	SERIES
5	2 - 6' X 23'	2-4-2	PRESENCE/BICYCLE	0	ø6	SERIES
6	2 - 6' X 23'	2-4-2	PRESENCE/BICYCLE	0	ø3	SERIES
7	2 - 6' X 23'	2-4-2	PRESENCE/BICYCLE	0	ø8	SERIES
8	2 - 6' X 23'	2-4-2	PRESENCE/BICYCLE	0	ø8	SERIES
9	1 - 4' X 4'	4-8-8-4	PRESENCE/BICYCLE	0	ø8	SERIES
10	1 - 4' X 4'	4-8-8-4	PRESENCE/BICYCLE	0	ø2	SERIES

NOTES: SEE BICYCLE LOOP DETECTOR DETAIL SHEET FOR TYPE Q AND TYPE DQ BICYCLE DETECTORS.



F,G,M,N

C,D,E

H,J,K

A,B,L

- NOTES: 1.) ALL SIGNAL HEADS SHALL HAVE TUNNEL VISORS AND 5" BACK PLATES.  
 2.) ALL VEHICLE SIGNAL LENS SHALL BE 12" DIA.  
 3.) ALL PEDESTRIAN SIGNAL HEADS SHALL DISPLAY INTERNATIONAL SYMBOLS - (HAND)/(PERSON WALKING).  
 4.) ALL PEDESTRIAN SIGNAL HEADS SHALL BE SINGLE SECTION AND HAVE 12" LENS  
 5.) ALL RED, YELLOW, GREEN, AND PEDESTRIAN SIGNALS SHALL BE LED TYPE.  
 6.) ALL SIGNAL HOUSINGS ON MAST ARMS SHALL BE FIXED MOUNTED.

**SIGNAL HEAD DATA**

NOT TO SCALE

**MAJOR ITEMS**

QUANTITY	DESCRIPTION
1	TRAFFIC SIGNAL CONTROLLER (TS2 - TYPE 1), LOCATED IN BASE MOUNTED CABINET (TYPE CD) W/FOUNDATION AND CONCRETE PAD
2	ORNAMENTAL 20' MAST ARM (STEEL) - TYPE II MONOLEVER W/ FOUNDATION
1	ORNAMENTAL 30' MAST ARM (STEEL) - TYPE II MONOLEVER W/ FOUNDATION
1	ORNAMENTAL 35' MAST ARM (STEEL) - TYPE II MONOLEVER W/ FOUNDATION
5	ORNAMENTAL TRAFFIC SIGNAL POST AND BASE - 10' (STEEL)
4	ORNAMENTAL TRAFFIC SIGNAL POST AND BASE - 8' (STEEL)
13	SIGNAL HEAD - 1-WAY, 3-SECTION, 12" LENS W/ BACKPLATES (LOUVERED)
10	PEDESTRIAN SIGNAL HEAD, SINGLE SECTION, 12" LED
10	PEDESTRIAN PUSH BUTTON W/ SIGN AND SADDLE
21	PULL BOX - 12" x 12"
1	SERVICE CONNECTION (ELECTRIC)
1	SERVICE CONNECTION (TELEPHONE)
15	LOOP DETECTORS (6'x23') TYPE Q WIRE LOOP DETECTOR
2	LOOP DETECTORS (4'x4') TYPE D-Q BICYCLE DETECTOR
5	LOOP DETECTOR AMPLIFIER (DUAL CHANNEL)

PLUS ALL MISCELLANEOUS EQUIPMENT, LABOR AND MATERIAL NECESSARY TO PROVIDE A COMPLETE OPERATING TRAFFIC CONTROL SIGNAL.

**TRAFFIC SIGNAL NOTES:**

- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATION FOR THAT TRAFFIC MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.
- FLASHING OPERATION IS FOR EMERGENCY ONLY. THE SIGNAL SHALL PROVIDE STOP AND GO OPERATION 24 HOURS DAILY.
- PAVEMENT MARKINGS (NOT SHOWN) AND WINDING DETAILS FOR BICYCLE DETECTORS SHALL CONFORM TO THE BICYCLE DETECTOR DETAIL SHEET.
- DETECTOR DELAY SETTING TO BE IMPLEMENTED AT THE CONTROLLER ONLY.
- EACH SERIES OF WIRE LOOP DETECTORS SHALL BE CONNECTED TO A SINGLE LOOP AMPLIFIER CHANNEL.
- PEDESTRIAN PHASES ARE TO BE ACTIVATED BY PUSH BUTTON ONLY. PUSH BUTTONS #1,2,5,6 CALL PHASE 2. PUSH BUTTONS #3,4,9,10 CALL PHASE 8. PUSH BUTTONS 7,8 CALL PHASE 9. PHASE 2 AND 8 PEDESTRIAN MOVEMENTS SHALL BE OVERLAPS TO PHASE 9.
- THE CONTROLLER SHALL OPERATE IN THE STANDARD NEMA DUAL-RING CONFIGURATION. ø1, ø4, ø5, & ø7 NOT USED.

C:\31006\3159 - Milton-Blue Hills Parkway\Drawing Files\Plan Set\base-bid\3159 15-Signal Plan.dwg Oct. 07, 2010 6:01pm

NUMBER	DATE	MADE BY	CHECKED BY	DESCRIPTION

DRAWN BY: DS
DESIGNED BY: JF
CHECKED BY: CMR

**BETA Group, Inc.**  
 Engineers Scientists Planners  
 315 Norwood Park South  
 Norwood, MA 02062  
 781.255.1982 fax: 781.255.1974  
 email: BETA@BETA-inc.com

SCALE:  
NOT TO SCALE

Blue Hills Parkway/Brook Road  
**TRAFFIC SIGNAL DATA**  
 Milton, Massachusetts

JOB	3159
FILE NO.	
PLOT DATE	October 07, 2010
SHEET	16 OF 27

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

TRAFFIC SIGNAL PLAN

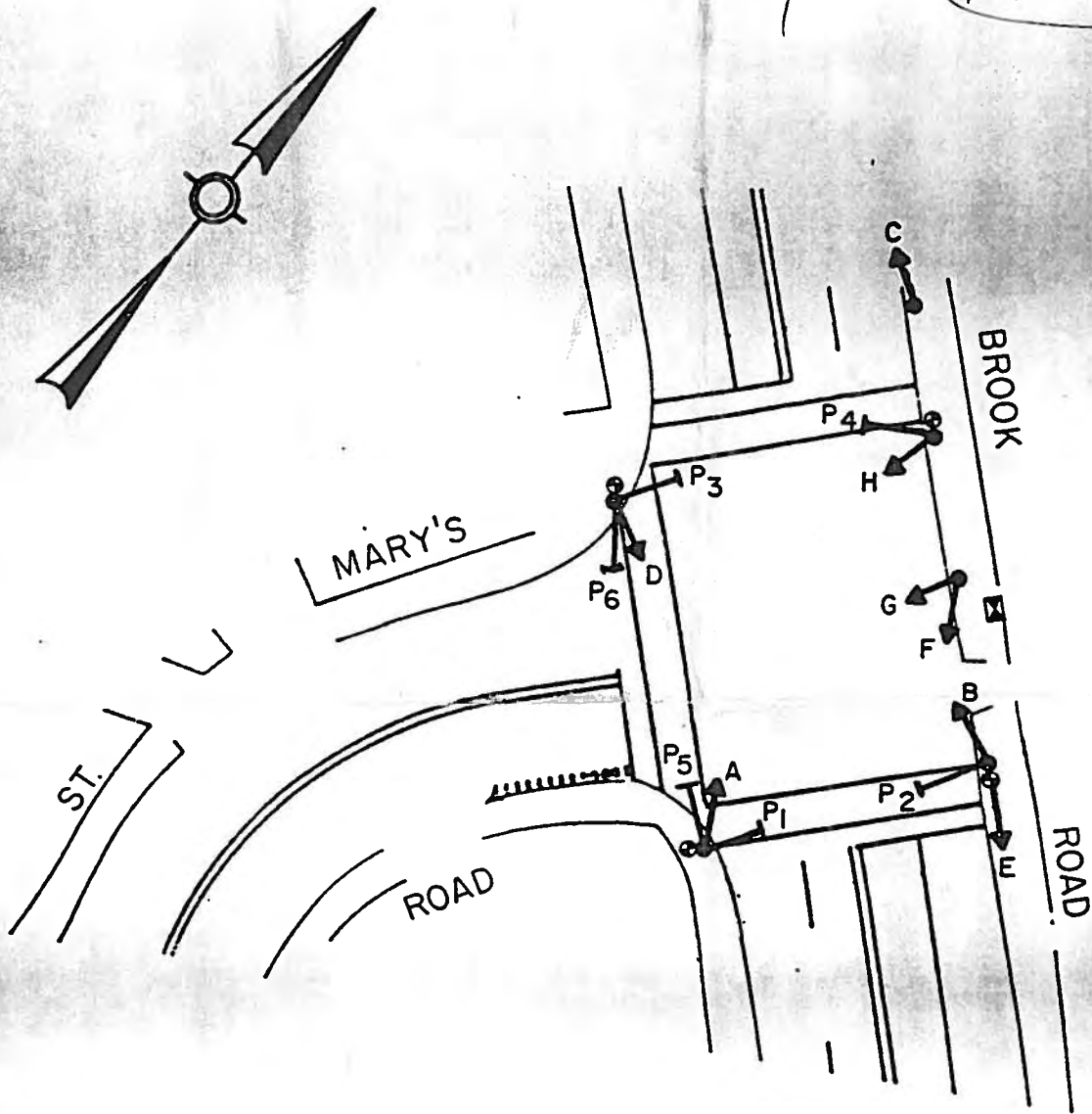
COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS  
100 NASHUA STREET  
BOSTON, MASSACHUSETTS 02114

Brook Road and St. Mary's Road  
Milton

*(Signature)*

DATE: 12-14-78 PERMIT NO. B-1597

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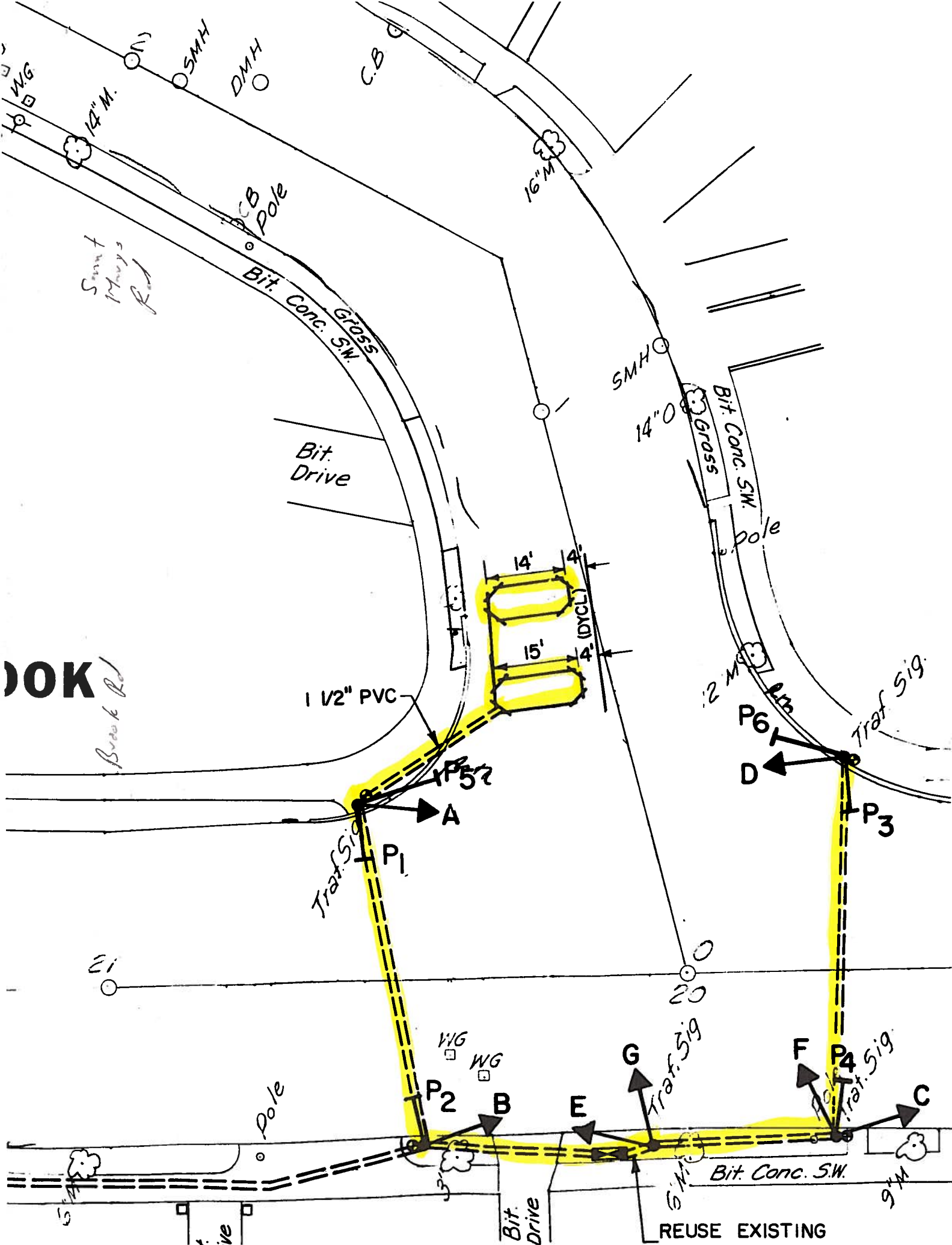


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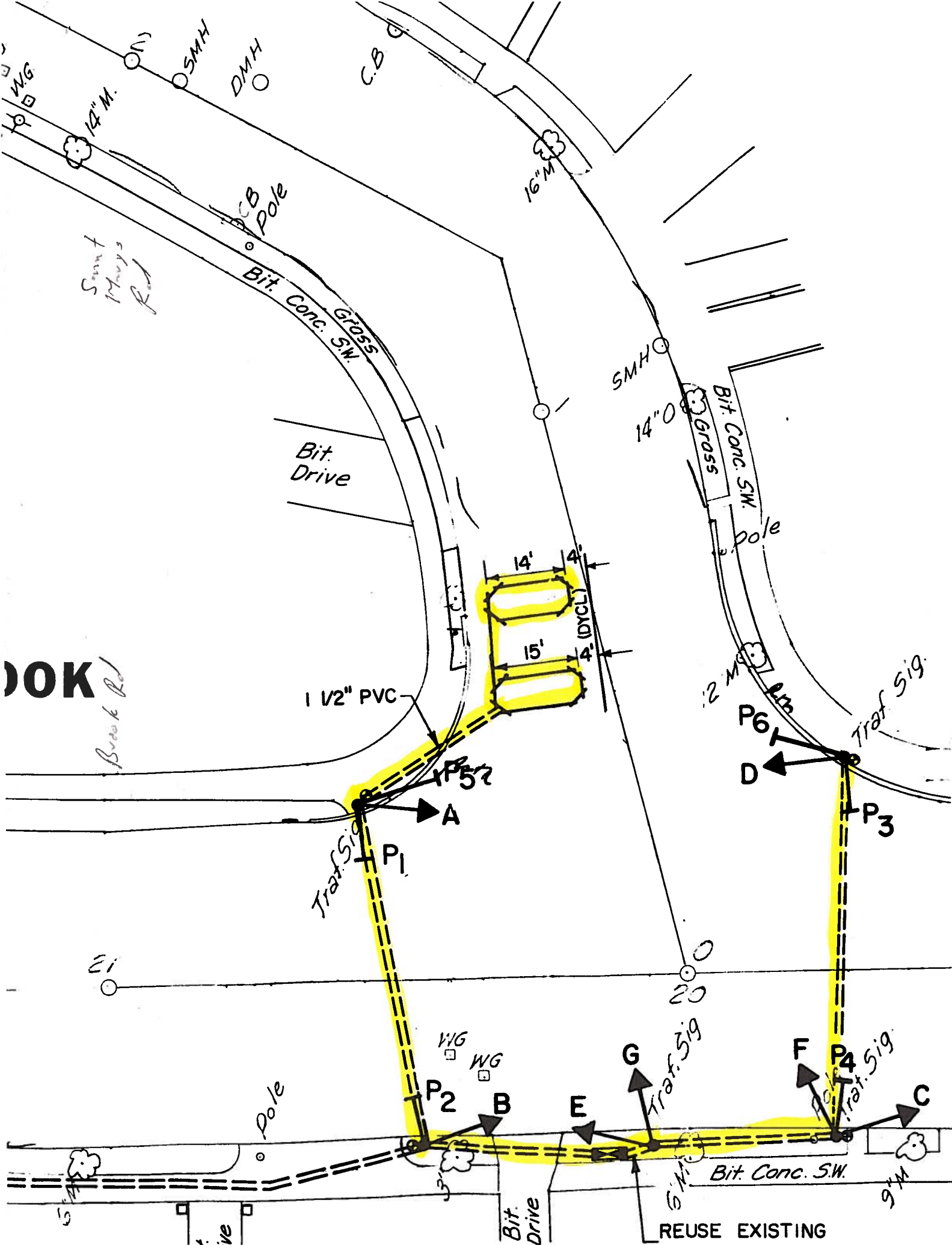


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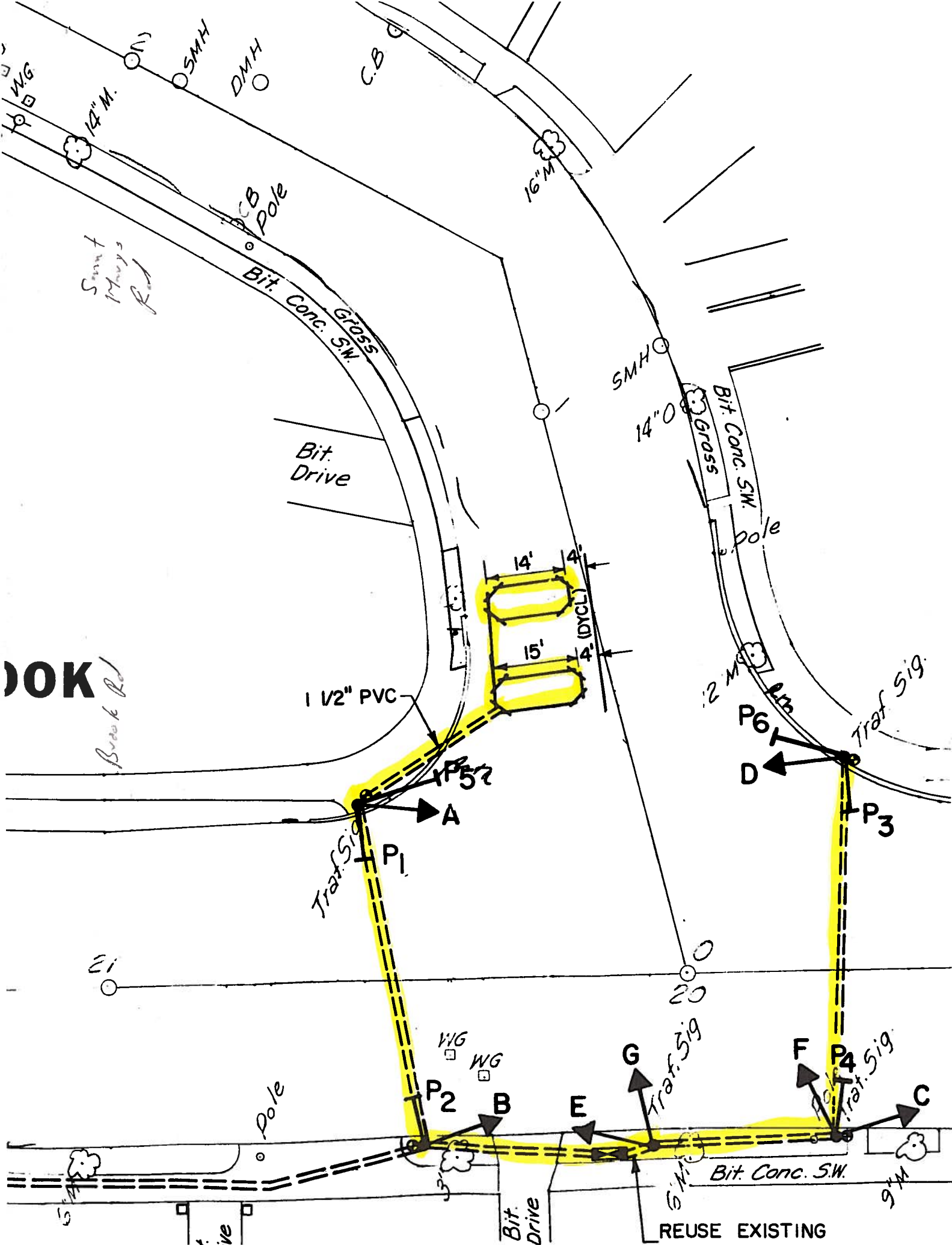




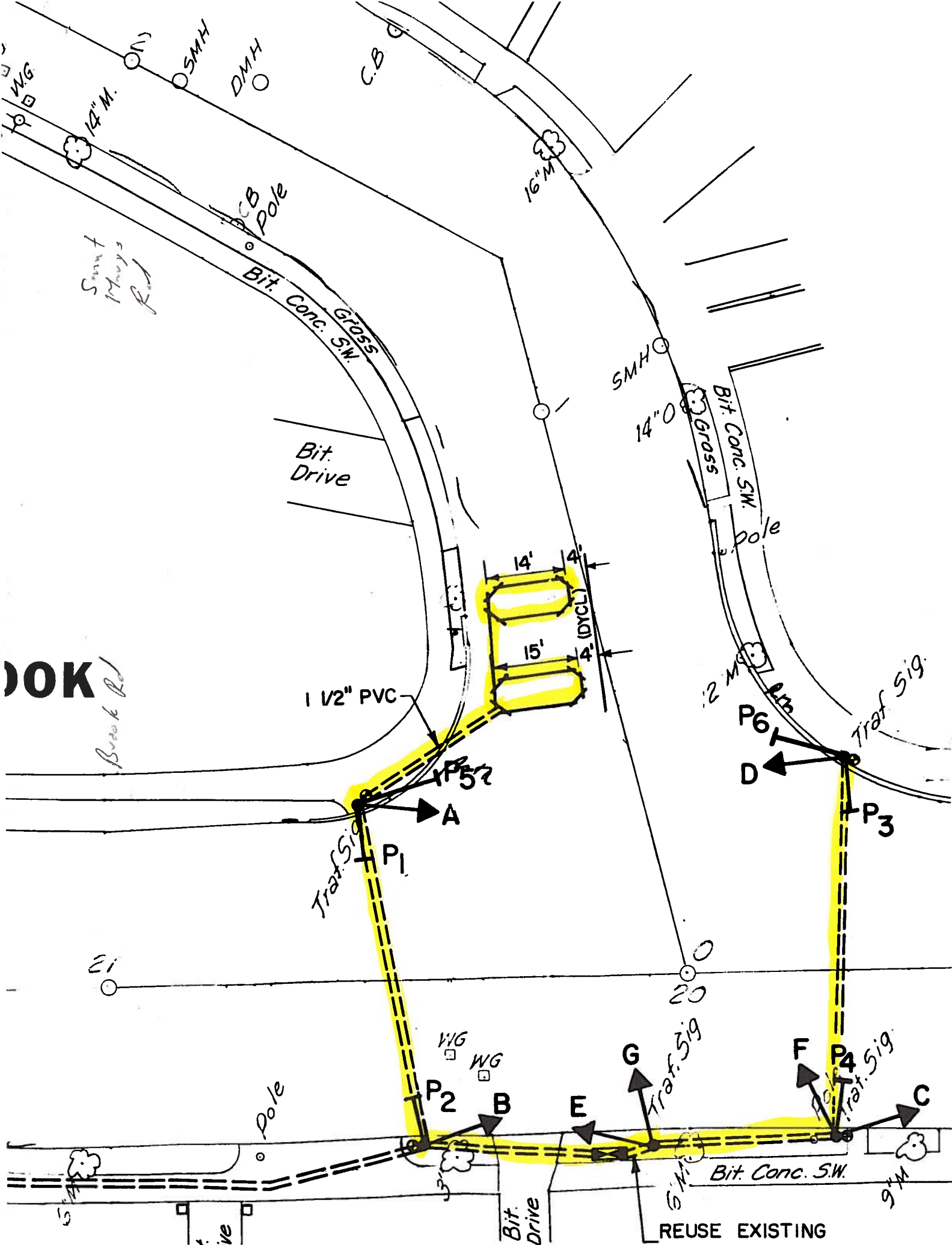
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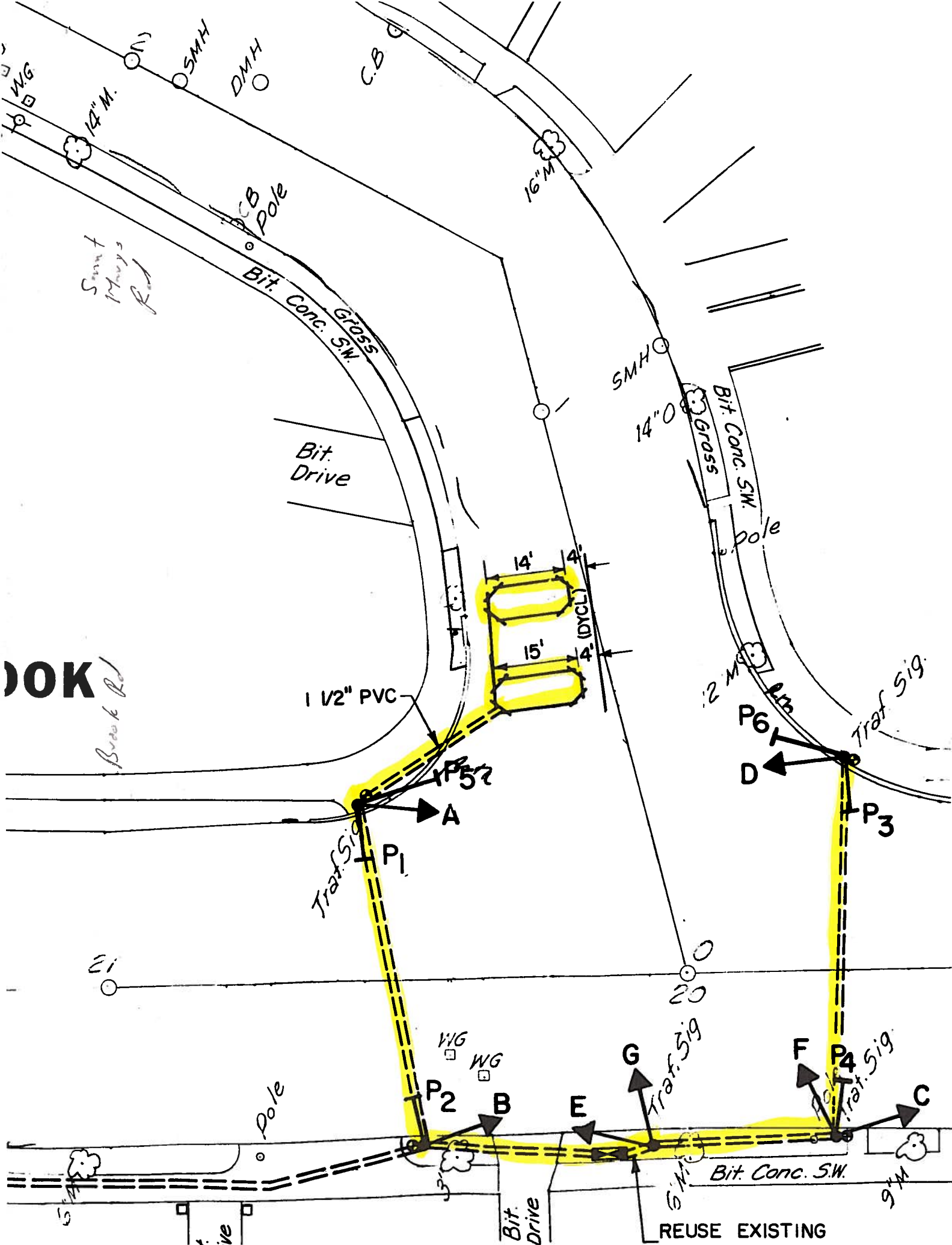
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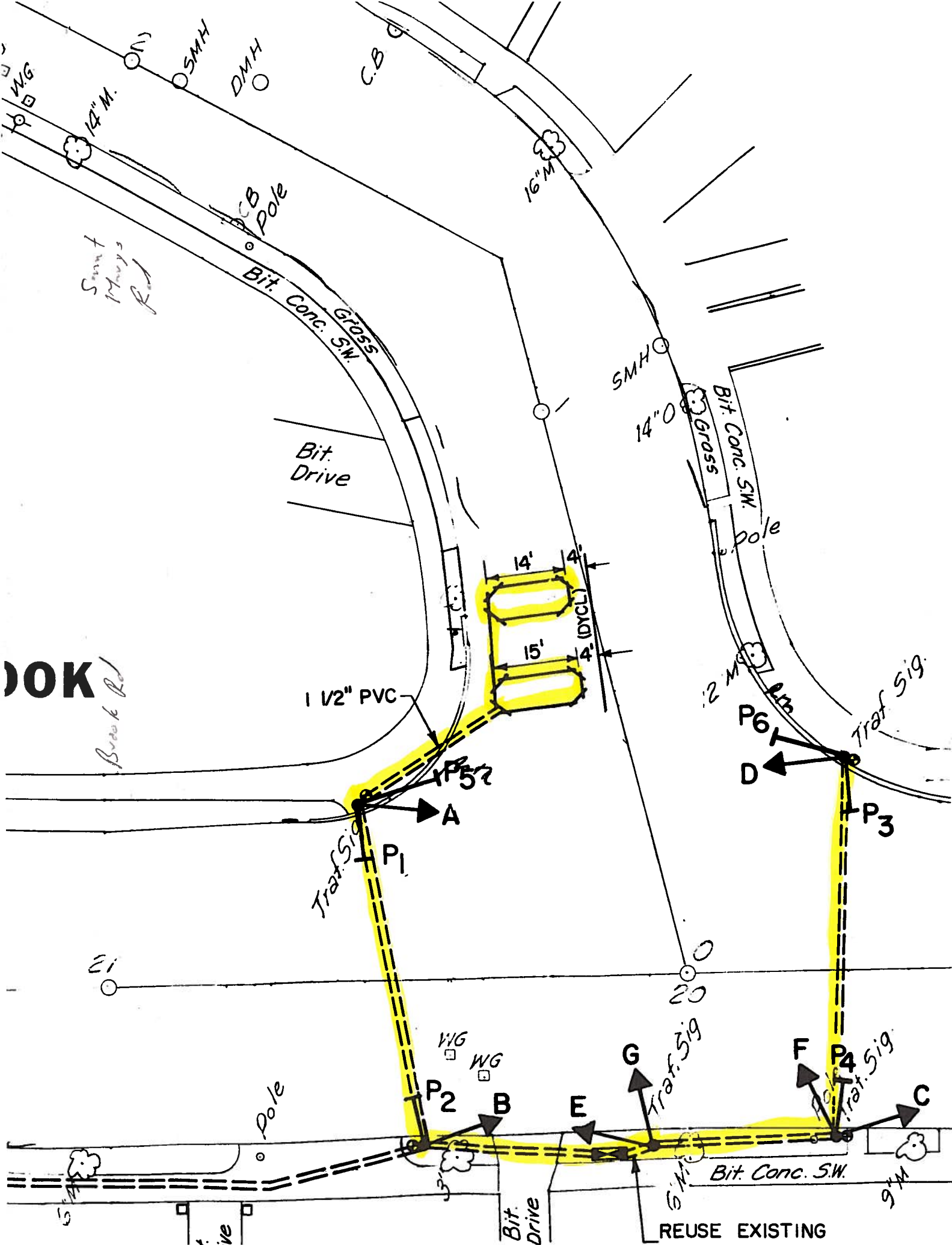
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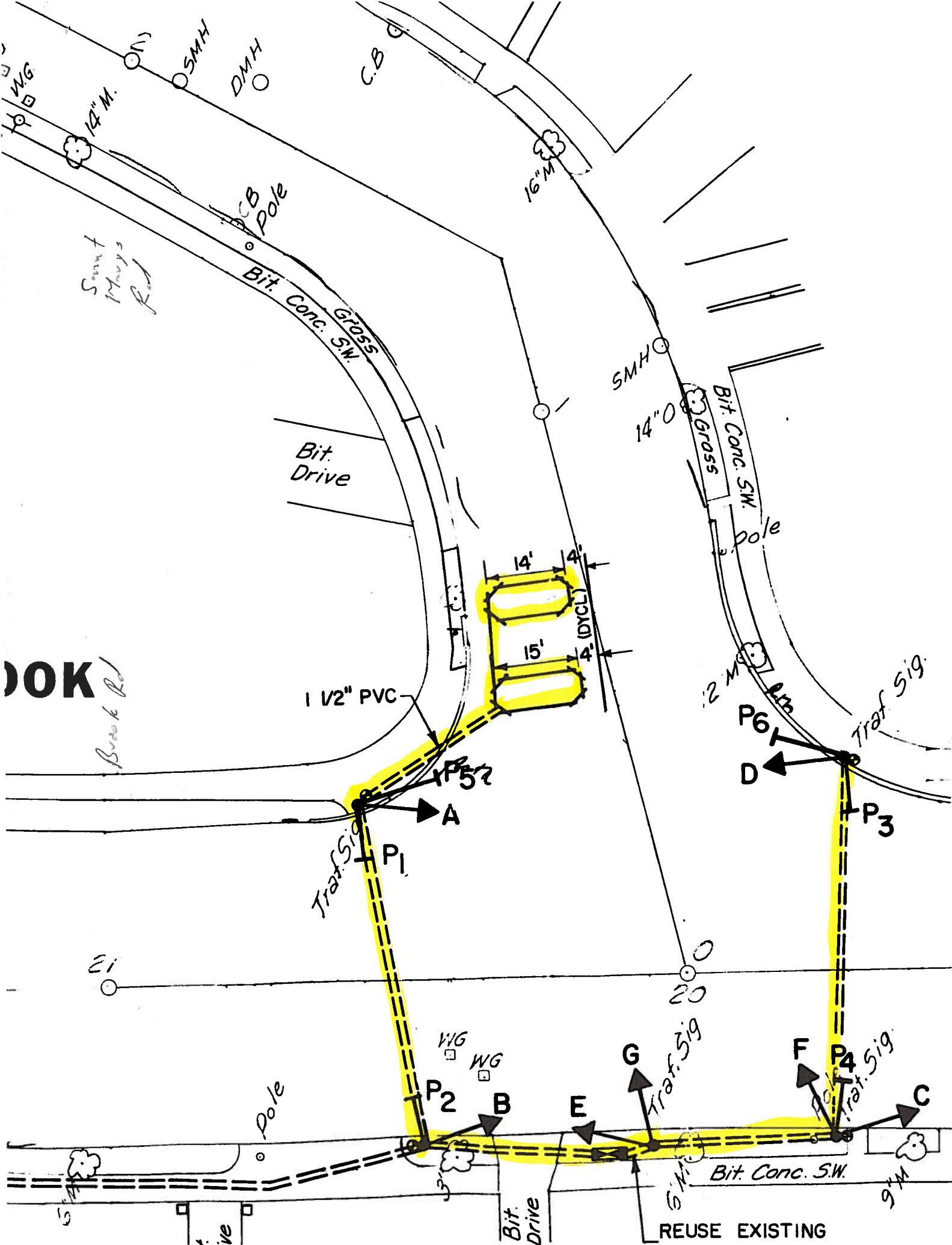
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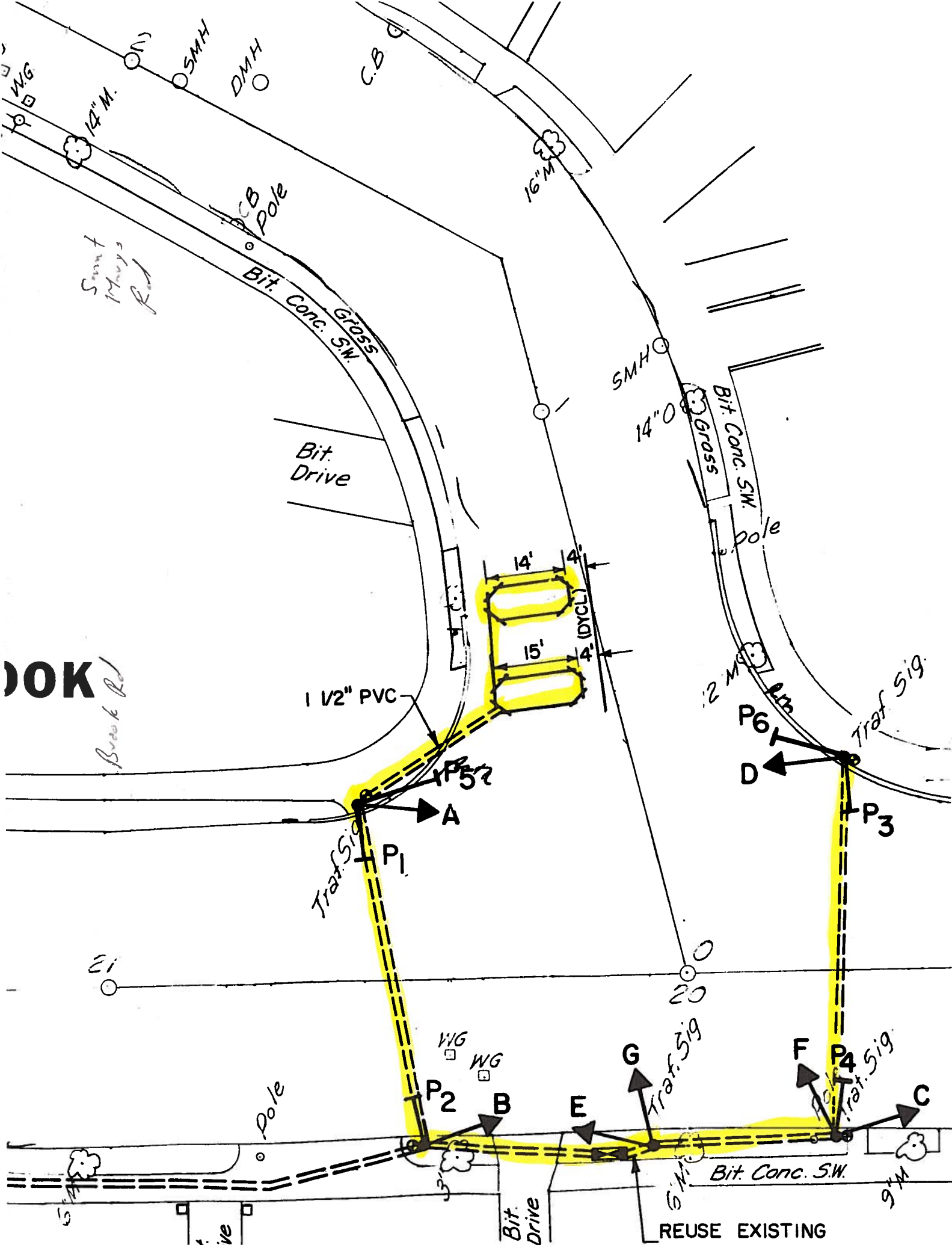
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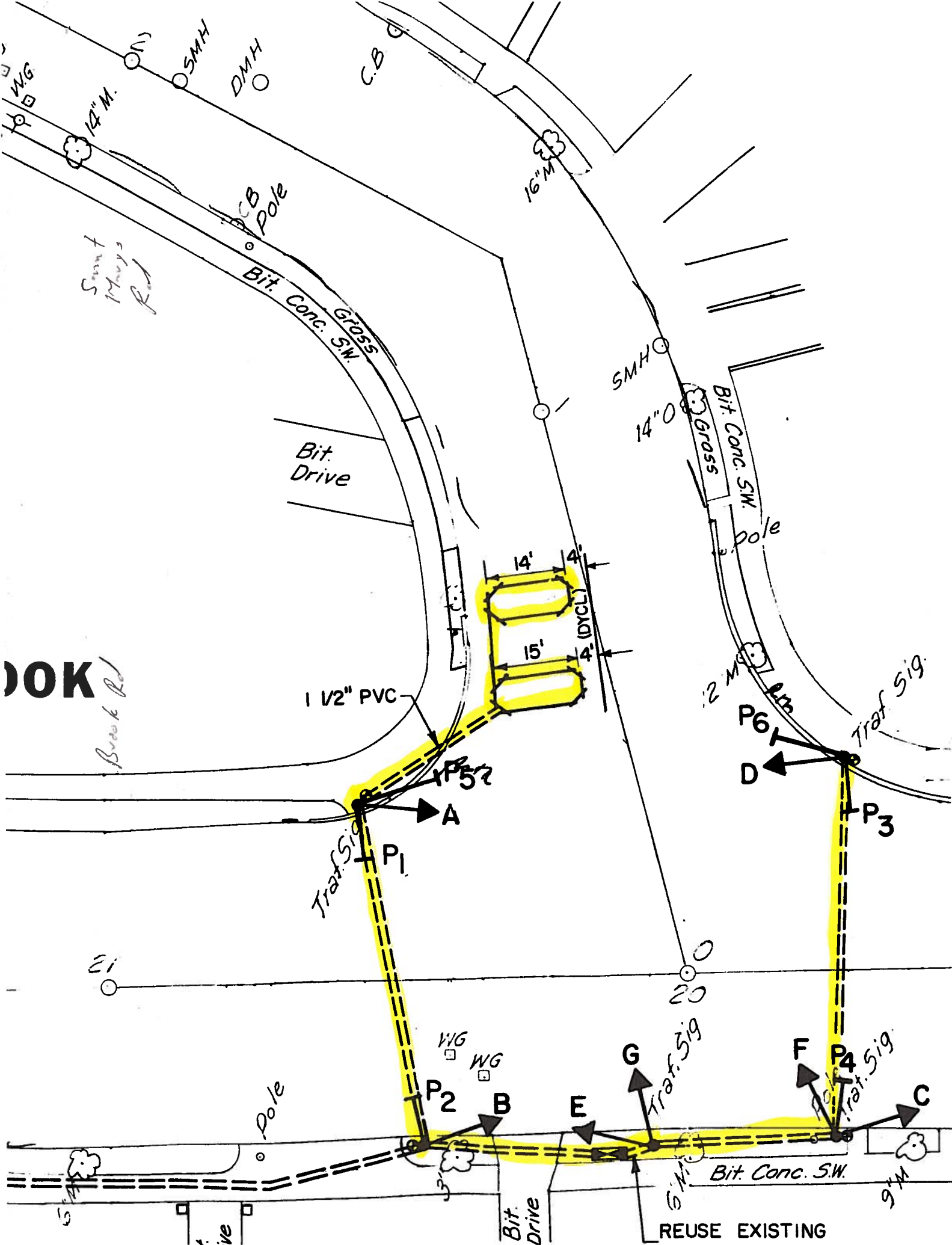
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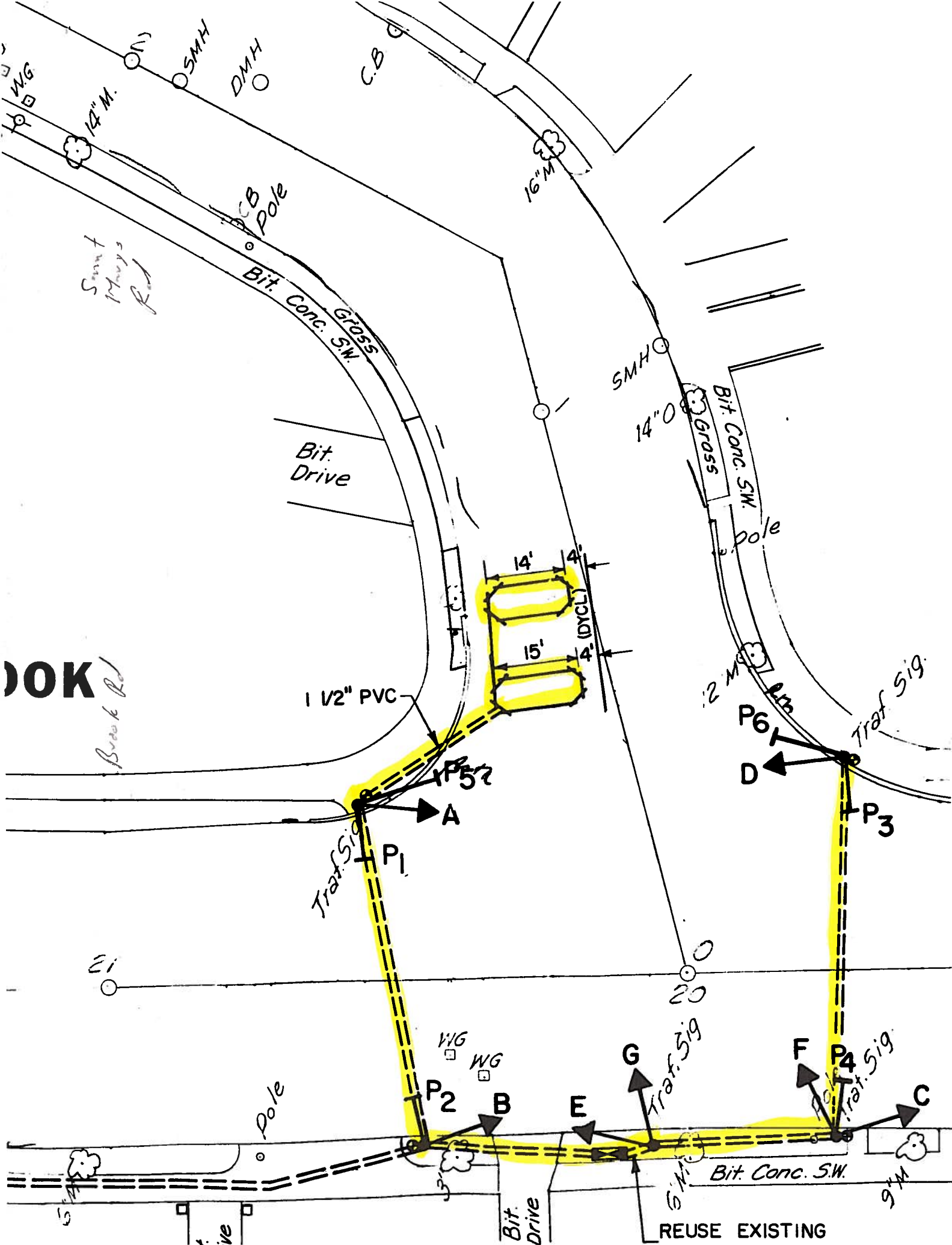
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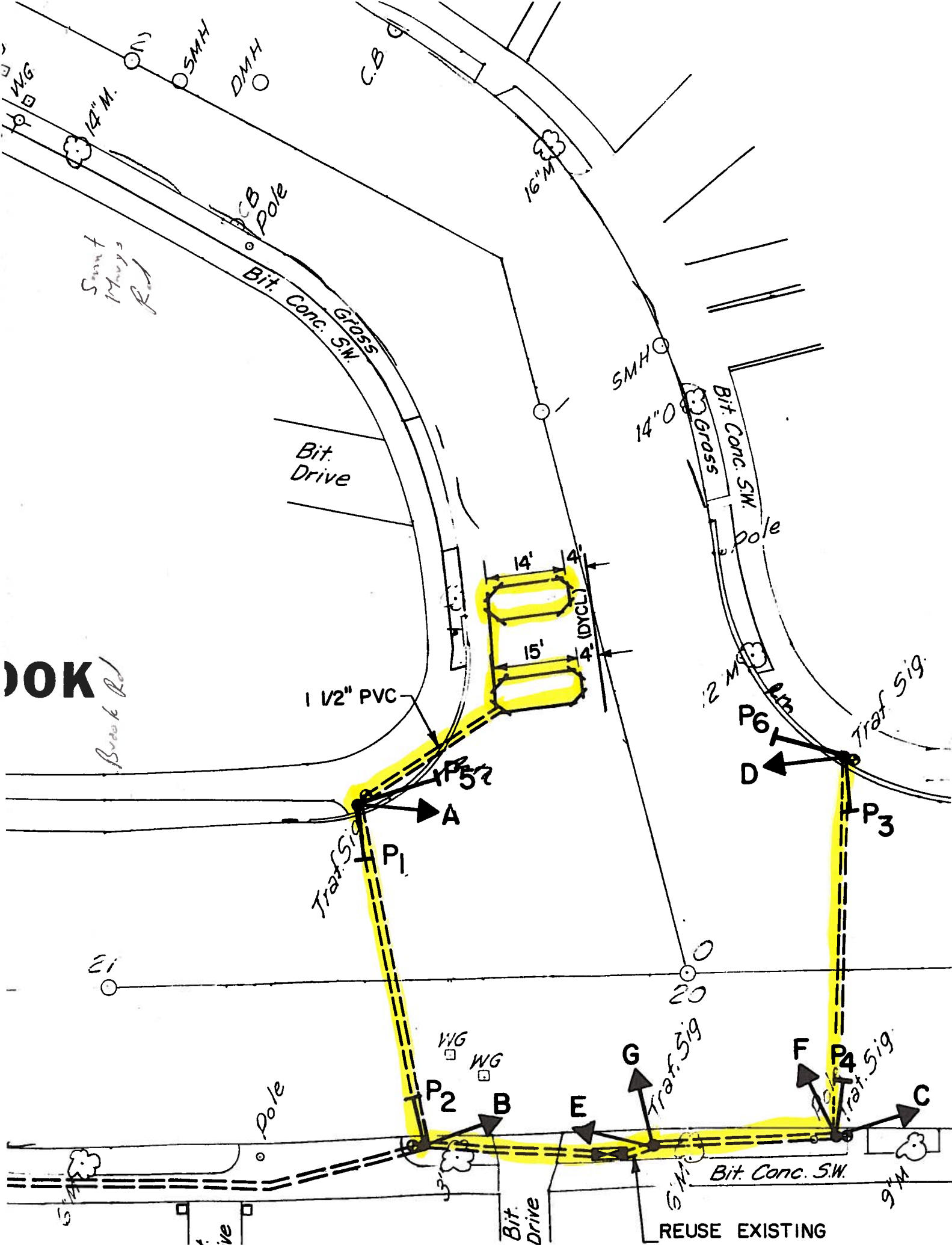
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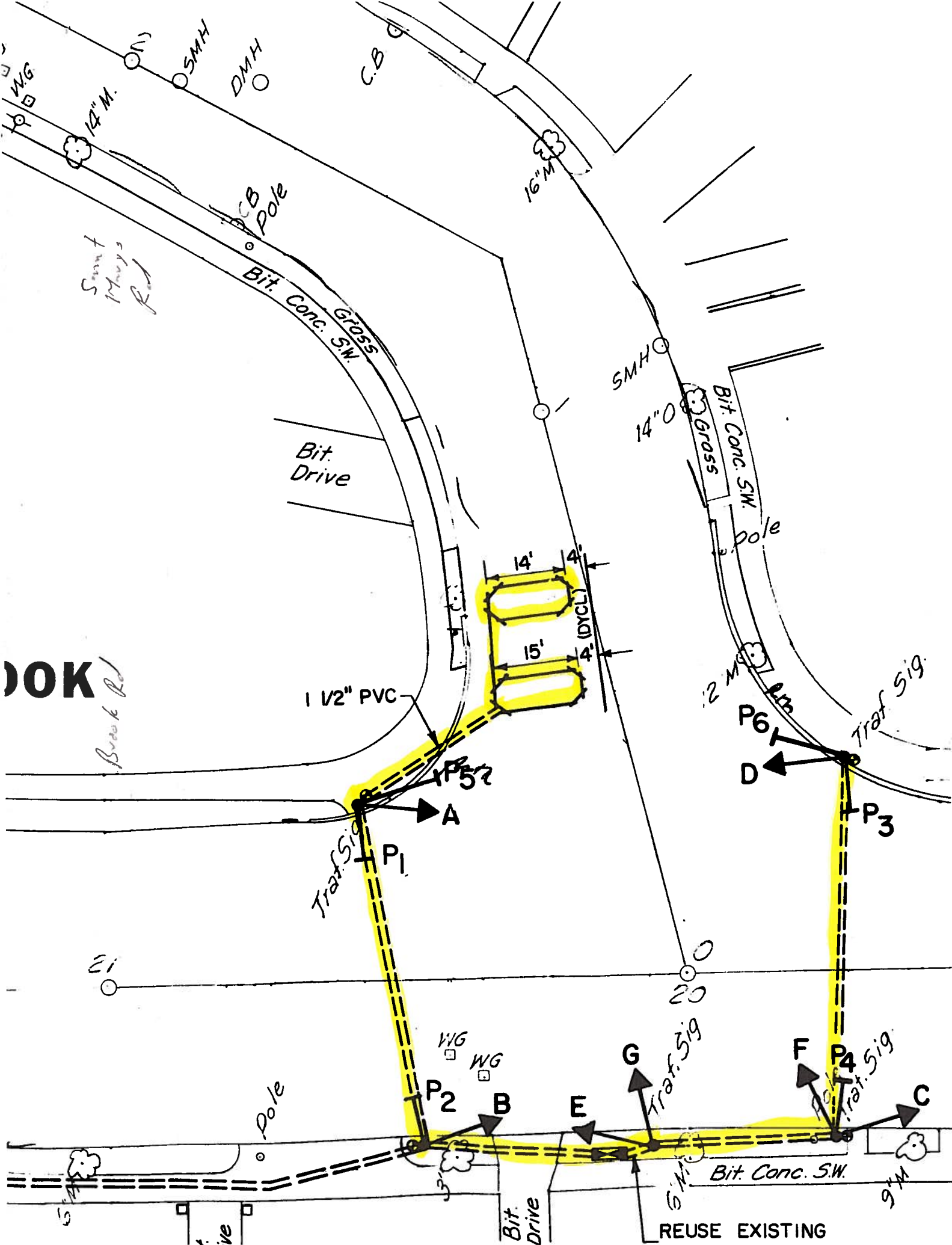
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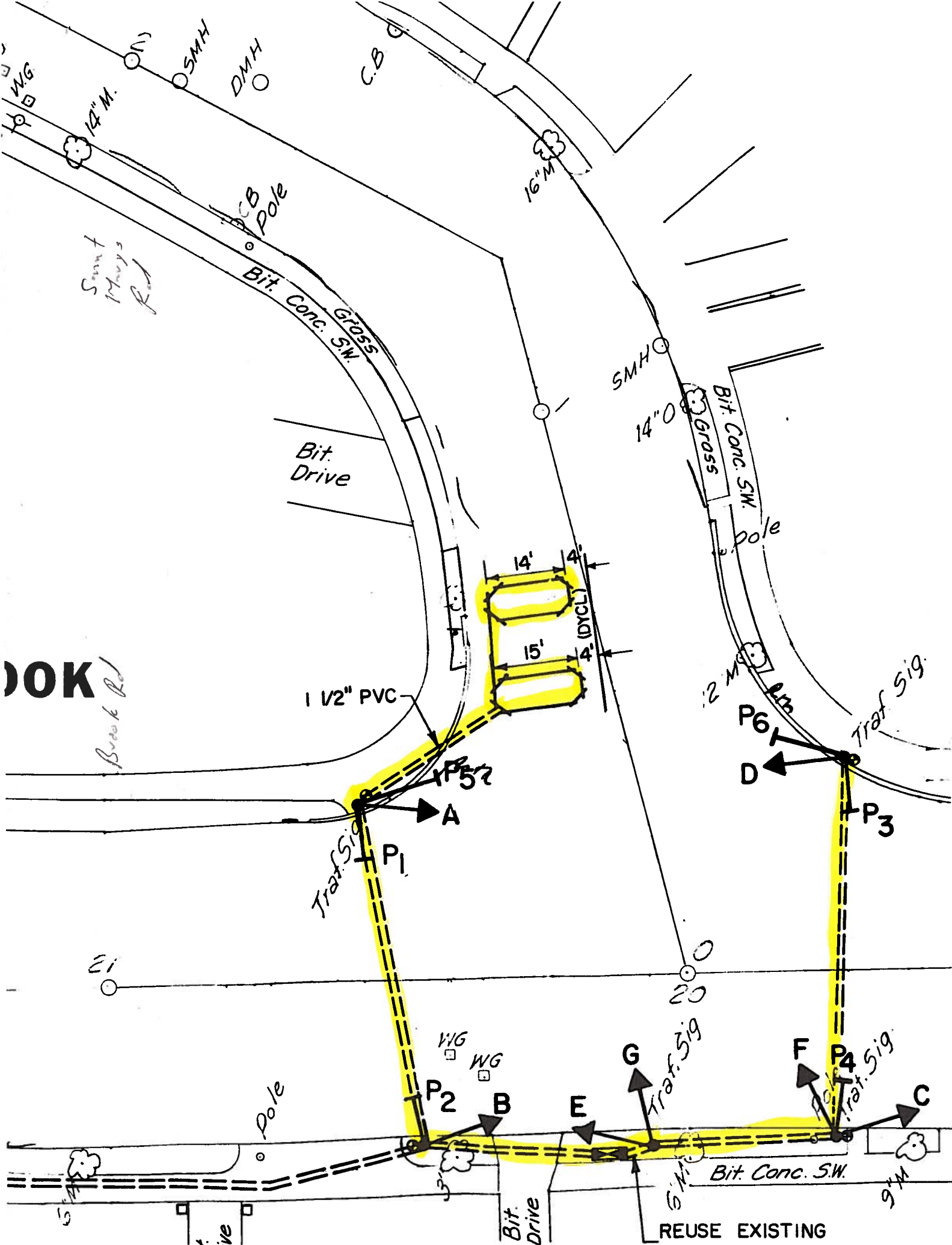
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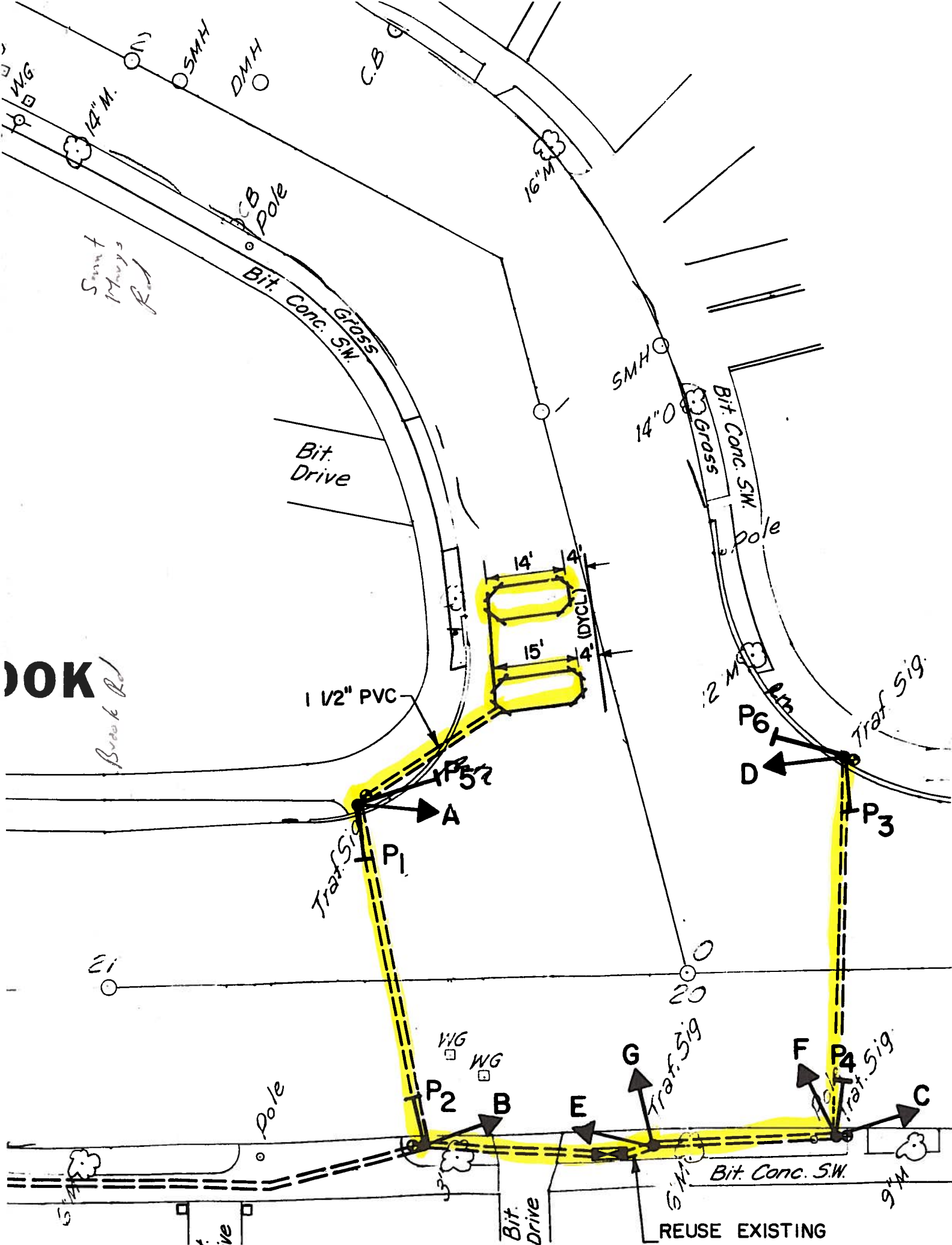
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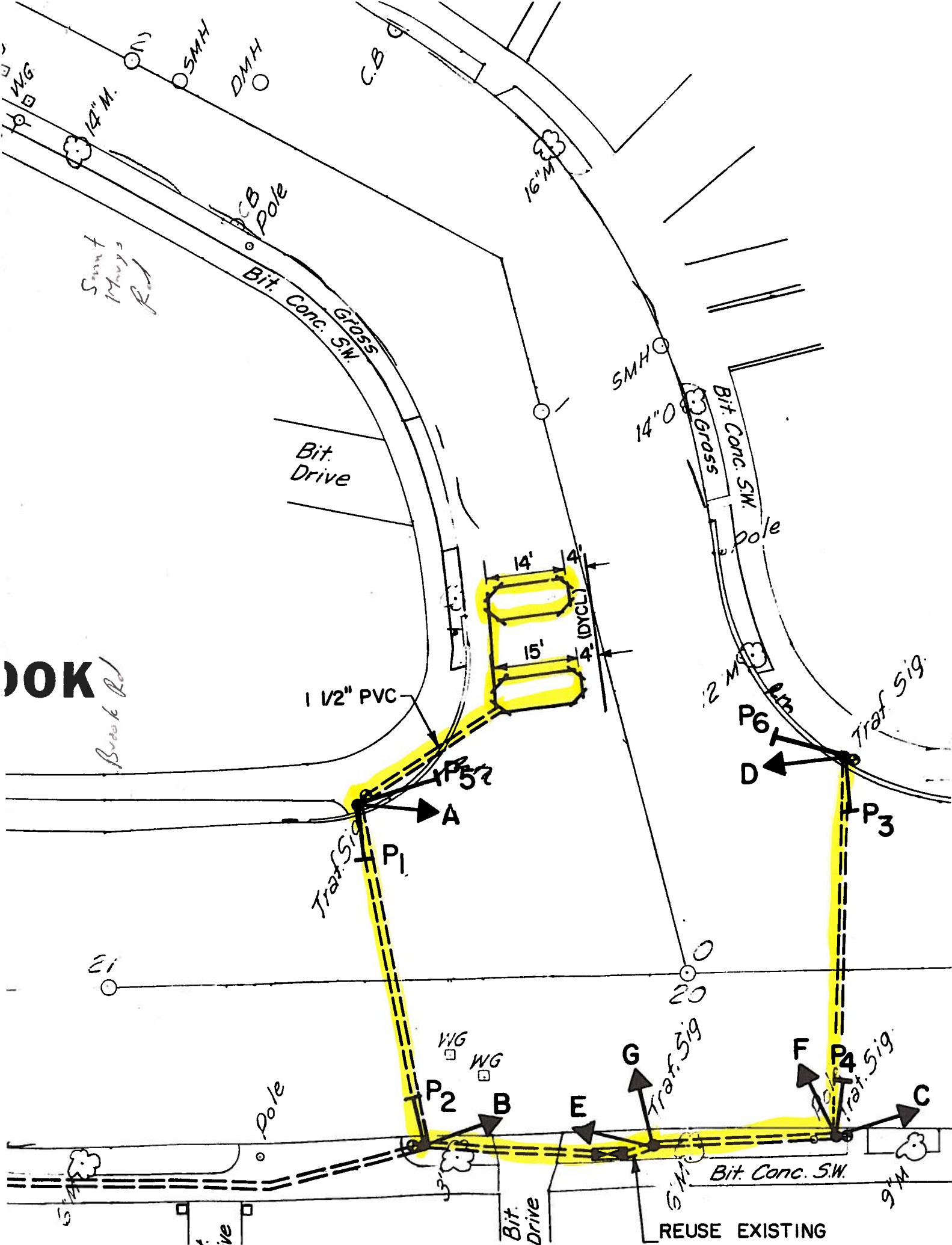
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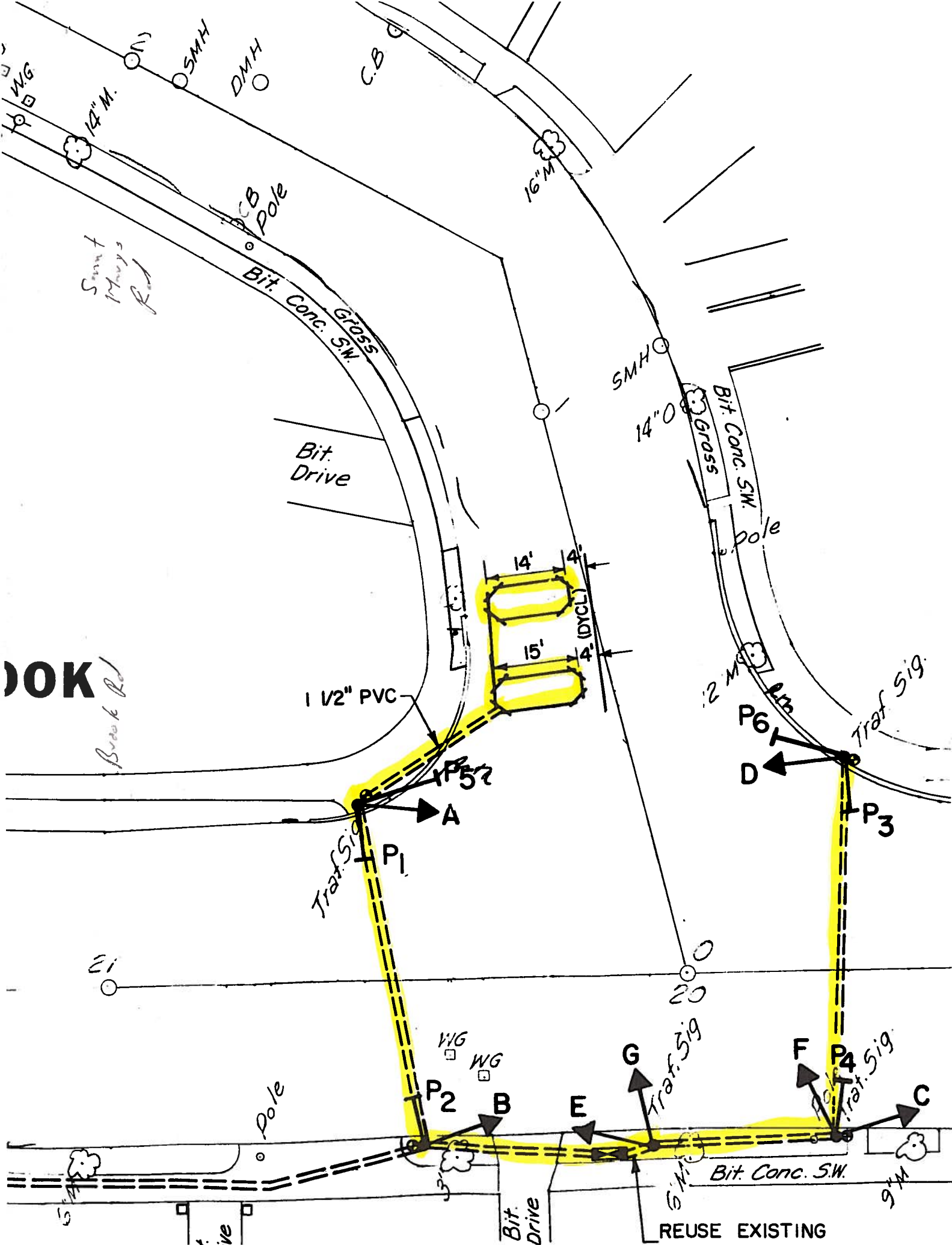
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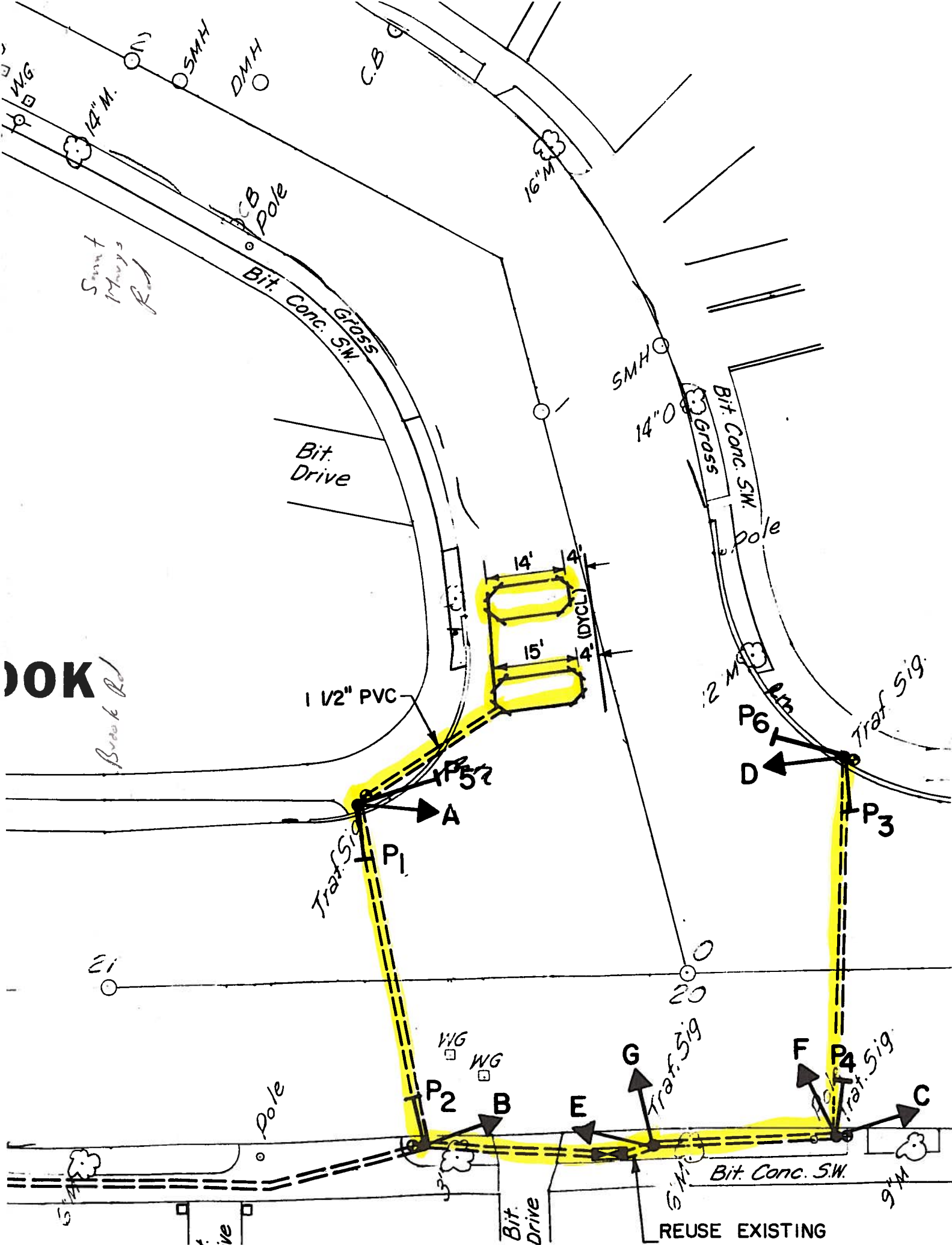
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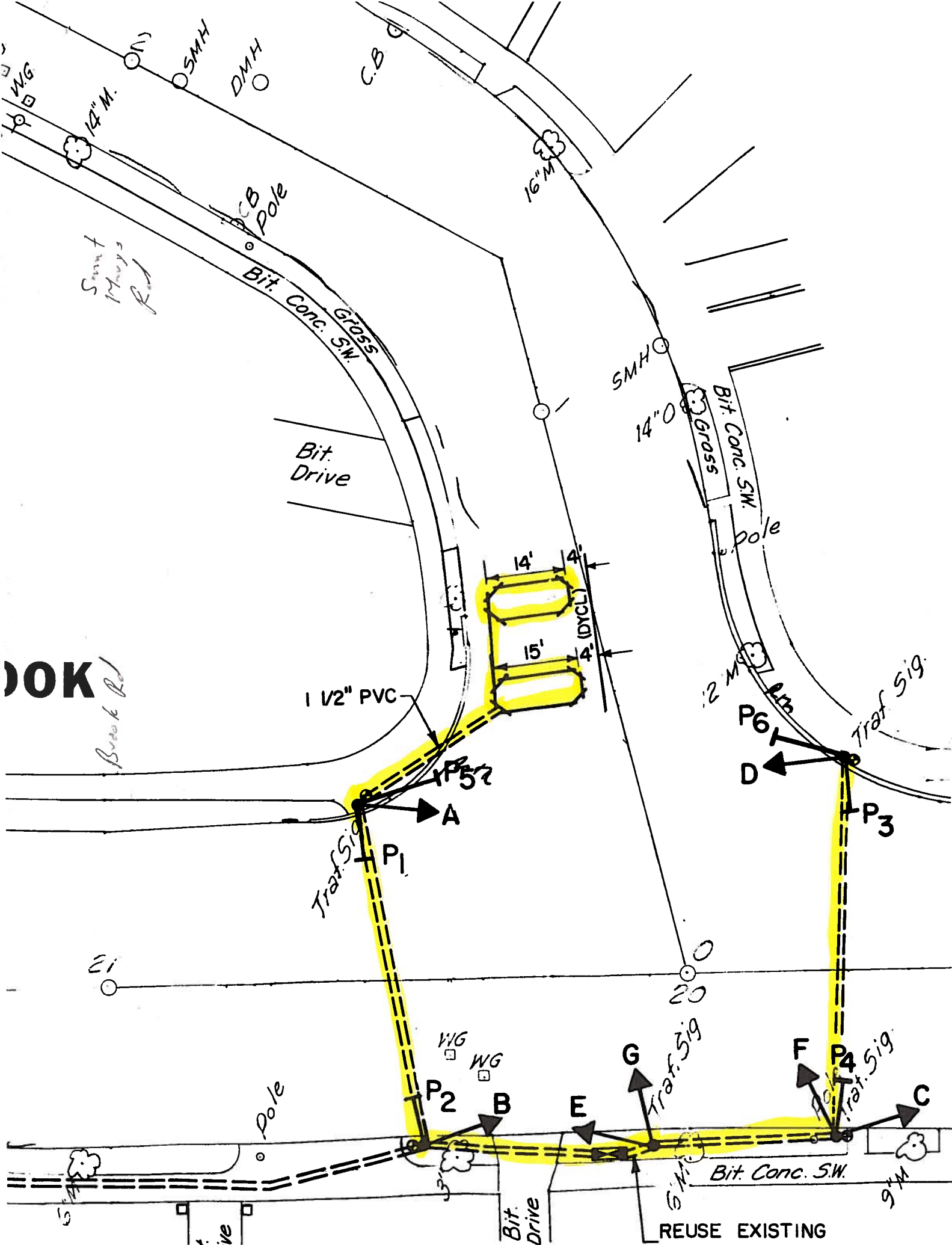
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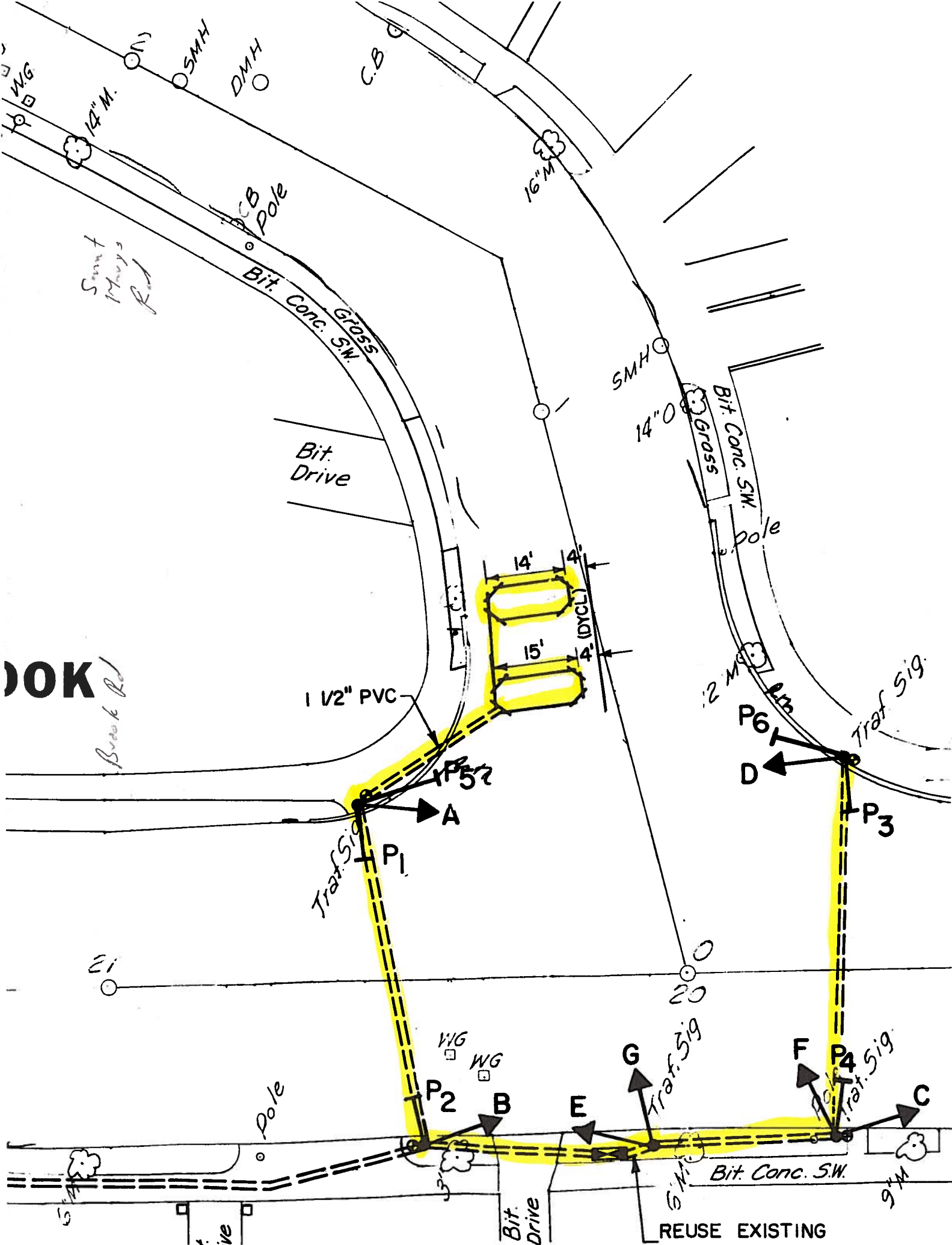
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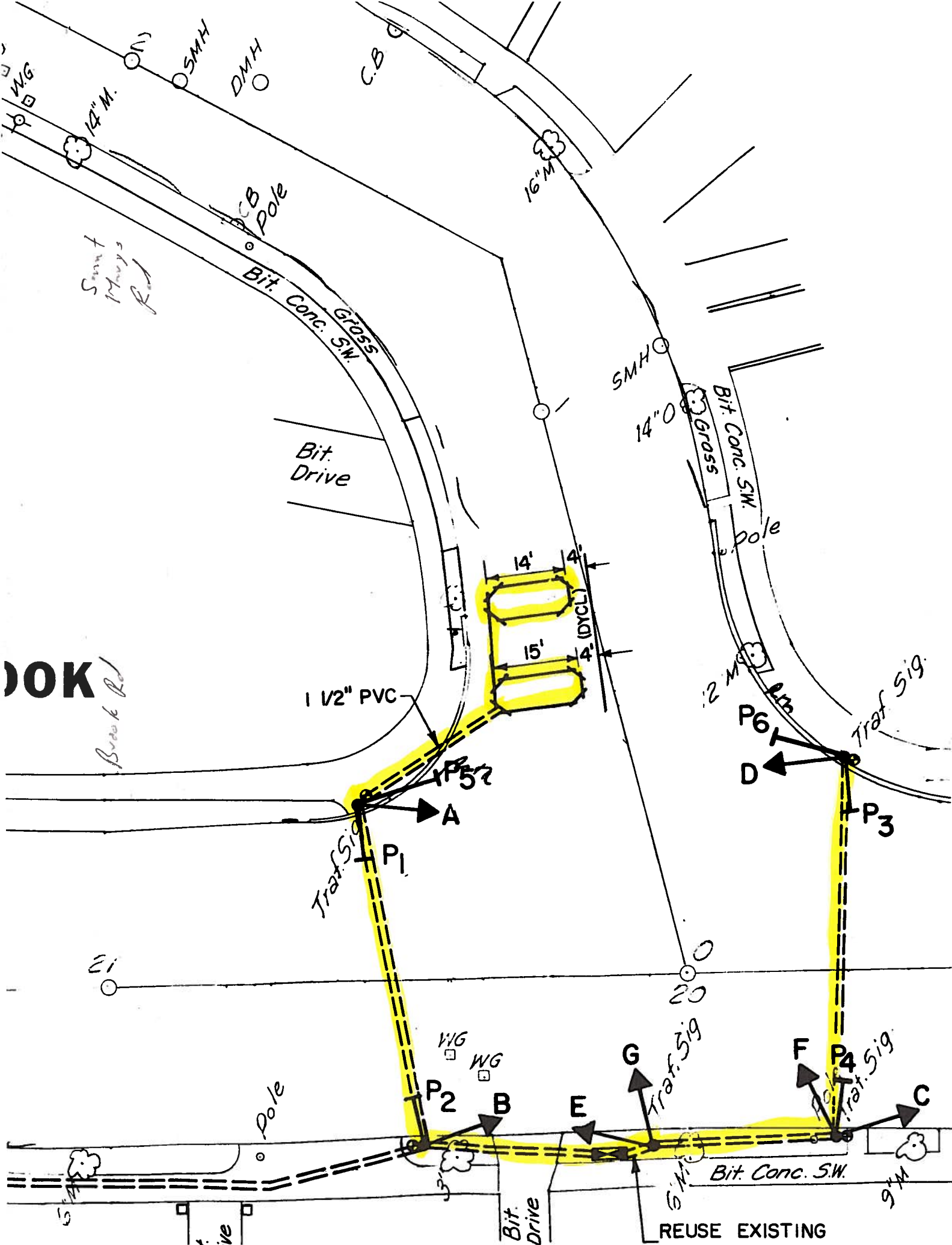
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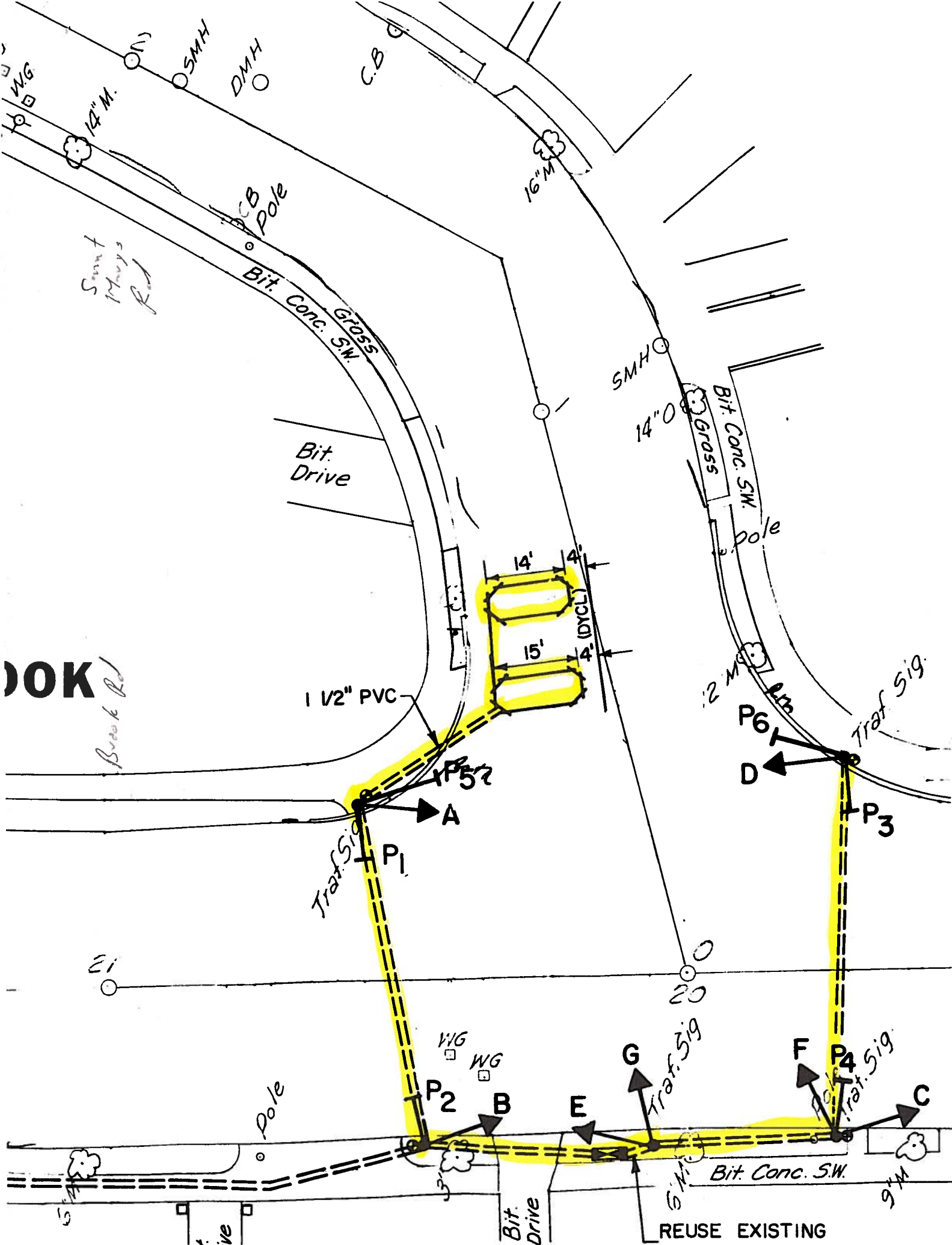
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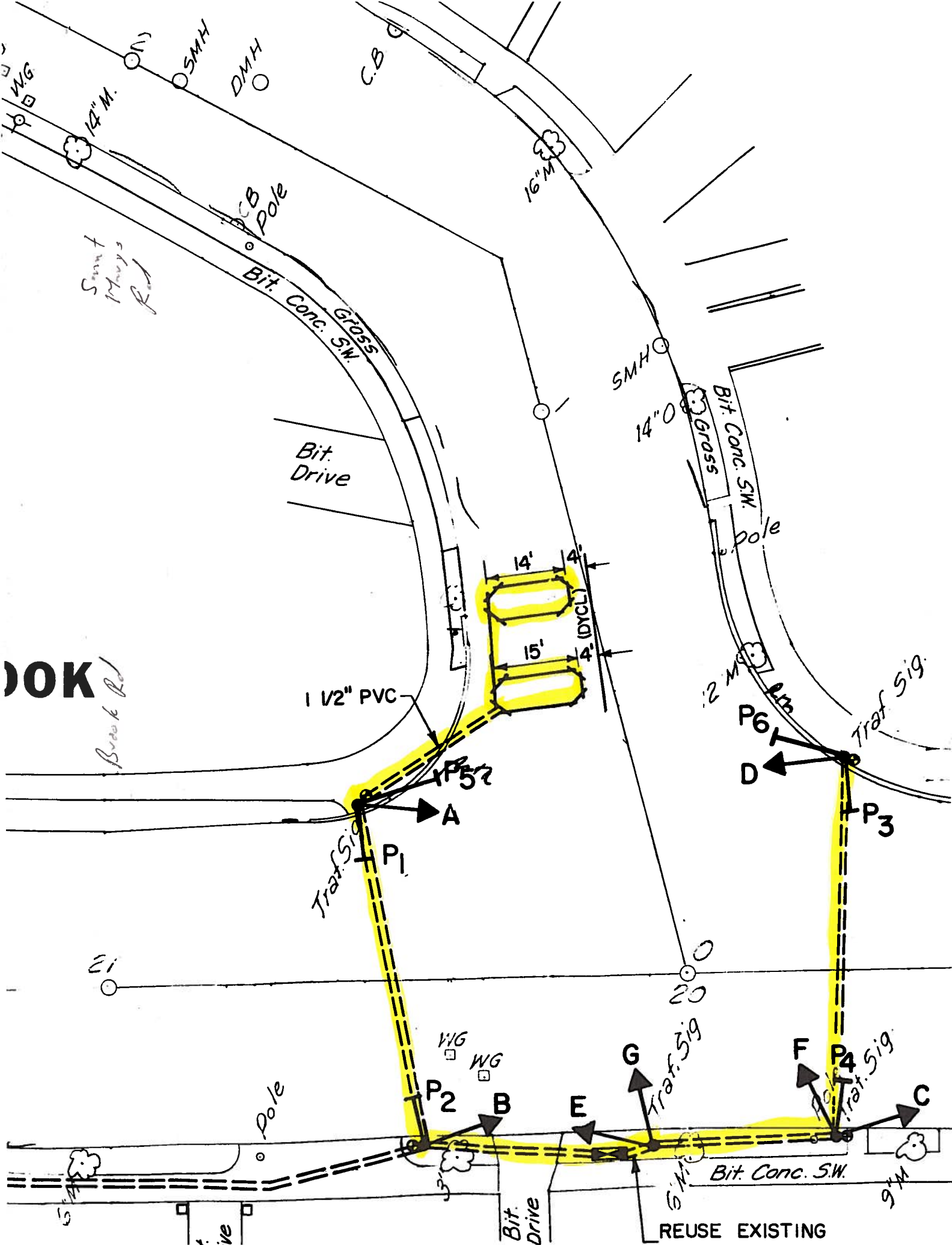
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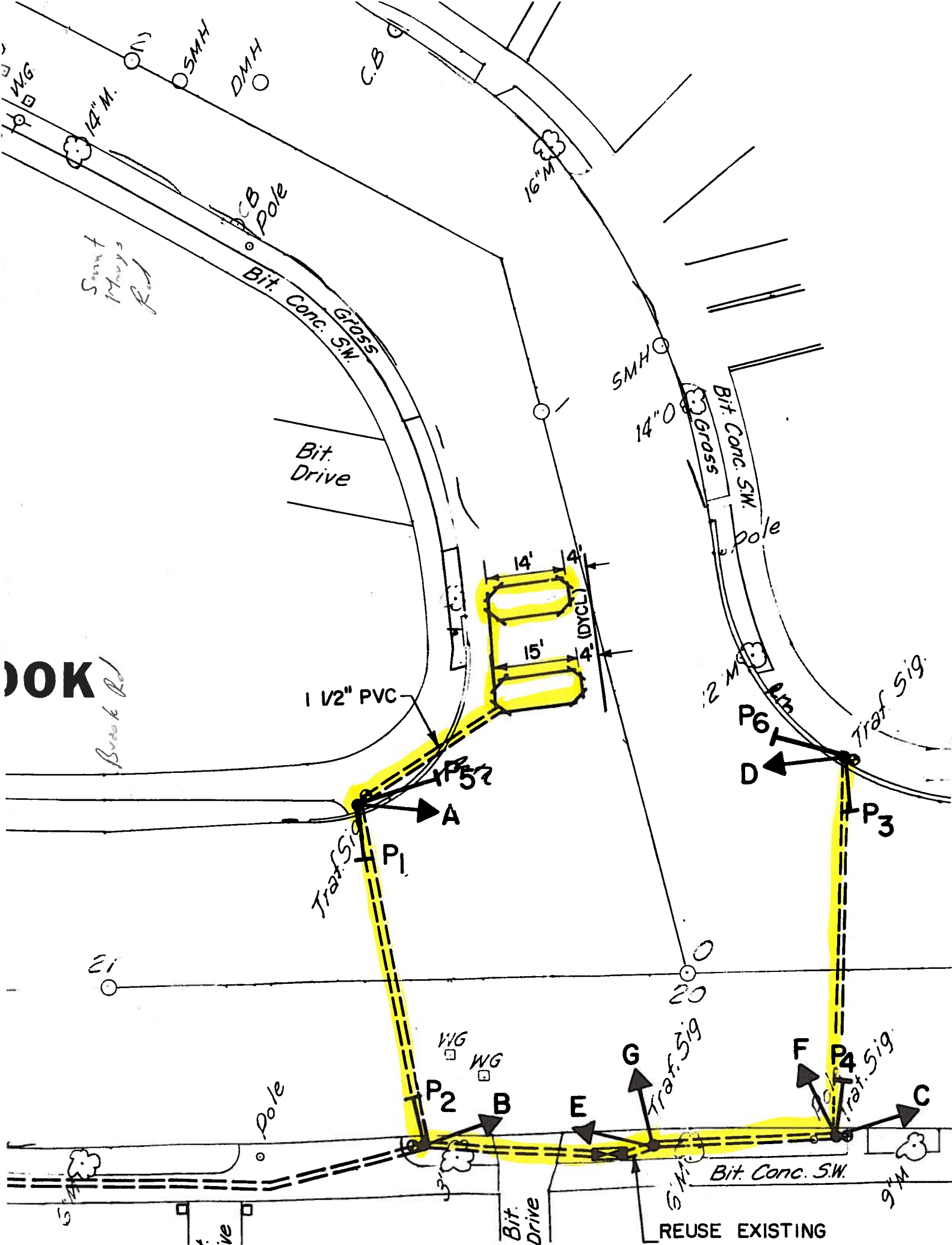
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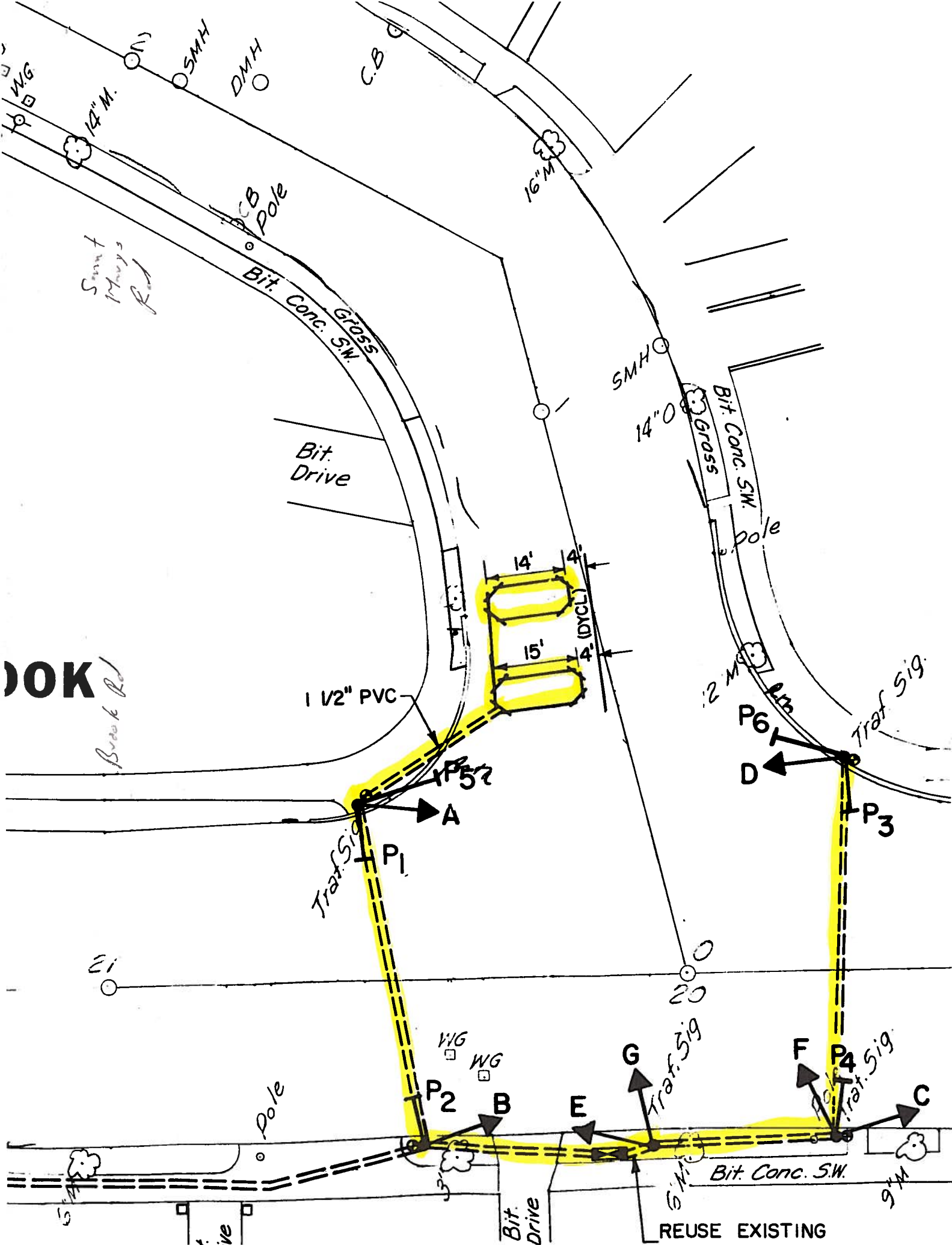
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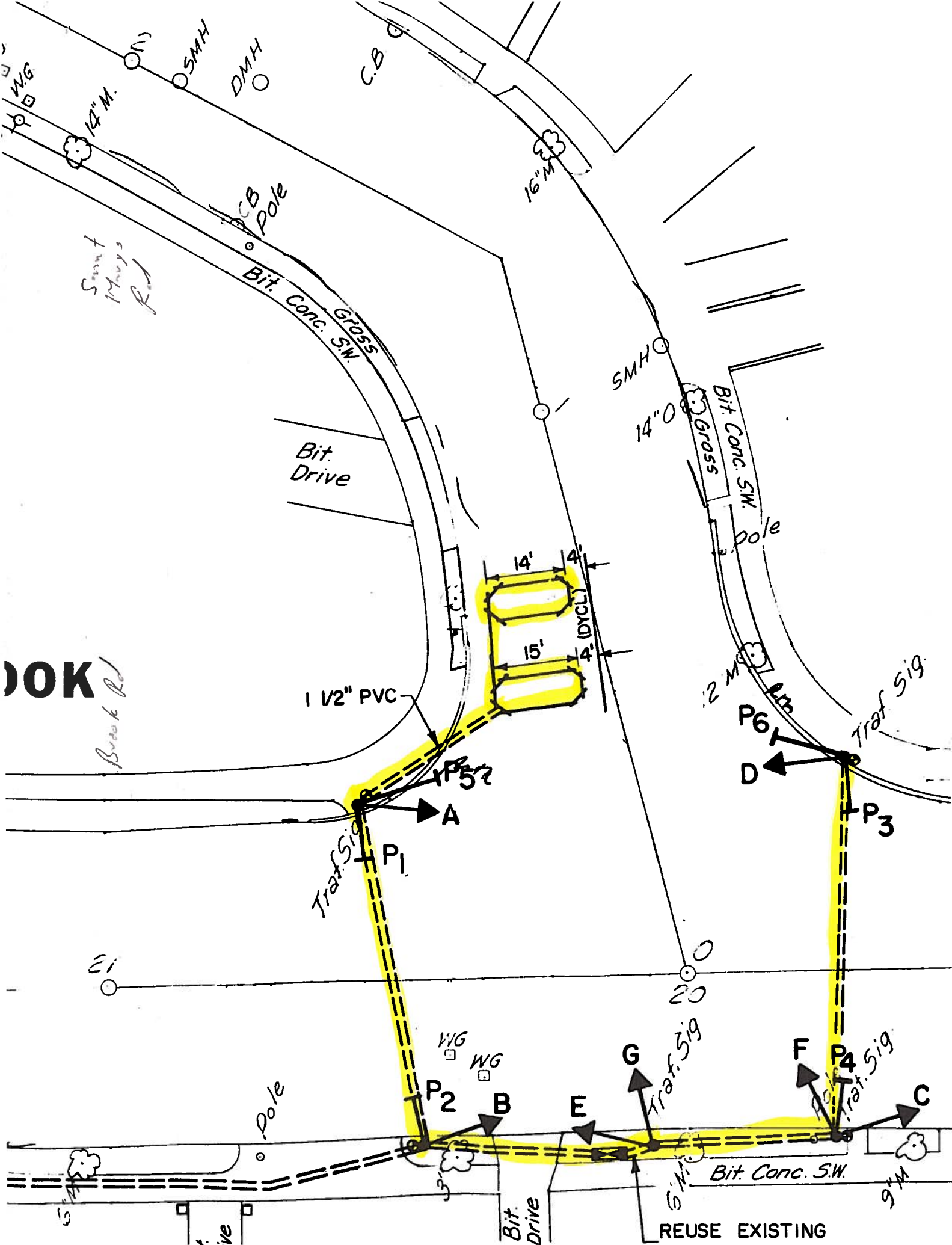
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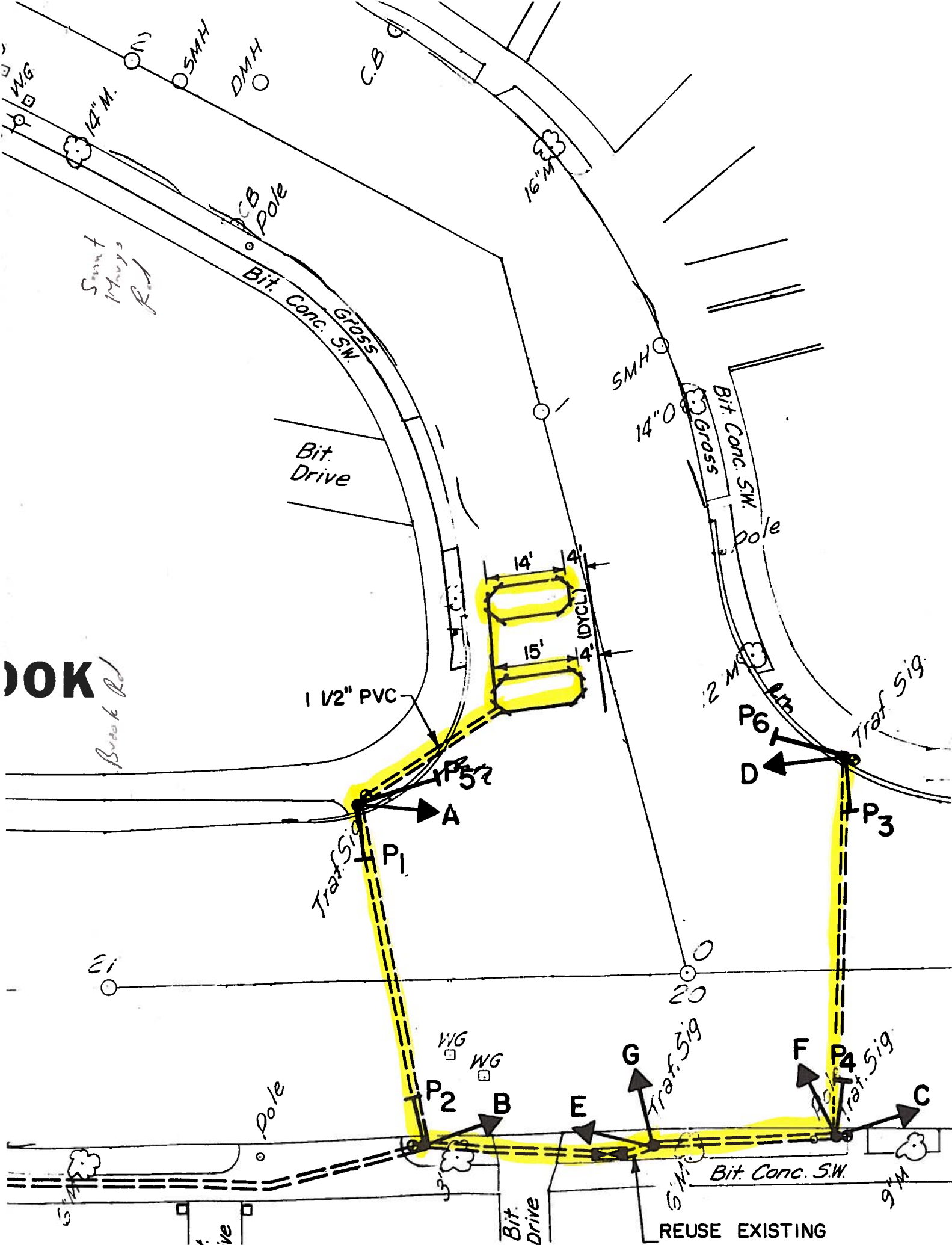
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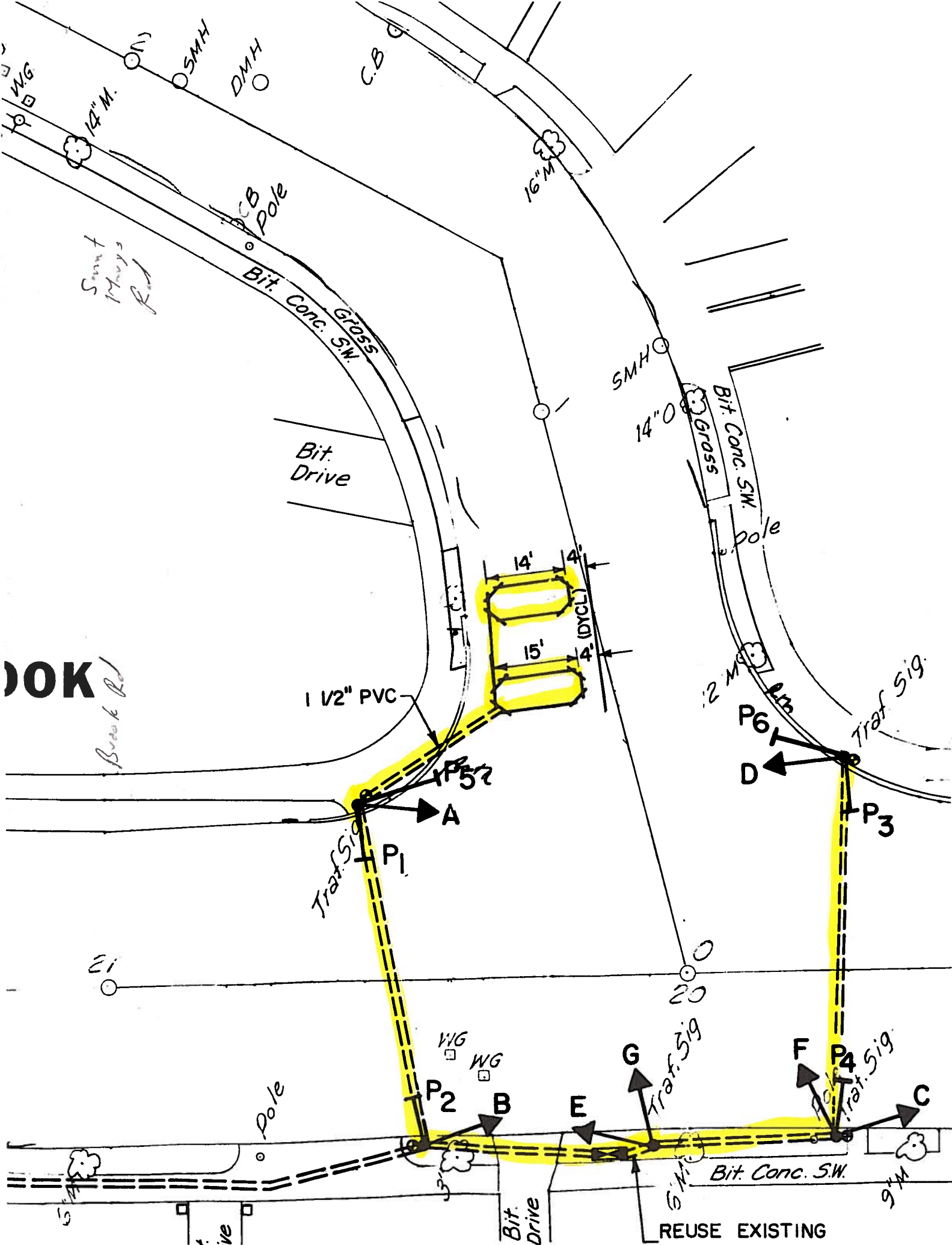
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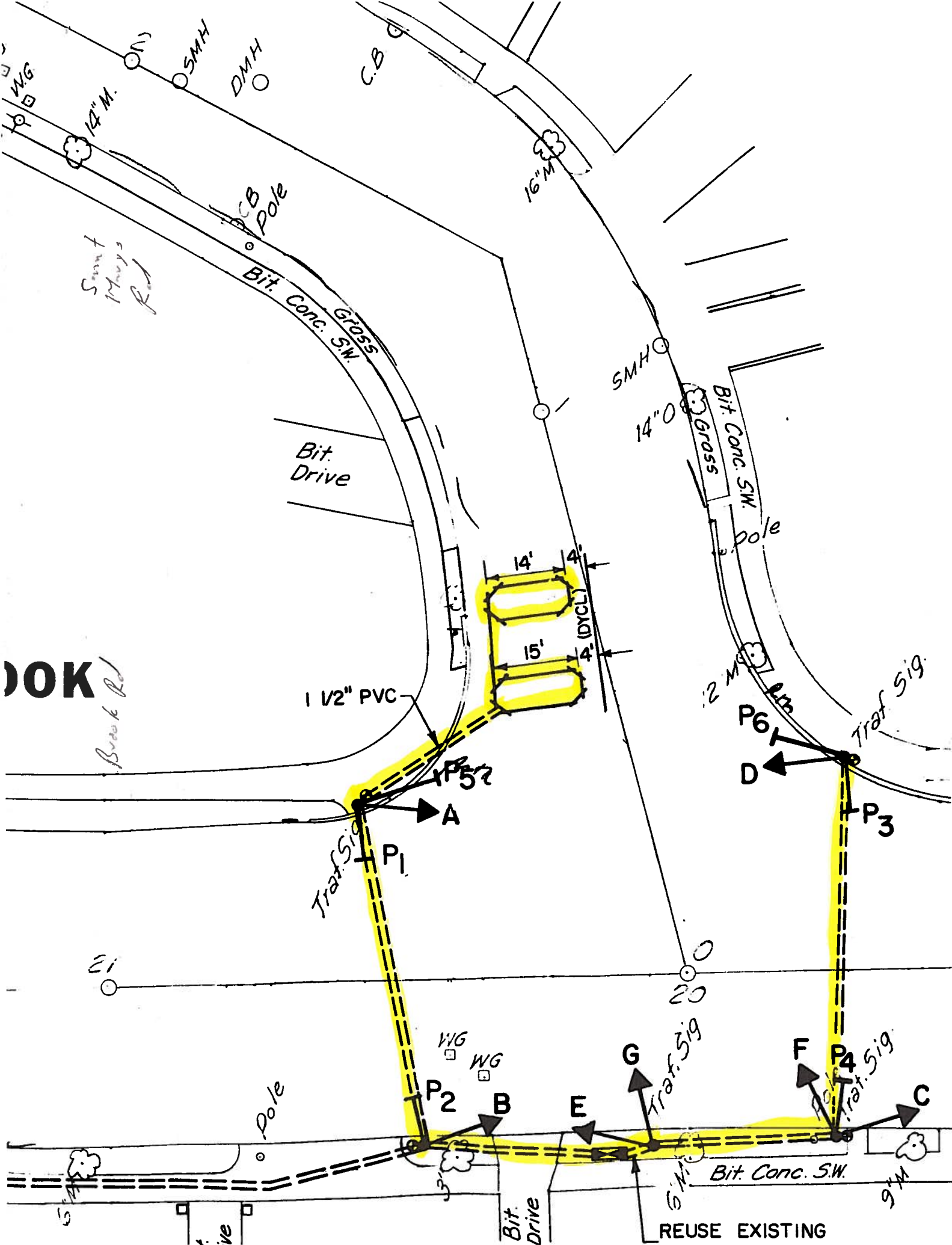
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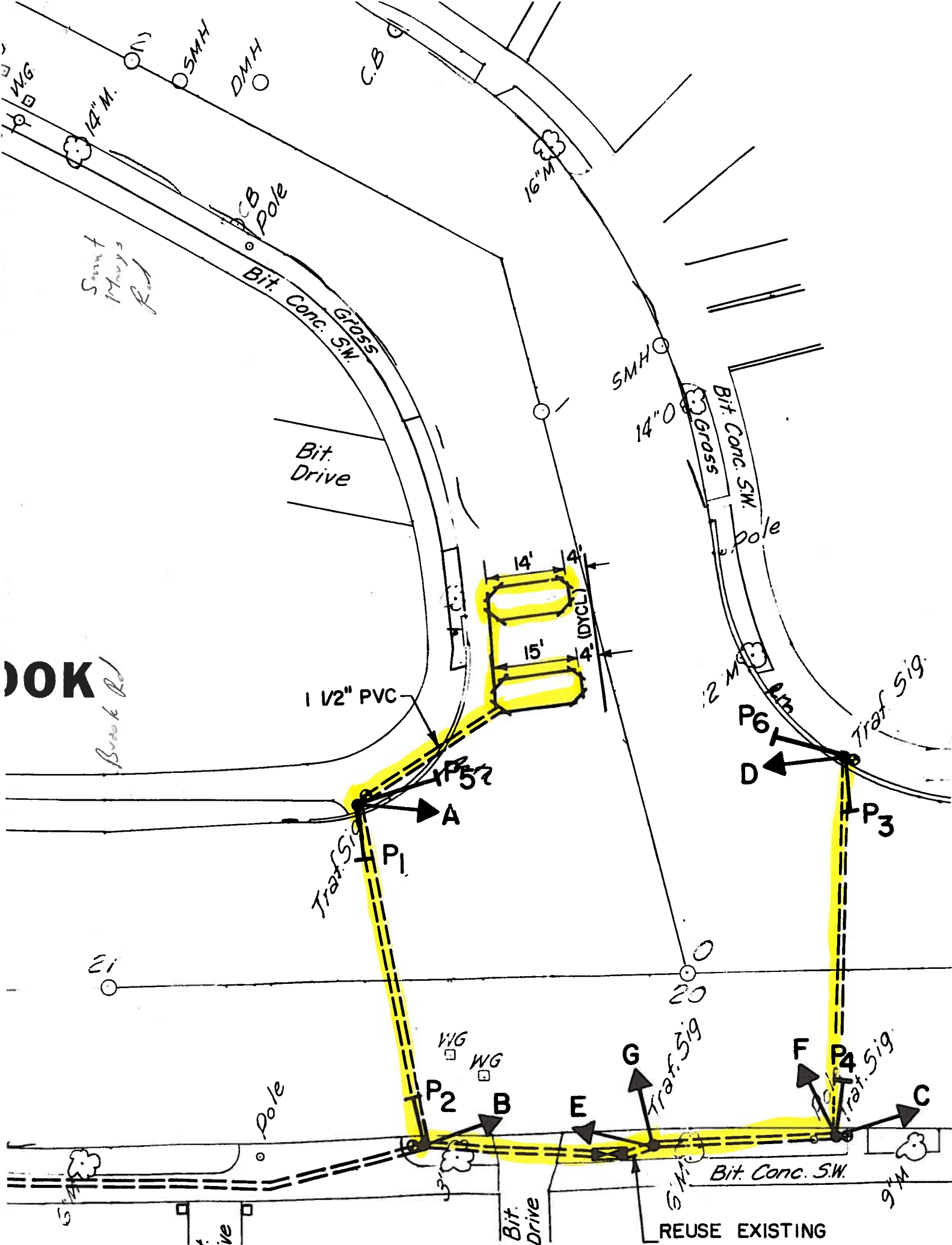
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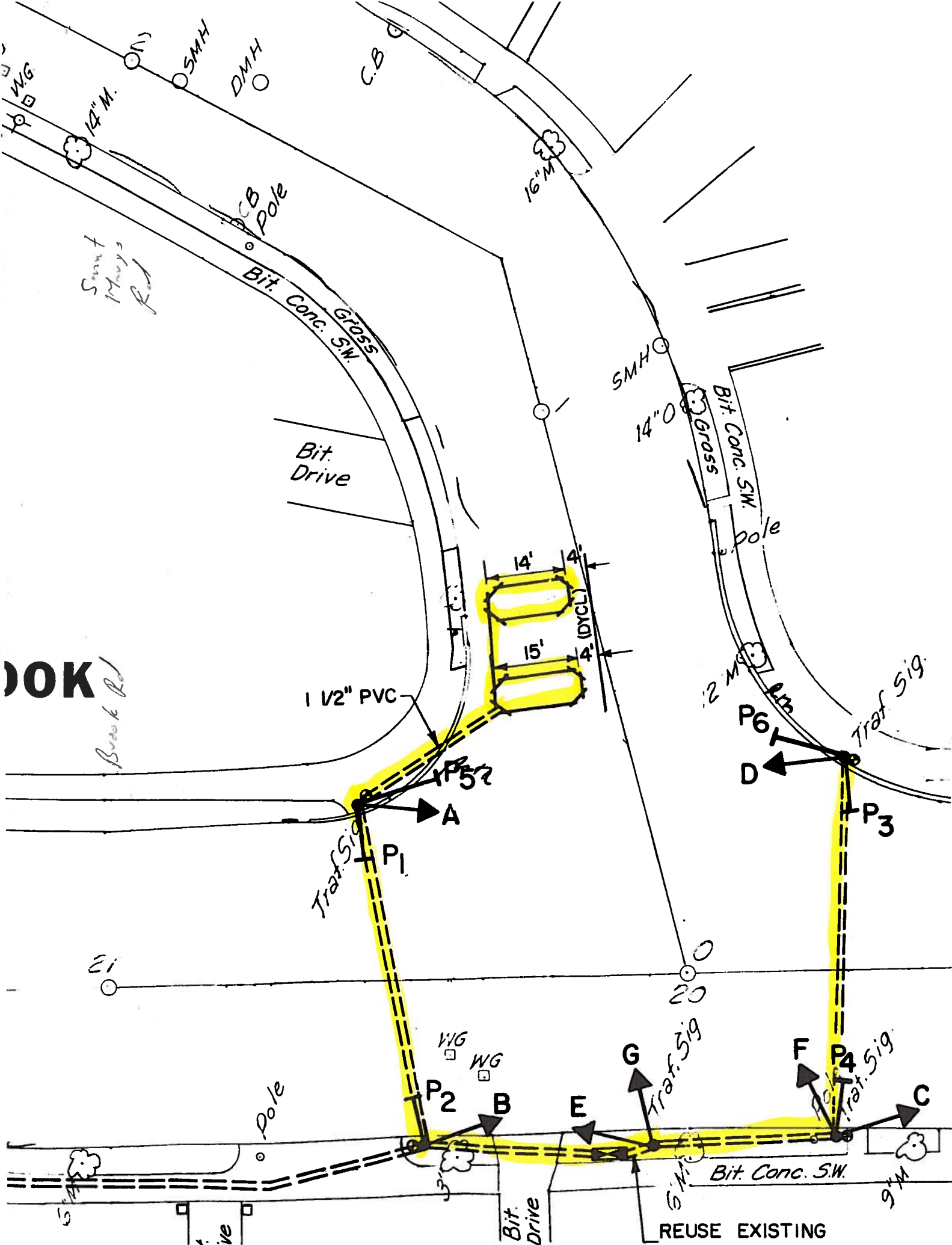
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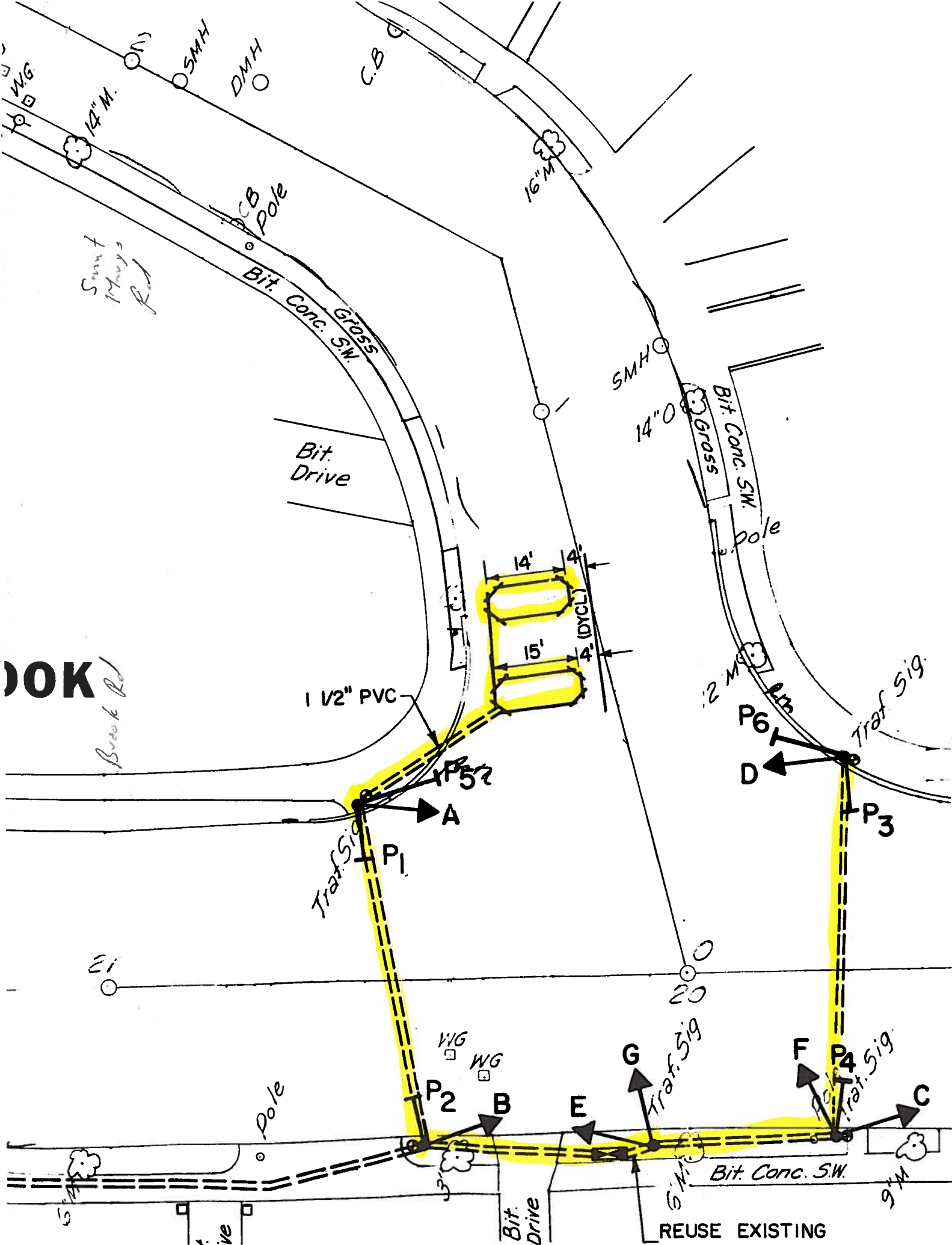
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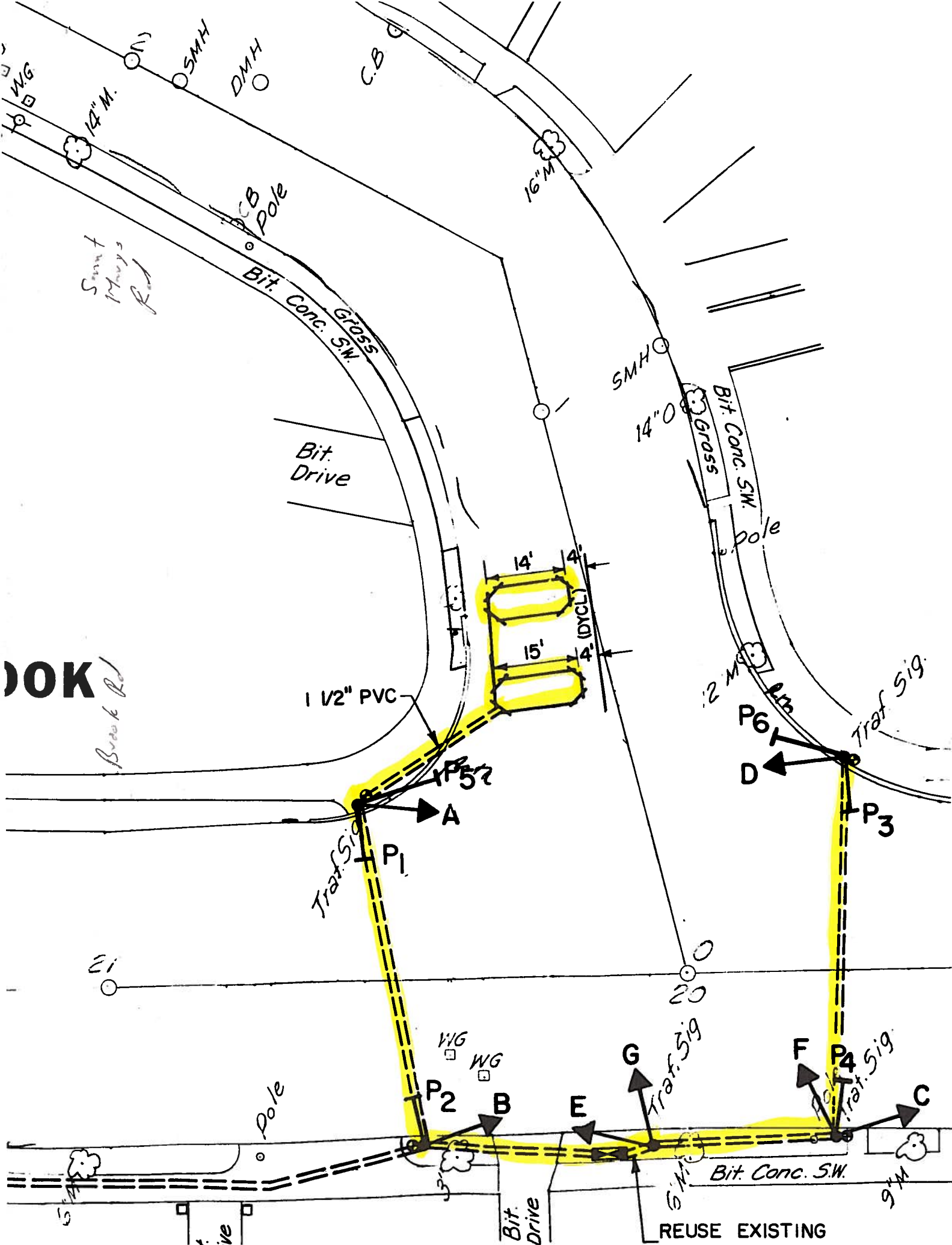
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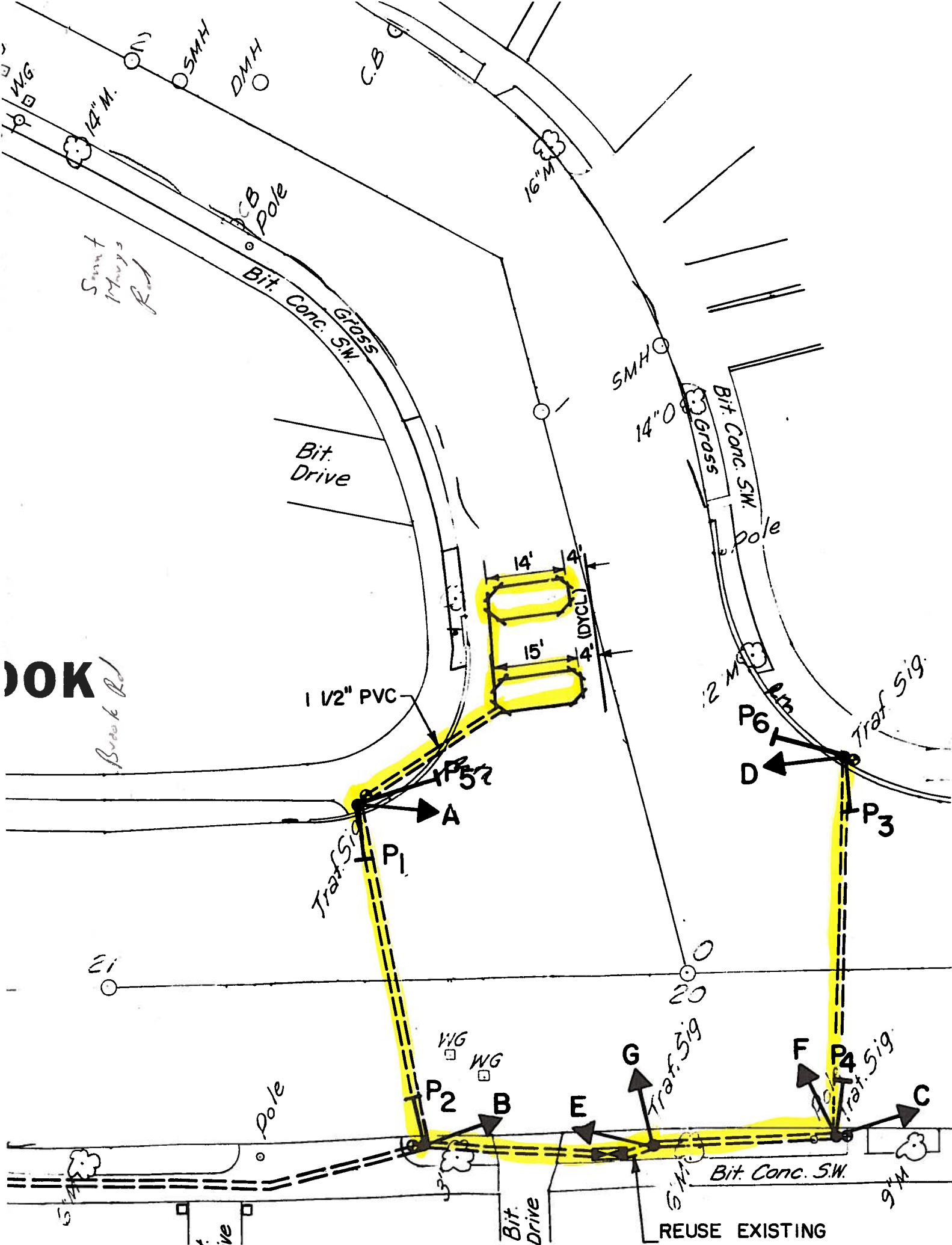
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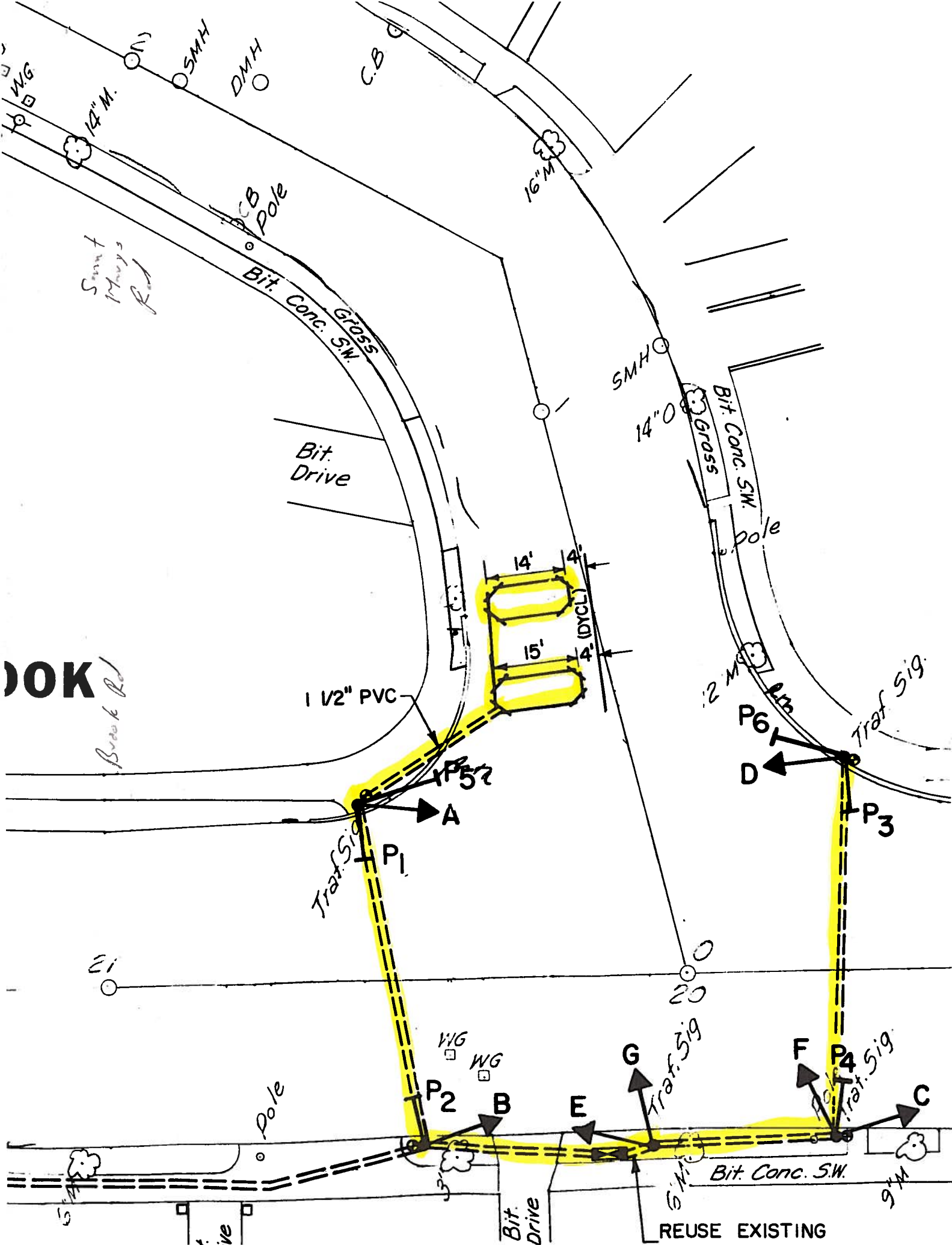
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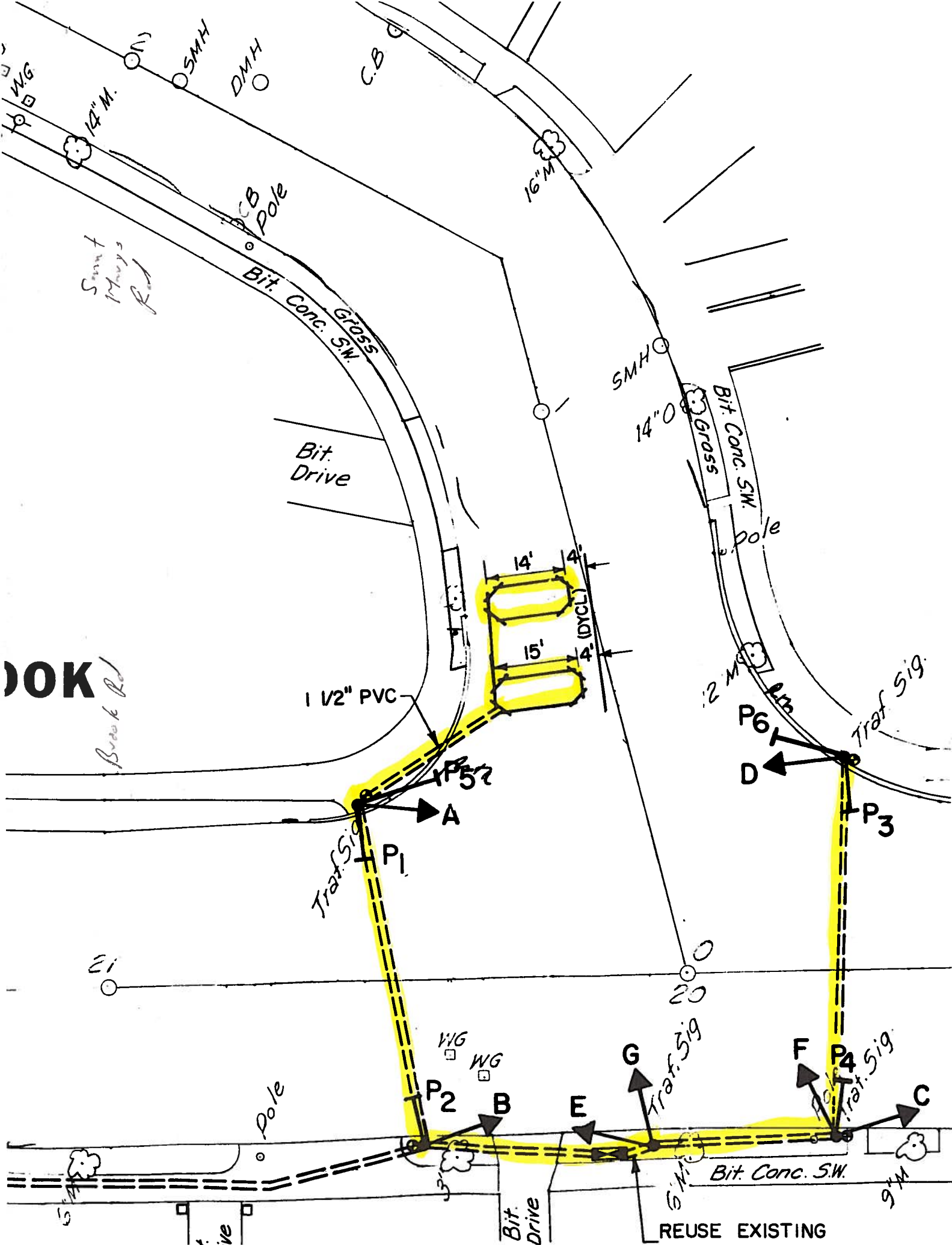
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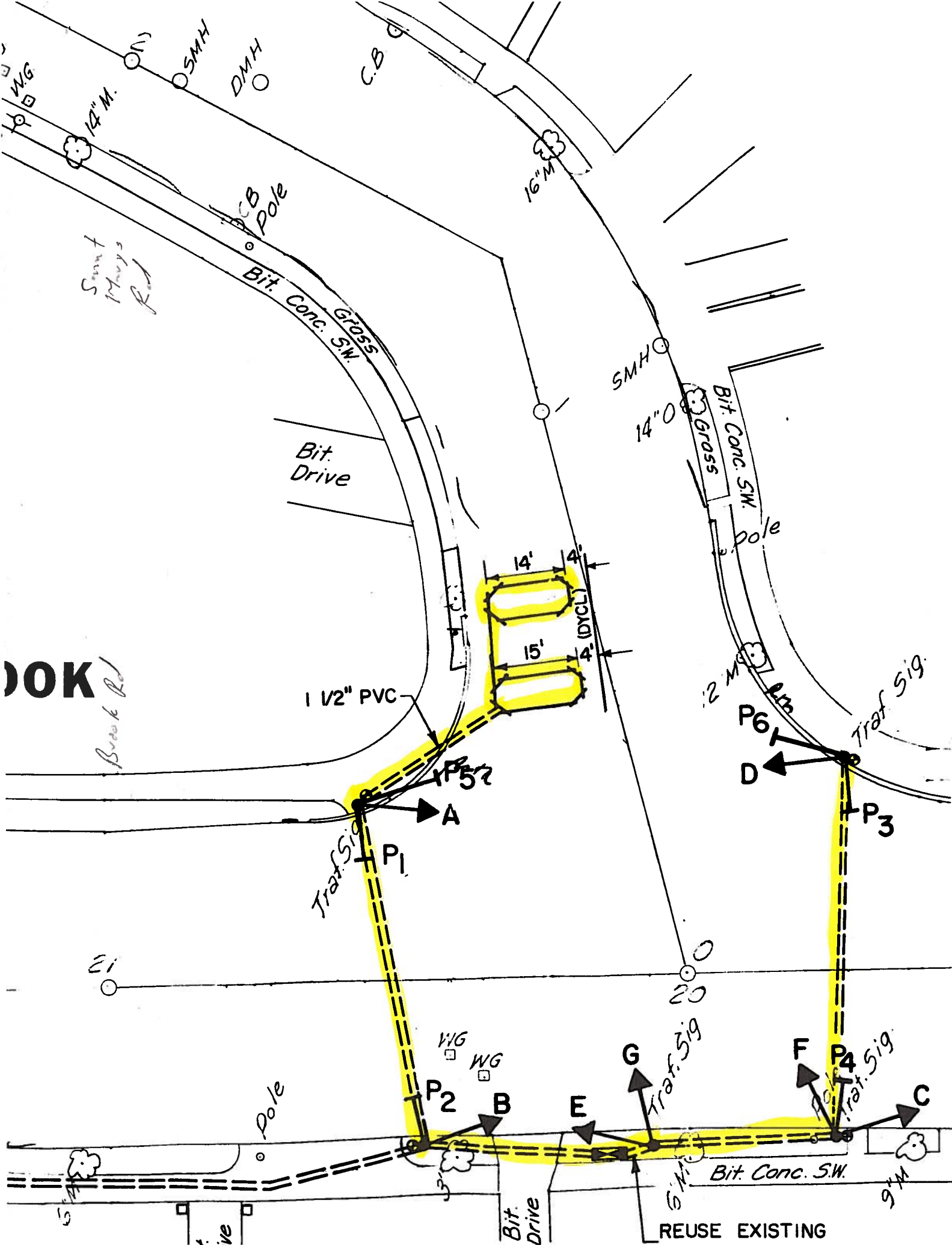
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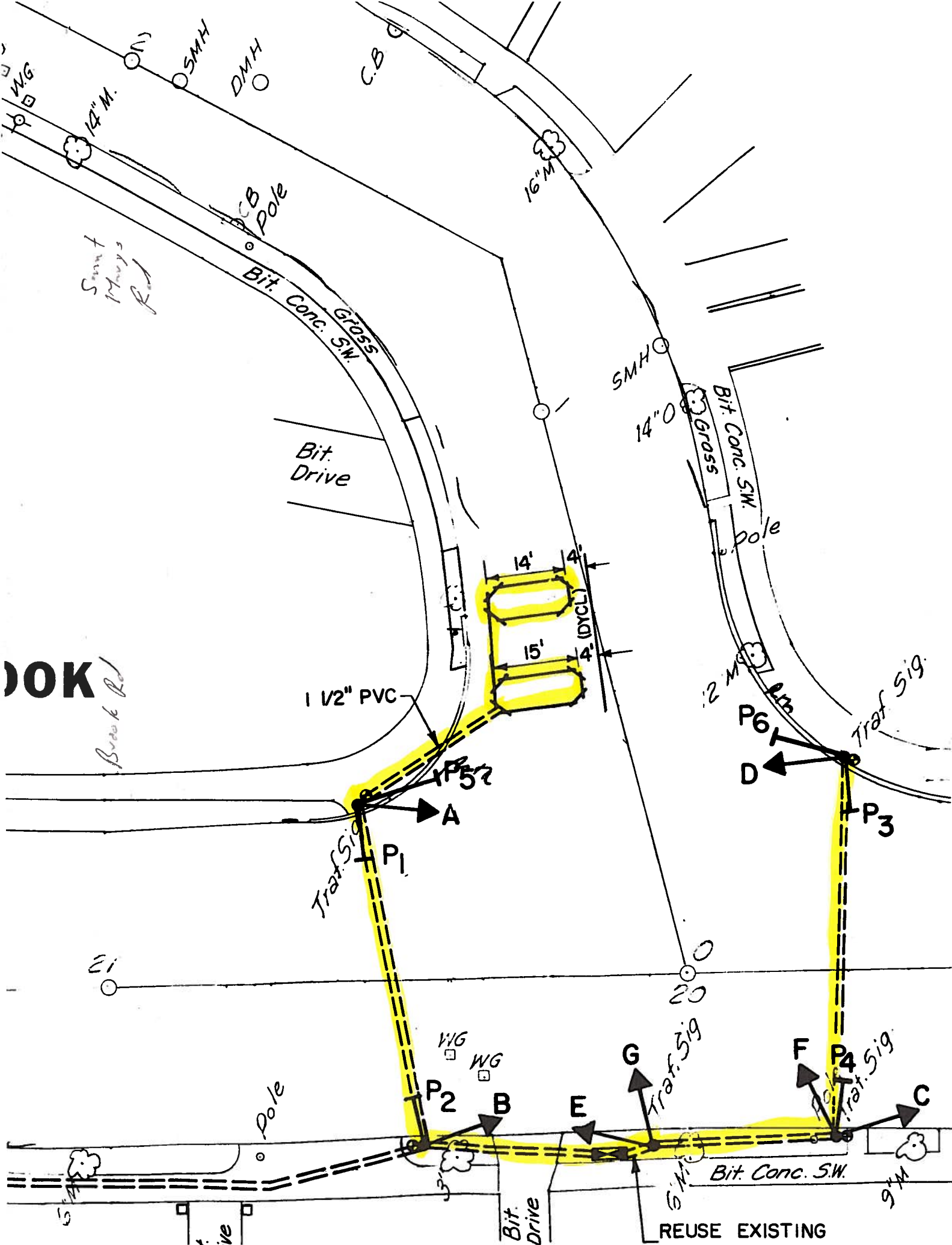
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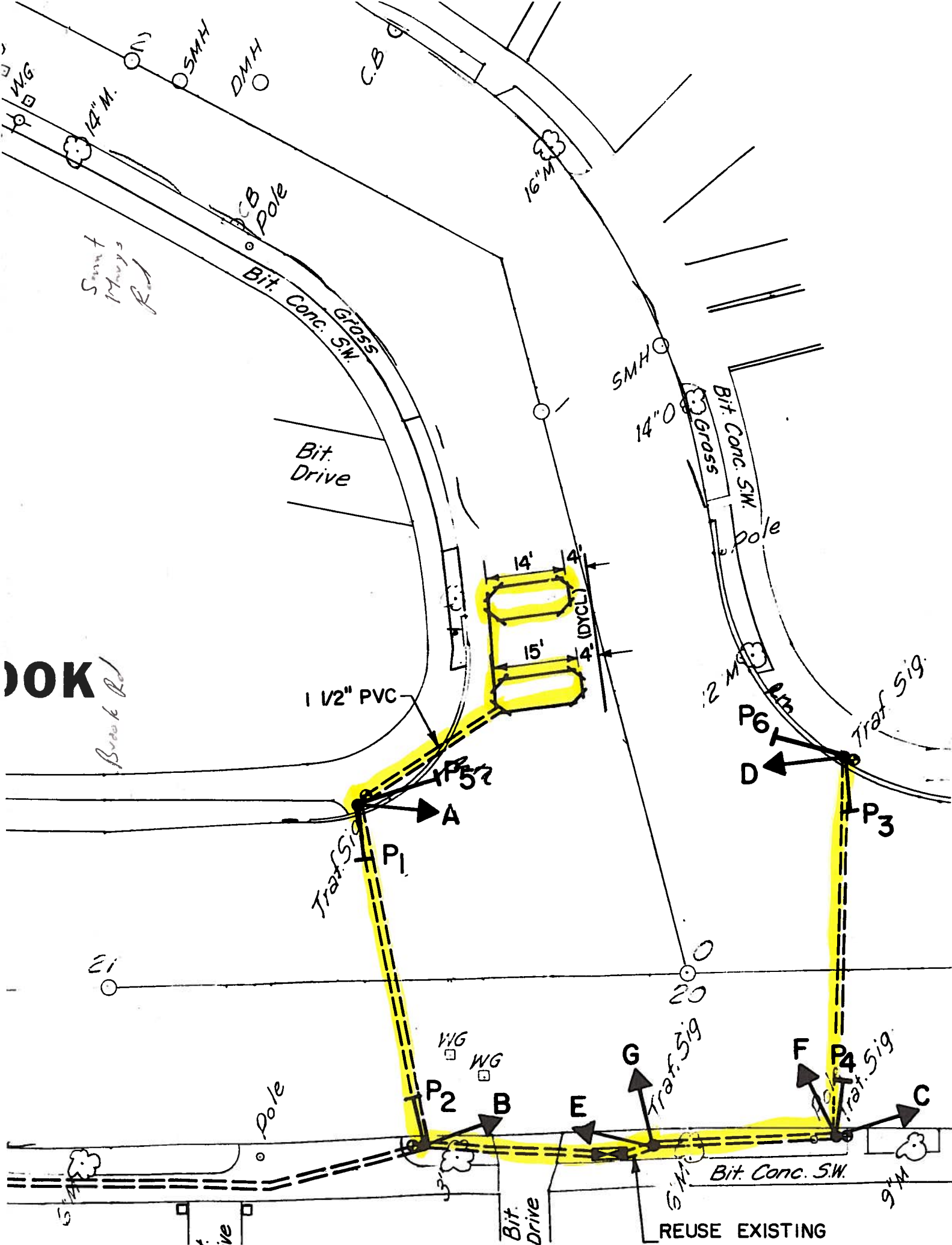
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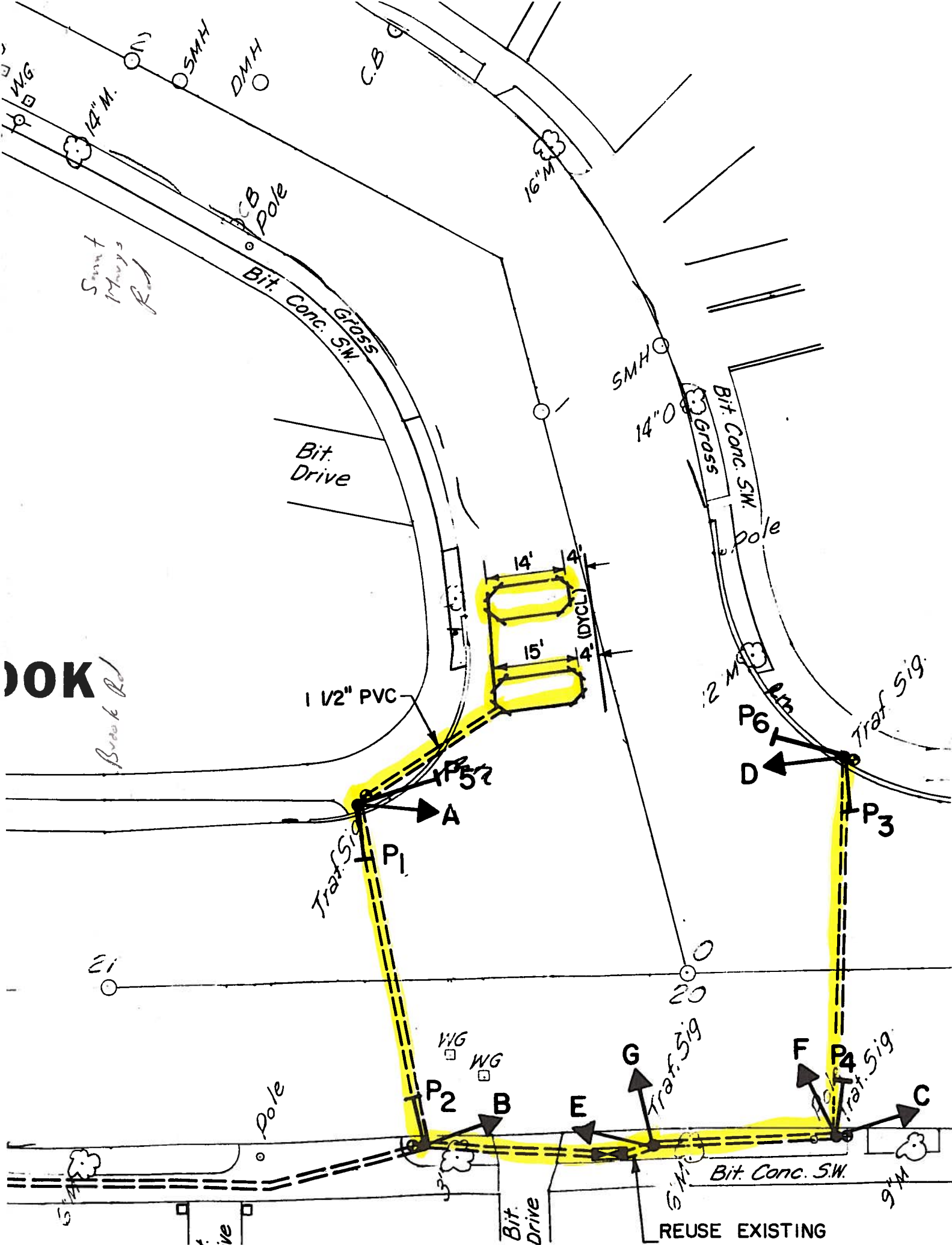
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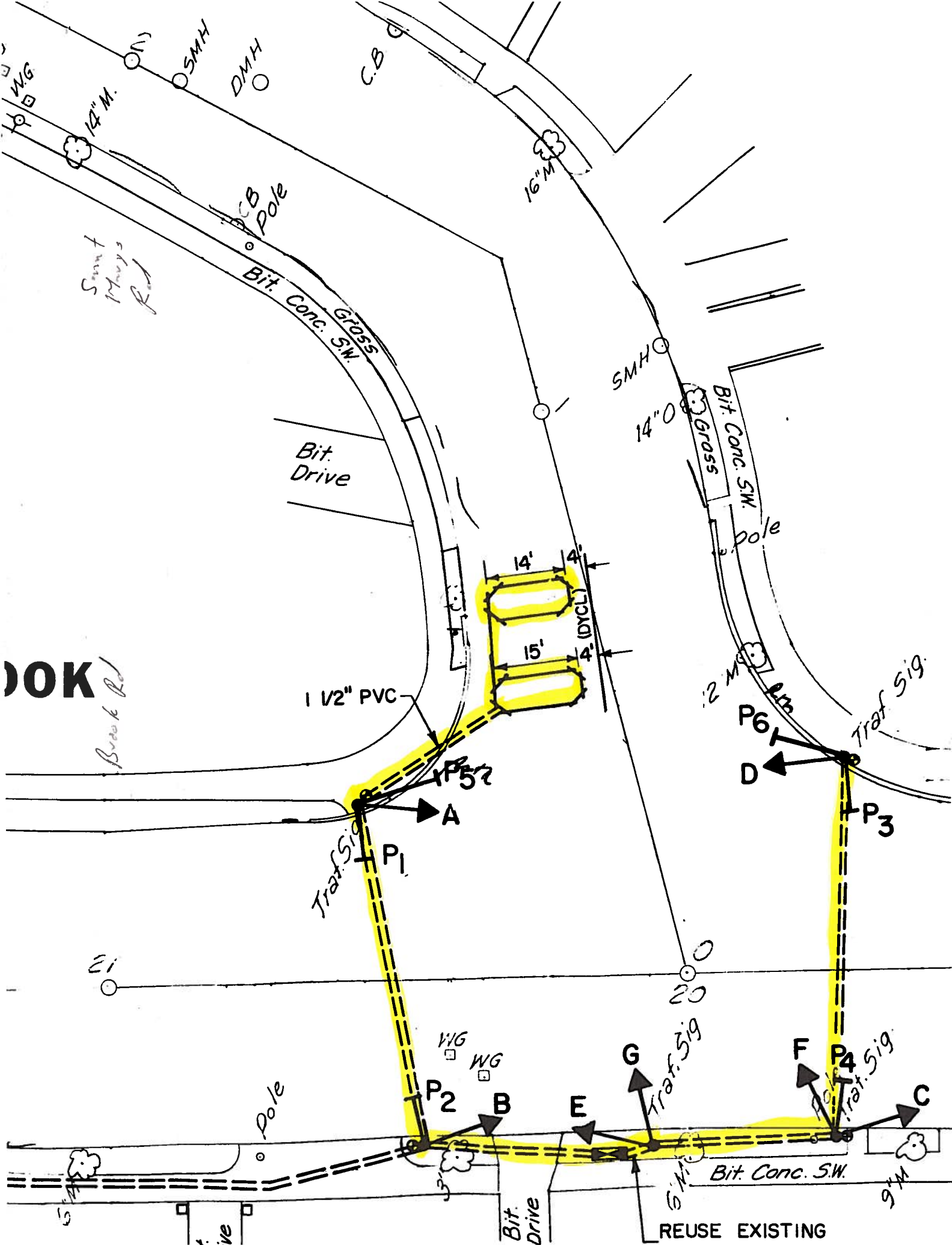
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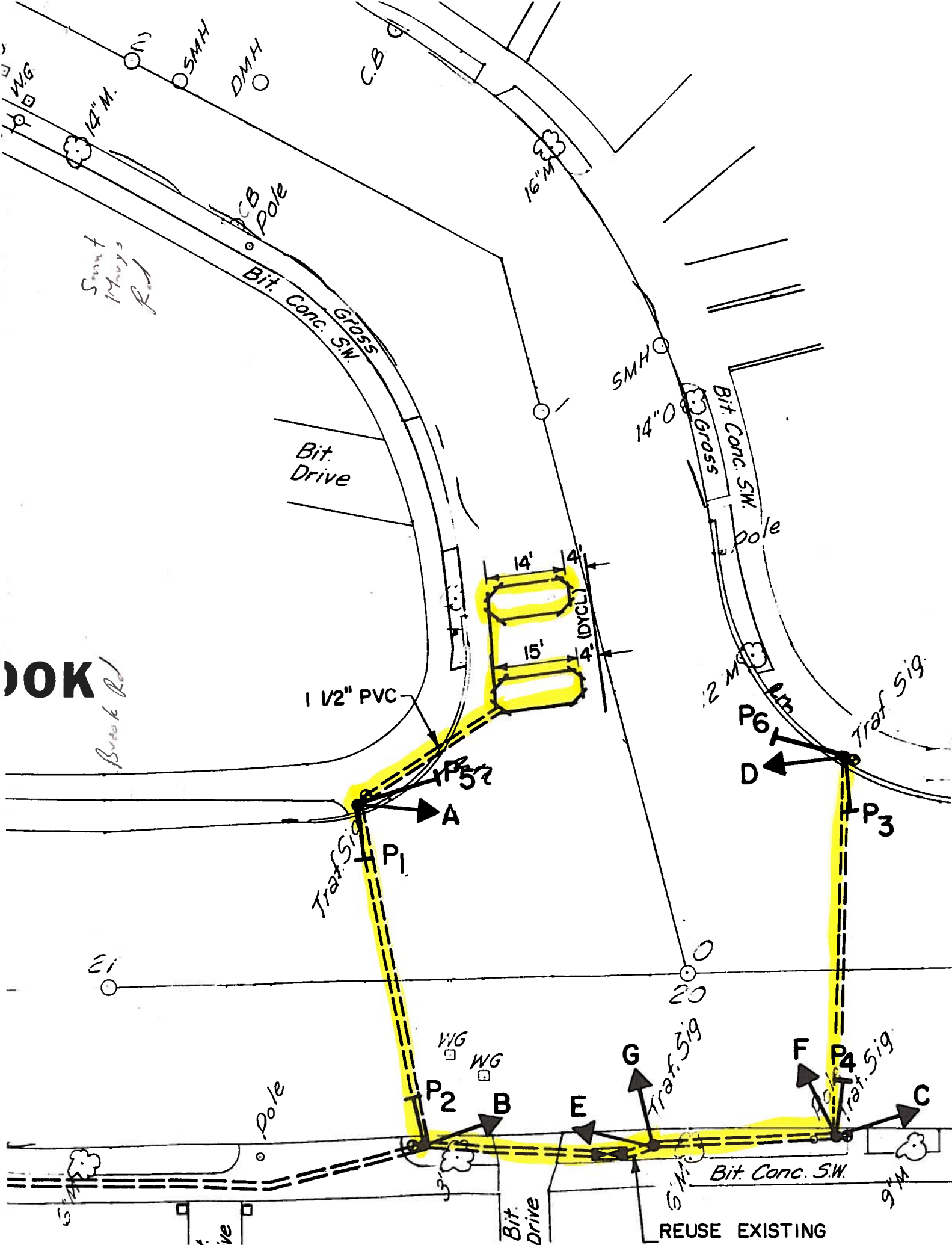
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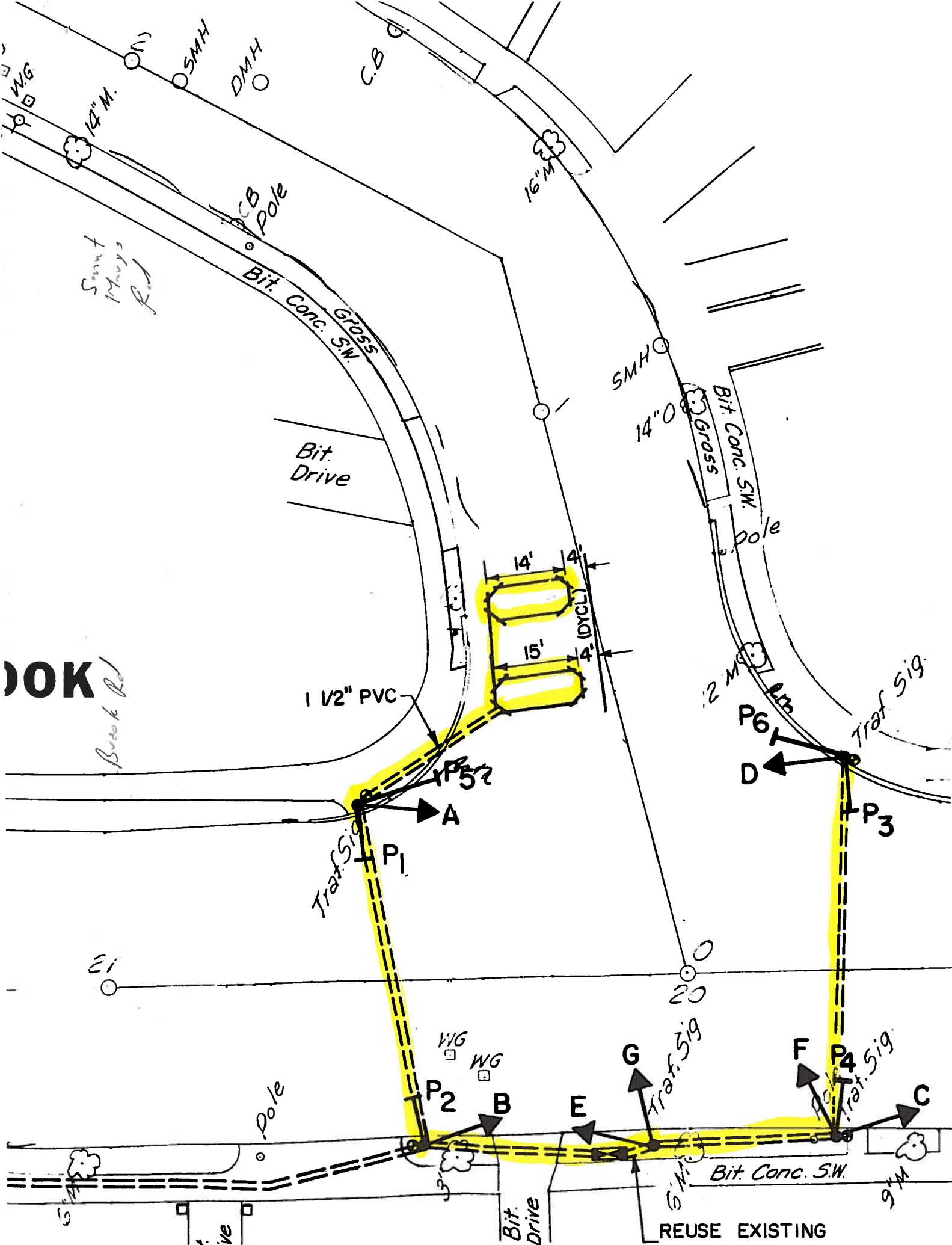
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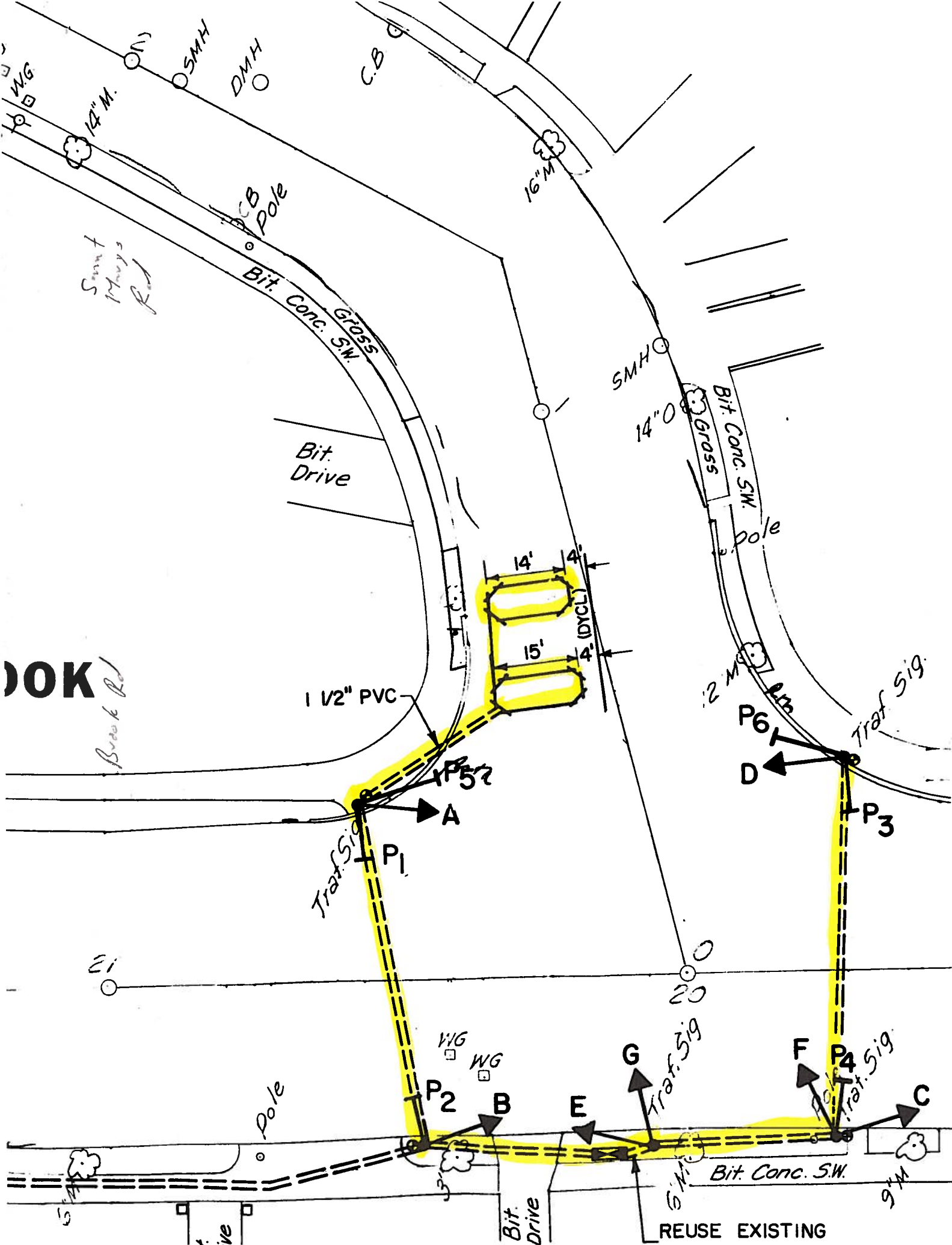
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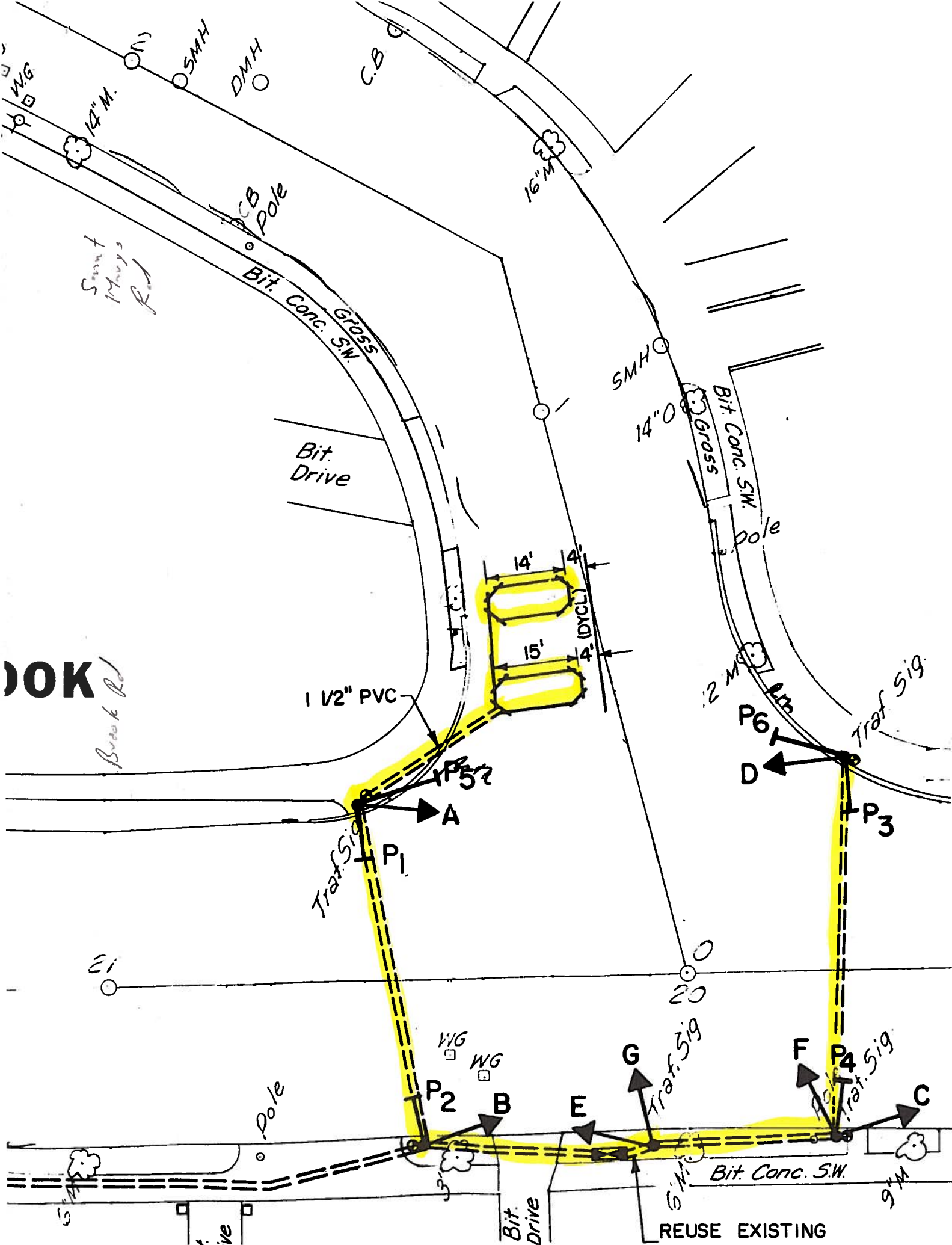
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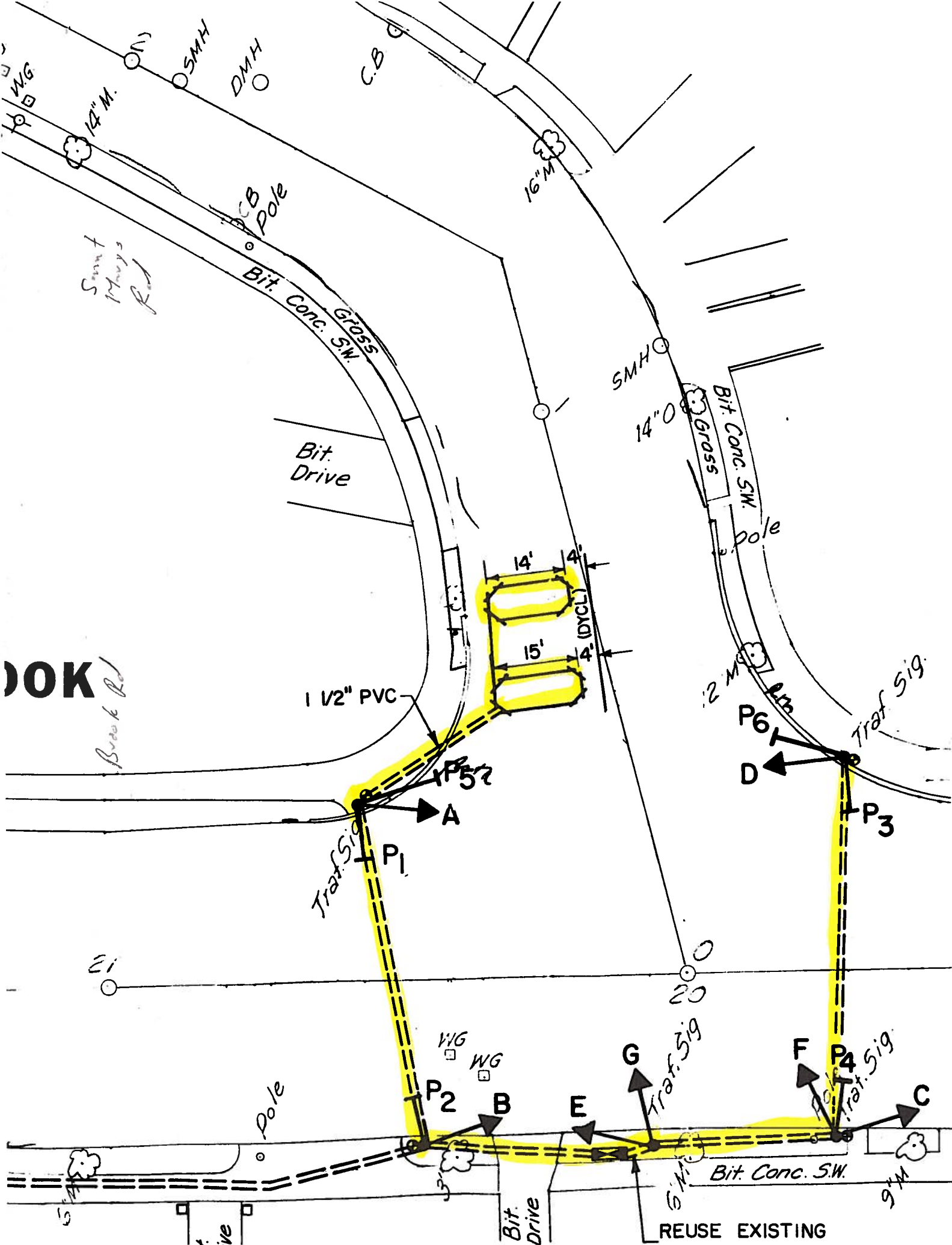
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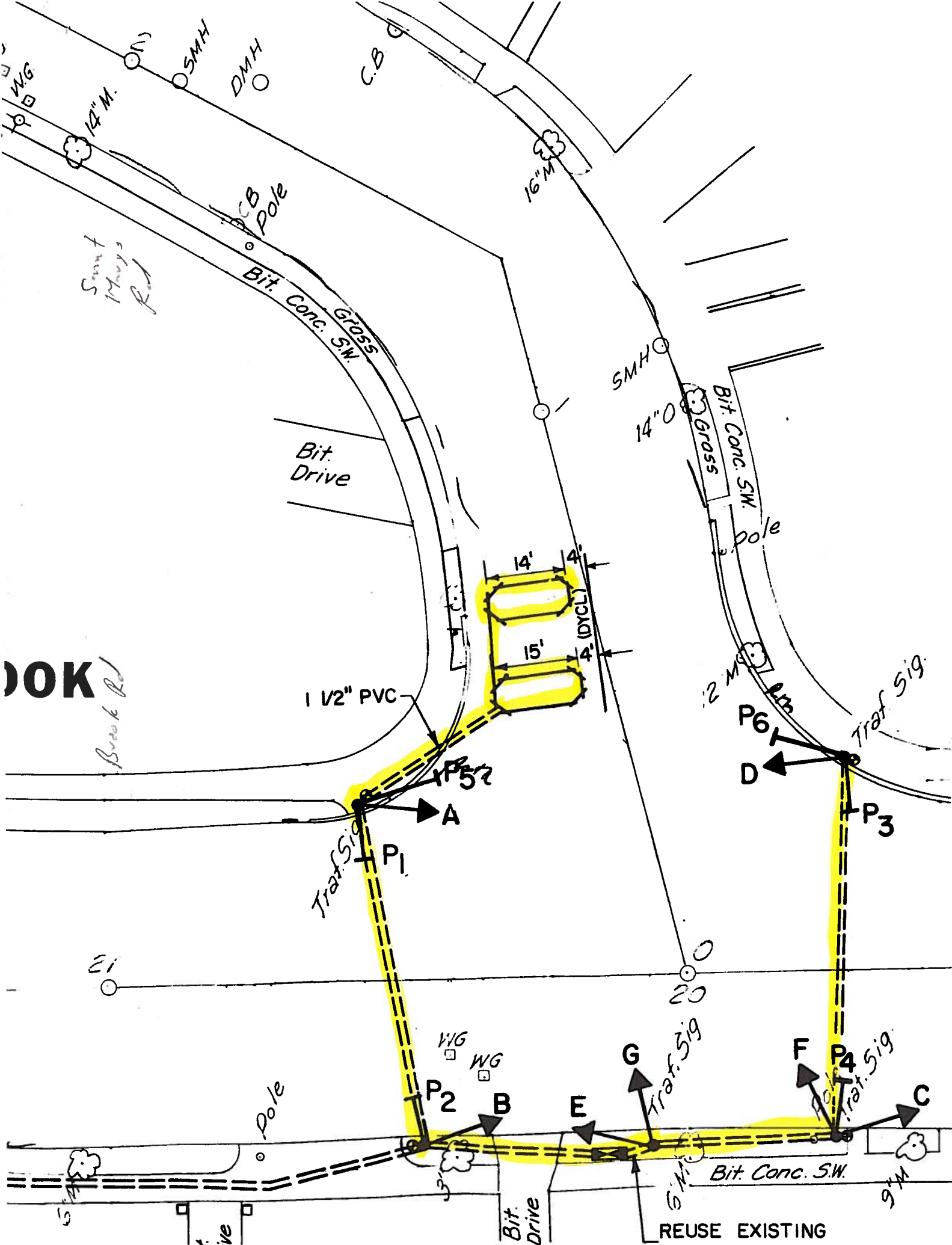
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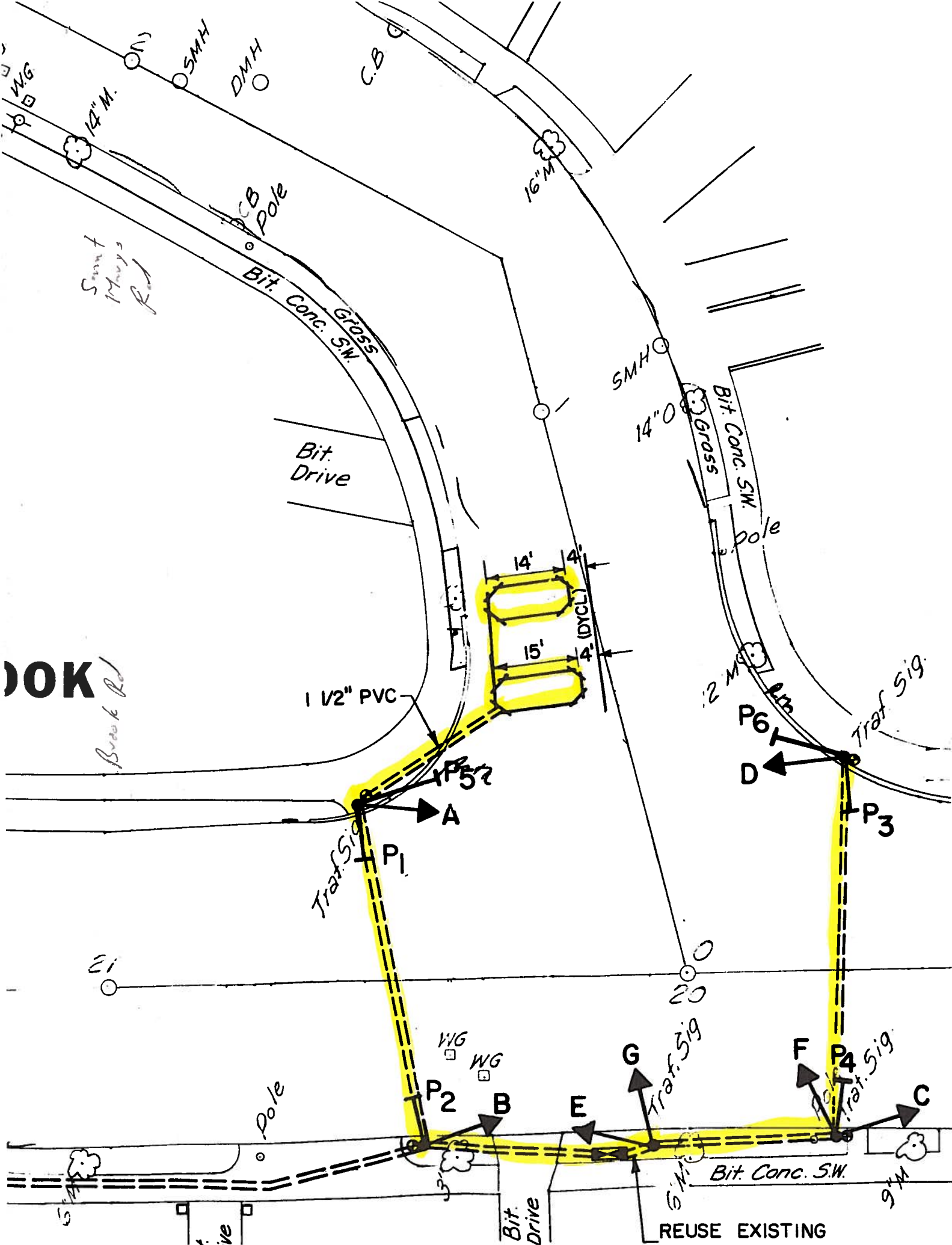
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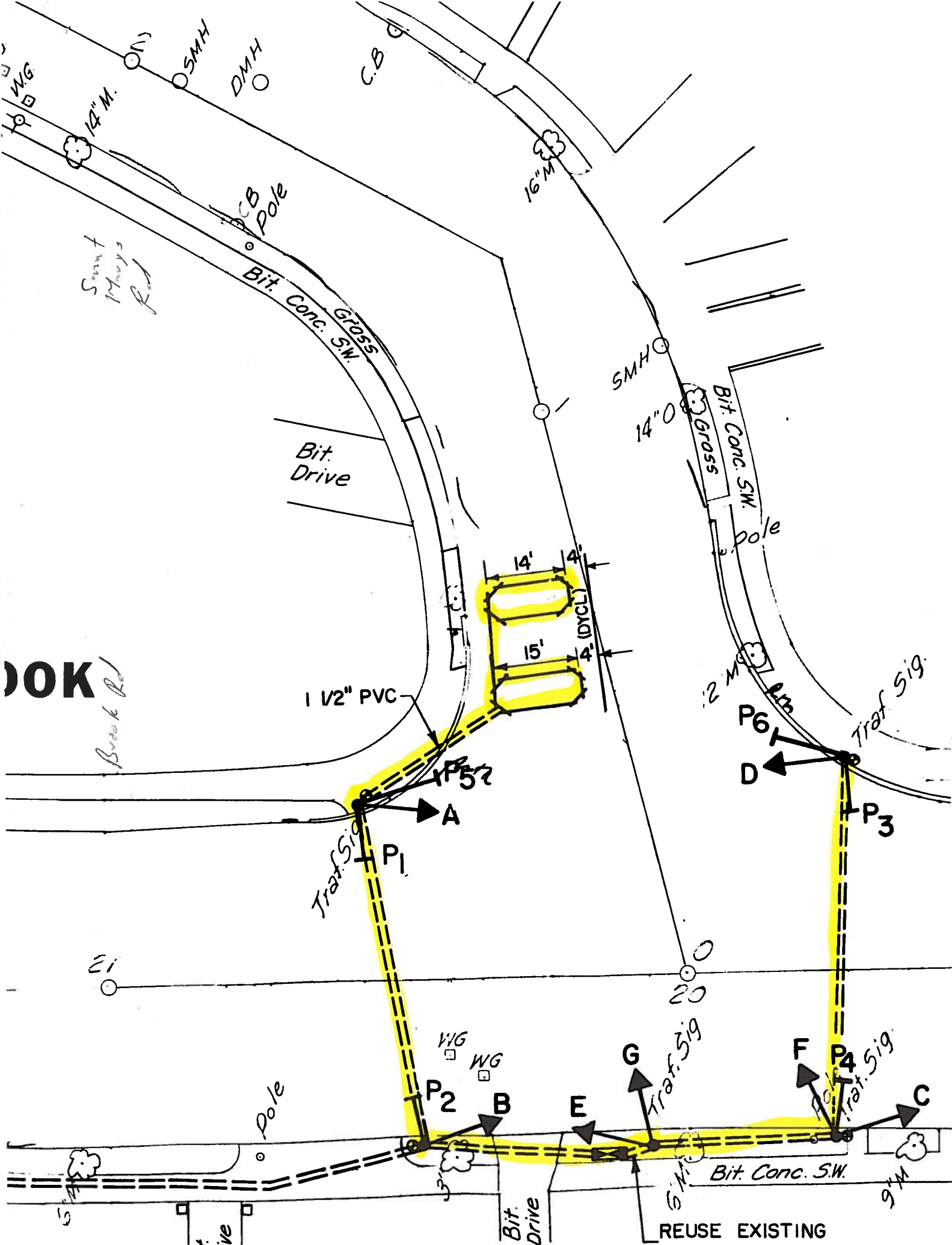
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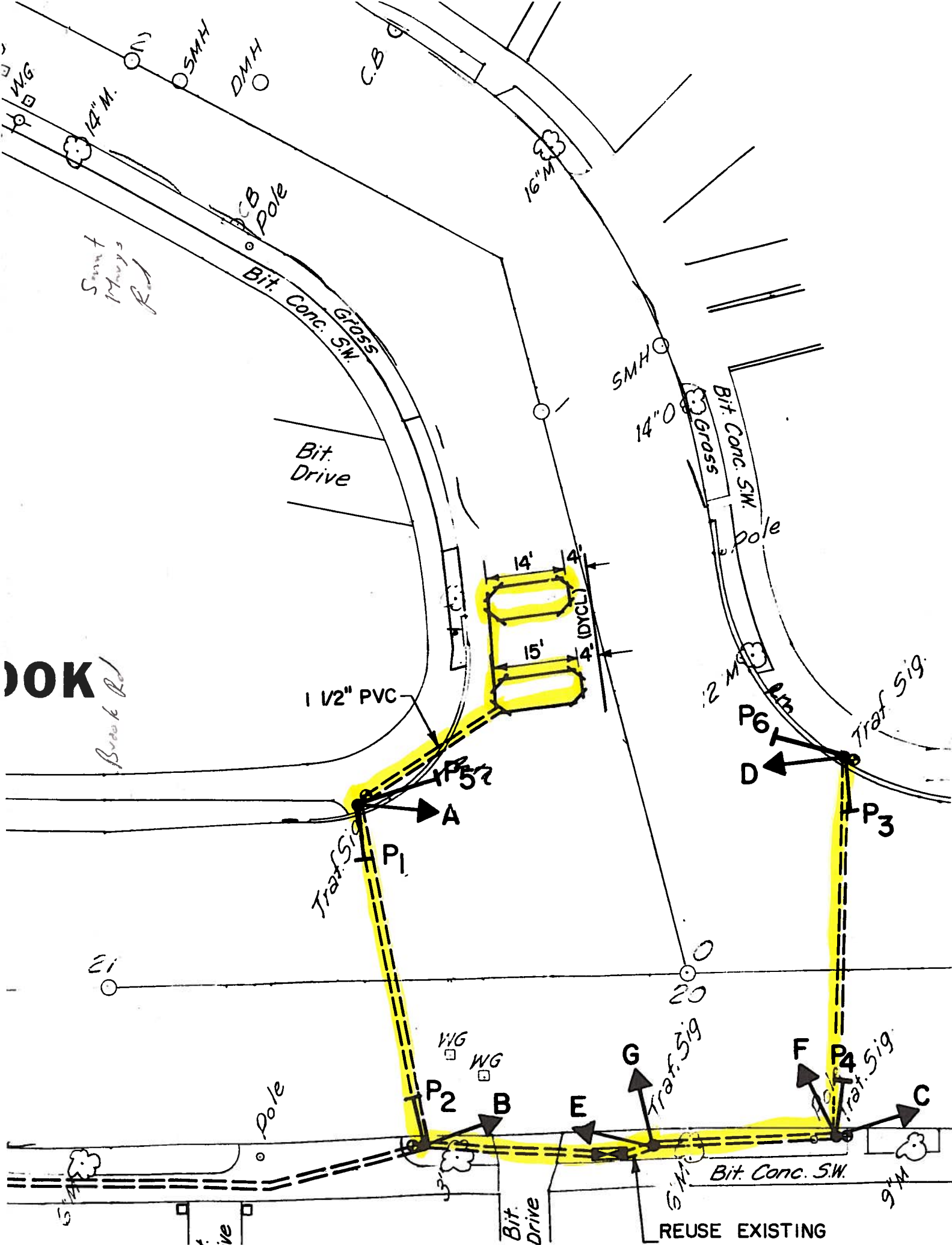
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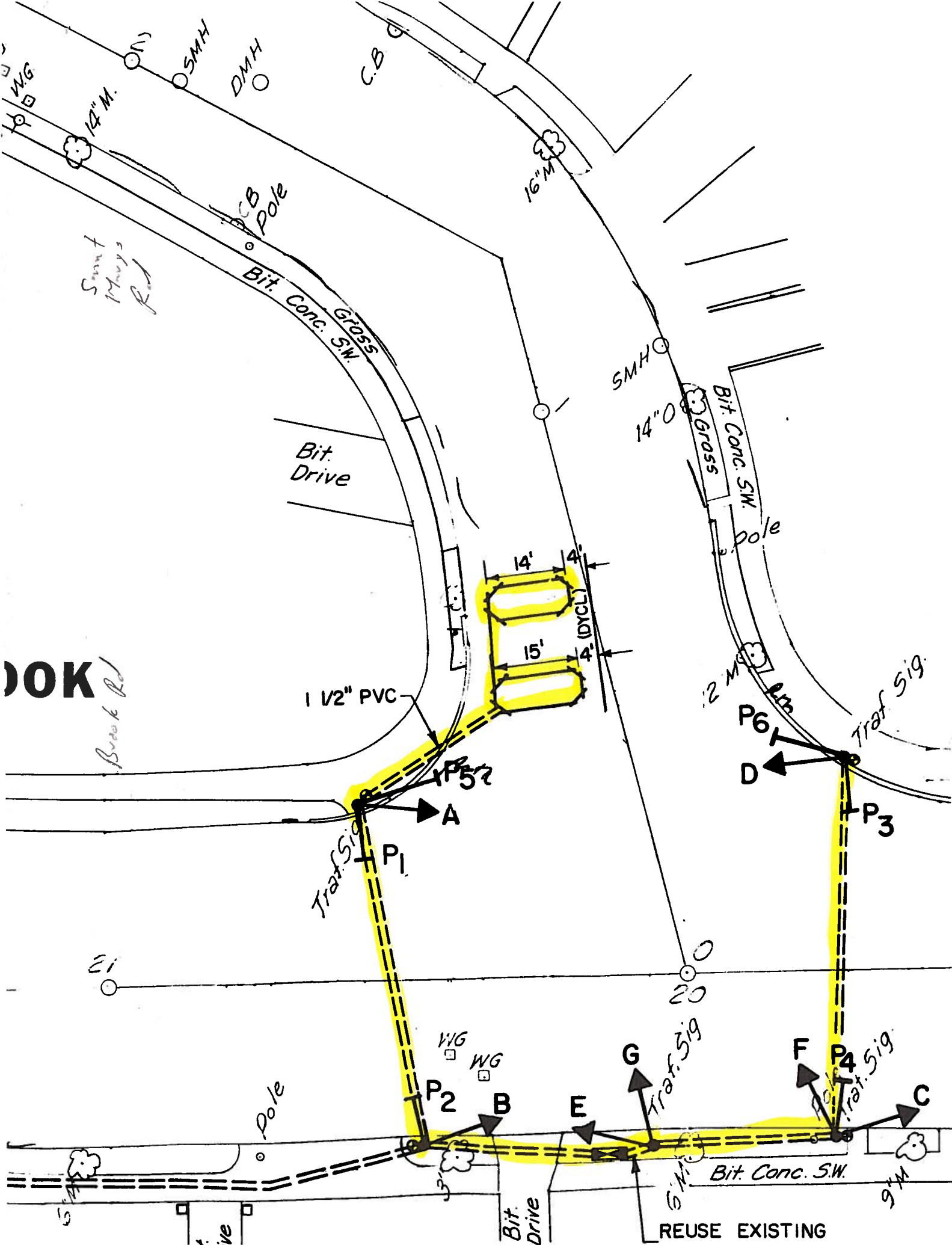
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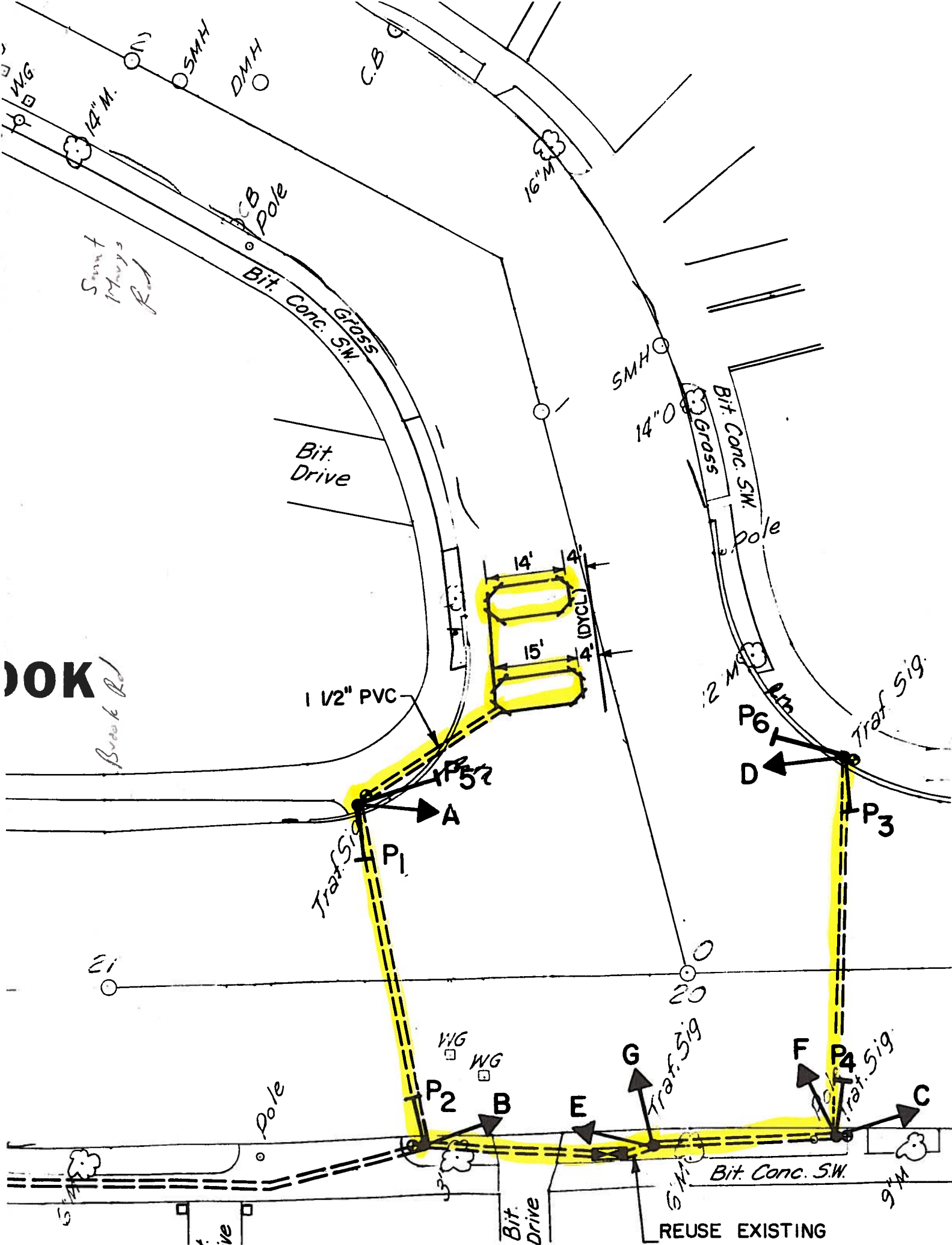
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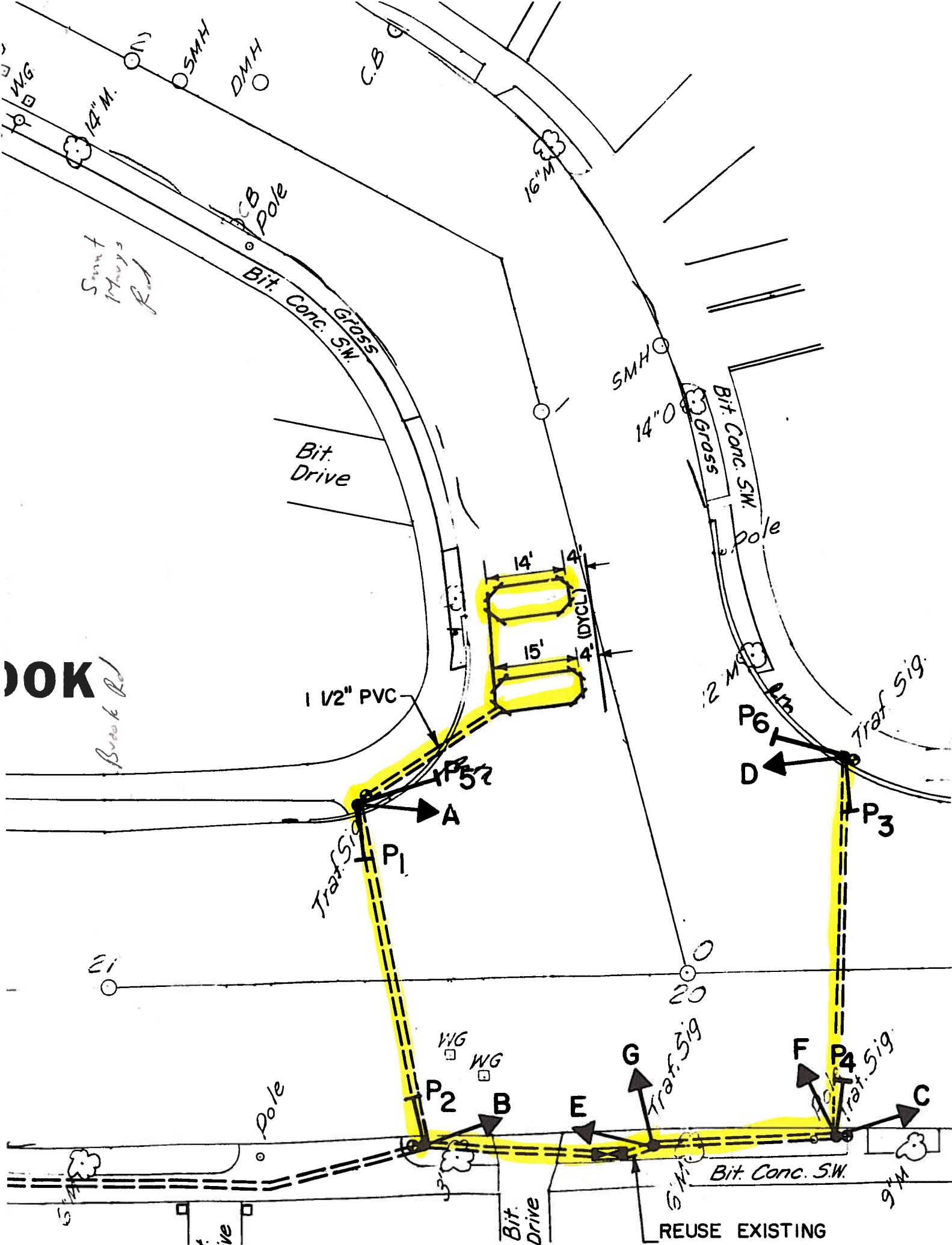
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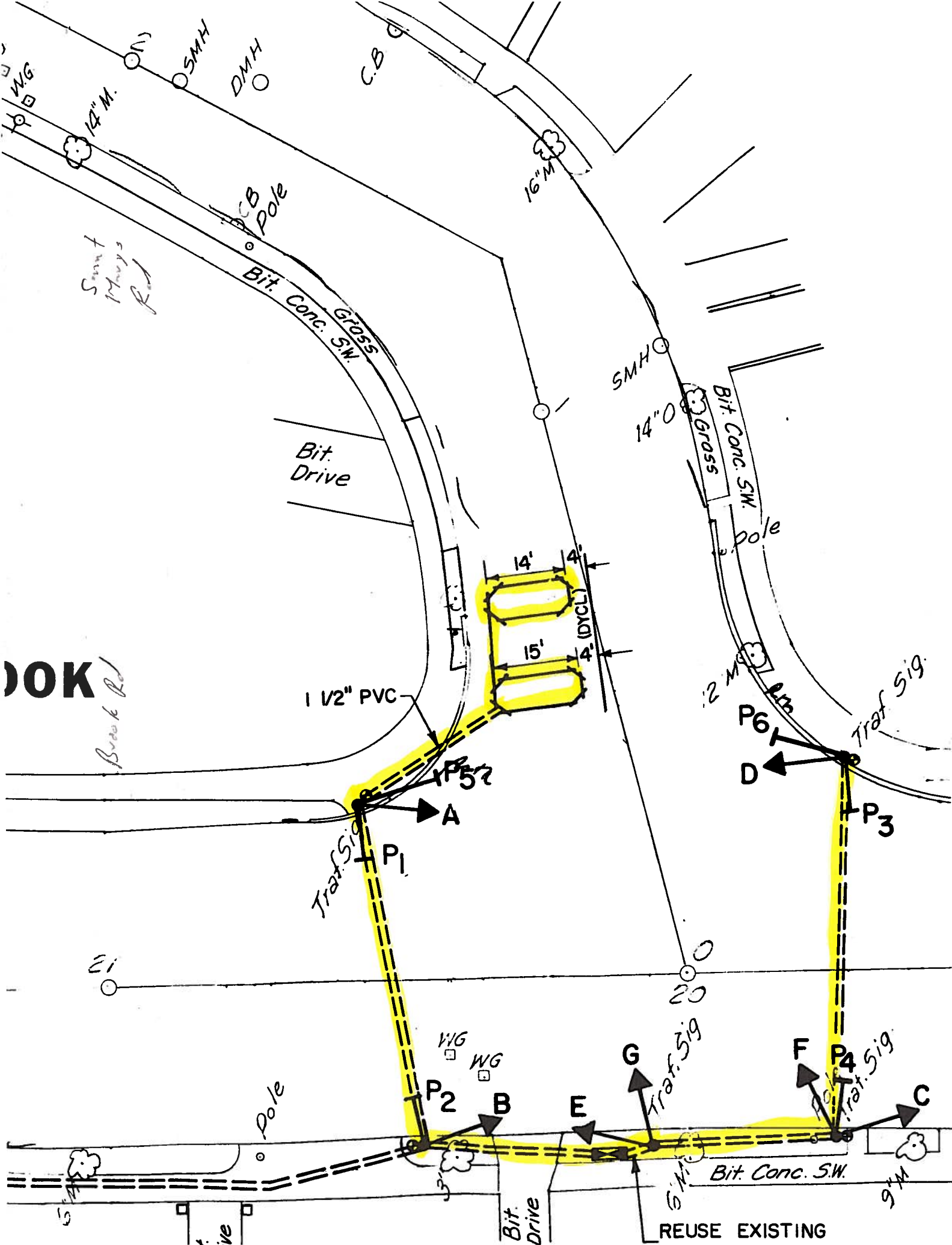
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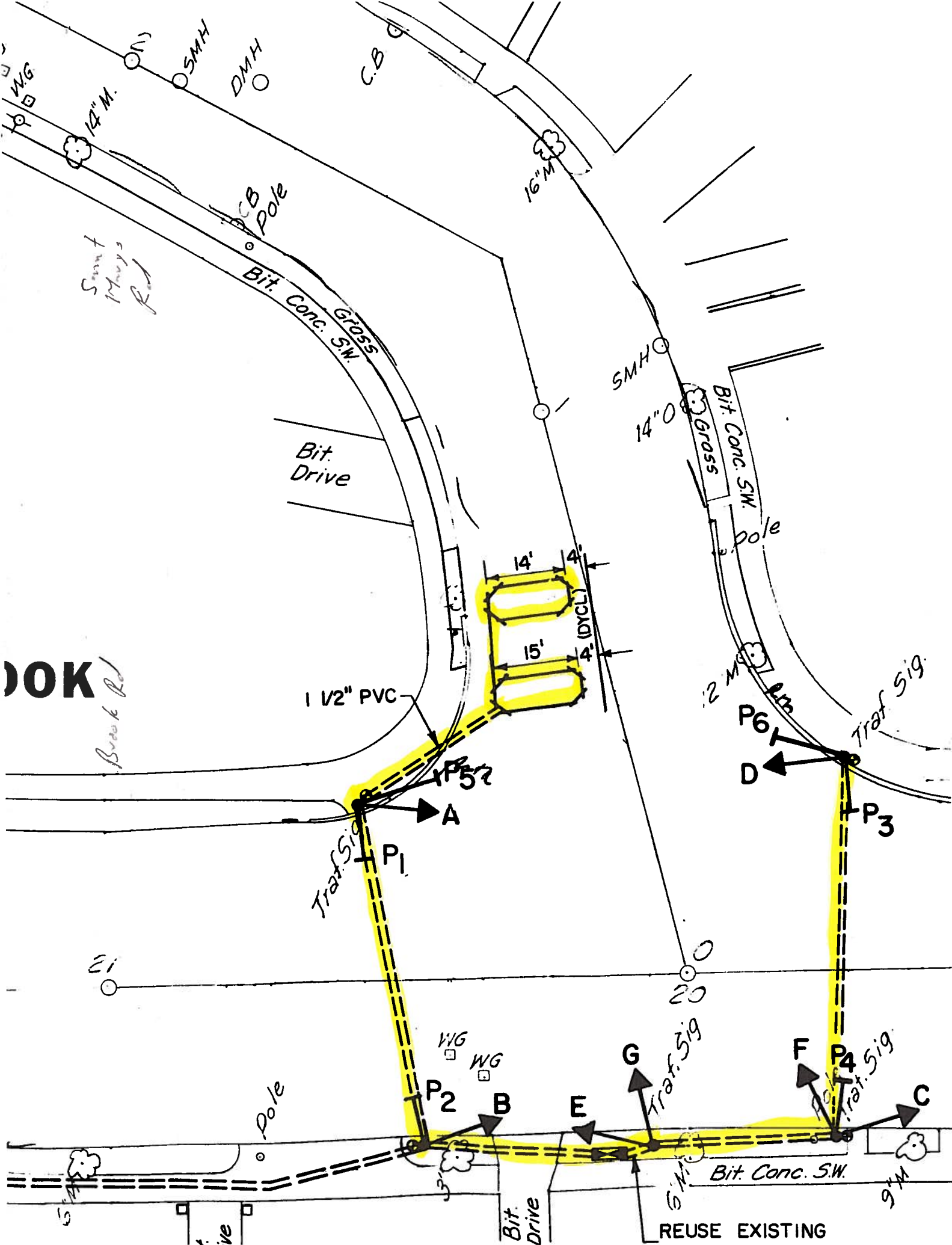
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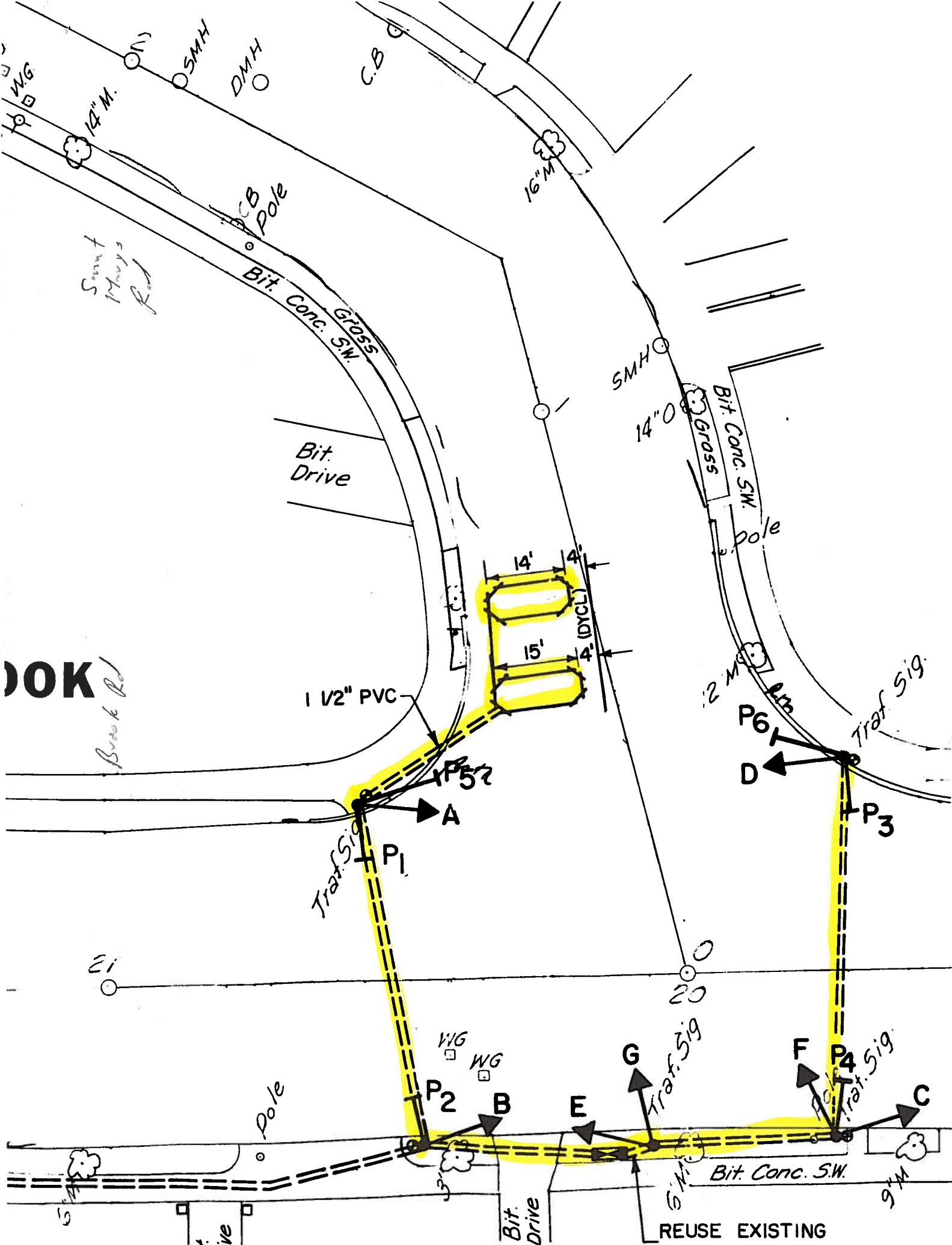
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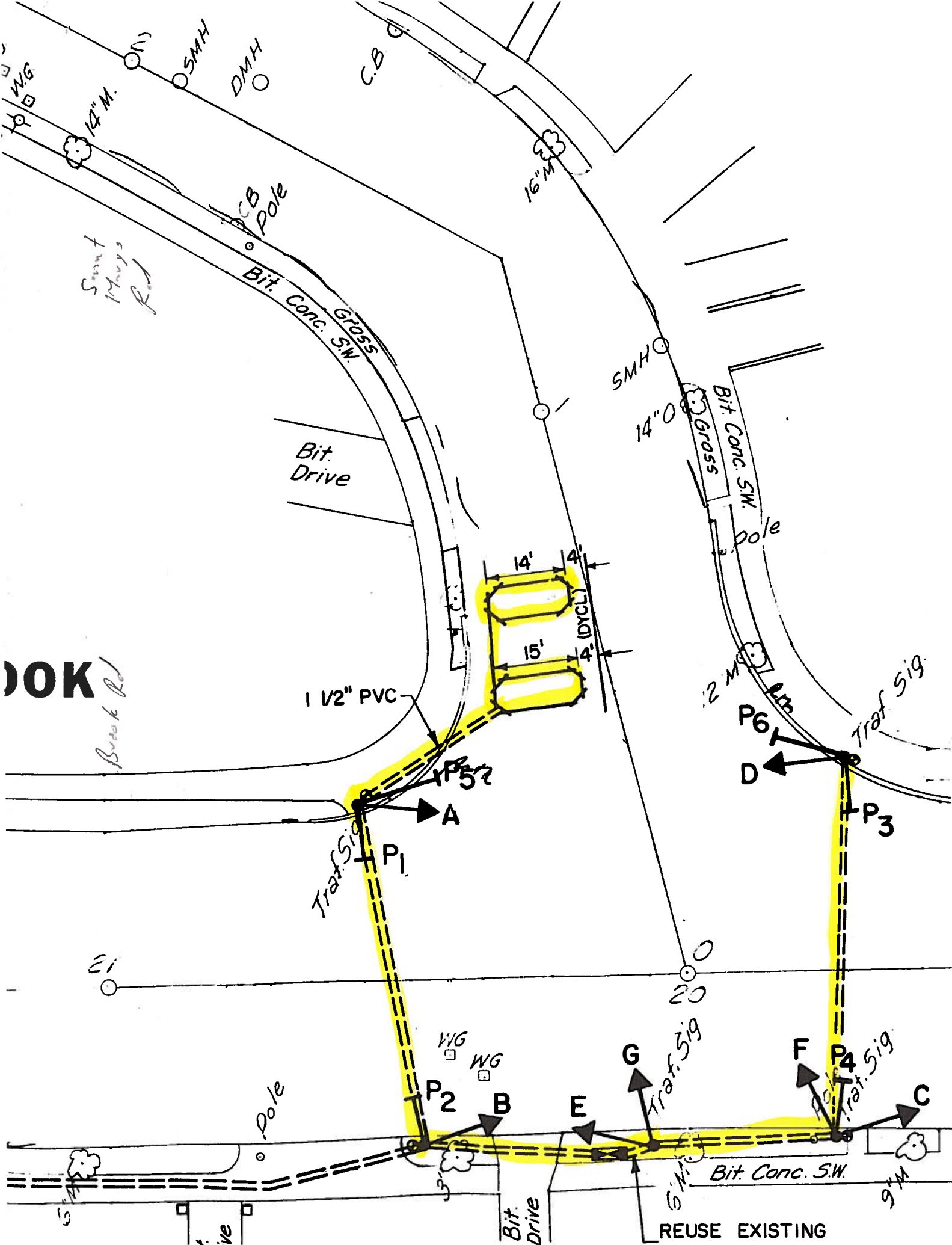
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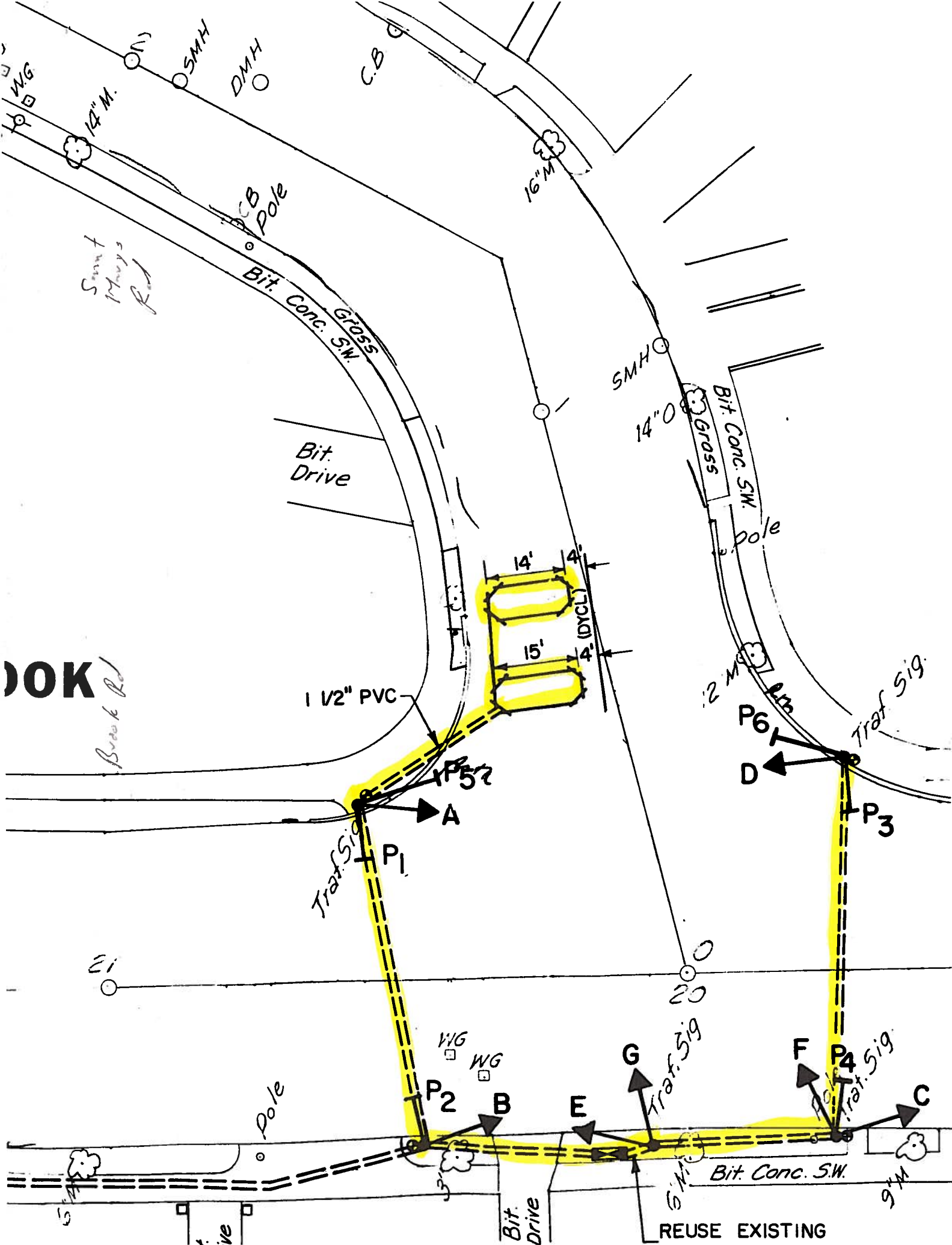
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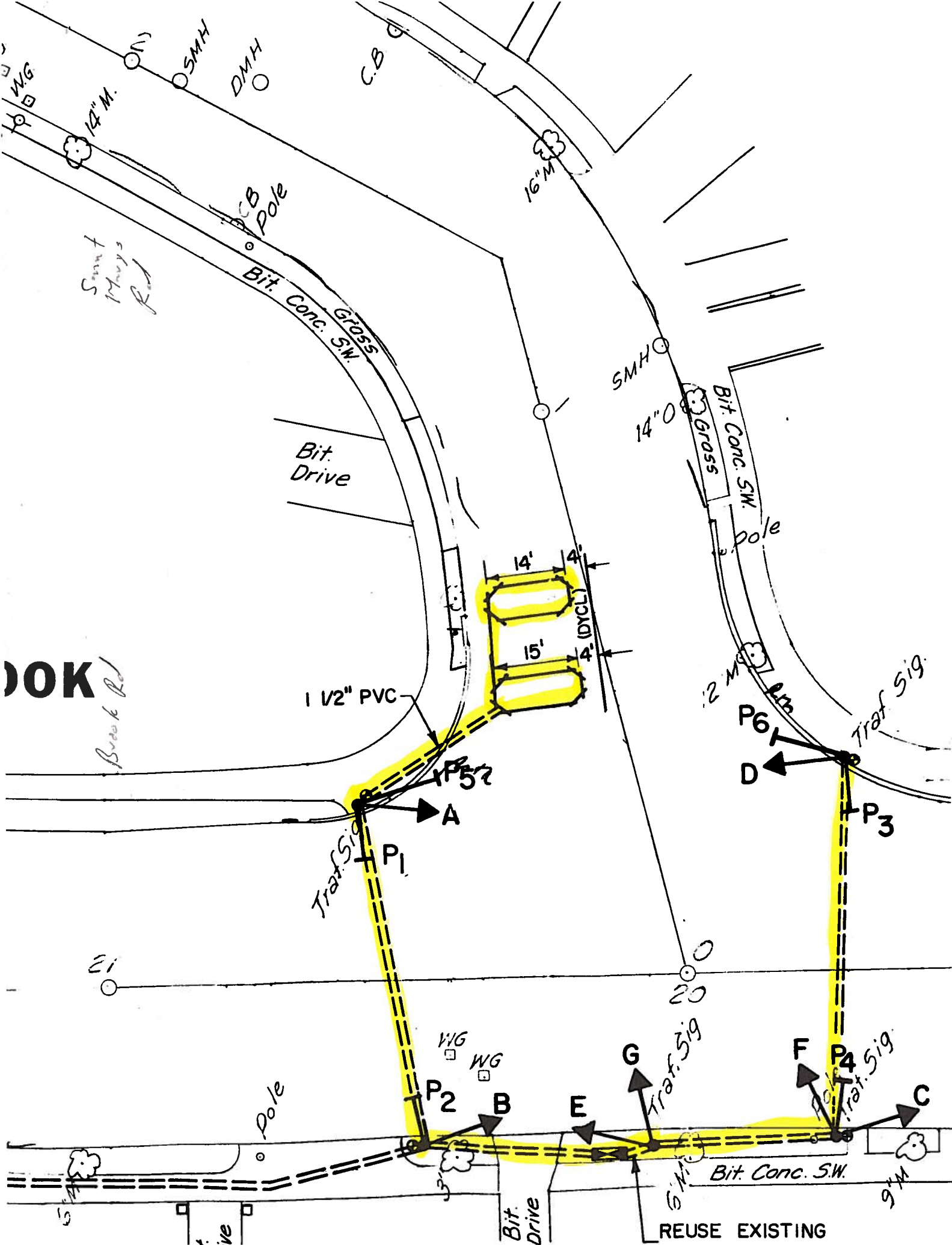
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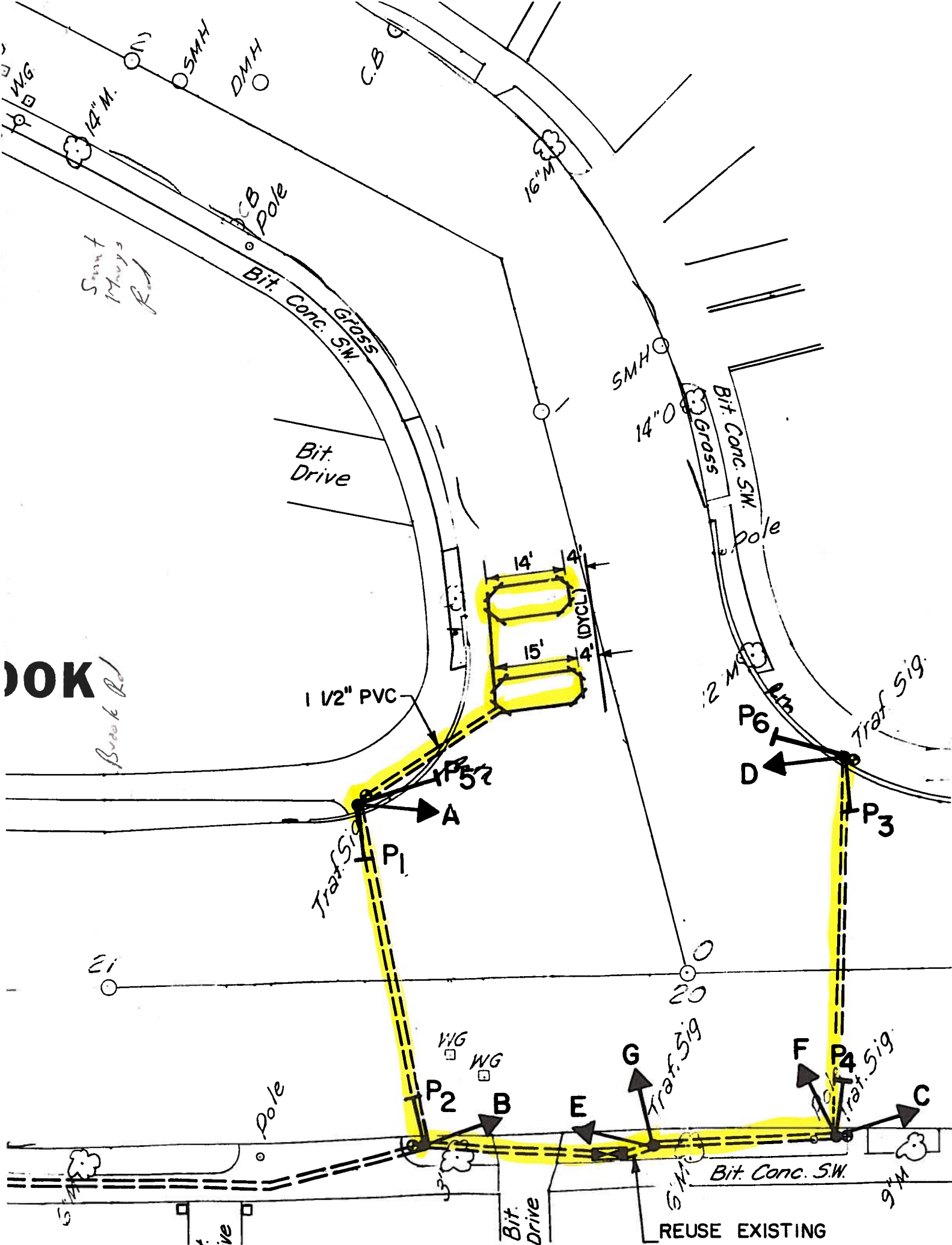
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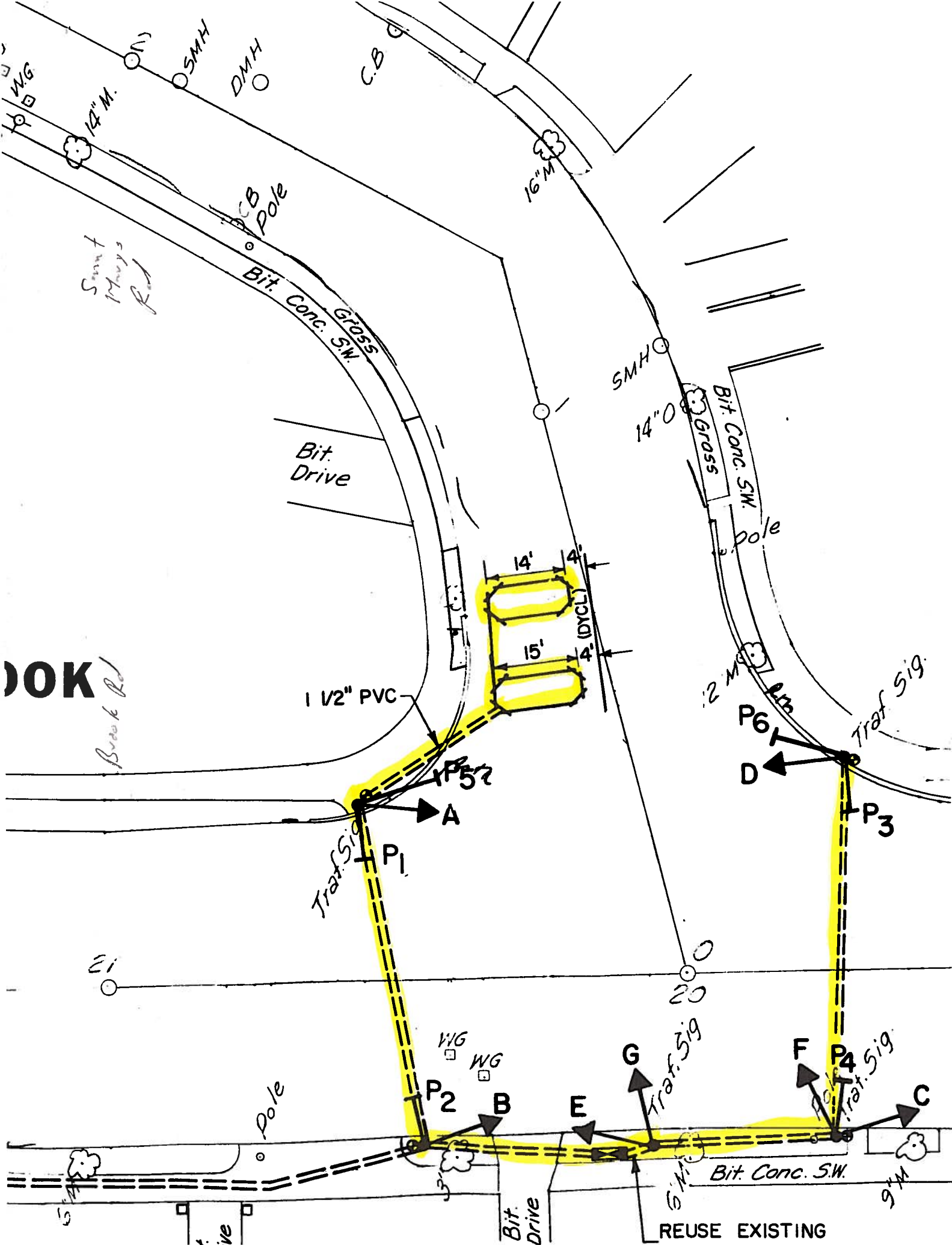
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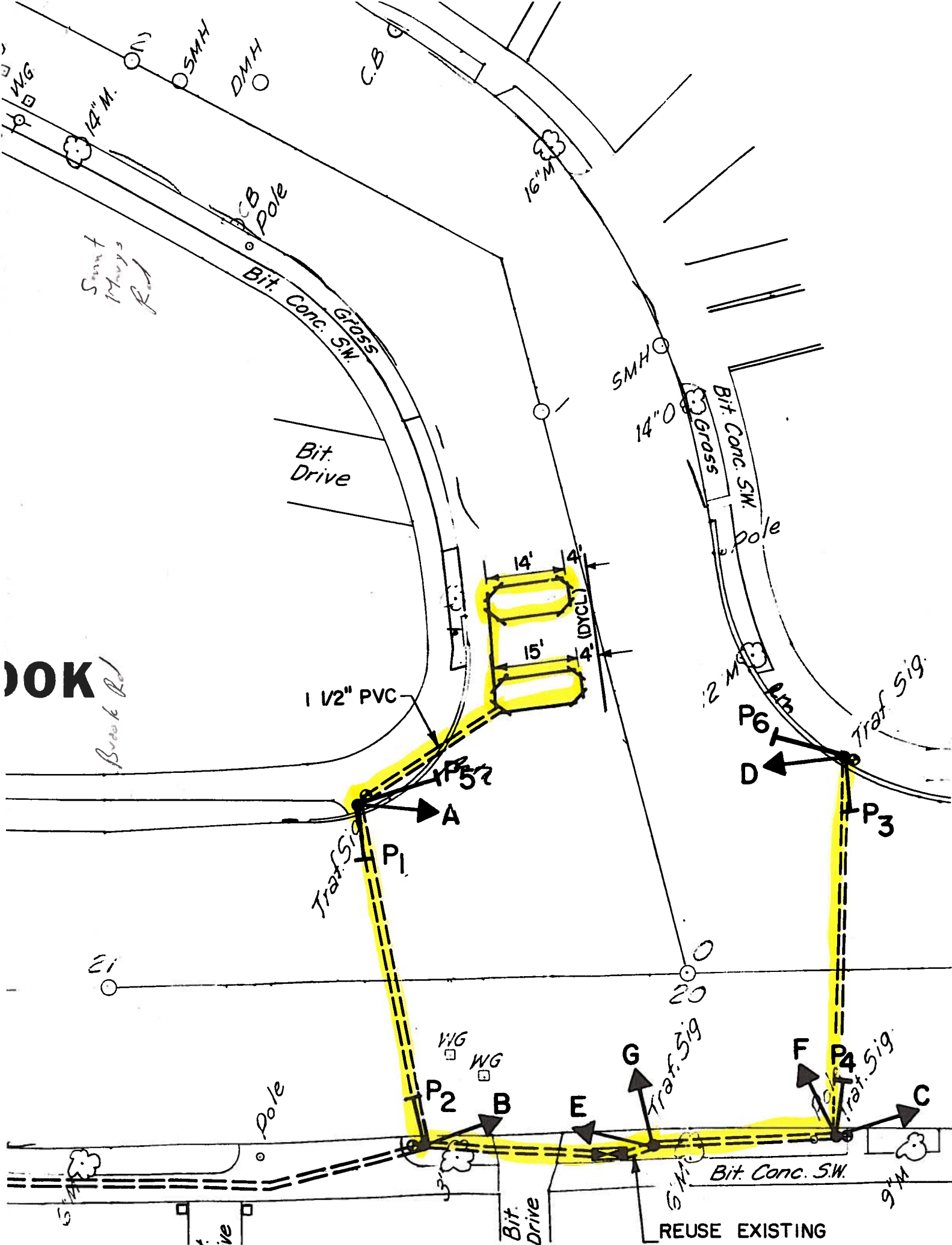
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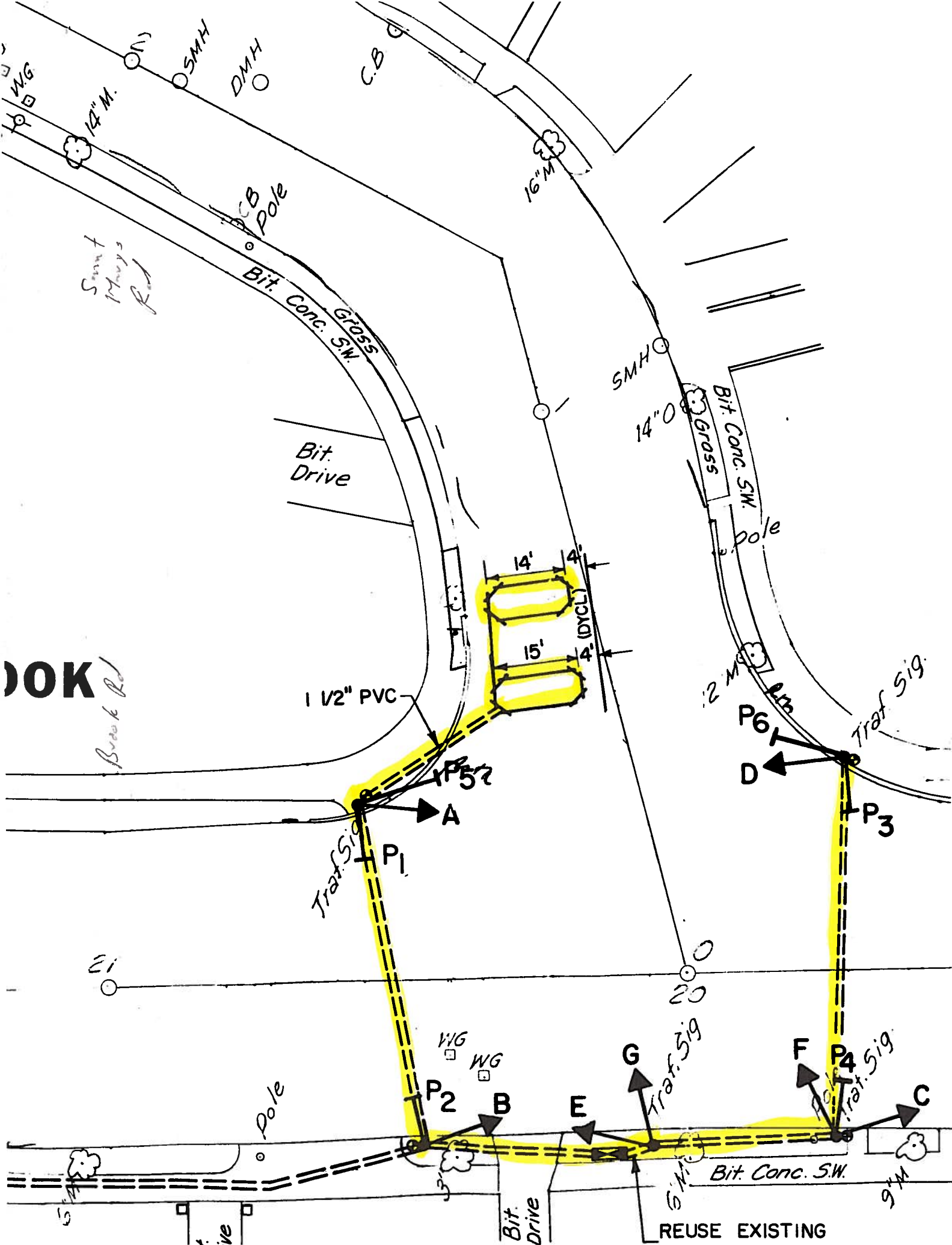
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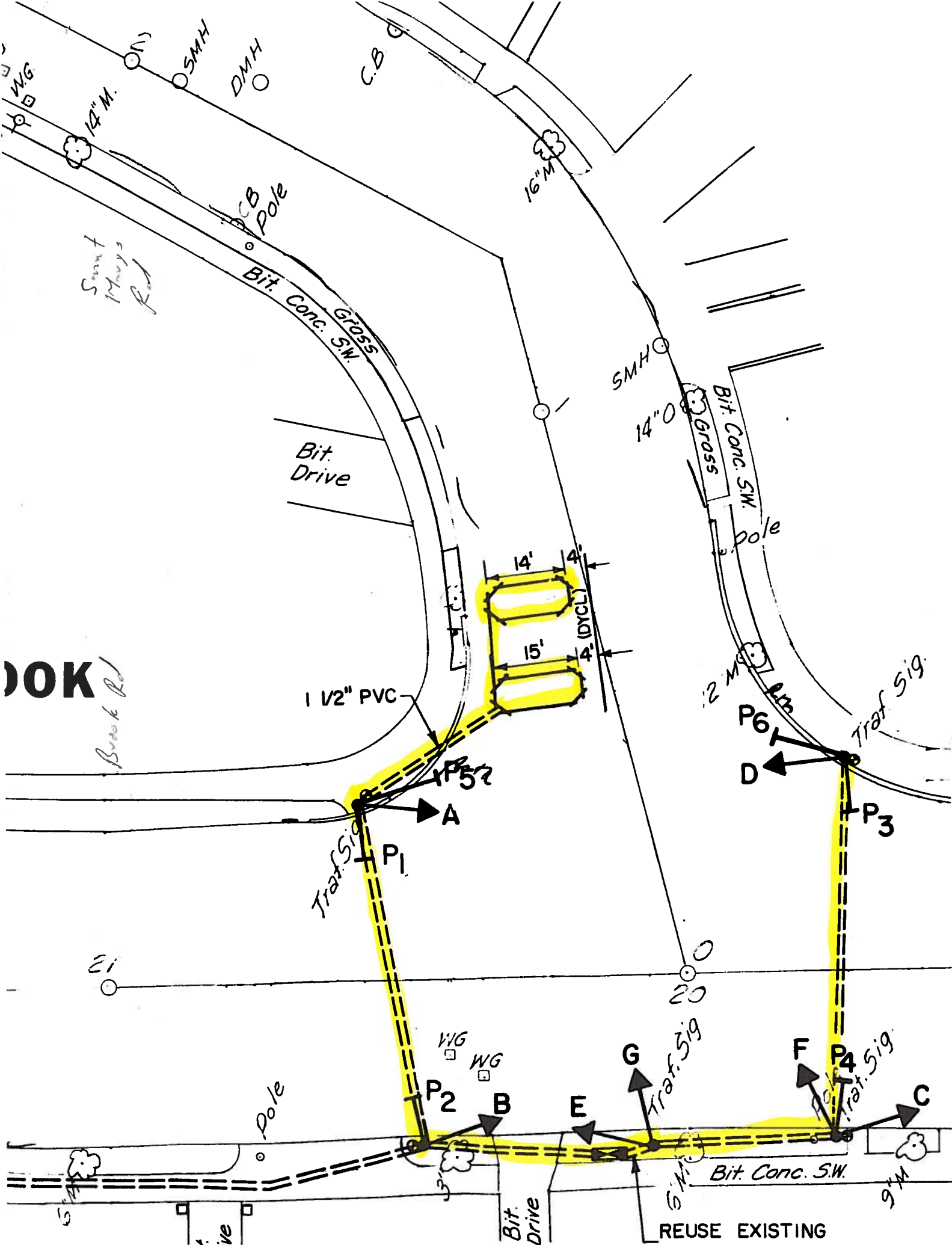
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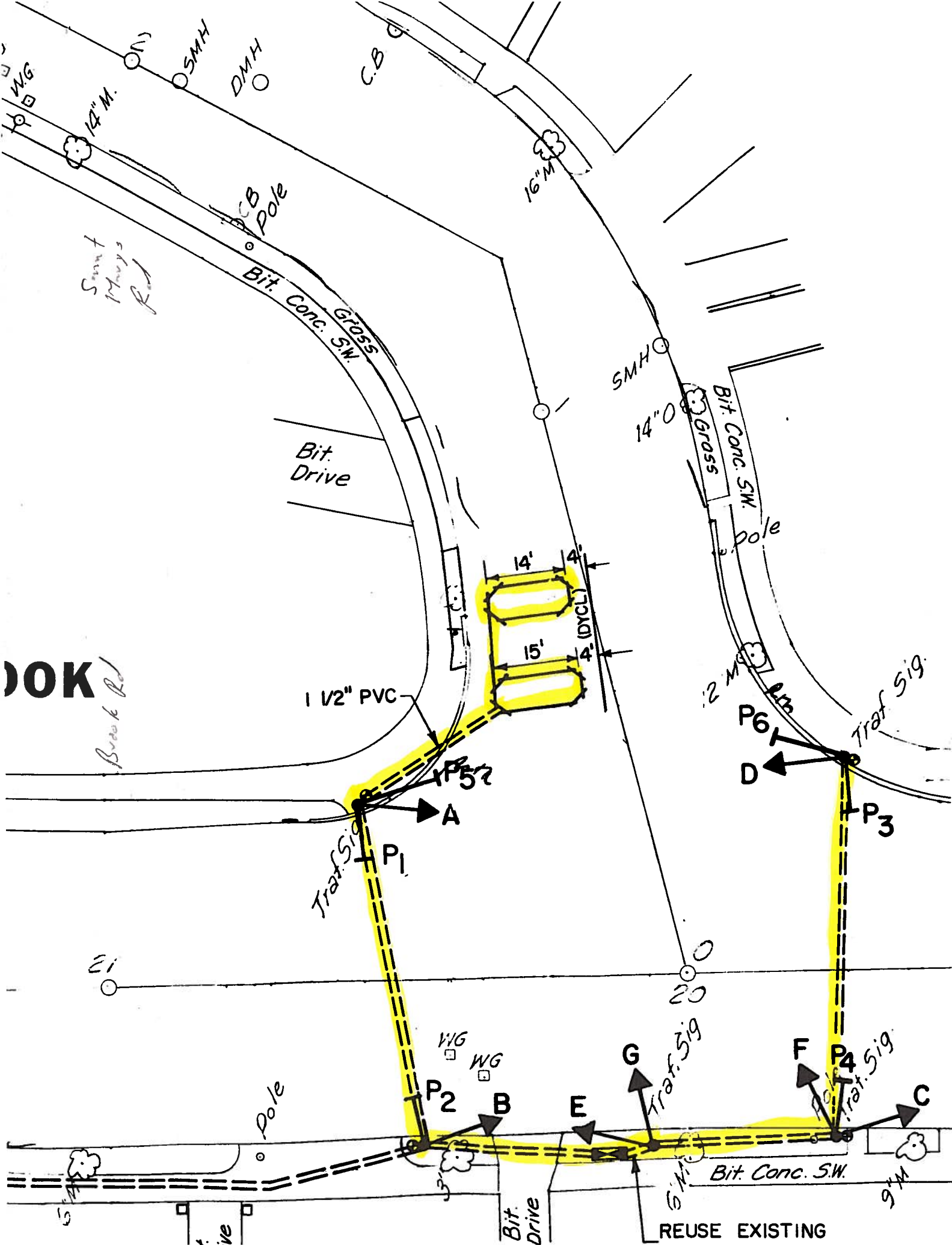
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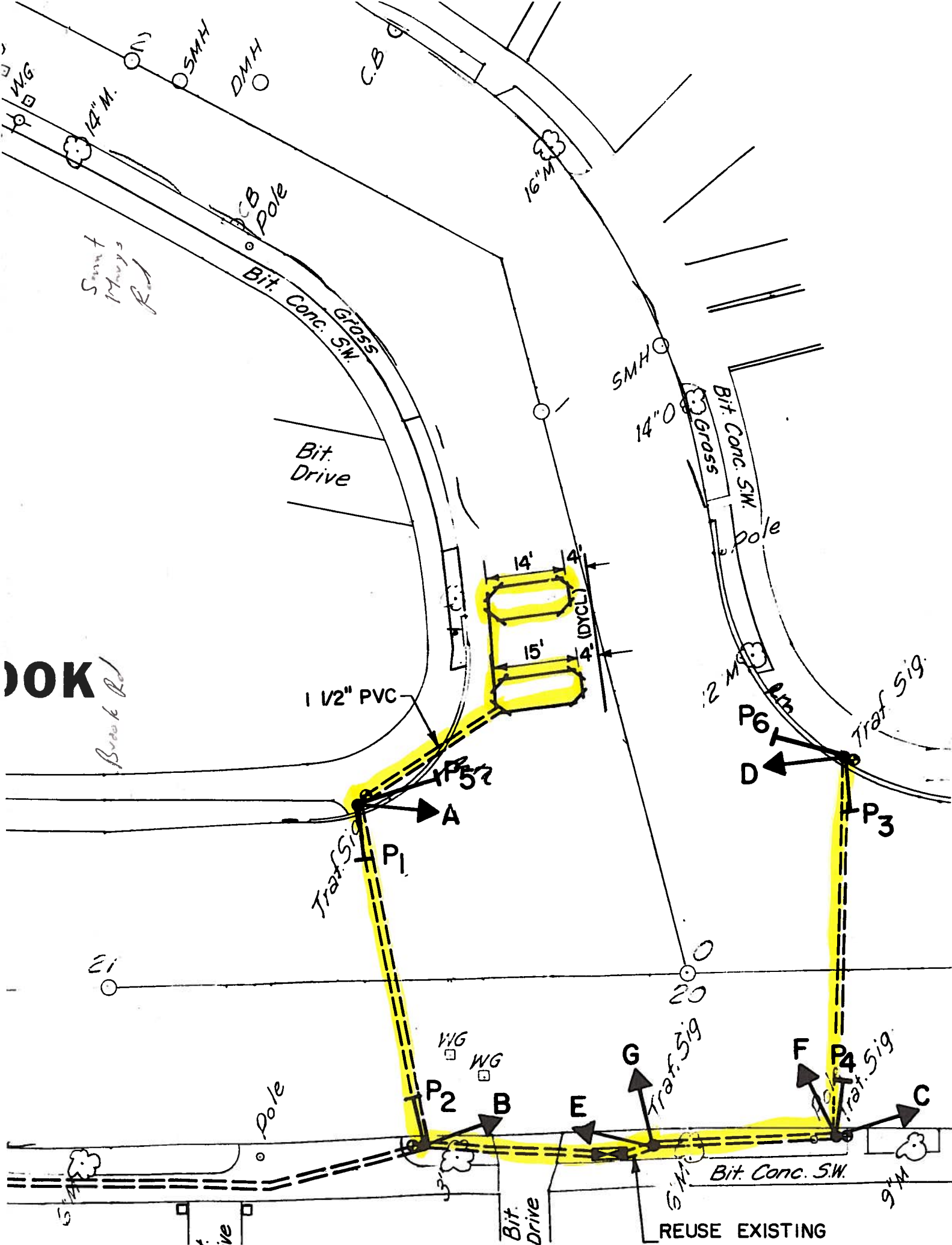
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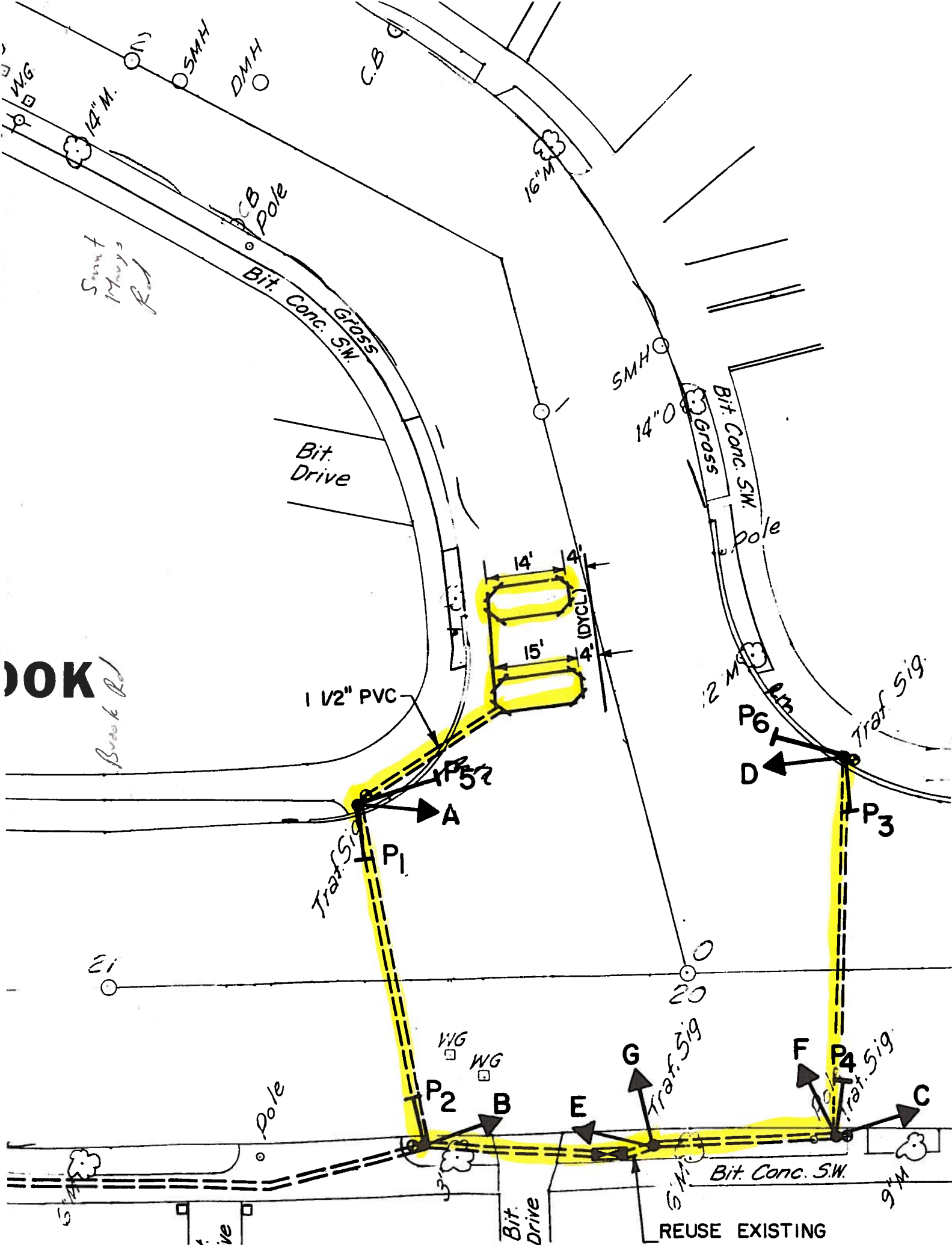
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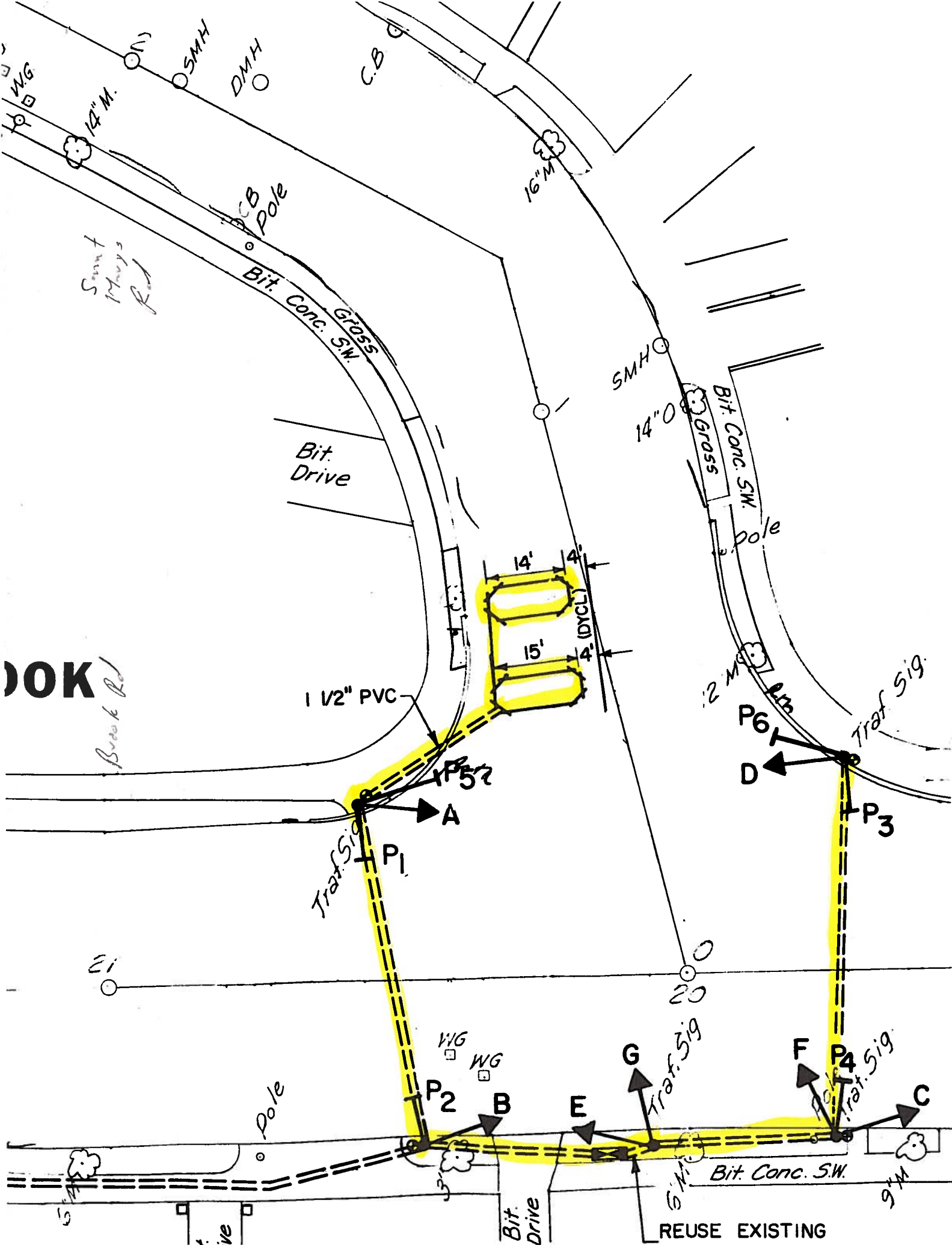
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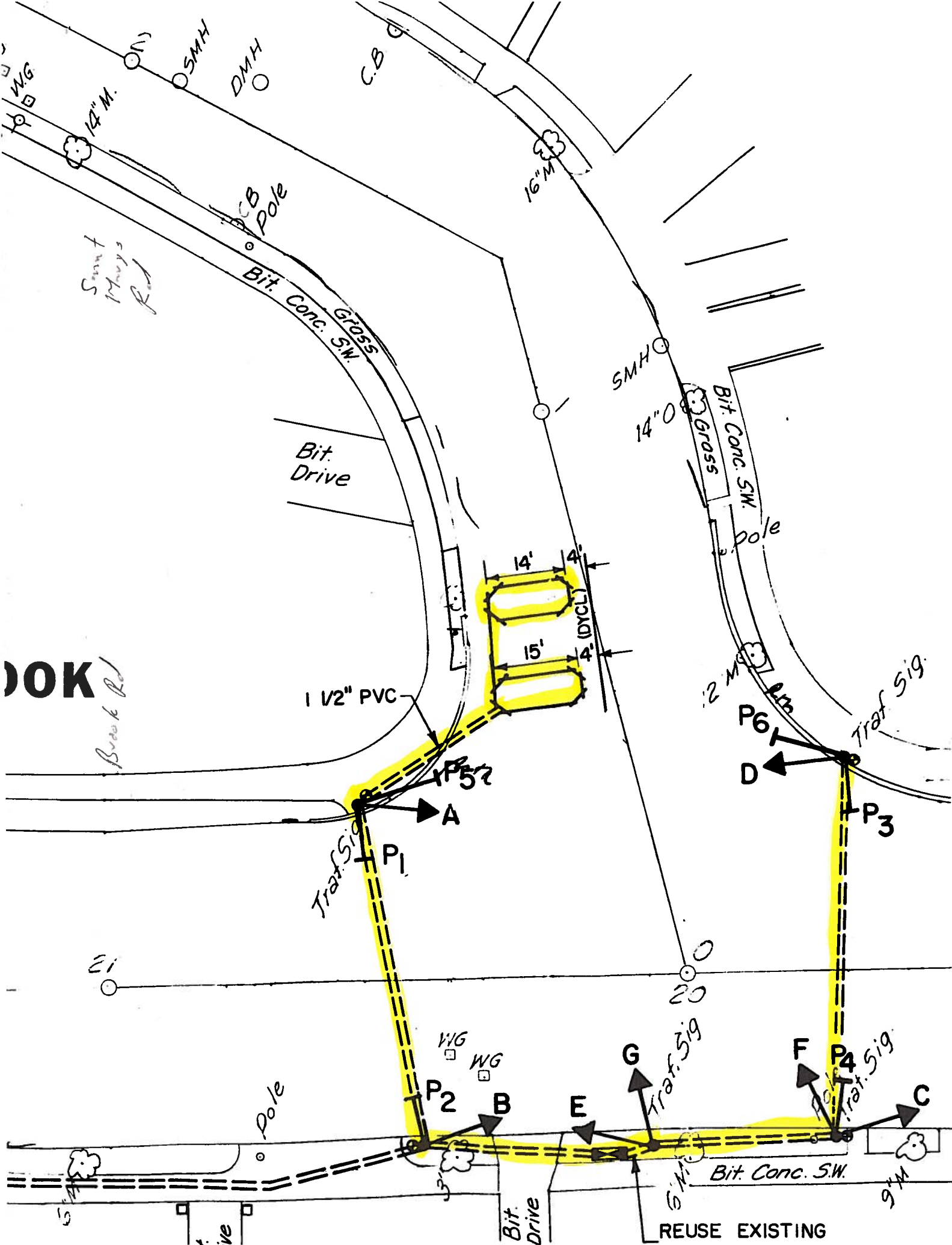
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Brook Rd



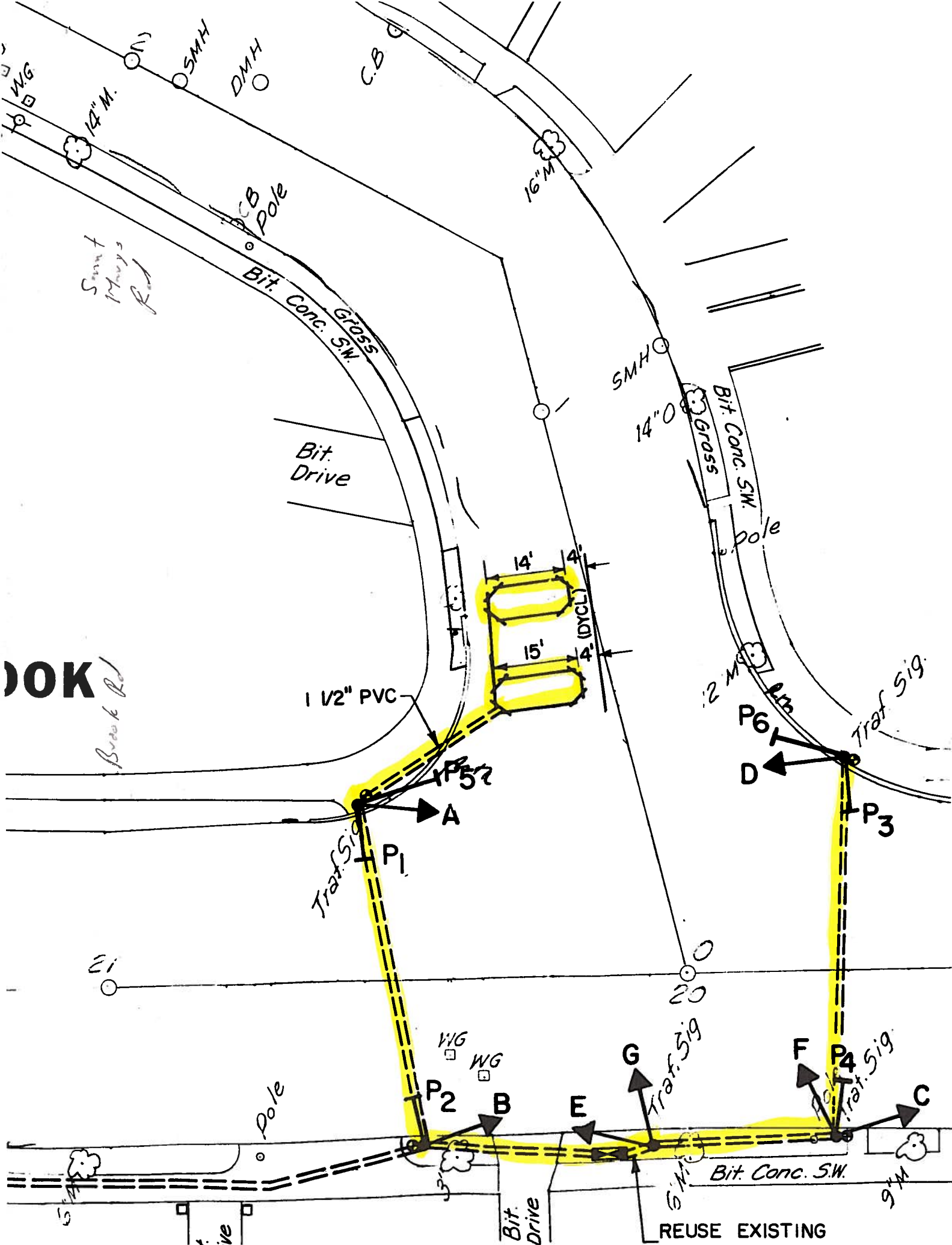
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Brook Rd



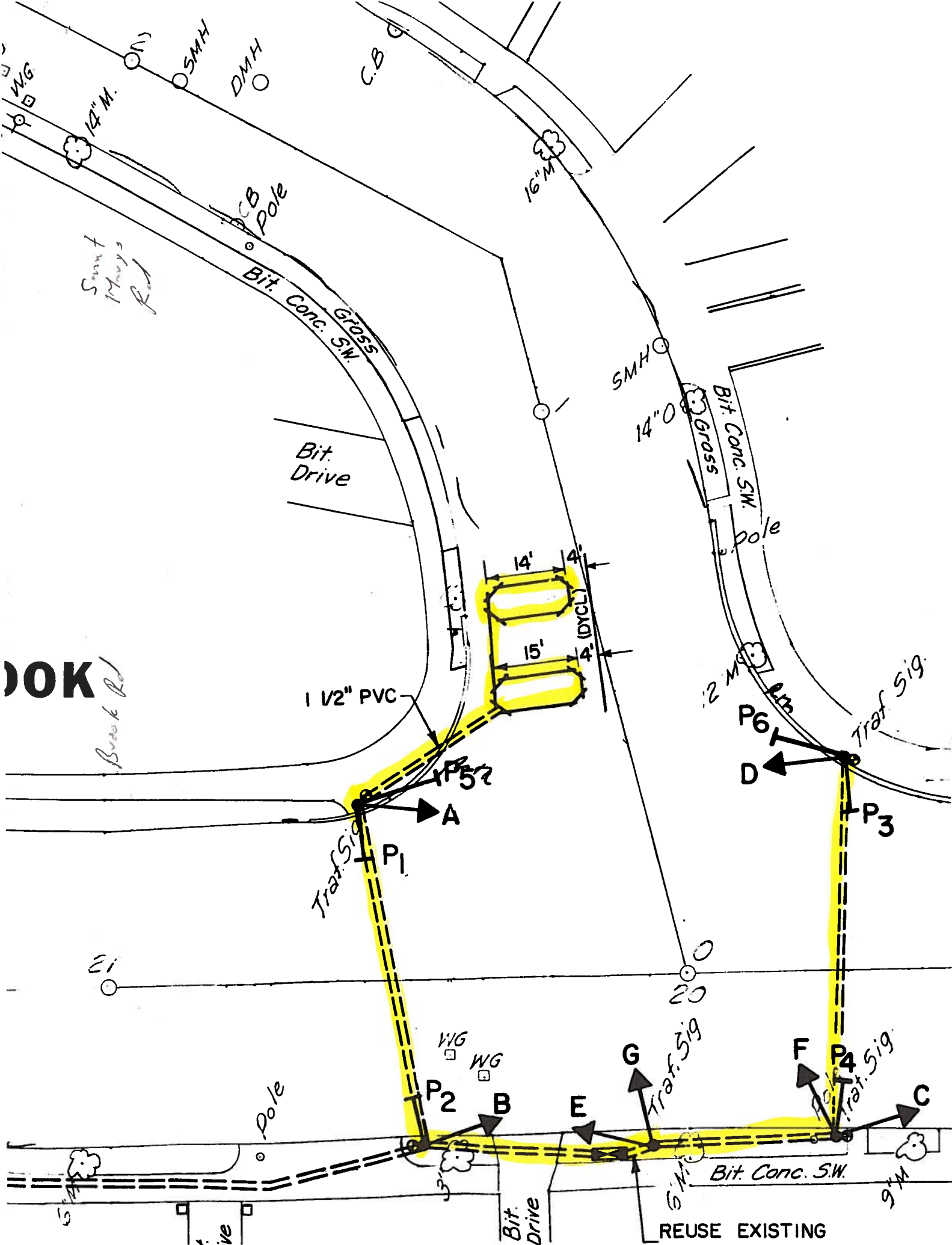
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Brook Rd



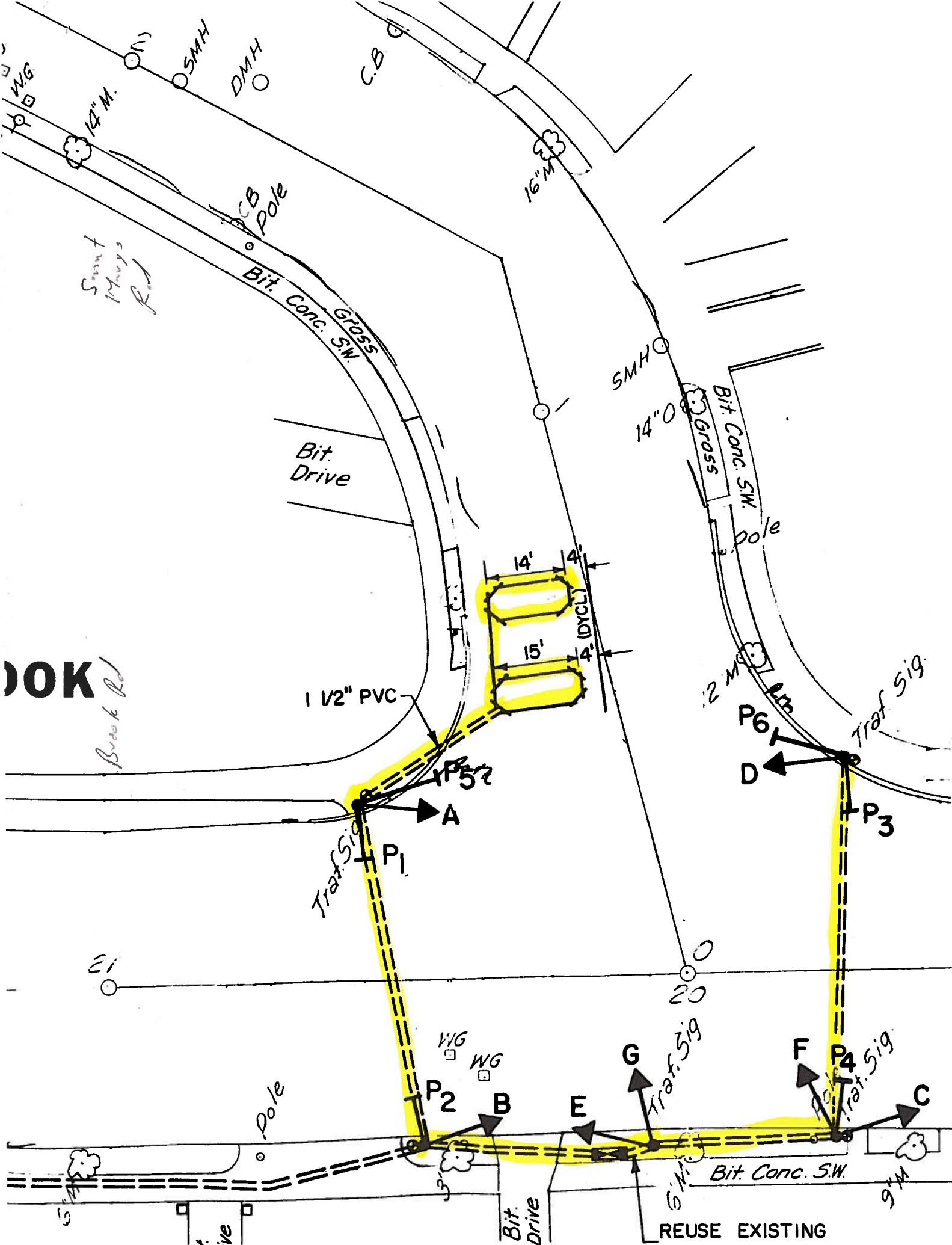
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Brook Rd



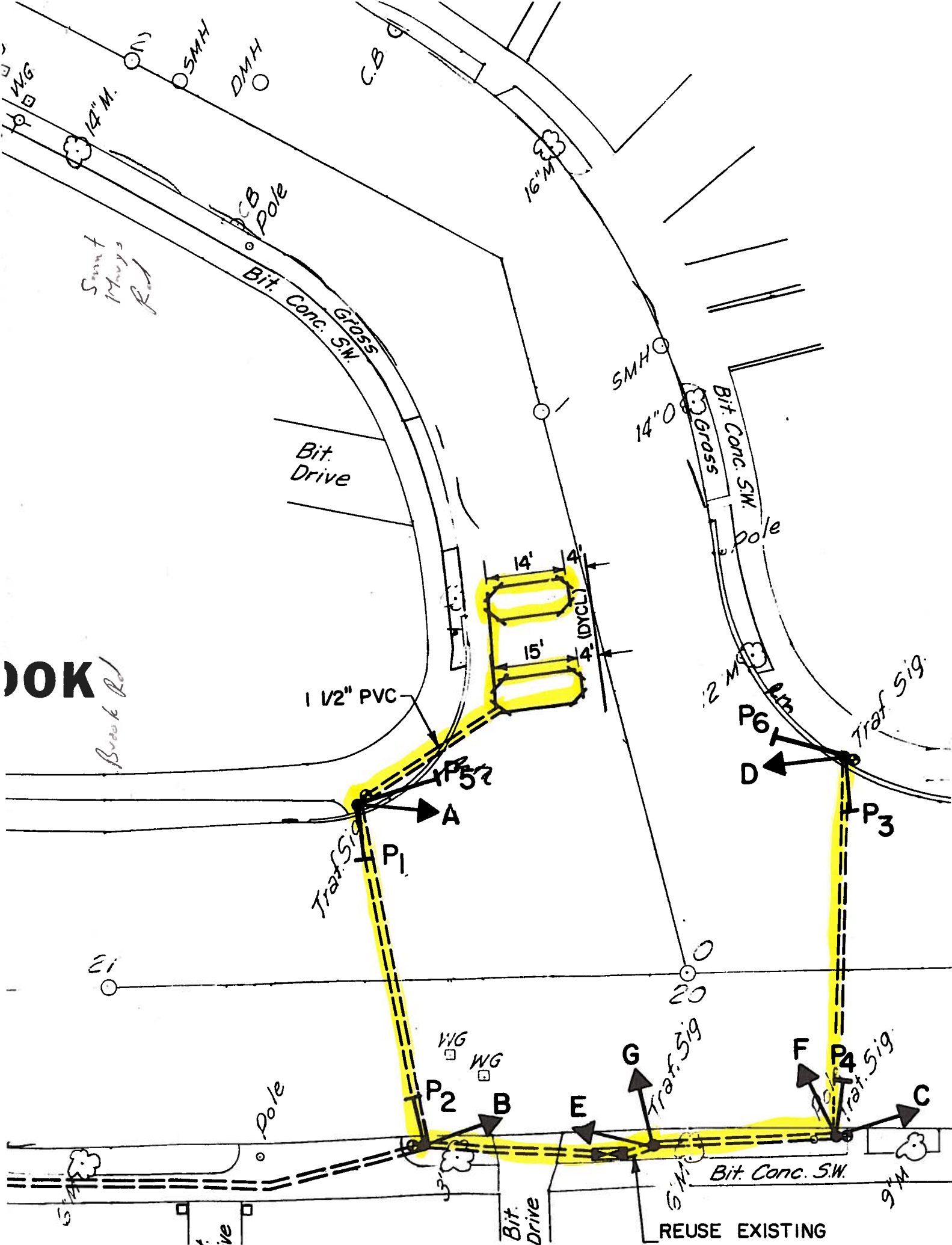
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Brook Rd



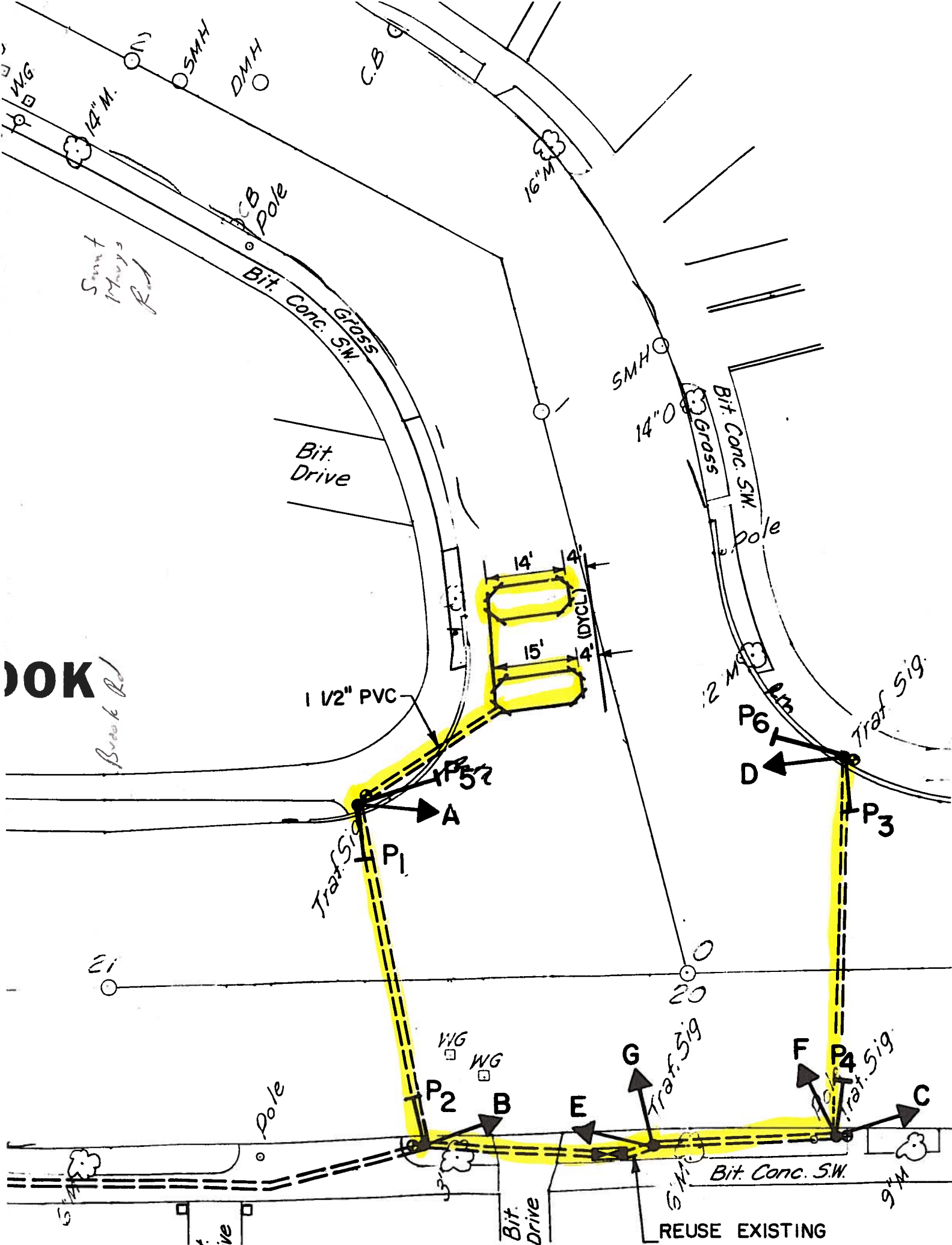
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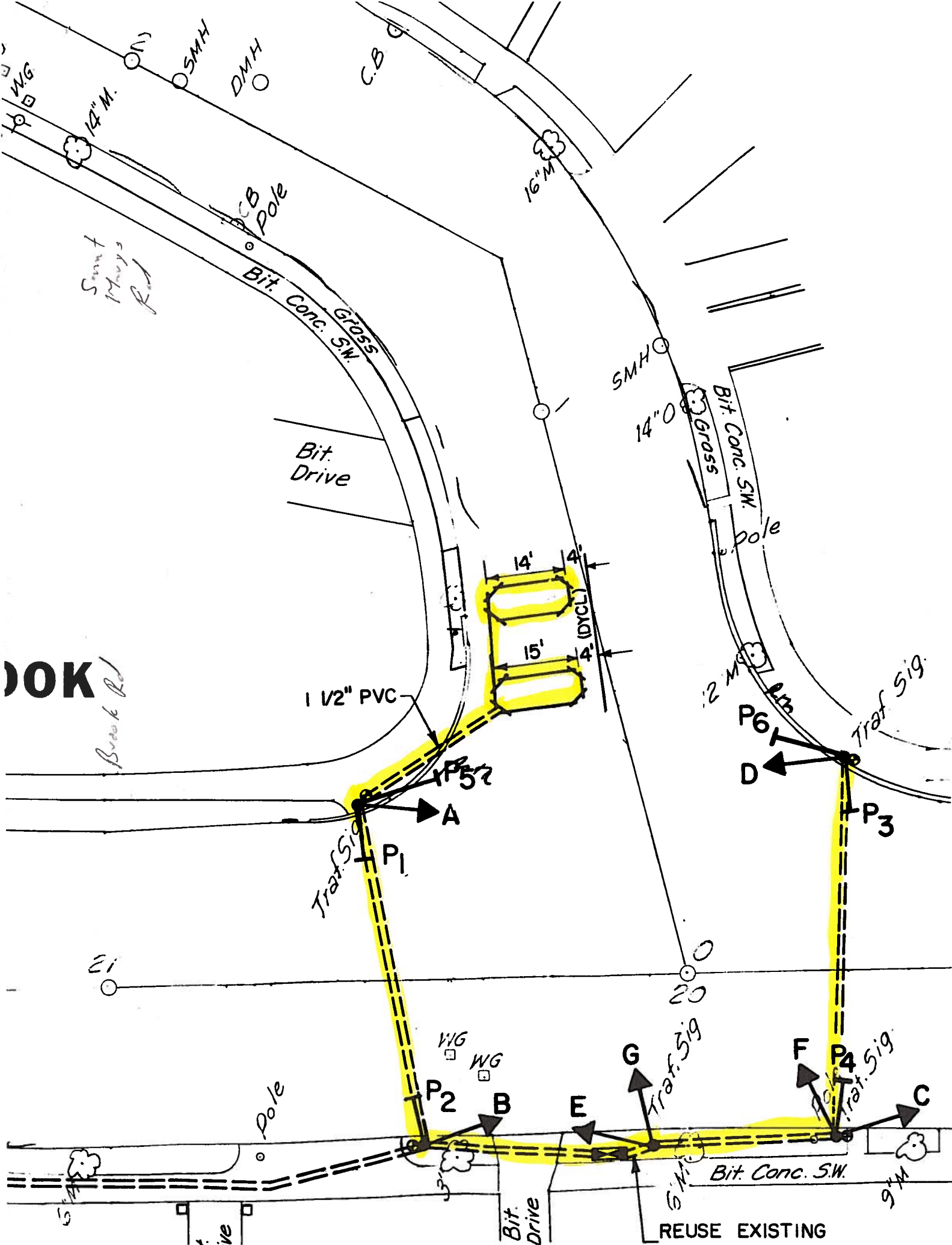
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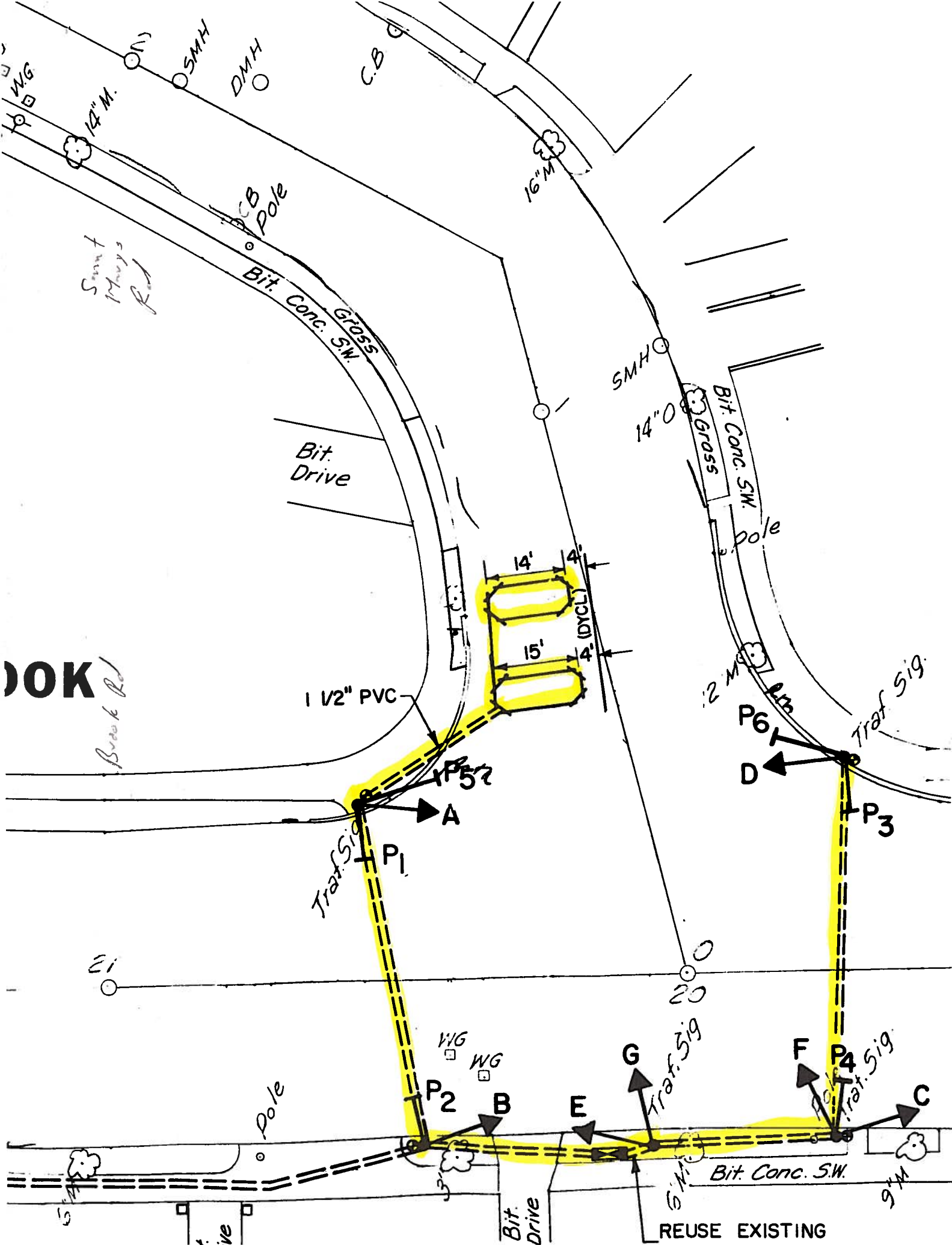
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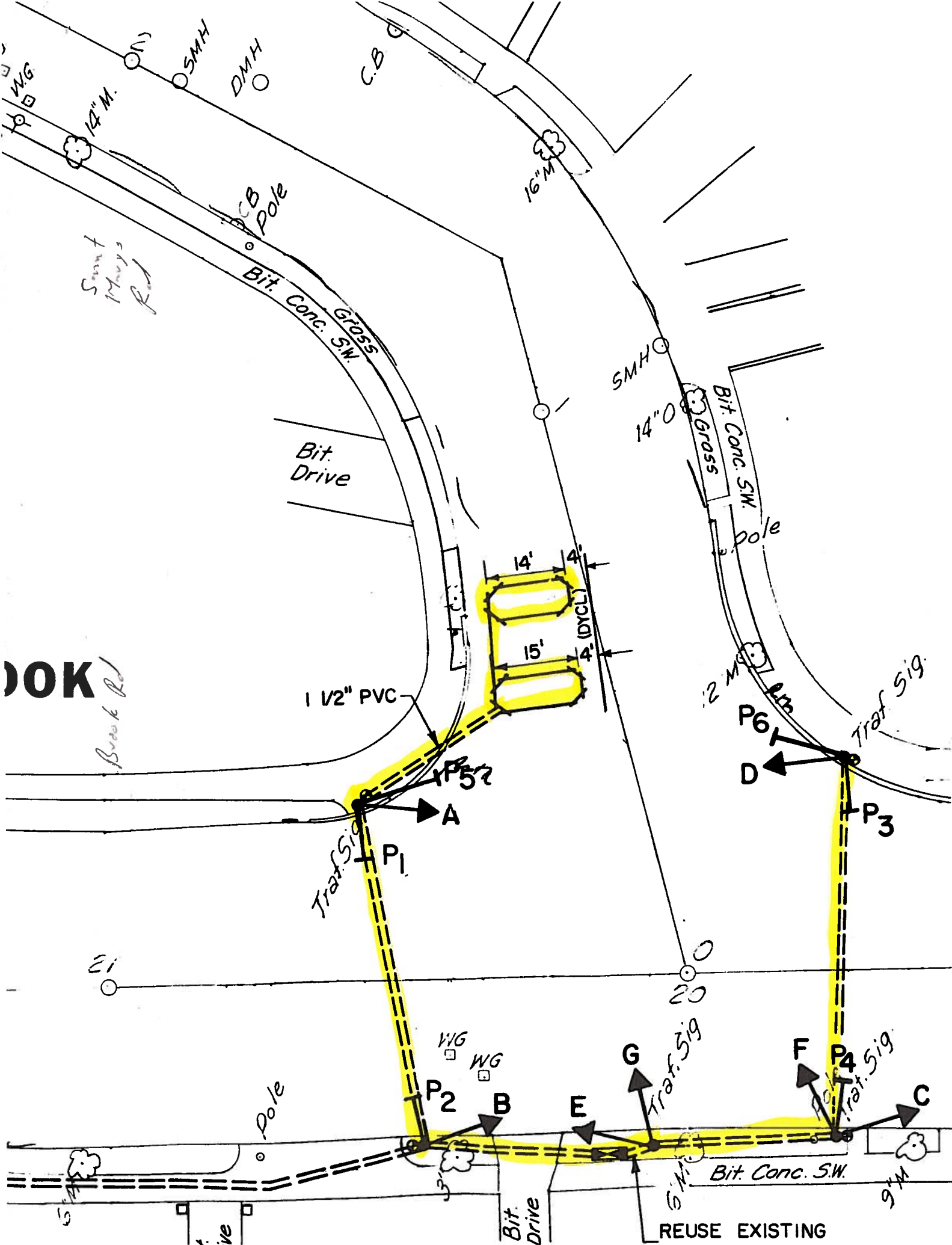
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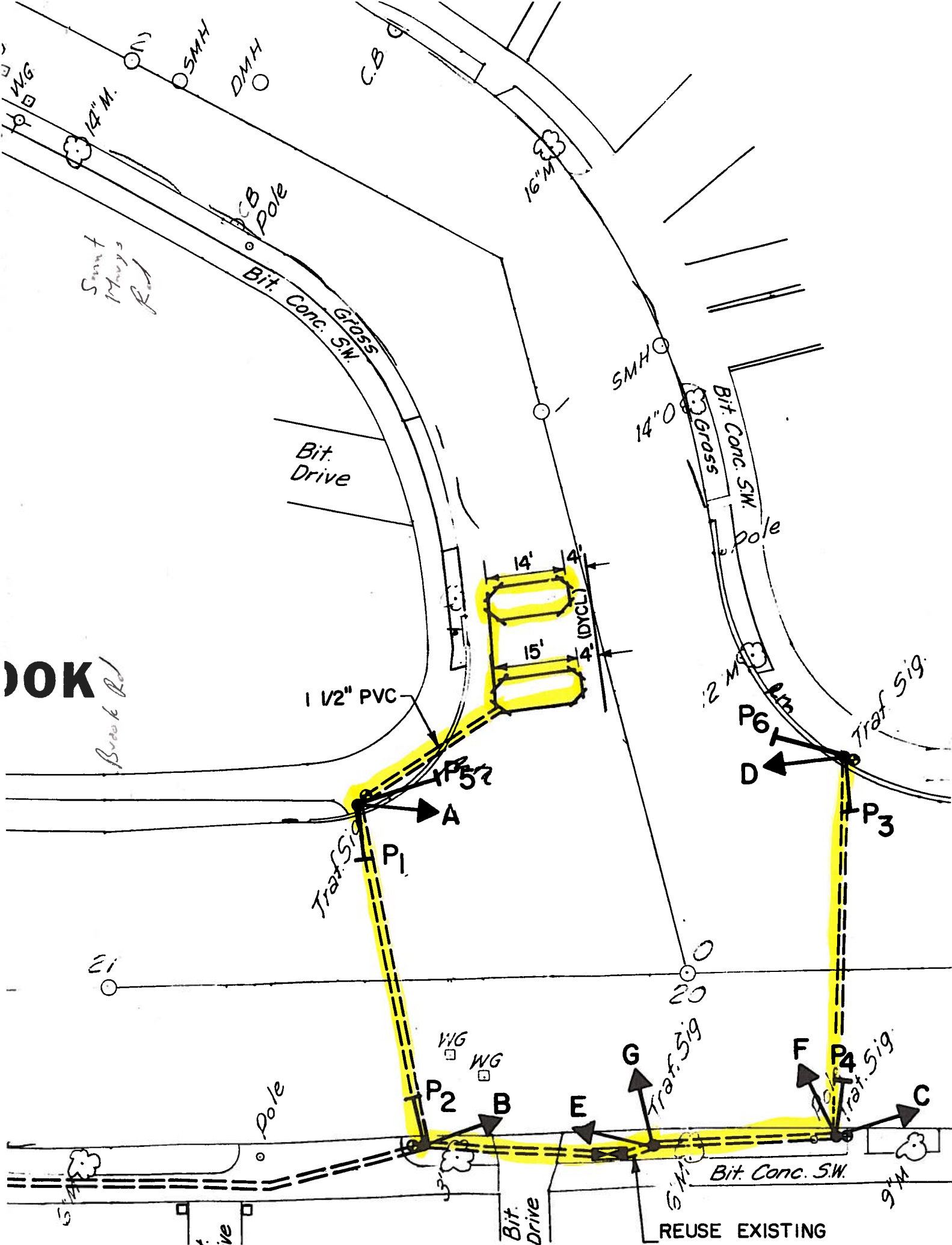
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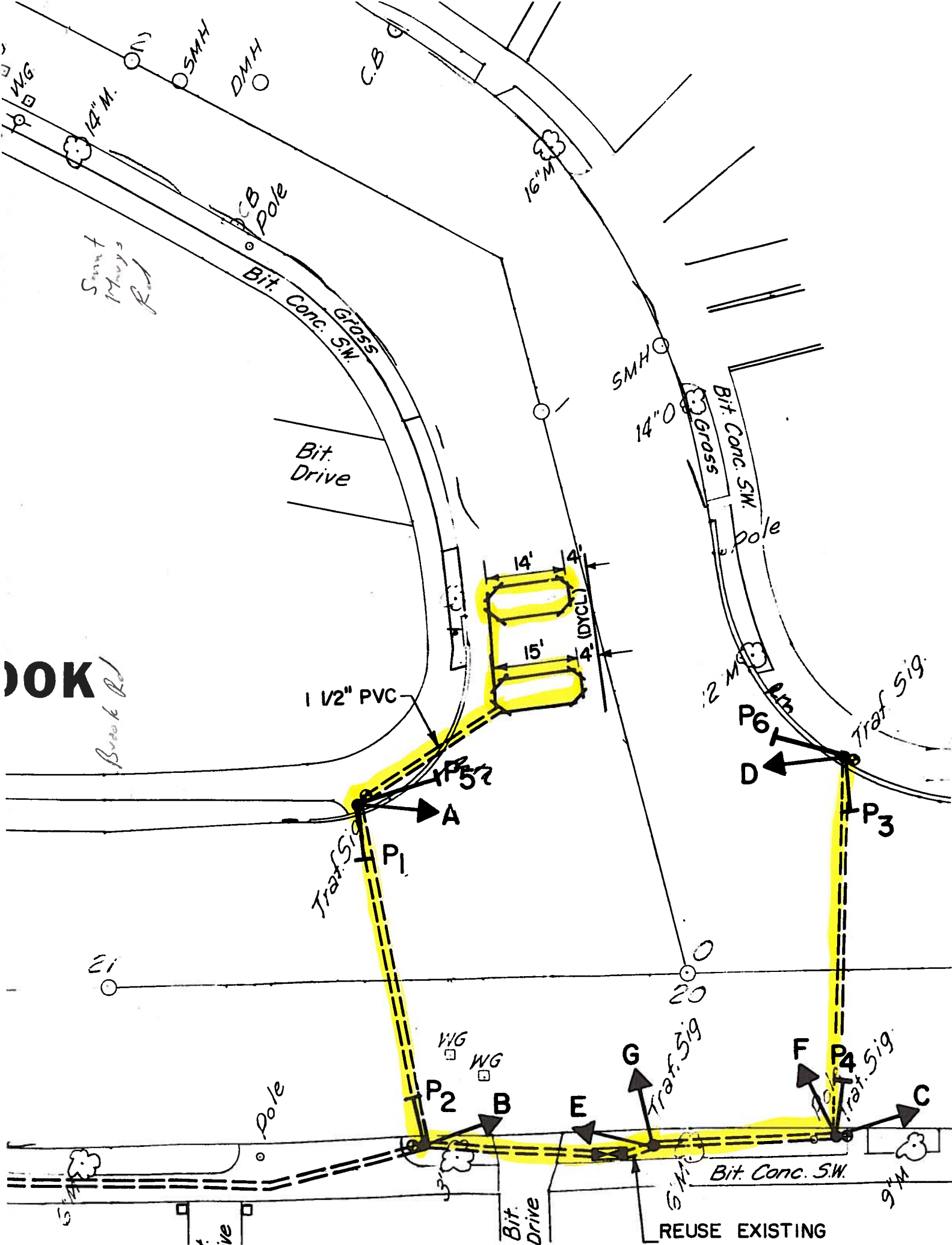
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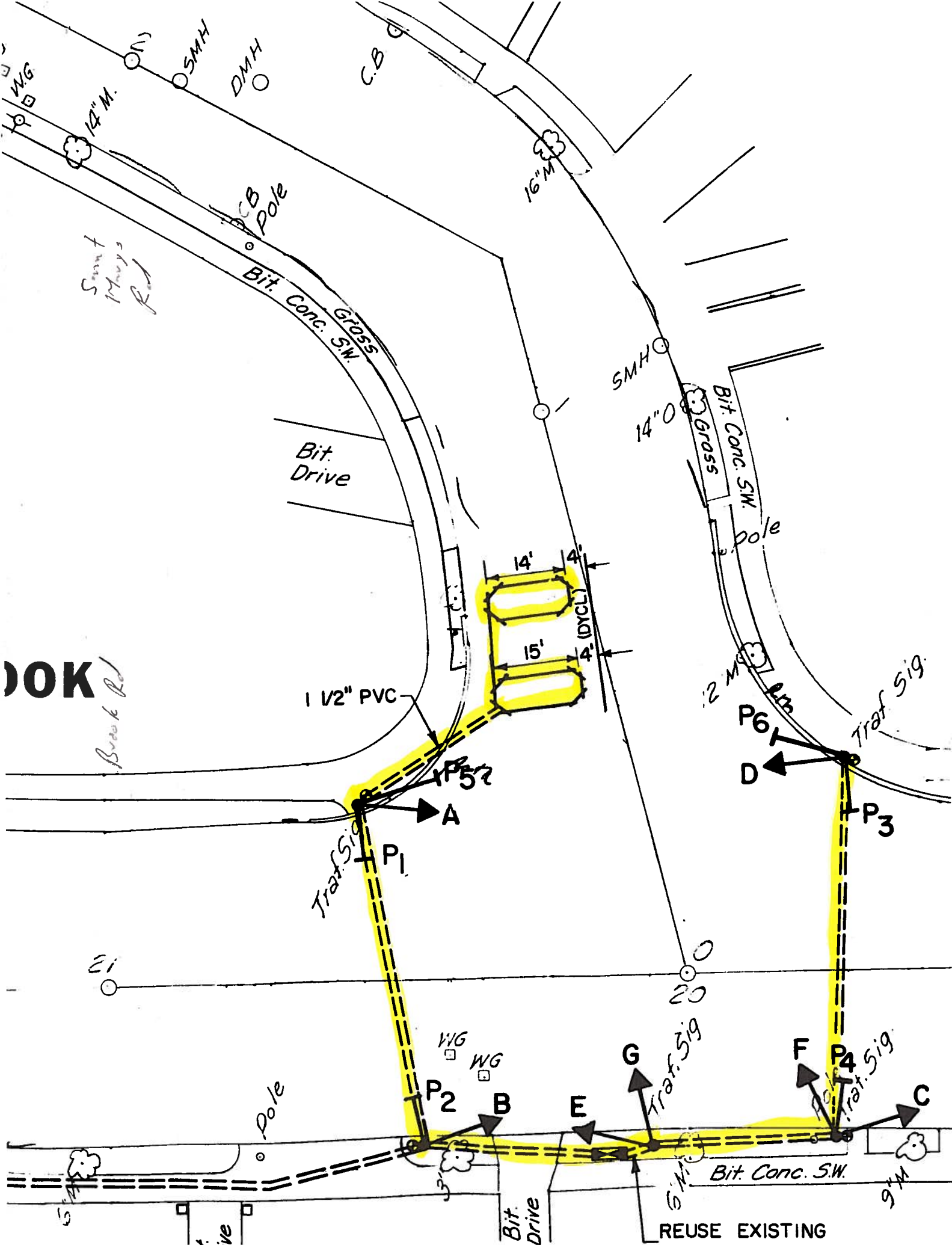
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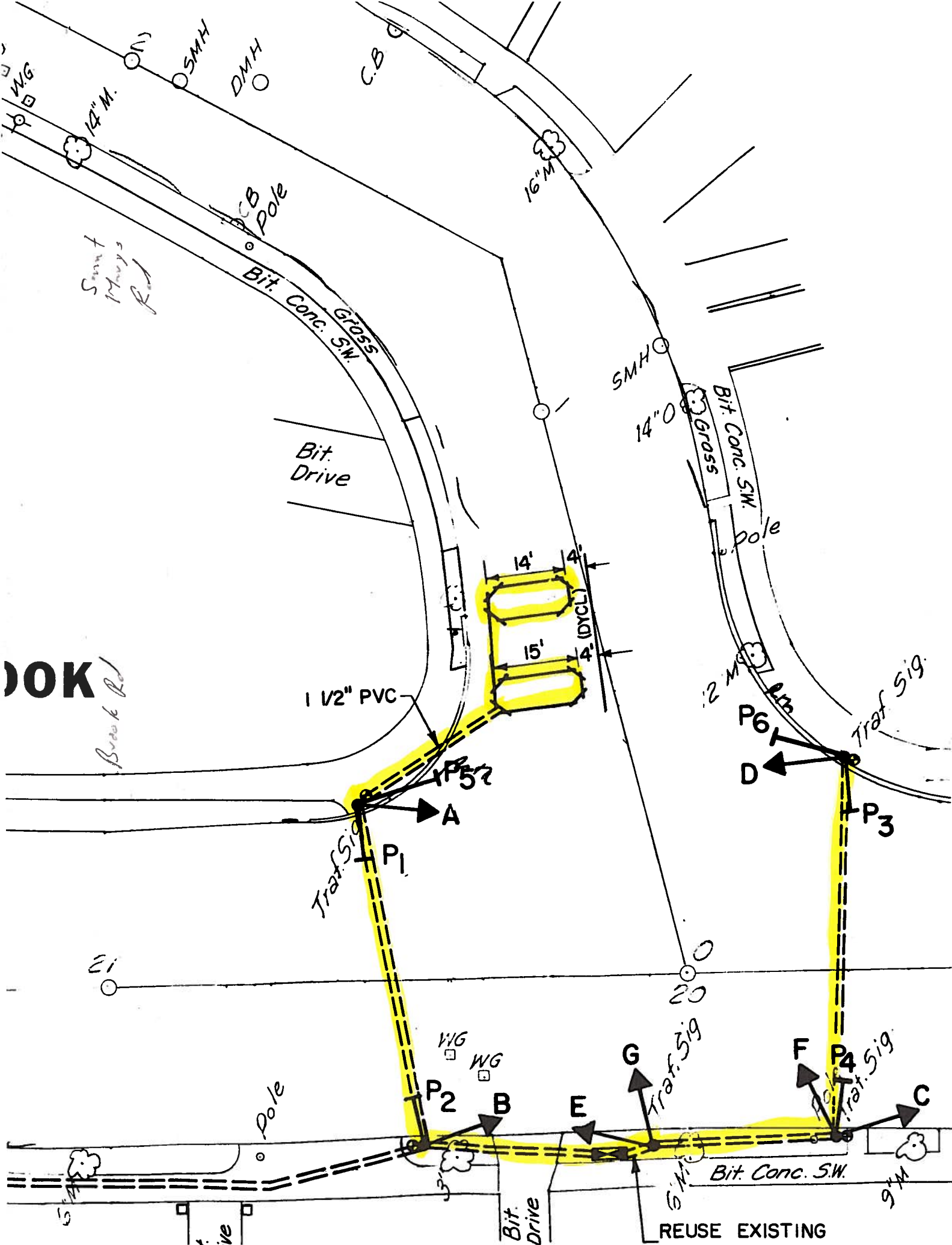
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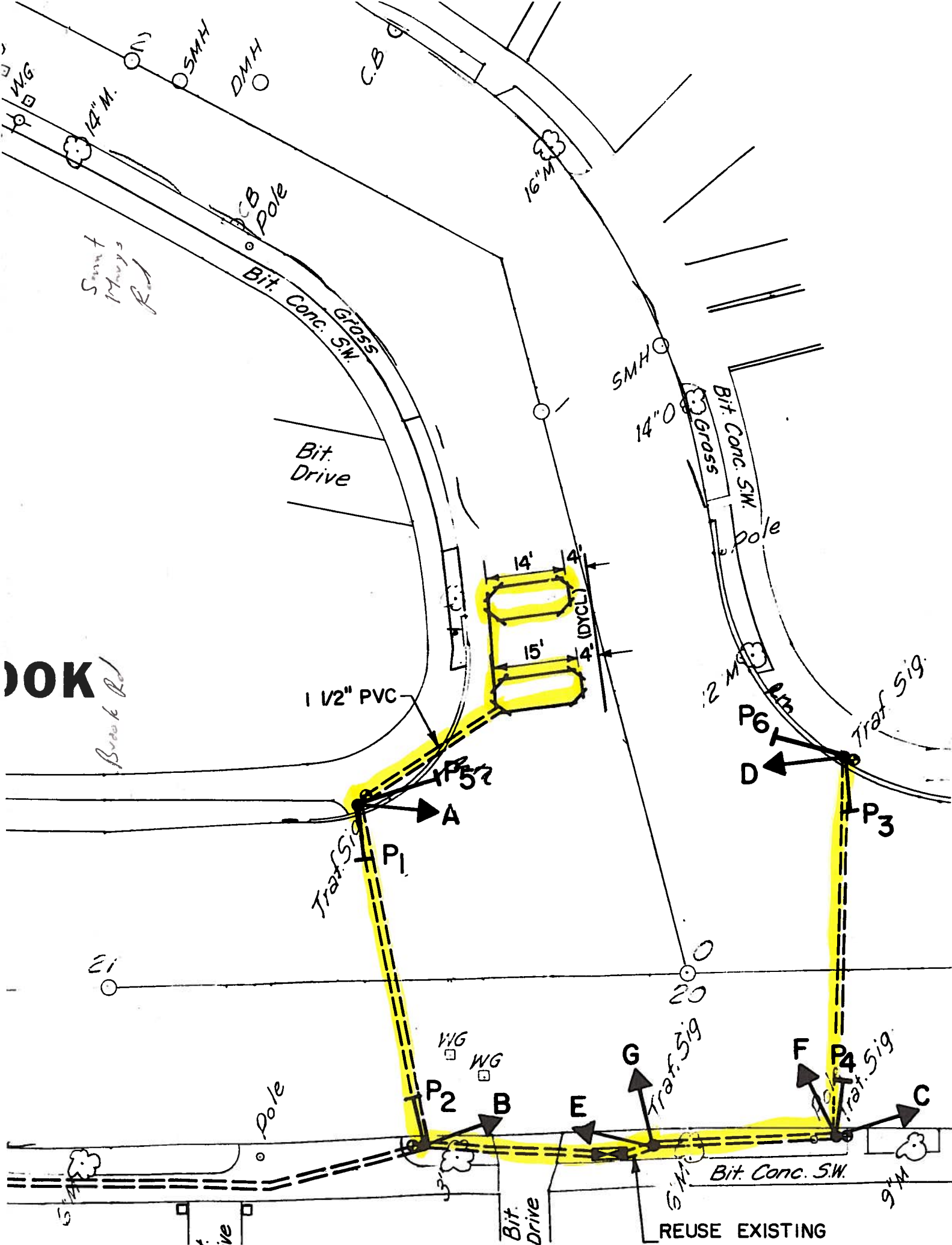
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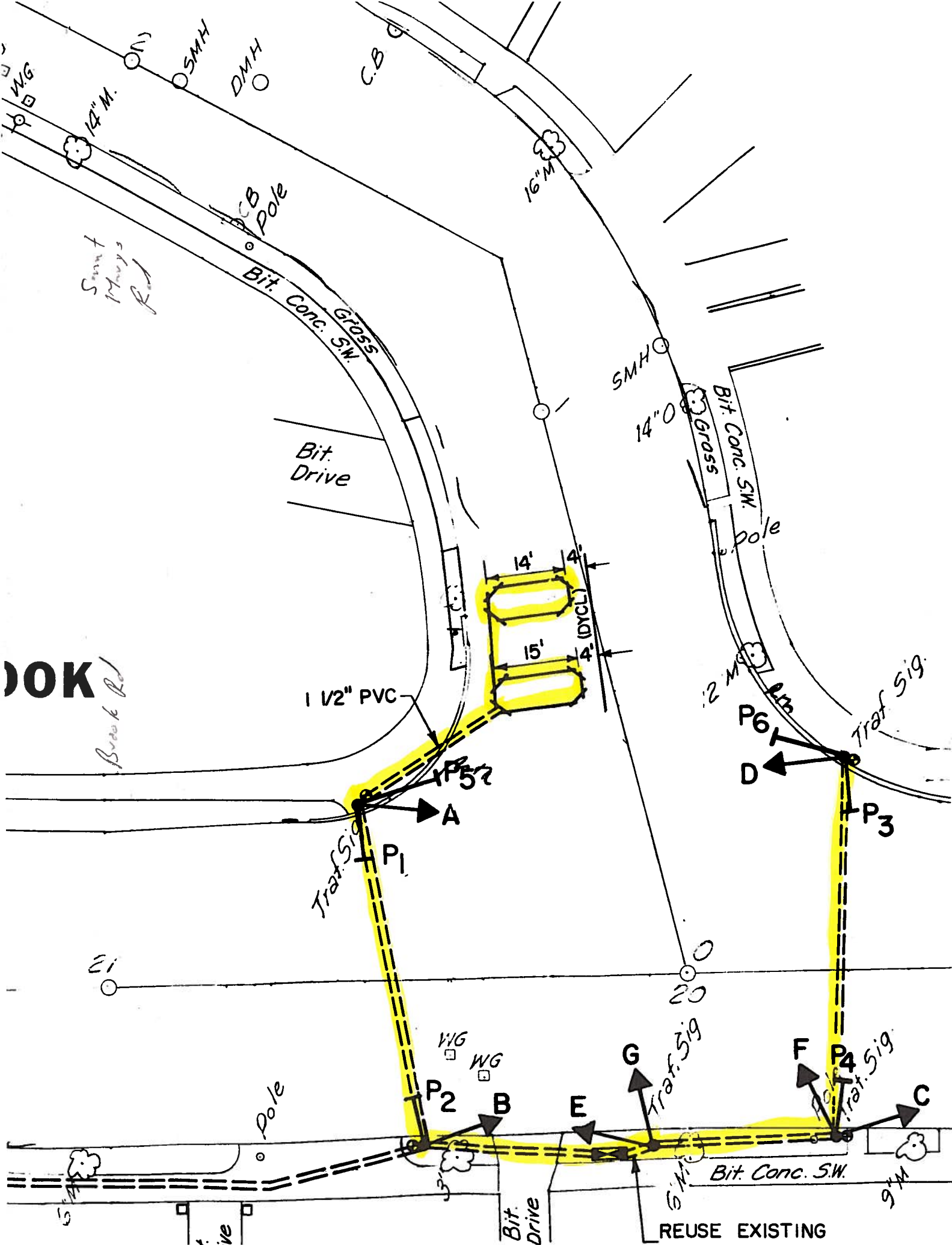
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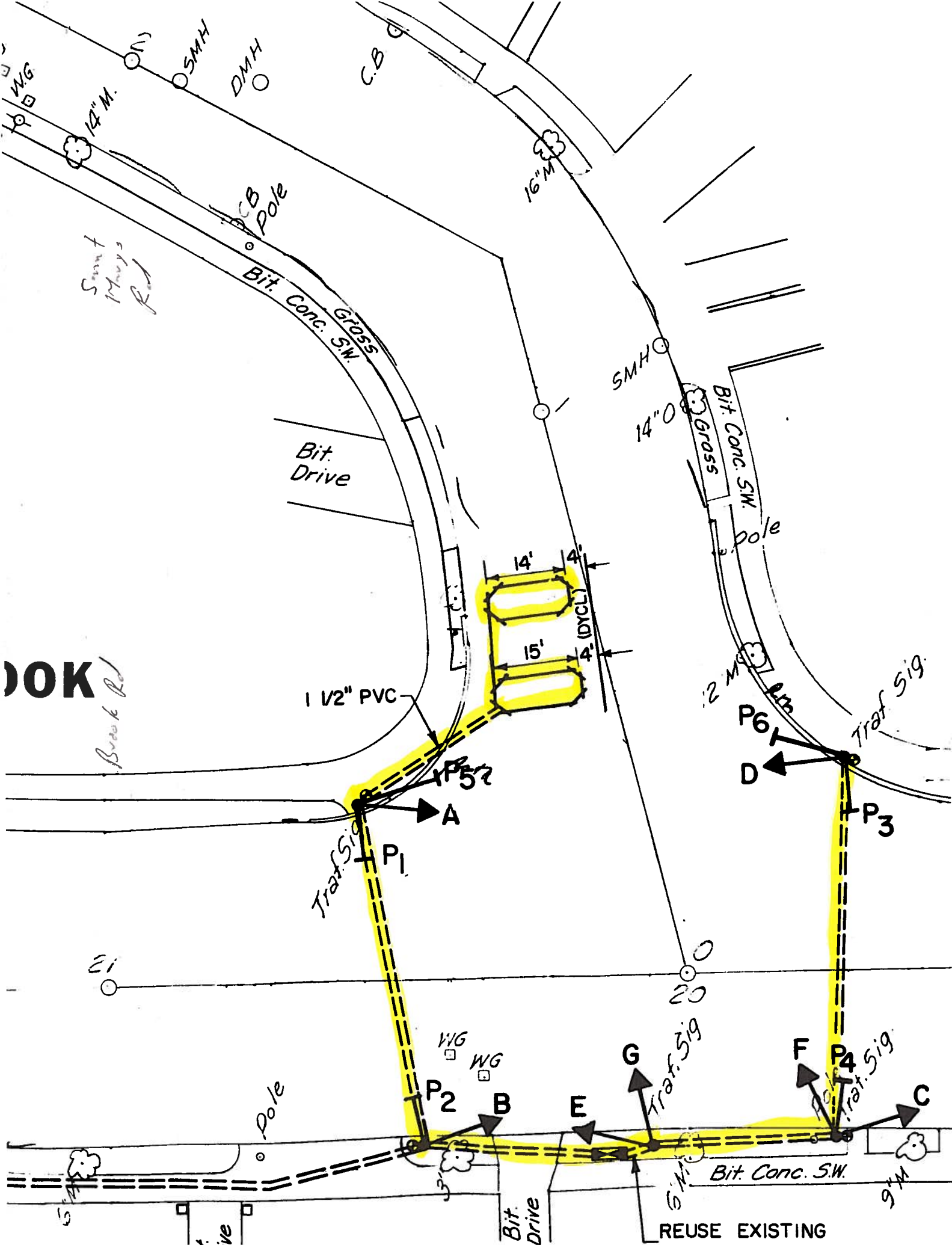
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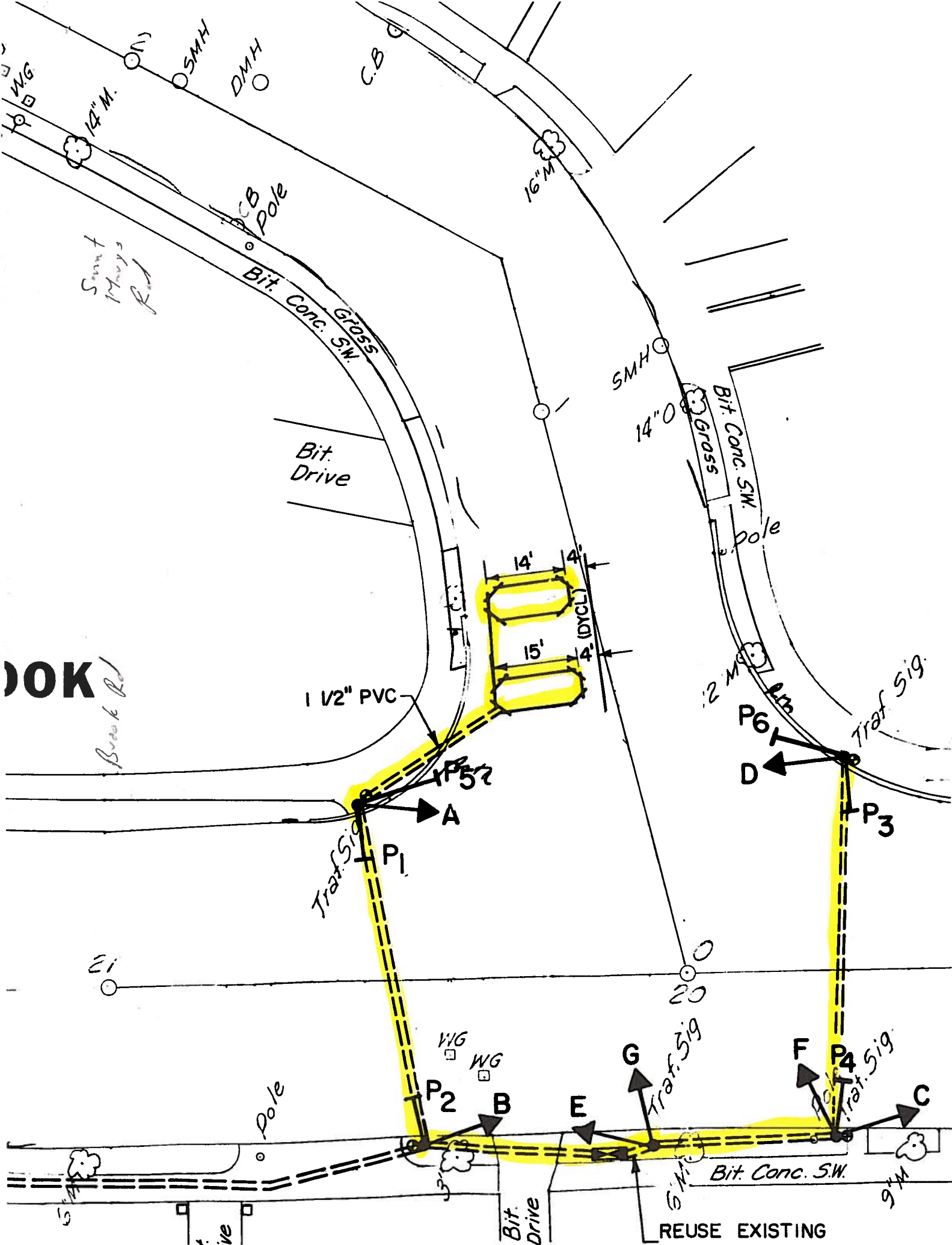
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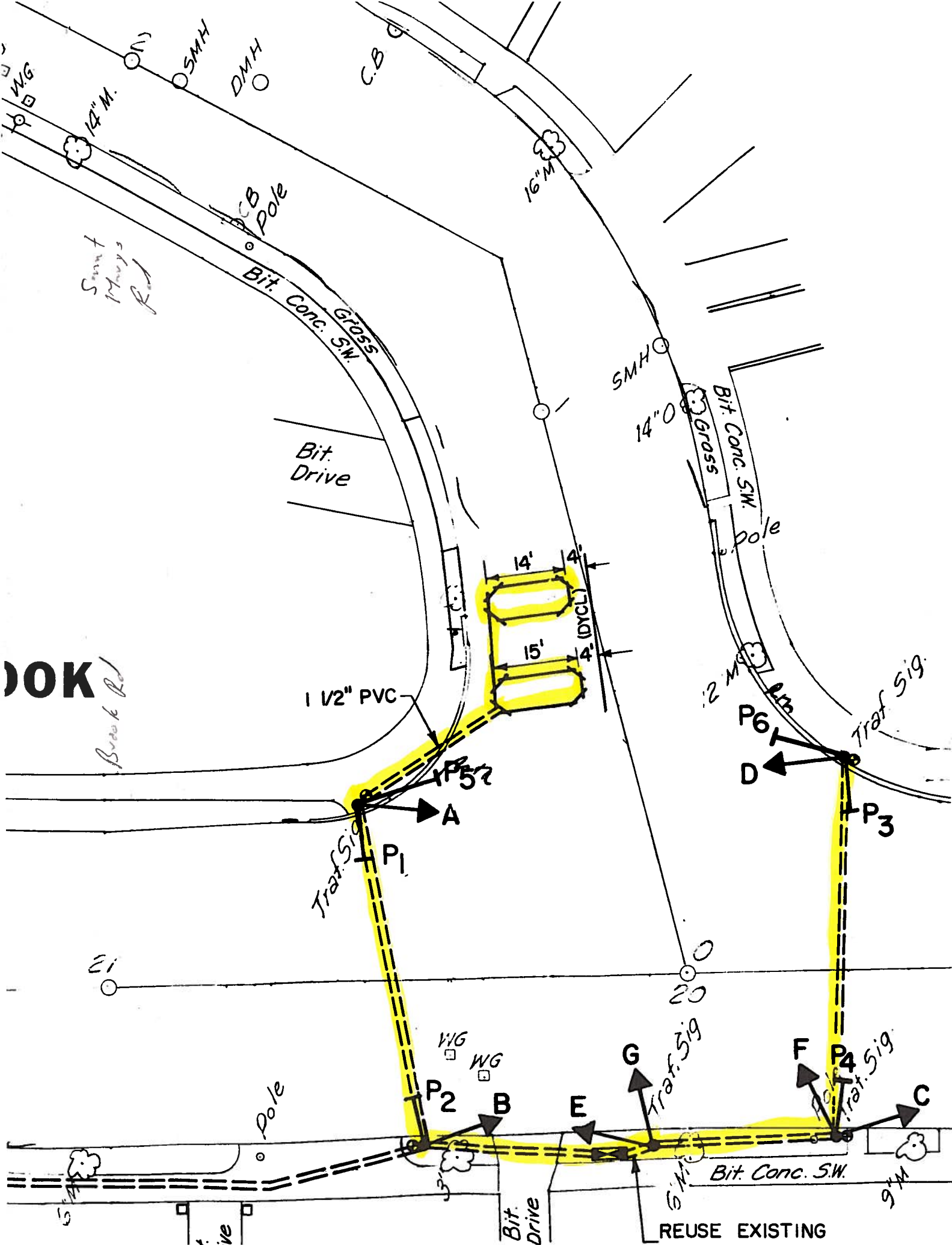
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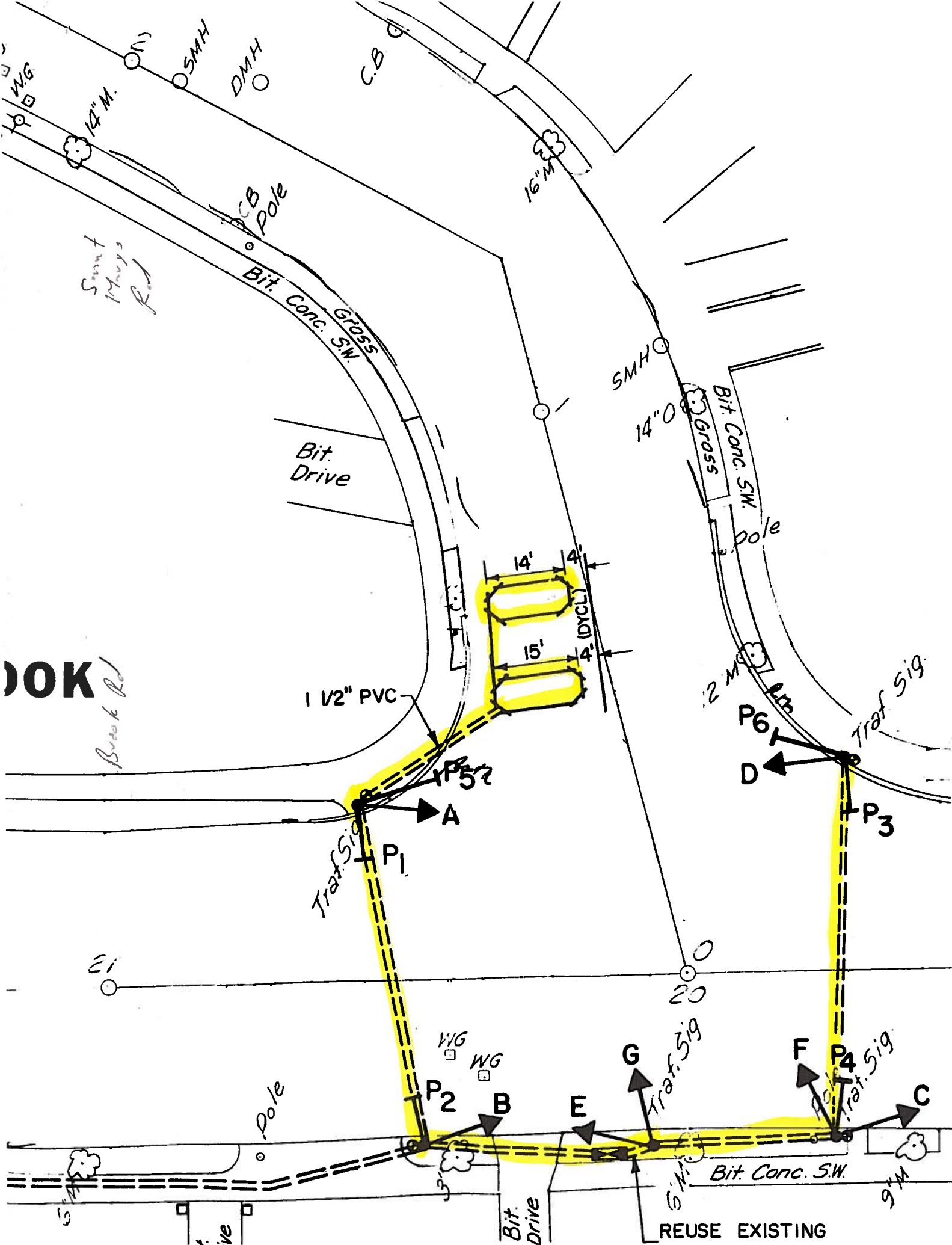
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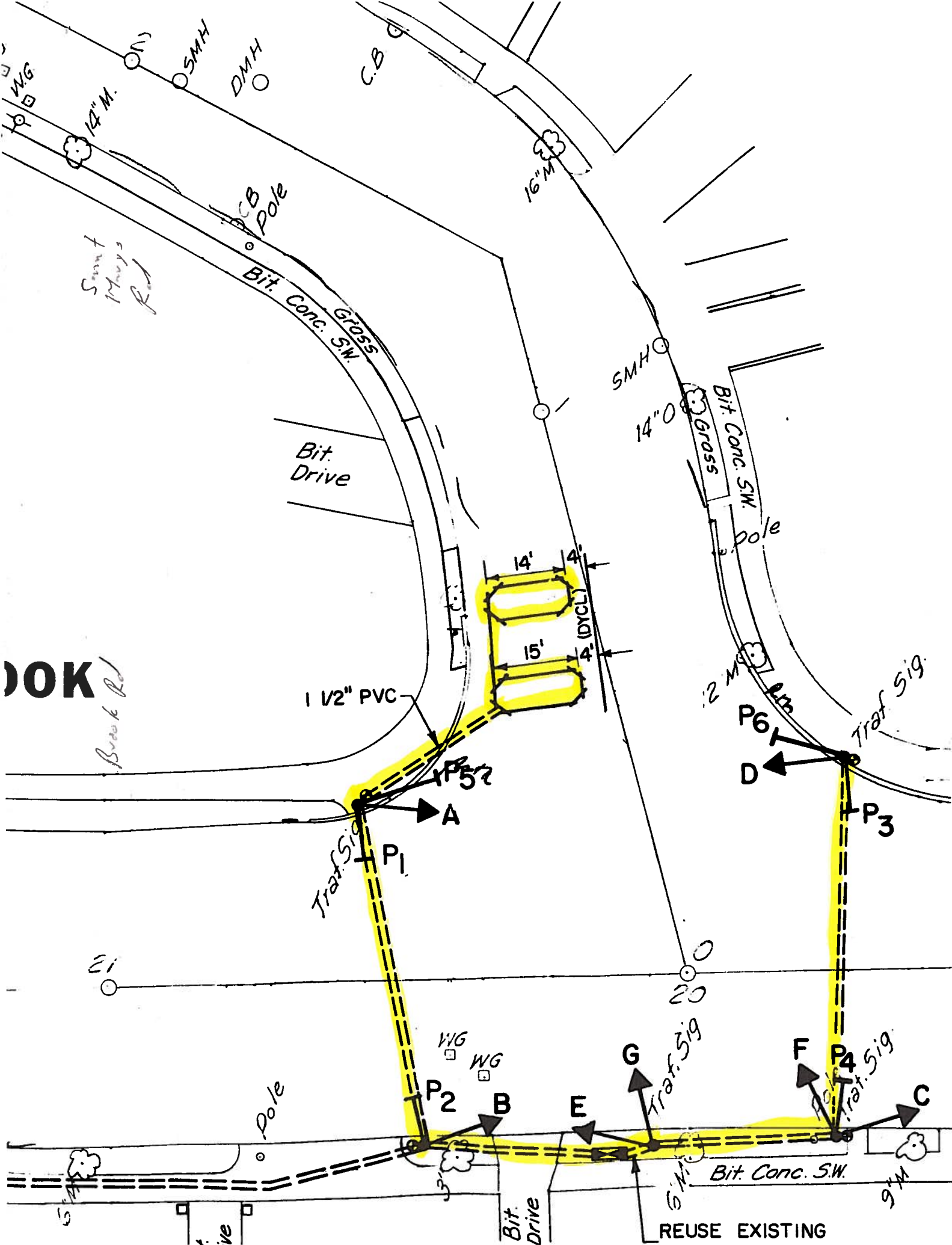
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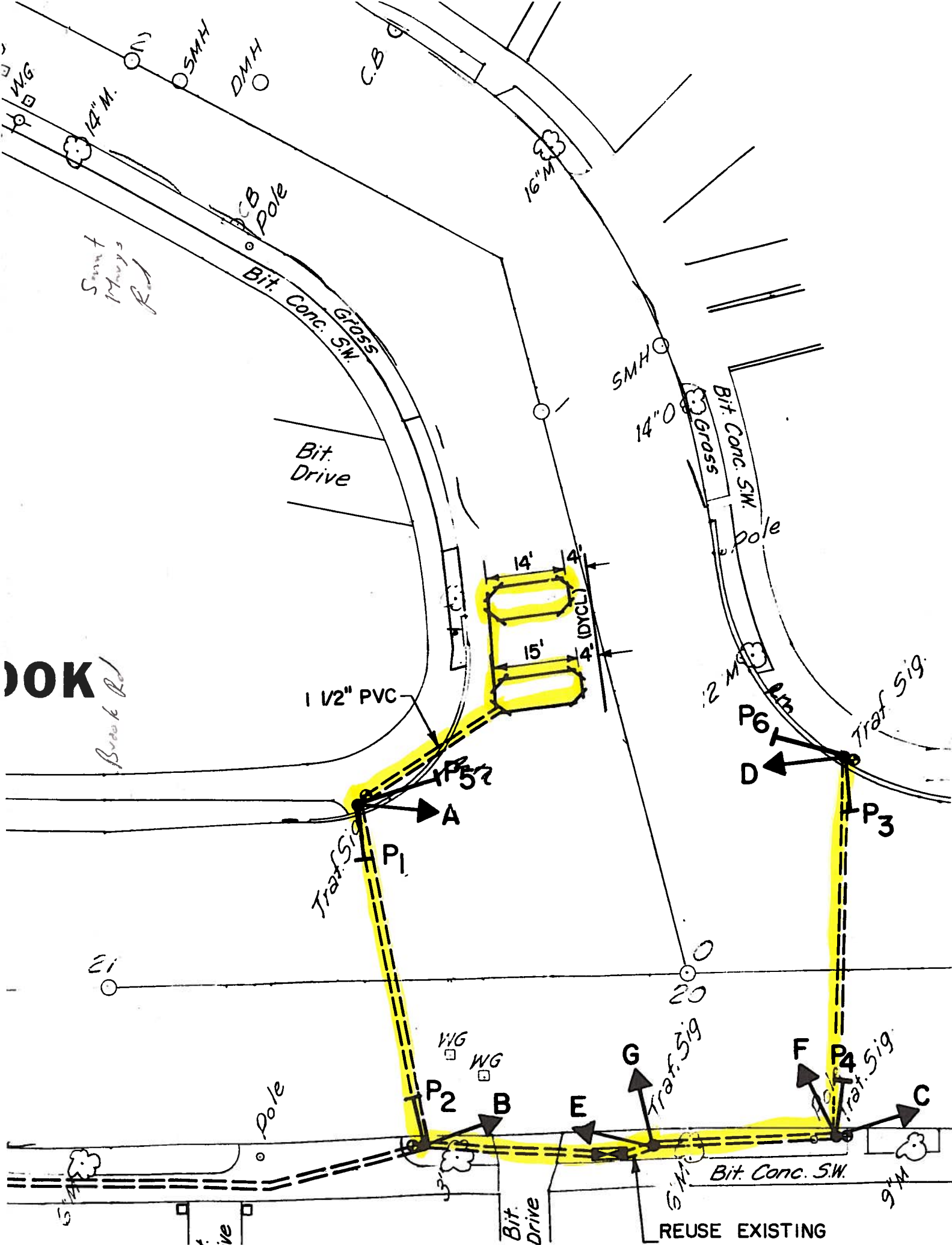
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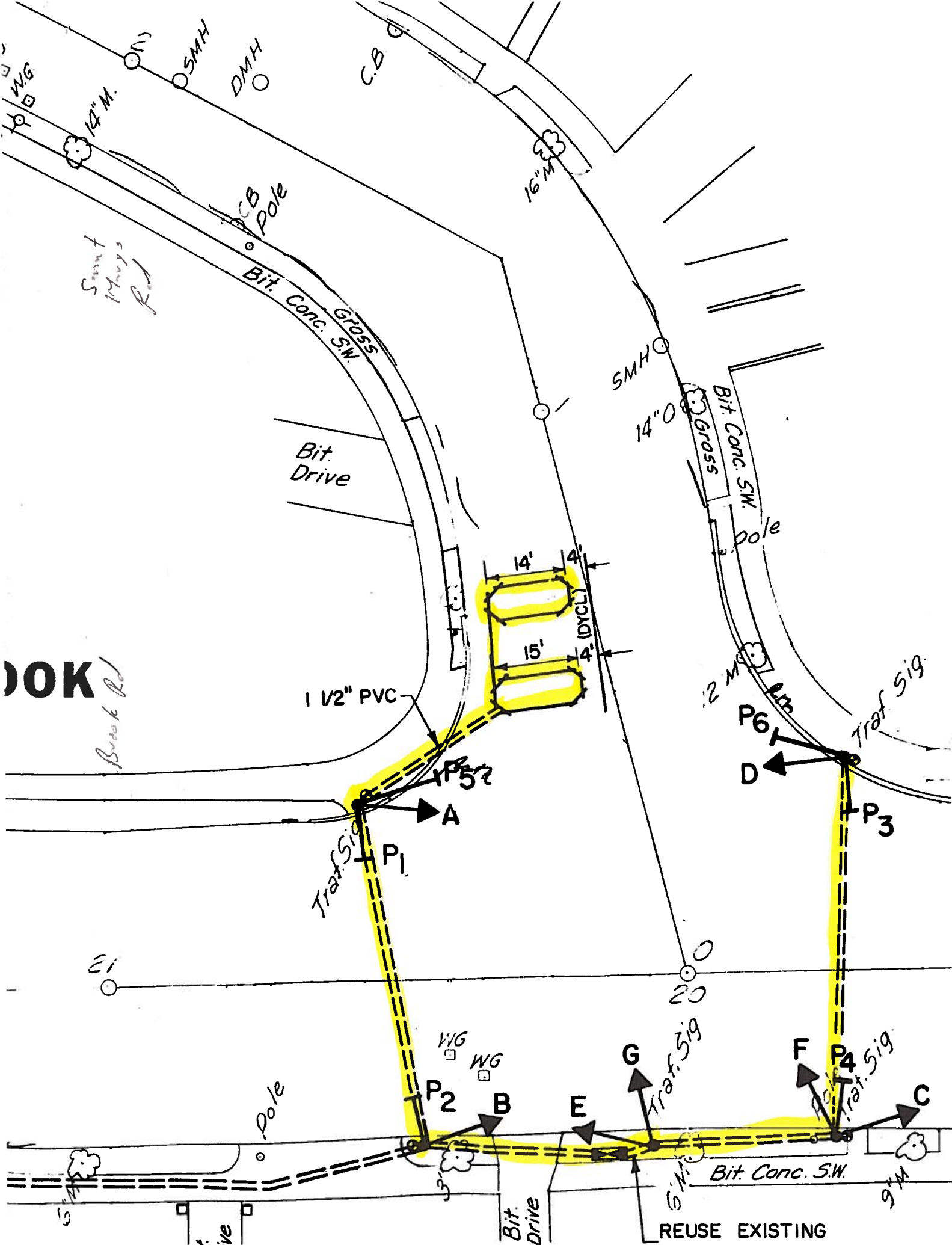
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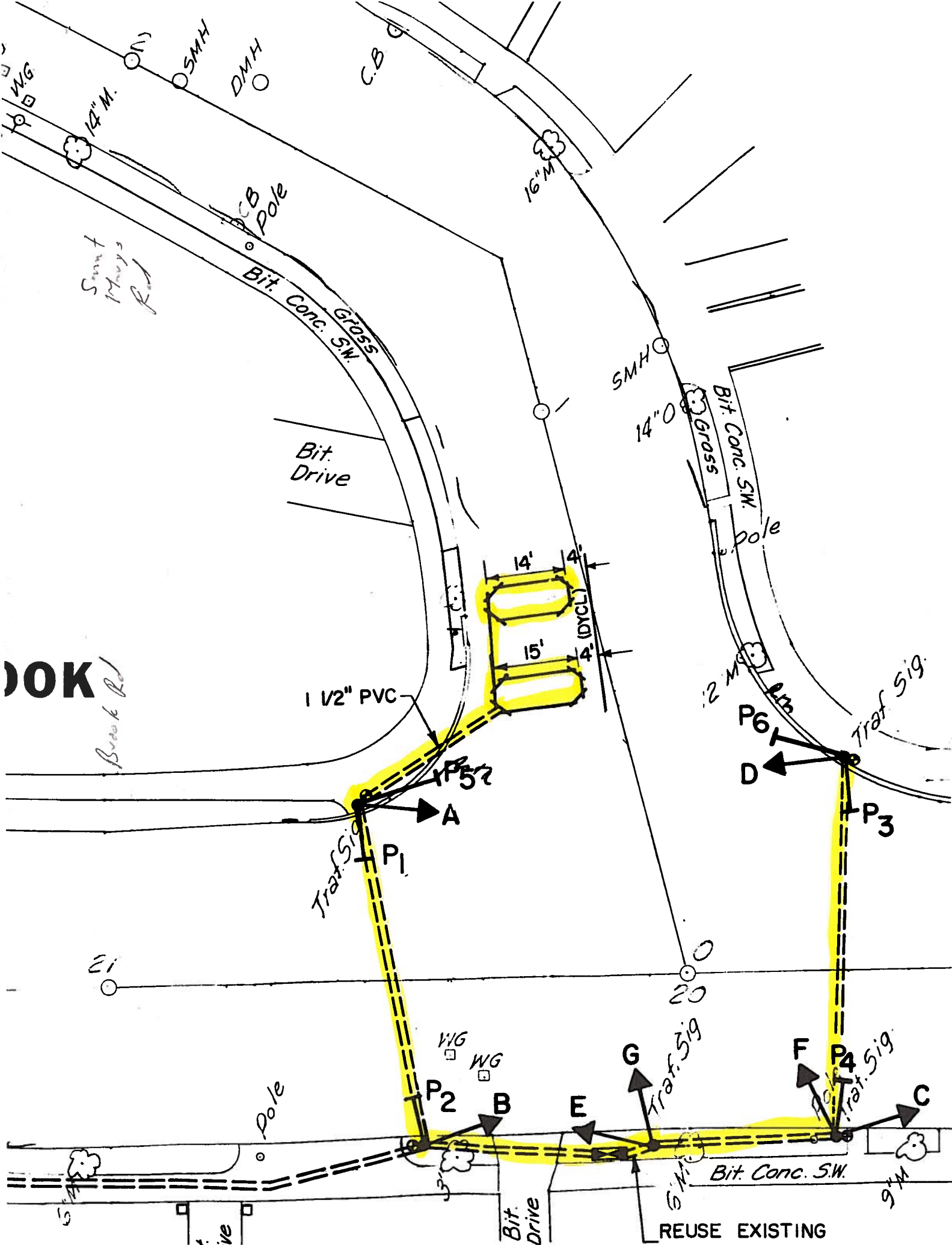
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Brook Rd



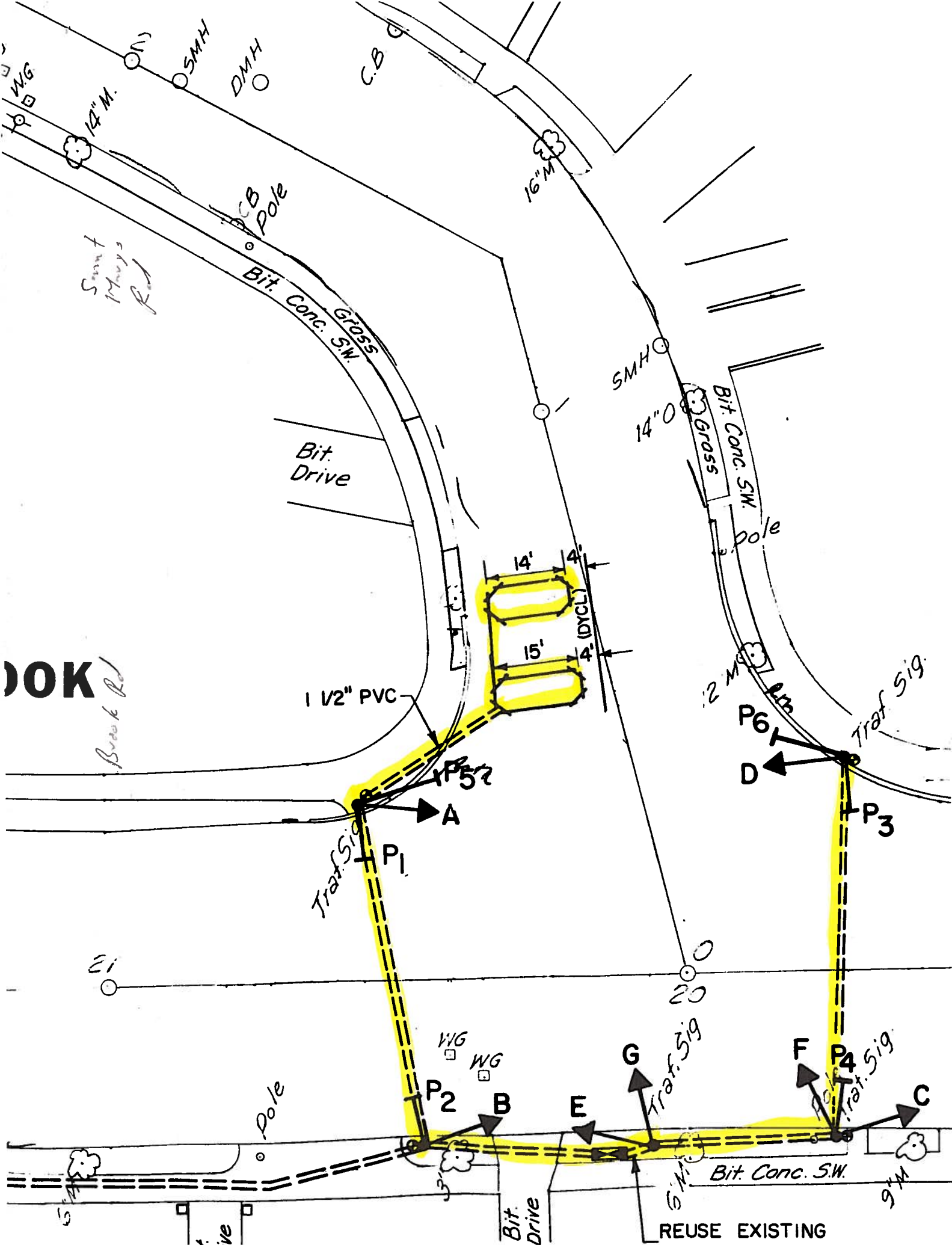
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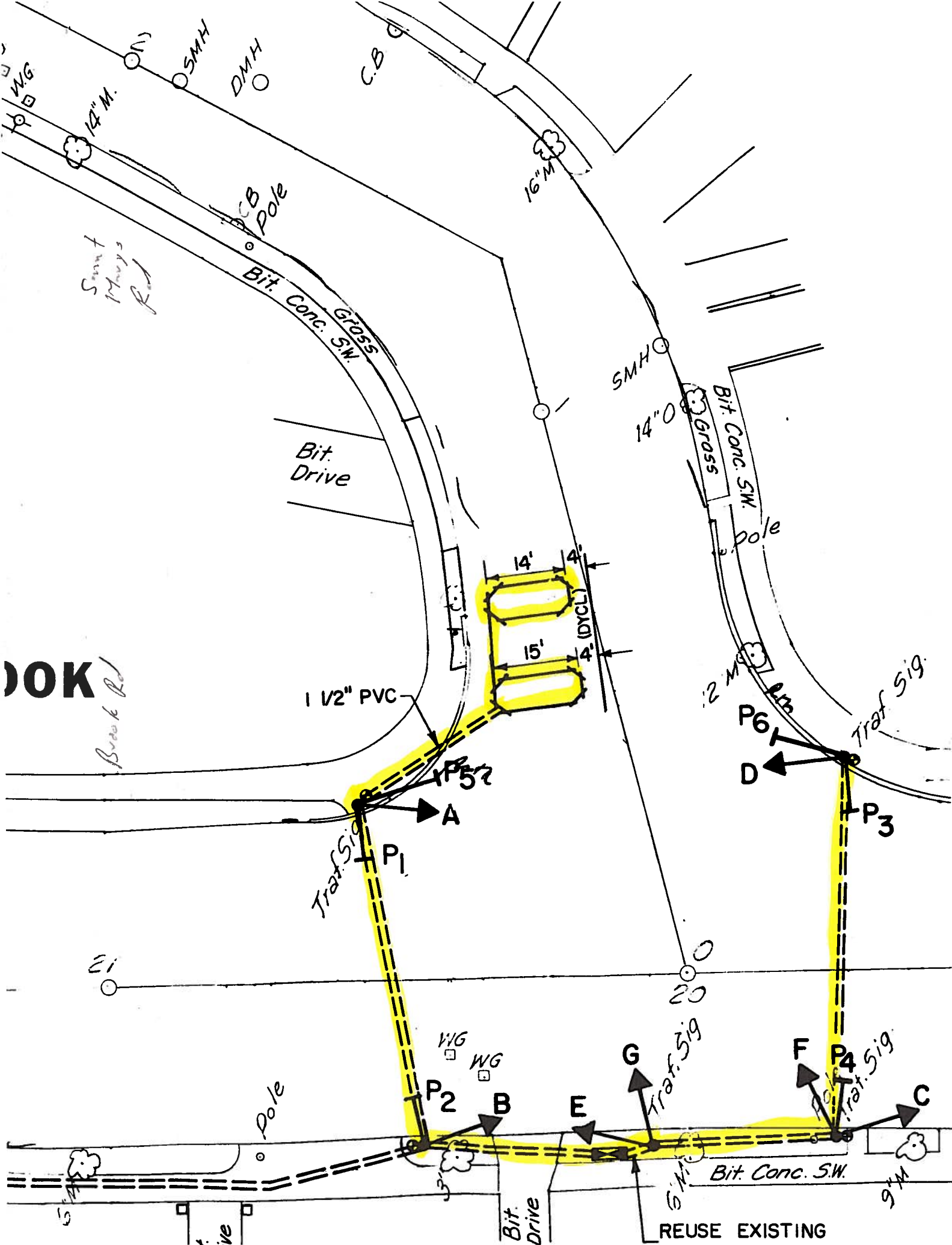
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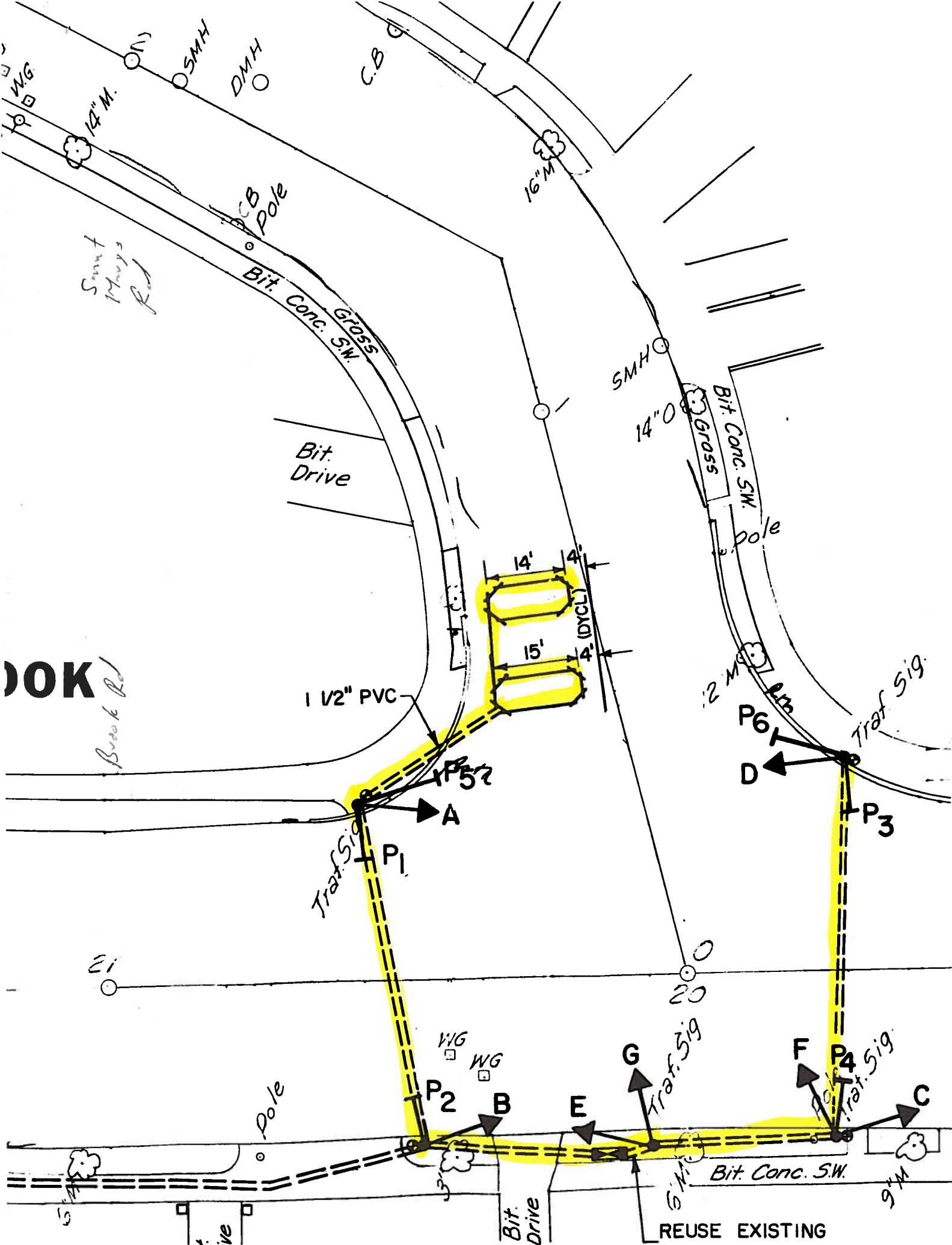
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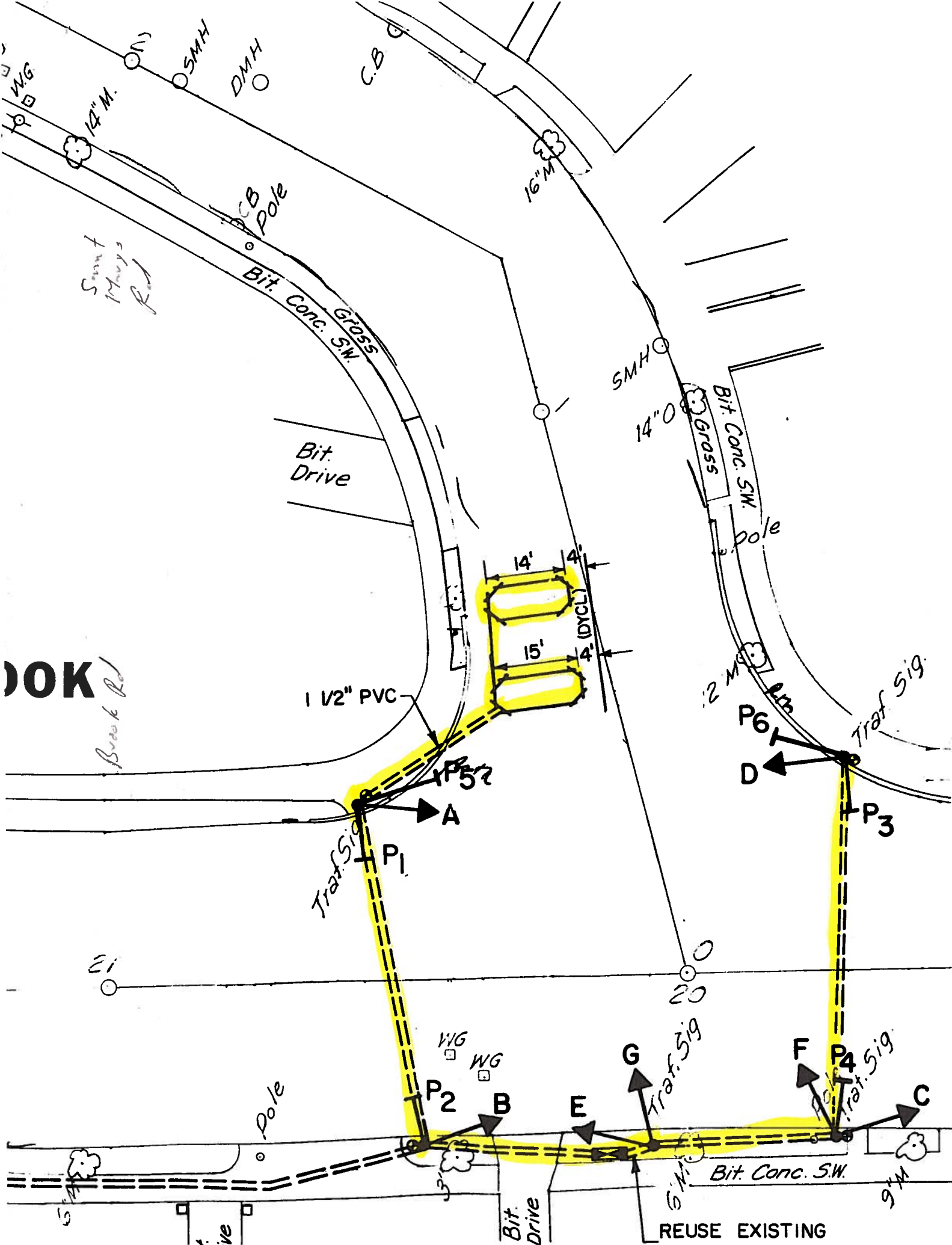
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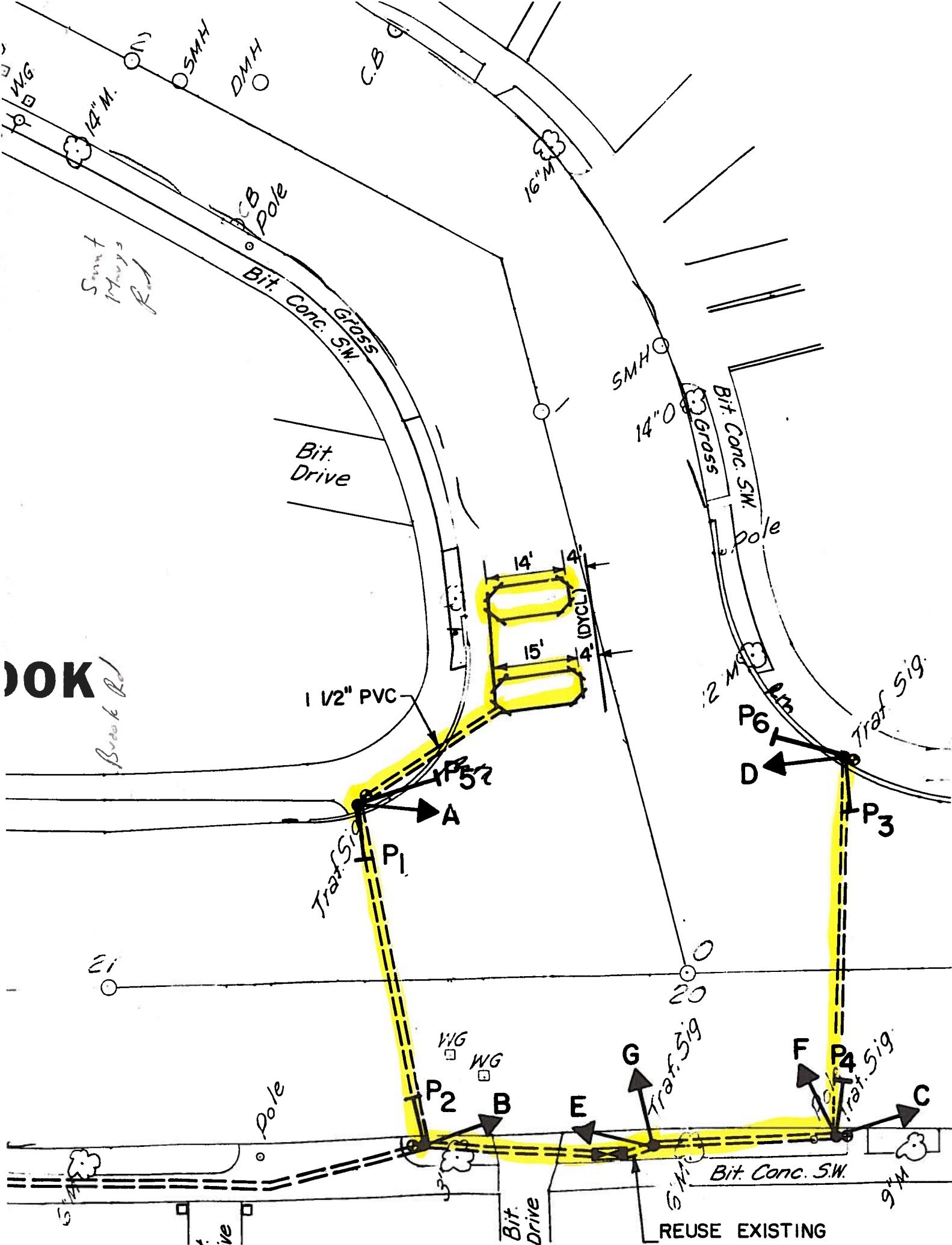
**DOK**  
Brook Rd



**DOK**  
Brook Rd



**DOK**  
Brook Rd



**SIGNAL TIMING SHEET**

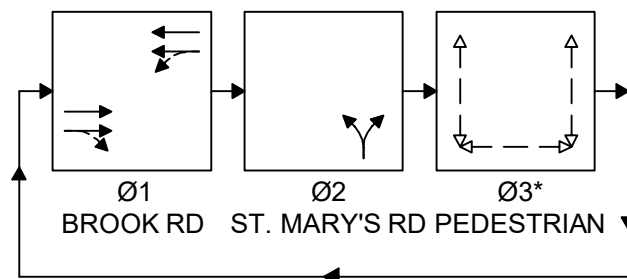
**PHASE TIMES**

PHASE	1	2	3	4	5	6	7	8	9
Movement	EB/ WB	NB	PED						
Min Green	25	4							
Extension	3	3							
Max Green I	25	15							
Max Green II	15	15							
Yellow	4	3							
All Red	1	1							
Walk			7						
Don't Walk			13						
Lock/Non-Lock	NL	NL	NL						
Recall	MAX								

**SIGNAL OPERATION**

Pretimed	<input type="checkbox"/>
Semi-Actuated	<input checked="" type="checkbox"/>
Fully-Actuated	<input type="checkbox"/>
Coordinated	<input checked="" type="checkbox"/>
Free	<input type="checkbox"/>

NOTES:



**SIGNAL PHASING DIAGRAM**

\*PUSHBUTTON ACTUATED



**SIGNAL TIMING SHEET**

**PHASE TIMES**

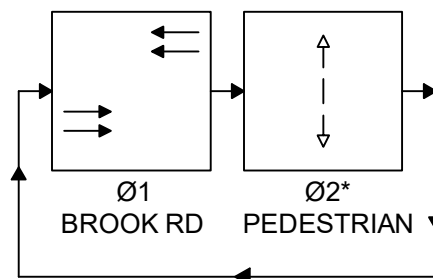
PHASE	1	2	3	4	5	6	7	8	9
Movement	NW/SE	PED							
Min Green	27								
Extension	4								
Max Green I	20								
Max Green II	20								
Yellow	4								
All Red	4								
Walk		16							
Don't Walk		10							
Lock/Non-Lock	NL	NL							
Recall	MAX								

**SIGNAL OPERATION**

Pretimed   
 Semi-Actuated   
 Fully-Actuated   
 Coordinated   
 Free

**NOTES:**

Flashing Mid-Block  
 Pedestrian Signal



**SIGNAL PHASING DIAGRAM**

\*PUSHBUTTON ACTUATED



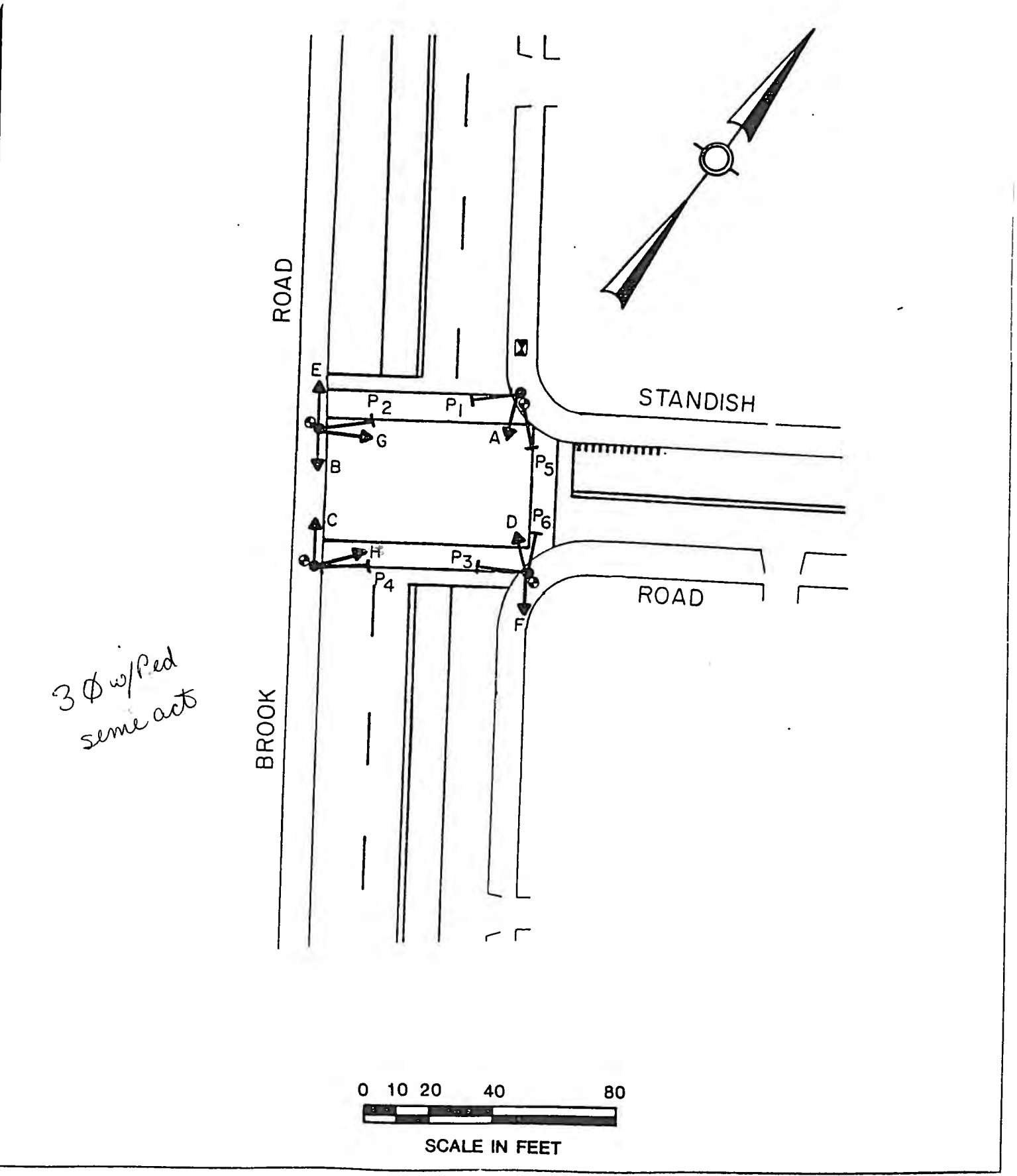
# TRAFFIC SIGNAL PLAN

COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS  
100 NASHUA STREET  
BOSTON, MASSACHUSETTS 02114

Brook Road and Standish Road  
Milton

DATE: 12-14-78

PERMIT NO. B-1596



3 Ø w/Ped  
same act





**SIGNAL TIMING SHEET**

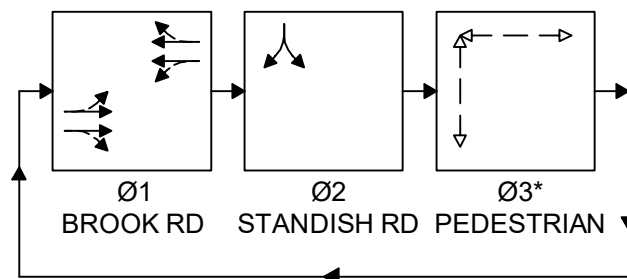
**PHASE TIMES**

PHASE	1	2	3	4	5	6	7	8	9
Movement	NW/SE	SW	PED						
Min Green	25	4							
Extension		3							
Max Green I	25	15							
Max Green II									
Yellow	4	3	3						
All Red	1	1	1						
Walk			7						
Don't Walk			13						
Lock/Non-Lock	NL	NL	NL						
Recall	MAX	MIN							

**SIGNAL OPERATION**

Pretimed	<input type="checkbox"/>
Semi-Actuated	<input checked="" type="checkbox"/>
Fully-Actuated	<input type="checkbox"/>
Coordinated	<input checked="" type="checkbox"/>
Free	<input type="checkbox"/>

NOTES:



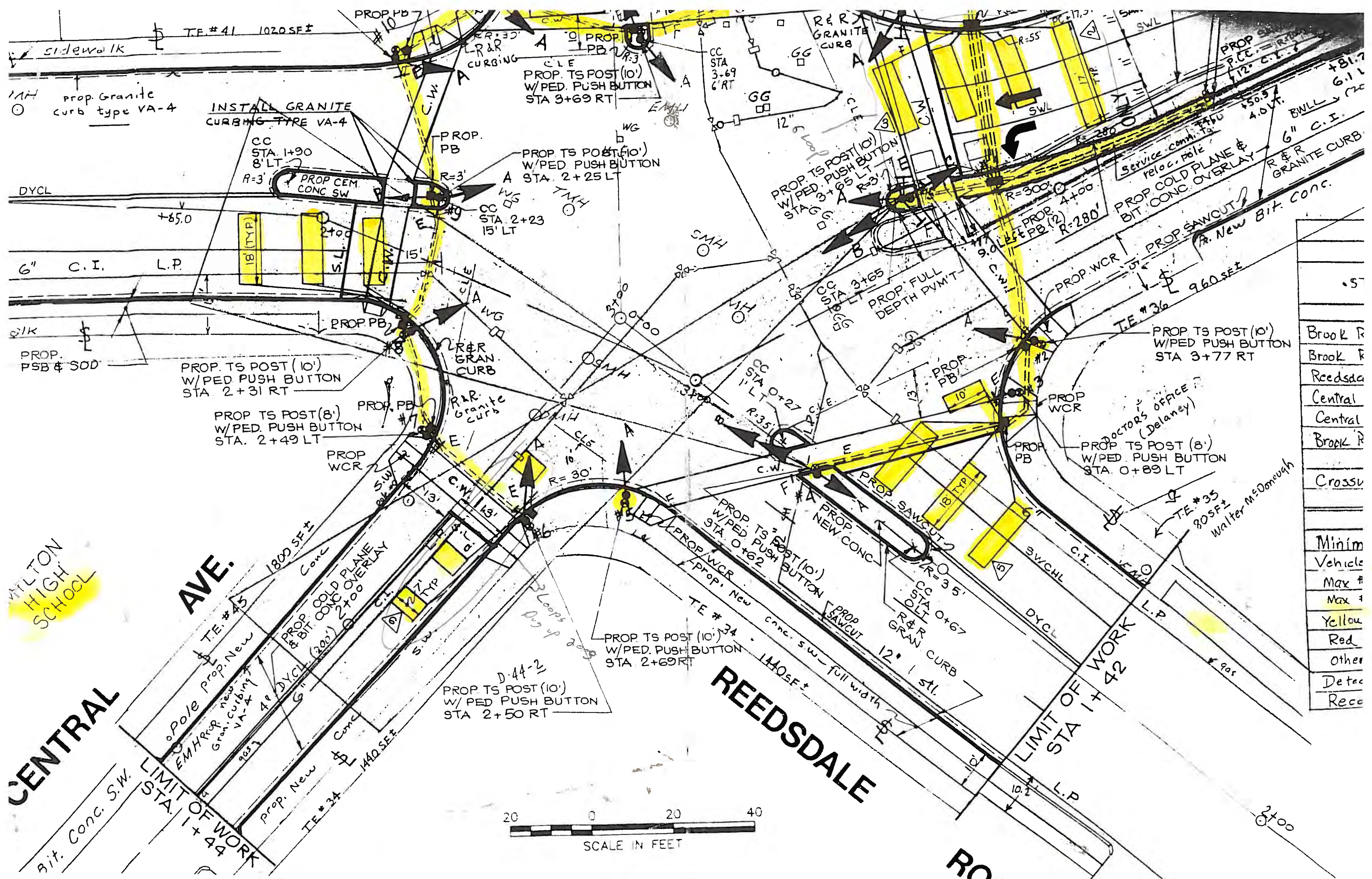
**SIGNAL PHASING DIAGRAM**

\*PUSHBUTTON ACTUATED







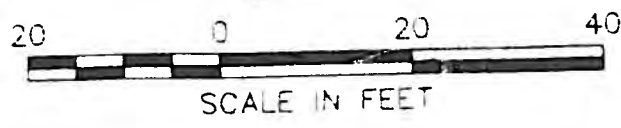


MILTON HIGH SCHOOL

AVE.

REEDSDALE

LIMIT OF WORK STA 1+42



Brook R
Brook R
Reedsda
Central
Central
Brook R
Crossu
Minimum
Vehicle
Max #
Max #
Yellow
Red
Other
Detect
Rece





Project: TRAFFIC SIGNAL INVENTORY  
 City: MILTON, MA  
 Location: TS011. BROOK/REEDSDALE/CENTRAL

Sheet: 1  
 By: JMC  
 Date: 7/9/2018

**SIGNAL TIMING SHEET**

**PHASE TIMES**

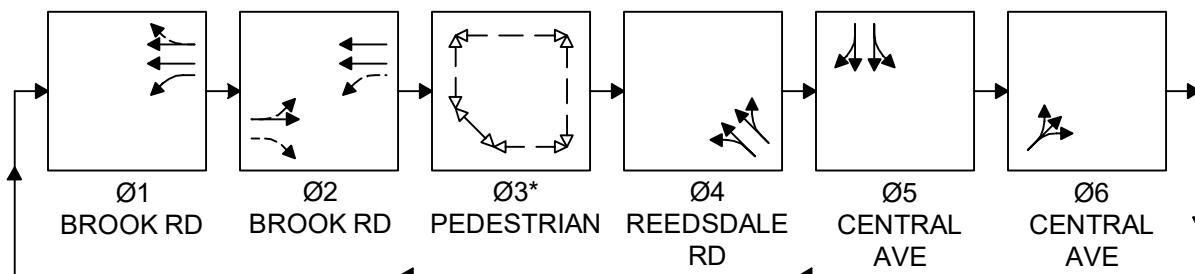
PHASE	1	2	3	4	5	6	7	8	9
Movement	WBL	EB/ WB	PED	NW	SB	NE			
Min Green	7	6		6	6	6			
Extension	2	1.5		1.5	3	2			
Max Green I	7	25		30	25	10			
Max Green II	7	35		25	20	20			
Yellow	4	4	3	4	4	4			
All Red	1	3	1	1	1	1			
Walk			9						
Don't Walk			10						
Lock/Non-Lock	L	L	L	L	L	L			
Recall		MIN							

**SIGNAL OPERATION**

Pretimed   
 Semi-Actuated   
 Fully-Actuated

Coordinated   
 Free

NOTES:



**SIGNAL PHASING DIAGRAM**

\*PUSHBUTTON ACTUATED

**SIGNAL TIMING SHEET**

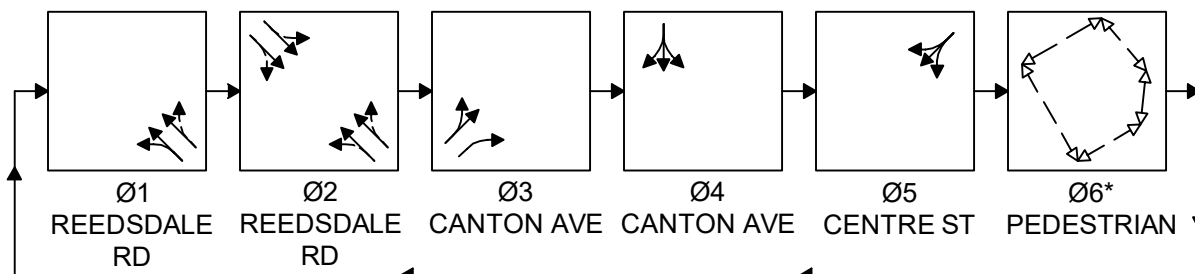
**PHASE TIMES**

PHASE	1	2	3	4	5	6	7	8	9
Movement	NWL	NW/SE	NE	SB	SW	PED			
Min Green	7	6	7	7	7				
Extension	2.5	2	4	2	2.5				
Max Green I	10	35	35	20	35				
Max Green II	15	40	35	25	35				
Yellow	3	3	3	3	3				
All Red		3	2	2	2				
Walk						10			
Don't Walk						10			
Lock/Non-Lock	L	L	NL	NL	NL	NL			
Recall		SOFT							

**SIGNAL OPERATION**

Pretimed	<input type="checkbox"/>
Semi-Actuated	<input type="checkbox"/>
Fully-Actuated	<input checked="" type="checkbox"/>
Coordinated	<input type="checkbox"/>
Free	<input checked="" type="checkbox"/>

**NOTES:**



**SIGNAL PHASING DIAGRAM**

\*PUSHBUTTON ACTUATED



MILTON  
ROUTE 28

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.		2001	84	179
PROJECT FILE NO. 106901				

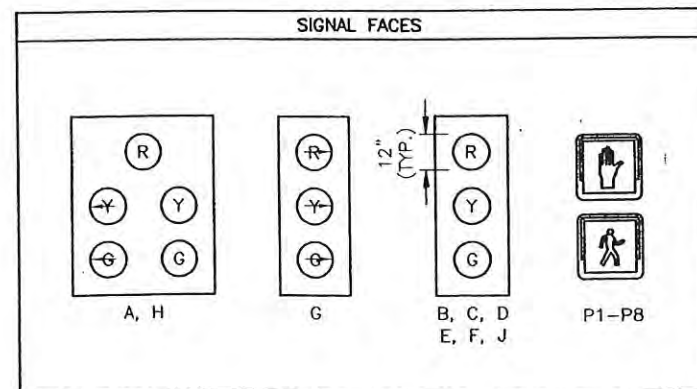
TRAFFIC SIGNAL DATA  
LOCATION #4  
RANDOLPH AVENUE (ROUTE 28)  
AT REEDSDALE ROAD

MAJOR ITEMS LIST	
1	CONTROLLER TYPE 8DW NEMA TS-2 TYPE 1, CABINET (BASE MOUNTED), WITH CONCRETE PAD AND FOUNDATION
1	SIGNAL MAST ARM 25' (TYPE II STEEL MONOLEVER) WITH FOUNDATION
2	SIGNAL MAST ARM 30' (TYPE II STEEL MONOLEVER) WITH FOUNDATION
1	SIGNAL MAST ARM 35' (TYPE II STEEL MONOLEVER) WITH FOUNDATION
3	SIGNAL POST AND BASE STANDARD 8 FT WITH FOUNDATION
7	SIGNAL HEAD 1 WAY, 3 SECTION, 12" LENS W/BACKPLATE (B,C,D,E,F,G,J)
2	SIGNAL HEAD 1 WAY, 5 SECTION, 12" LENS W/BACKPLATE (A,H)
8	PED. SIGNAL HEAD, 12", LED SYMBOLIC TYPE (P1-P8)
8	PED. PUSH BUTTON SIGN AND SADDLE
30	WIRE LOOP DETECTOR (VARIOUS)
17	PULLBOX (12"x12")(SD2.03)
8	* LOOP DETECTOR AMPLIFIER (DUAL CHANNEL)
4	OPTICAL DETECTOR (MODEL 711), SIGNAL CHANNEL, SIGNAL DIRECTION
1	PREEMPTION PHASE SELECTOR, (FOUR CHANNEL) (MODEL 764)
1	PREEMPTION PHASE SELECTOR (RACK) (MODEL 760)
1	PREEMPTION INDICATOR (STROBE) LIGHT
1	OVERHEAD SERVICE CONNECTION
	REMOVE AND STACK EXISTING MAST ARM SIGNAL HEADS, SIGNAL POST AND CONTROLLER
	NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIALS AND EQUIPMENT TO COMPLETE THE INSTALLATION

\* EACH D-2 BIKE LOOP DETECTOR WILL BE CONNECTED TO A SEPARATE CHANNEL OF LOOP DETECTOR AMPLIFIER

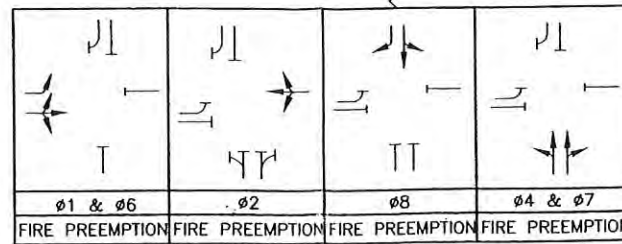
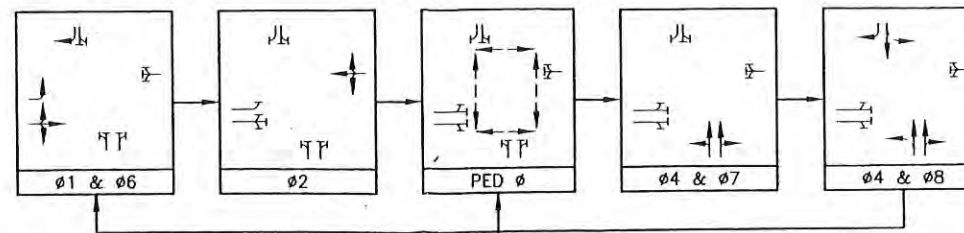
SERIES/PARALLEL

DETECTOR DATA						
DETECTOR	NO. & SIZE	NO. OF TURNS	PHASE CALLED	DELAY	TYPE OF DETECTION	CONNECTION
1	4 - 6' x 6'	3	01	0	PRESENCE	SERIES/PARALLEL
2A	1 - 22' x 6'	3	06	0	PRESENCE	SERIES/PARALLEL
3	3 - 6' x 6'	3	02	0	PRESENCE	SERIES/PARALLEL
3A	1 - 14' x 6'	3	02	0	PRESENCE	SERIES/PARALLEL
4	3 - 6' x 6'	3	08	0	PRESENCE	SERIES/PARALLEL
5A	1 - 16' x 6'	3	08	0	PRESENCE	SERIES/PARALLEL
5	3 - 6' x 6'	3	08	0	PRESENCE	SERIES/PARALLEL
6	4 - 6' x 6'	3	07	0	PRESENCE	
7A	1 - 14' x 6'	3	04	0	PRESENCE	SERIES/PARALLEL
7	1 - 12' x 6'	3	04	0	PRESENCE	SERIES/PARALLEL
8	1 - 9' x 6'	3	04	0	PRESENCE	SERIES/PARALLEL
9	1 - 7' x 6'	3	04	0	PRESENCE	SERIES/PARALLEL
10	2 - 6' x 6'	3	06	0	PULSE	SERIES
11	2 - 6' x 6'	3	06	0	PULSE	SERIES



NOTE:  
1. ALL SIGNAL HEADS SHALL HAVE 5" LOUVERED BACKPLATE  
2. ALL RED, YELLOW AND GREEN SIGNAL INDICATIONS SHALL BE LED TYPE  
3. ALL SIGNAL HEADS ON MAST ARMS SHALL BE FIXED MOUNTED

PREFERENTIAL PHASING DIAGRAM



As Built Drawings  
9-7-07 gV

VIGIL ELECTRIC COMPANY, INC.  
72 PROVIDENCE STREET  
HYDE PARK, MA 02138

Found 30sec. changed to 35sec. 12/16/2014  
changed to 15 sec

PRE-EMPTION NOTES

- AFTER FIRE PER-EMPTION HAS TERMINATED, THE SIGNAL SHALL RETURN TO THE BEGINNING OF 01 & 06.
- EMERGENCY VEHICLE PRE-EMPTION REFERS TO OPTICALLY TRANSMITTED CALLS SENT BY OPTICAL EMITTERS MOUNTED ON EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS MOUNTED ON MAST ARMS.
- WHEN A CALL IS RECEIVED BY OPTICAL DETECTORS, THE CONTROLLER SHALL ADVANCE TO THE EMERGENCY VEHICLE PRE-EMPTION AS SHOWN IN THE PREFERENTIAL PHASING SEQUENCE.
- UPON CLEARANCE OF THE PRE-EMPTION PHASE THE CONTROLLER SHALL RESUME NORMAL OPERATION. PHASES THAT ARE TERMINATED BY AN EMERGENCY VEHICLE PRE-EMPTION SHALL HAVE A MINIMUM GREEN AND CLEARANCE INTERVAL PRIOR TO TERMINATION.

TRAFFIC SIGNAL PHASING NOTES

- TRAFFIC CONTROL SIGNALS AT THIS LOCATION WHEN COMPLETED UNDER THIS CONTRACT SHALL OPERATE AS FULLY ACTUATED SYSTEM IN ISOLATED MODE.
- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE THE SIGNAL INDICATIONS FOR THAT MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE THE SIGNAL INDICATION FOR THAT TRAFFIC MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVAL.

SEQUENCE AND TIMING FOR FULLY ACTUATED TRAFFIC SIGNAL CONTROL																	FIRE PREEMPTION											FLASH OPER.								
TIMING IN SECONDS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
MINIMUM GREEN (INITIAL)	6			12			6			6			6			8																				
VEHICLE INTERVAL	2			2			2			2			2			2																				
MAXIMUM GREEN	12			50			12			10			20			24																				
YELLOW CLEARANCE			4			4			4			4			4			4																		
RED CLEARANCE				2			2			2			1			1			1																	
"WALK" INTERVAL																			7																	
PED CLEARANCE INTERVAL																				18																
STREET	DIRECT	HOUSING																																		
RANDOLPH AVE	NB	A	G/G	Y/Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY
RANDOLPH AVE	NB	B	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY
RANDOLPH AVE	SB	C,D	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY
REEDSDALE RD	EB	E,F	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
REEDSDALE RD	EB	G	G	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FR	
REEDSDALE RD	WB	H	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
REEDSDALE RD	WB	J	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
PEDESTRIAN	ALL	P1-P8	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	OUT

\* REMAINS GREEN IF 01 & 06 ARE CALLED NEXT















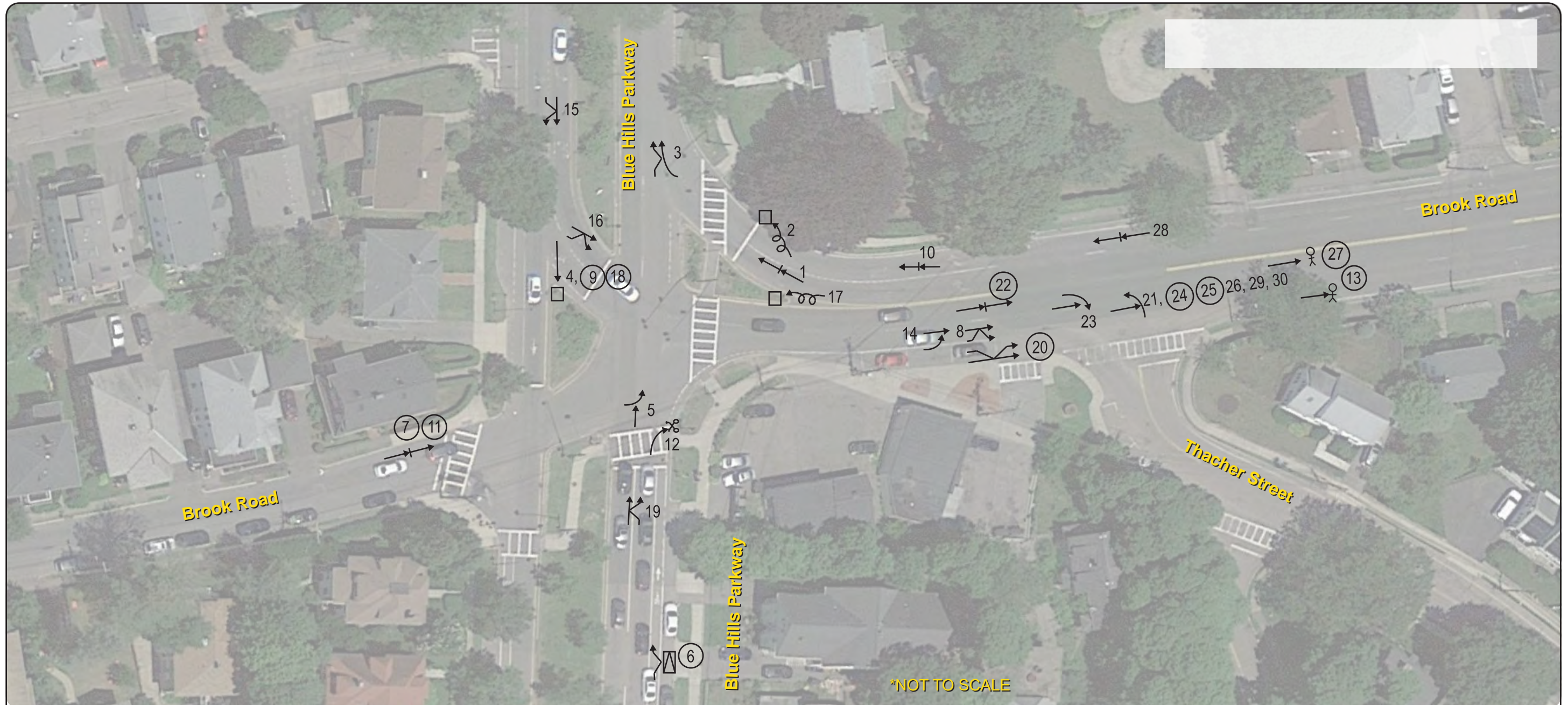
# Appendix D: Traffic Safety Data

Part 1: Crash Diagrams

Part 2: Expected Crash Analysis



# Part 1: Crash Diagrams



SYMBOLS		TYPES OF CRASH		SEVERITY	
Moving Vehicle Backing Vehicle Non-Involved Vehicle Pedestrian	Parked Vehicle Fixed Object Bicycle Animal	Head On Angle Rear End Sideswipe Out of Control	Injury Crash Fatal Crash		



**Figure 26**  
**Collision Diagram: Route 28 at Blue Hill Parkway and Thatcher Street**  
 January 1, 2013, to December 31, 2017

Brook Road at Blue Hills Parkway and Thacher Street

Collision ID	Crash Number	Crash				Crash Severity	Manner of Collision	Road Surface		Weather Condition	Bike or Pedestrian
		Year	Crash Time	Crash Date	Condition			Ambient Light Condition			
1	3602037	2013	7:54 AM	2013-09-19	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear/Clear		
2	3760033	2014	5:37 PM	2014-01-03	Property damage only (none injured)	Single vehicle crash	Ice	Dark - lighted roadway	Cloudy/Blowing sand, snow	--	
3	3972153	2014	8:20 PM	2014-10-07	Property damage only (none injured)	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear	--	
4	3991997	2015	2:43 AM	2015-01-01	Property damage only (none injured)	Single vehicle crash	Dry	Dark - lighted roadway	Clear	--	
5	4015427	2015	00:34 AM	2015-02-16	Property damage only (none injured)	Angle	Snow	Dark - lighted roadway	Not Reported	--	
6	4046436	2015	5:40 AM	2015-05-13	Non-fatal injury	Sideswipe, same direction	Dry	Dawn	Clear	--	
7	4094653	2015	12:36 PM	2015-07-21	Non-fatal injury	Rear-end	Dry	Daylight	Clear	--	
8	4092788	2015	8:57 PM	2015-08-02	Property damage only (none injured)	Sideswipe, opposite direction	Dry	Dark - lighted roadway	Clear	--	
9	4126018	2015	7:57 PM	2015-12-06	Non-fatal injury	Single vehicle crash	Dry	Dark - lighted roadway	Cloudy	--	
10	4175174	2016	2:30 PM	2016-01-19	Property damage only (none injured)	Rear-end	Dry	Daylight	Cloudy/Cloudy	--	
11	4186163	2016	8:00 AM	2016-03-22	Non-fatal injury	Rear-end	Dry	Daylight	Clear	--	
12	4224583	2016	12:28 PM	2016-07-09	Property damage only (none injured)	Angle	Dry	Daylight	Cloudy	cyc	
13	4417816	2016	7:31 PM	2016-11-30	Non-fatal injury	Single vehicle crash	Wet	Other	Rain/Cloudy	ped	
14	4523752	2017	7:14 AM	2017-05-11	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--	
15	4400349	2017	11:46 PM	2017-07-29	Property damage only (none injured)	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear	--	
16	4409757	2017	4:00 PM	2017-08-04	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Clear	--	
17	4451119	2017	10:47 PM	2017-11-07	Property damage only (none injured)	Single vehicle crash	Wet	Dark - lighted roadway	Rain	--	
18	4459283	2017	6:57 PM	2017-11-17	Non-fatal injury	Single vehicle crash	Dry	Dark - unknown roadway lighting	Clear	--	
19	4455154	2017	7:15 PM	2017-11-17	Property damage only (none injured)	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear	--	
20	3430746	2013	4:17 PM	2013-05-10	Non-fatal injury	Sideswipe, same direction	Dry	Daylight	Clear/Clear	--	
21	3728279	2013	7:37 AM	2013-11-18	Property damage only (none injured)	Angle	Wet	Daylight	Rain/Cloudy	--	
22	3824836	2014	6:50 AM	2014-03-20	Non-fatal injury	Rear-end	Wet	Dawn	Rain/Rain	--	
23	4065586	2015	3:04 PM	2015-05-07	Property damage only (none injured)	Single vehicle crash	Dry	Daylight	Cloudy	--	
24	4106082	2015	1:28 PM	2015-08-06	Non-fatal injury	Angle	Dry	Daylight	Cloudy	--	
25	4195238	2016	5:19 PM	2016-03-22	Non-fatal injury	Angle	Dry	Daylight	Clear	--	
26	4212359	2016	7:52 AM	2016-06-22	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Cloudy	--	
27	4210634	2016	8:51 AM	2016-06-22	Non-fatal injury	Single vehicle crash	Dry	Daylight	Clear/Clear	ped	
28	4417229	2016	2:31 PM	2016-10-25	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear	--	
29	4349797	2017	9:08 AM	2017-03-09	Property damage only (none injured)	Angle	Dry	Daylight	Cloudy	--	
30	4385286	2017	2:03 PM	2017-06-03	Property damage only (none injured)	Angle	Dry	Daylight	Cloudy/Cloudy	--	





NOTE: The numbers next to each collision can be used to look up crash record information included in Appendix D.

\*NOT TO SCALE

SYMBOLS		TYPES OF CRASH		SEVERITY	
Moving Vehicle Backing Vehicle Non-Involved Vehicle Pedestrian	Parked Vehicle Fixed Object Bicycle Animal	Head On Angle Rear End Sideswipe Out of Control	Injury Crash Fatal Crash		



**Figure 27**  
**Collision Diagram: Segment Between Thacher Street and St Mary's Road**  
 January 1, 2013, to December 31, 2017



### Segment Between Thacher Street and St Mary's Road

Collision ID2	Crash Number	Crash Year	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface Condition	Ambient Light Conditions	Weather Condition	Bike and Pedestrian
1	3374009	2013	11:10 PM	2013-01-25	Property damage only (none injured)	Single vehicle crash	Snow	Dark - lighted roadway	Snow	--
2	3372350	2013	12:00 PM	2013-01-29	Property damage only (none injured)	Single vehicle crash	Snow	Dark - lighted roadway	Snow/Sleet, hail (freezing rain or drizzle)	--
3	3372336	2013	9:19 PM	2013-02-05	Non-fatal injury	Single vehicle crash	Snow	Dark - lighted roadway	Snow/Snow	--
4	3497531	2013	3:06 PM	2013-06-21	Non-fatal injury	Rear-end	Dry	Daylight	Clear/Clear	--
5	3727139	2013	10:03 AM	2013-12-15	Property damage only (none injured)	Single vehicle crash	Snow	Daylight	Snow/Rain	--
6	3710821	2013	10:36 AM	2013-12-16	Not Reported	Angle	Ice	Daylight	Clear	--
7	3771954	2014	8:34 PM	2014-01-04	Property damage only (none injured)	Single vehicle crash	Slush	Dark - lighted roadway	Clear	--
8	3786125	2014	6:41 PM	2014-02-13	Non-fatal injury	Single vehicle crash	Ice	Dark - lighted roadway	Sleet, hail (freezing rain or drizzle)	--
9	3794973	2014	4:55 PM	2014-03-07	Non-fatal injury	Sideswipe, opposite direction	Dry	Daylight	Clear/Clear	--
10	3894934	2014	1:20 PM	2014-07-26	Non-fatal injury	Single vehicle crash	Dry	Dark - lighted roadway	Clear	--
11	4032778	2015	12:02 AM	2015-01-10	Non-fatal injury	Single vehicle crash	Dry	Dark - lighted roadway	Clear	--
12	4032837	2015	5:36 PM	2015-01-15	Property damage only (none injured)	Single vehicle crash	Snow	Dark - lighted roadway	Cloudy	--
13	4161930	2015	8:18 AM	2015-12-29	Non-fatal injury	Single vehicle crash	Snow	Daylight	Snow/Sleet, hail (freezing rain or drizzle)	--
14	4448336	2017	6:57 AM	2017-10-29	Non-fatal injury	Single vehicle crash	Dry	Dawn	Clear	--



**SYMBOLS**

- |  |                      |  |                |
|--|----------------------|--|----------------|
|  | Moving Vehicle       |  | Parked Vehicle |
|  | Backing Vehicle      |  | Fixed Object   |
|  | Non-Involved Vehicle |  | Bicycle        |
|  | Pedestrian           |  | Animal         |

**TYPES OF CRASH**

- |  |          |  |                |
|--|----------|--|----------------|
|  | Head On  |  | Sideswipe      |
|  | Angle    |  | Out of Control |
|  | Rear End |  |                |

**SEVERITY**

- |  |              |  |             |
|--|--------------|--|-------------|
|  | Injury Crash |  | Fatal Crash |
|--|--------------|--|-------------|

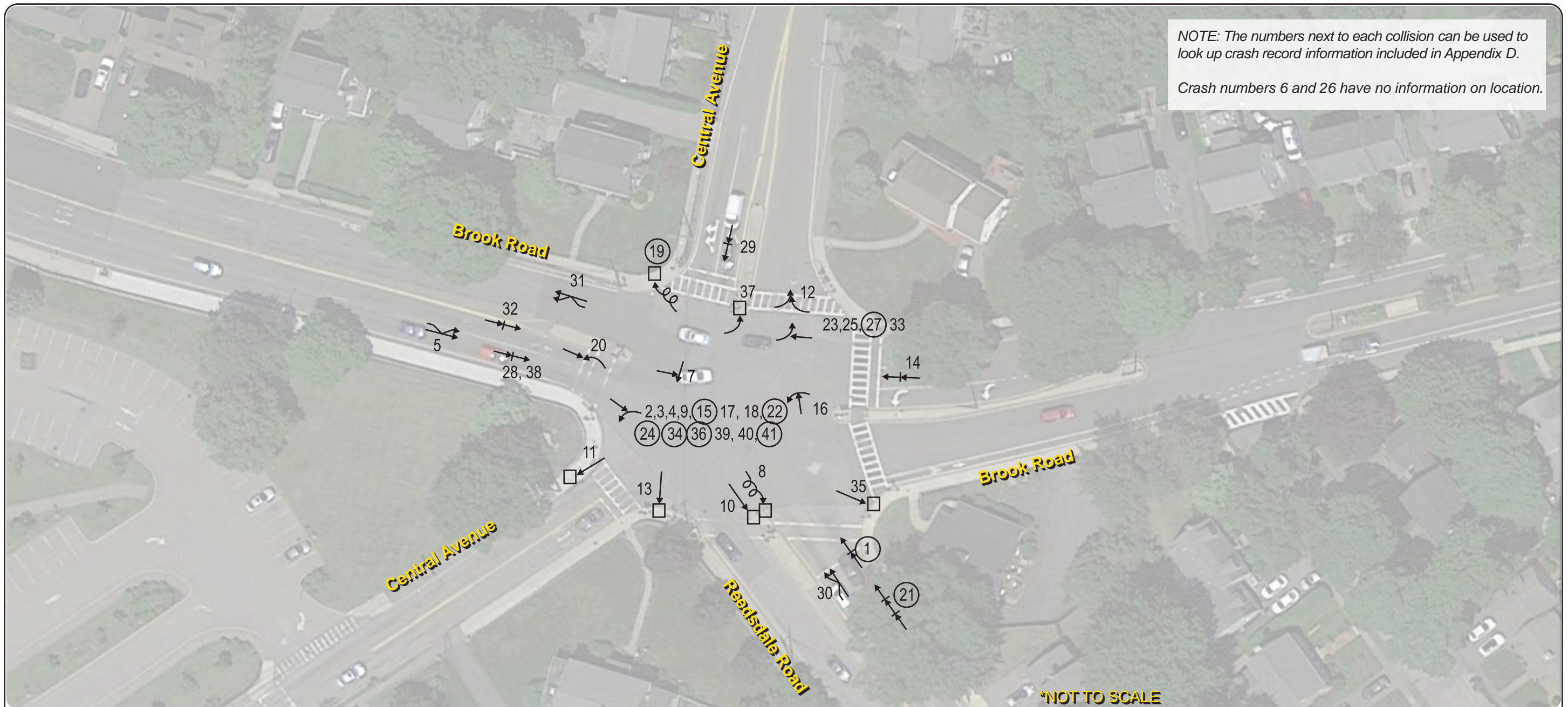


**Figure 28**  
**Collision Diagram: Segment Between St Mary's Road and Standish Road**  
January 1, 2013, to December 31, 2017



**Segment Between St Mary's Road and Standish Road**

Collision ID	Crash Number	Crash Time	Crash Date	Crash Severity	Manner_of_Collision	Road Surface Condition	Ambient Light	Weather Condition	Bike and Pedestrian
1	3374232	8:24 PM	2013-01-21	Property damage only (none injured)	Single vehicle crash	Snow	Dark - lighted roadway	Snow	--
2	3396517	12:30 AM	2013-03-20	Property damage only (none injured)	Single vehicle crash	Ice	Dark - lighted roadway	Clear	--
3	3587389	12:00 AM	2013-07-29	Non-fatal injury	Single vehicle crash	Dry	Dark - lighted roadway	Fog, smog, smoke/Fog, smog, smoke	--
4	3760131	3:01 PM	2014-01-02	Property damage only (none injured)	Single vehicle crash	Snow	Daylight	Snow	--
5	3956122	2:41 PM	2014-09-13	Non-fatal injury	Rear-end	Dry	Daylight	Clear	--
6	3981146	11:25 AM	2014-11-22	Non-fatal injury	Single vehicle crash	Dry	Daylight	Clear	--
7	4032149	2:27 PM	2015-03-12	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--
8	4033217	9:57 AM	2015-03-24	Non-fatal injury	Single vehicle crash	Dry	Daylight	Clear	--
9	4088016	8:38 AM	2015-09-11	Non-fatal injury	Not reported	Wet	Daylight	Rain	--
10	4149556	10:48 AM	2015-11-28	Property damage only (none injured)	Angle	Wet	Daylight	Rain	--
11	4173024	10:27 PM	2016-01-09	Non-fatal injury	Single vehicle crash	Dry	Dark - lighted roadway	Clear	--
12	4175180	2:49 PM	2016-01-17	Not Reported	Single vehicle crash	Dry	Dark - lighted roadway	Clear	--
13	4178533	12:22 PM	2016-02-05	Non-fatal injury	Single vehicle crash	Snow	Daylight	Blowing sand, snow/Snow	--
14	4181155	3:18 AM	2016-03-13	Non-fatal injury	Single vehicle crash	Dry	Dark - lighted roadway	Clear	--
15	4206084	6:46 PM	2016-05-22	Non-fatal injury	Sideswipe, same direction	Dry	Daylight	Clear	--
16	4522142	5:18 PM	2017-02-12	Property damage only (none injured)	Single vehicle crash	Snow	Dusk	Snow/Sleet, hail (freezing rain or drizzle)	--
17	4525064	8:57 AM	2017-04-04	Property damage only (none injured)	Angle	Wet	Daylight	Rain/Cloudy	--
18	4392916	11:29 PM	2017-07-18	Non-fatal injury	Single vehicle crash	Dry	Dark - lighted roadway	Clear	--
19	4476732	8:37 AM	2017-12-23	Non-fatal injury	Single vehicle crash	Ice	Daylight	Sleet, hail (freezing rain or drizzle)/Rain	--



NOTE: The numbers next to each collision can be used to look up crash record information included in Appendix D.  
 Crash numbers 6 and 26 have no information on location.

\*NOT TO SCALE

SYMBOLS		TYPES OF CRASH		SEVERITY	
→ Moving Vehicle	→ [hatched box] Parked Vehicle	↔↔ Head On	↔ Sideswipe	○ Injury Crash	◉ Fatal Crash
↔ Backing Vehicle	→ [square] Fixed Object	↘↙ Angle	→ [wavy line] Out of Control		
- - - Non-Involved Vehicle	→ [bicycle] Bicycle	→ [vertical line] Rear End			
→ [stick figure] Pedestrian	→ [animal] Animal				



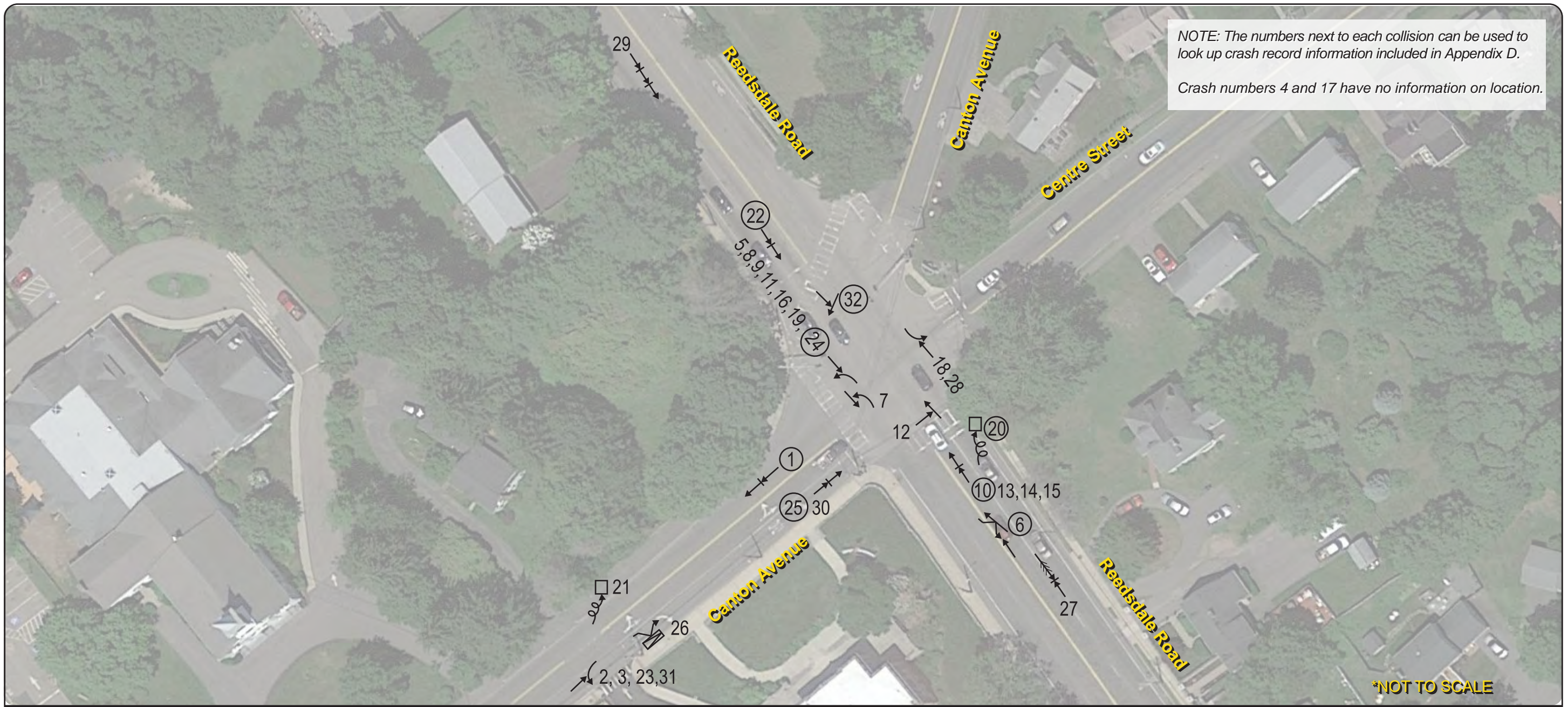
**Figure 8**  
**Collision Diagram: Brook Road at Reedsdale Road/Central Avenue**  
 January 1, 2013, to December 31, 2017



### Route 28 at Brook Road and Central Avenue
















Collision ID	Crash Number	Crash Year	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface Condition	Ambient Light	Weather Condition	Bike or Pedestrian
1	3427533	2013	4:32 PM	2013-04-20	Non-fatal injury	Rear-end	Dry	Daylight	Clear/Clear	--
2	3401947	2013	4:53 PM	2013-04-26	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear	--
3	3452134	2013	5:18 PM	2013-05-29	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--
4	3497431	2013	11:22 AM	2013-06-24	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--
5	3602789	2013	3:15 PM	2013-09-16	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Cloudy	--
6	3665421	2013	1:30 PM	2013-10-30	Non-fatal injury	Angle	Wet	Daylight	Cloudy	--
7	3714673	2013	10:39 AM	2013-11-01	Not Reported	Angle	Wet	Daylight	Cloudy/Rain	--
8	3748761	2014	3:25 AM	2014-02-20	Property damage only (none injured)	Single vehicle crash	Ice	Dark - lighted roadway	Clear/Other	--
9	3827621	2014	10:32 PM	2014-05-14	Property damage only (none injured)	Angle	Dry	Dark - lighted roadway	Clear	--
10	3861732	2014	11:29 PM	2014-05-24	Property damage only (none injured)	Single vehicle crash	Wet	Dark - lighted roadway	Clear	--
11	3878457	2014	10:19 PM	2014-06-29	Property damage only (none injured)	Single vehicle crash	Dry	Dark - lighted roadway	Clear/Clear	--
12	3981112	2014	8:21 AM	2014-11-17	Property damage only (none injured)	Angle	Wet	Daylight	Rain	--
13	4030501	2015	11:47 PM	2015-02-20	Property damage only (none injured)	Single vehicle crash	Ice	Dark - lighted roadway	Clear/Cloudy	--
14	4048693	2015	7:40 PM	2015-04-16	Property damage only (none injured)	Rear-end	Dry	Dusk	Clear	--
15	4048606	2015	8:49 AM	2015-05-04	Non-fatal injury	Angle	Dry	Daylight	Clear	--
16	4065580	2015	1:32 PM	2015-05-06	Property damage only (none injured)	Angle	Dry	Dark - lighted roadway	Clear/Clear	--
17	4078483	2015	8:37 PM	2015-06-18	Property damage only (none injured)	Angle	Dry	Dusk	Clear/Clear	--
18	4115772	2015	6:37 PM	2015-09-10	Property damage only (none injured)	Angle	Wet	Dusk	Rain/Rain	--
19	4117102	2015	6:06 PM	2015-09-20	Non-fatal injury	Single vehicle crash	Dry	Daylight	Clear/Clear	--
20	4145044	2015	11:20 PM	2015-11-03	Property damage only (none injured)	Head-on	Dry	Dark - lighted roadway	Clear/Clear	--
21	4162399	2015	5:16 PM	2015-11-10	Non-fatal injury	Rear-end	Dry	Dark - lighted roadway	Clear	--
22	4125824	2015	5:08 PM	2015-12-12	Non-fatal injury	Angle	Dry	Dark - lighted roadway	Clear	--
23	4181153	2016	1:56 PM	2016-03-13	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--
24	4208232	2016	11:57 PM	2016-06-04	Non-fatal injury	Angle	Dry	Dark - lighted roadway	Clear	--
25	4218459	2016	8:10 AM	2016-06-21	Property damage only (none injured)	Angle	Dry	Daylight	Cloudy/Cloudy	--
26	4236640	2016	1:10 PM	2016-06-29	Property damage only (none injured)	Angle	Dry	Daylight	Cloudy	--
27	4218326	2016	7:57 AM	2016-07-06	Non-fatal injury	Angle	Dry	Daylight	Cloudy	--
28	4240020	2016	4:59 PM	2016-08-16	Property damage only (none injured)	Rear-end	Dry	Daylight	Cloudy/Cloudy	--
29	4417219	2016	5:12 PM	2016-10-01	Property damage only (none injured)	Rear-end	Wet	Daylight	Rain	--
30	4417254	2016	5:03 PM	2016-11-23	Property damage only (none injured)	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear	--
31	4417271	2016	9:01 AM	2016-12-16	Property damage only (none injured)	Not reported	Dry	Daylight	Clear	--
32	4523742	2017	4:33 PM	2017-05-27	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear/Clear	--
33	4385290	2017	2:52 PM	2017-06-12	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear	--
34	4385294	2017	6:02 PM	2017-06-19	Non-fatal injury	Angle	Dry	Daylight	Clear/Clear	--
35	4389360	2017	2:20 AM	2017-07-14	Property damage only (none injured)	Single vehicle crash	Dry	Dark - lighted roadway	Clear	--
36	4394526	2017	11:05 PM	2017-07-23	Property damage only (none injured)	Angle	Dry	Dark - lighted roadway	Clear/Clear	--
37	4432727	2017	3:24 PM	2017-09-25	Property damage only (none injured)	Single vehicle crash	Dry	Daylight	Clear/Clear	--
38	4443639	2017	10:19 PM	2017-10-22	Property damage only (none injured)	Rear-end	Dry	Dark - lighted roadway	Clear	--
39	4449985	2017	00:04 AM	2017-11-05	Property damage only (none injured)	Angle	Dry	Dark - lighted roadway	Clear/Clear	--
40	4453222	2017	6:08 PM	2017-11-10	Property damage only (none injured)	Angle	Dry	Dark - lighted roadway	Clear/Clear	--
41	4466057	2017	11:34 PM	2017-12-09	Non-fatal injury	Angle	Wet	Dark - lighted roadway	Snow/Snow	--





NOTE: The numbers next to each collision can be used to look up crash record information included in Appendix D.  
 Crash numbers 4 and 17 have no information on location.

\*NOT TO SCALE

SYMBOLS		TYPES OF CRASH		SEVERITY	
 Moving Vehicle  Backing Vehicle  Non-Involved Vehicle  Pedestrian	 Parked Vehicle  Fixed Object  Bicycle  Animal	 Head On  Angle  Rear End	 Sideswipe  Out of Control	 Injury Crash	 Fatal Crash



**Figure 9**  
**Collision Diagram: Reedsdale Road at Canton Avenue and Centre Street**  
 January 1, 2013, to December 31, 2017

## Route 28 at Reedsdale Road, Canton Avenue, and Centre Street

Collision ID	Crash Number	Crash Year	Crash Time	Crash Date	Crash Severity	Manner of Collision	Surface	Ambient Light	Weather Condition	Bike or Pedestrian
							Condition			
1	3372353	2013	12:09 PM	2013-01-28	Non-fatal injury	Rear-end	Dry	Daylight	Cloudy	--
2	3389823	2013	2:40 PM	2013-02-28	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear	--
3	3389808	2013	8:53 AM	2013-03-05	Property damage only (none injured)	Angle	Dry	Daylight	Cloudy	--
4	3527032	2013	00:00 AM	2013-06-26	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear/Clear	--
5	3537412	2013	10:18 PM	2013-07-19	Property damage only (none injured)	Angle	Dry	Dark - lighted roadway	Clear	--
6	3786124	2014	8:39 AM	2014-02-19	Non-fatal injury	Sideswipe, opposite direction	Wet	Daylight	Clear/Snow	--
7	3801614	2014	12:56 PM	2014-04-01	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--
8	3983033	2014	10:49 PM	2014-11-08	Property damage only (none injured)	Angle	Dry	Dark - lighted roadway	Clear/Clear	--
9	3981142	2014	3:42 PM	2014-11-17	Property damage only (none injured)	Sideswipe, opposite direction	Wet	Daylight	Rain/Cloudy	--
10	3998972	2014	10:22 PM	2014-12-05	Non-fatal injury	Rear-end	Wet	Dark - lighted roadway	Rain/Rain	--
11	4003516	2014	3:39 PM	2014-12-19	Not Reported	Head-on	Dry	Daylight	Clear	--
12	4032816	2015	7:44 AM	2015-01-10	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--
13	4035186	2015	9:09 PM	2015-02-10	Property damage only (none injured)	Rear-end	Slush	Dark - lighted roadway	Clear	--
14	4055152	2015	8:04 AM	2015-06-02	Property damage only (none injured)	Angle	Wet	Daylight	Rain/Cloudy	--
15	4165801	2015	11:05 PM	2015-10-24	Property damage only (none injured)	Rear-end	Dry	Dark - lighted roadway	Clear	--
16	4180492	2016	8:29 AM	2016-02-15	Property damage only (none injured)	Angle	Dry	Daylight	Cloudy	--
17	4181158	2016	3:57 PM	2016-03-07	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear	--
18	4207847	2016	6:39 PM	2016-06-08	Non-fatal injury	Angle	Dry	Daylight	Cloudy	--
19	4218438	2016	12:30 PM	2016-06-26	Not Reported	Angle	Dry	Daylight	Clear	--
20	4226115	2016	11:15 AM	2016-07-07	Non-fatal injury	Single vehicle crash	Dry	Daylight	Cloudy	--
21	4239991	2016	1:29 PM	2016-08-16	Property damage only (none injured)	Single vehicle crash	Dry	Daylight	Cloudy	--
22	4417231	2016	2:04 PM	2016-10-27	Non-fatal injury	Rear-end	Wet	Daylight	Rain	--
23	4417138	2016	8:46 AM	2016-11-04	Property damage only (none injured)	Angle	Dry	Daylight	Cloudy	--
24	4417141	2016	2:17 PM	2016-11-11	Non-fatal injury	Angle	Dry	Daylight	Clear	--
25	4417256	2016	9:39 PM	2016-11-24	Non-fatal injury	Rear-end	Dry	Dark - lighted roadway	Clear/Clear	--
26	4417274	2016	10:37 AM	2016-12-20	Not Reported	Sideswipe, same direction	Dry	Daylight	Cloudy	--
27	4383915	2017	10:30 AM	2017-03-23	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear	--
28	4525526	2017	1:16 PM	2017-04-12	Not Reported	Angle	Dry	Daylight	Clear/Unknown	--
29	4418620	2017	8:25 AM	2017-09-07	Property damage only (none injured)	Rear-end	Wet	Daylight	Cloudy/Cloudy	--
30	4440335	2017	11:05 AM	2017-10-13	Property damage only (none injured)	Rear-end	Dry	Daylight	Cloudy/Cloudy	--
31	4440337	2017	3:34 PM	2017-10-16	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--
32	4444593	2017	5:42 AM	2017-10-25	Non-fatal injury	Angle	Wet	Dark - lighted roadway	Rain/Rain	--



NOTE: The numbers next to each collision can be used to look up crash record information included in Appendix D.



SYMBOLS		TYPES OF CRASH		SEVERITY	
Moving Vehicle	Parked Vehicle	Head On	Sideswipe	Injury Crash	Fatal Crash
Backing Vehicle	Fixed Object	Angle	Out of Control		
Non-Involved Vehicle	Bicycle	Rear End			
Pedestrian	Animal				



**Figure 29**  
**Collision Diagram: Segment Between**  
**Beth Israel Deconess Hospital and Randolph Avenue**  
**January 1, 2013, to December 31, 2017**



**Beth Israel Deconess Hospital and Randolph Avenue**

Collision ID	Crash Number	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface Condition	Ambient Light	Weather Condition	Bike and Pedestrian
1	3767838	3:58 PM	2014-01-22	Not Reported	Single vehicle crash	Dry	Daylight	Clear	--
2	3782457	6:59 PM	2014-01-27	Property damage only (none injured)	Single vehicle crash	Dry	Dark - lighted roadway	Clear/Clear	--
3	3782455	5:21 PM	2014-02-04	Property damage only (none injured)	Single vehicle crash	Dry	Dark - lighted roadway	Cloudy/Cloudy	--
4	3792124	6:31 AM	2014-03-06	Non-fatal injury	Angle	Dry	Daylight	Clear	--
5	3794974	9:10 PM	2014-03-07	Property damage only (none injured)	Single vehicle crash	Dry	Dark - lighted roadway	Clear/Clear	--
6	3928434	2:07 PM	2014-08-31	Non-fatal injury	Sideswipe, same direction	Dry	Daylight	Clear	--
7	3982996	10:31 AM	2014-11-16	Property damage only (none injured)	Rear-end	Dry	Daylight	Cloudy	--
8	4139841	2:49 PM	2015-11-15	Not Reported	Single vehicle crash	Dry	Dark - lighted roadway	Clear/Clear	--
9	4195981	2:15 PM	2016-04-22	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Clear	--
10	4192879	1:47 PM	2016-04-24	Property damage only (none injured)	Single vehicle crash	Dry	Dark - lighted roadway	Clear	--
11	4212392	7:39 PM	2016-06-09	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Clear	--
12	4226099	3:31 PM	2016-07-11	Non-fatal injury	Single vehicle crash	Dry	Daylight	Clear/Clear	--
13	4522148	4:04 PM	2017-02-24	Non-fatal injury	Head-on	Not reported	Daylight	Clear	--
14	4525160	8:15 PM	2017-04-15	Property damage only (none injured)	Rear-end	Wet	Dark - lighted roadway	Cloudy/Rain	--
15	4384378	5:21 PM	2017-06-28	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear	--
16	4418127	8:38 AM	2017-09-06	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear/Cloudy	--
17	4432629	2:47 PM	2017-09-28	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear	--
18	4464727	8:23 AM	2017-12-06	Property damage only (none injured)	Rear-end	Wet	Daylight	Rain/Cloudy	--



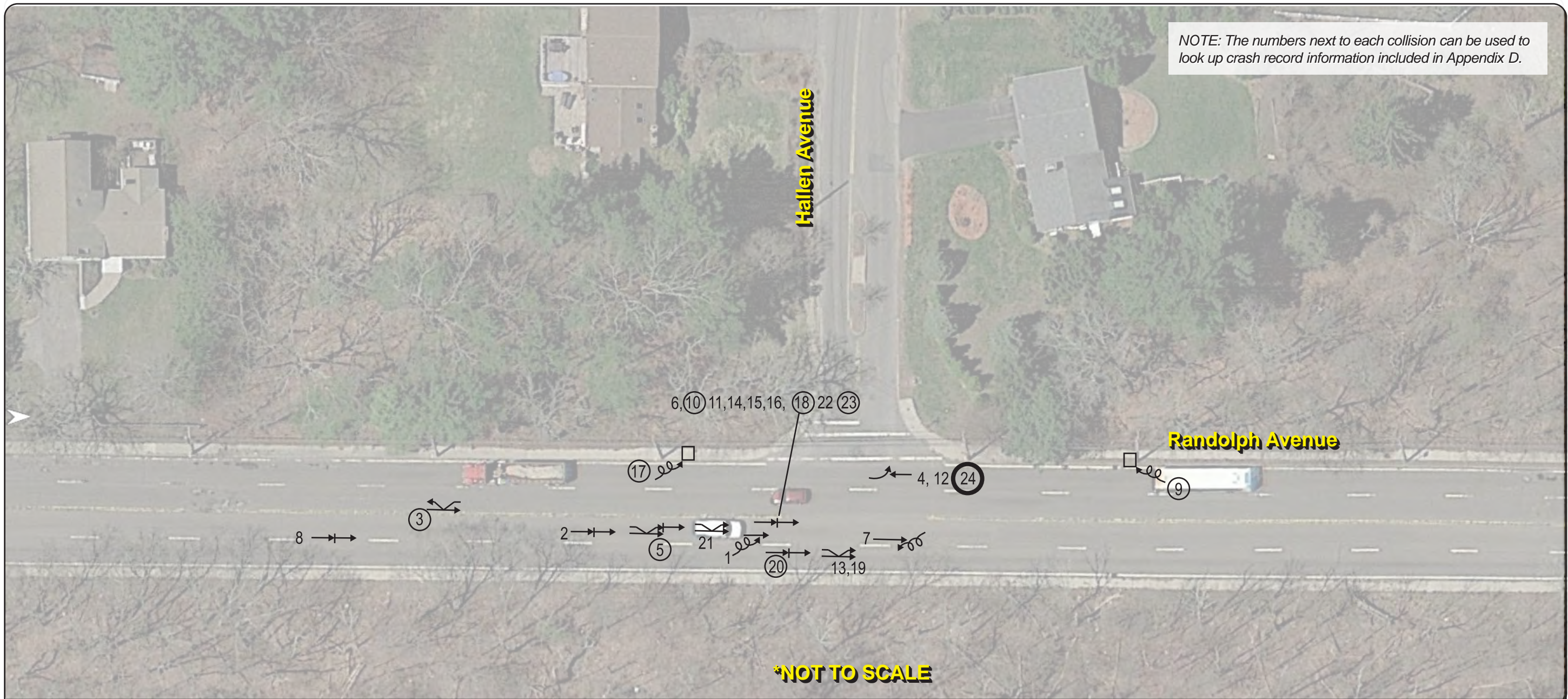
SYMBOLS		TYPES OF CRASH		SEVERITY	
Moving Vehicle Backing Vehicle Non-Involved Vehicle Pedestrian	Parked Vehicle Fixed Object Bicycle Animal	Head On Angle Rear End Sideswipe Out of Control	Injury Crash Fatal Crash		


















## Route 28 at Reedsdale Road, Randolph Avenue

Collision ID	Crash Number	Crash Year	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface		Weather Condition	Bike or Pedestrian
							Condition	Ambient Light		
1	3368172	2013	8:23 AM	2013-01-08	Non-fatal injury	Single vehicle crash	Dry	Daylight	Clear	--
2	3451631	2013	11:48 PM	2013-06-06	Property damage only (none injured)	Rear-end	Wet	Dark - lighted roadway	Rain/Rain	--
3	3584328	2013	11:30 AM	2013-08-22	Non-fatal injury	Angle	Dry	Daylight	Clear	--
4	3728332	2013	1:44 PM	2013-11-26	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Cloudy	--
5	3735106	2013	12:02 PM	2013-12-08	Property damage only (none injured)	Angle	Dry	Daylight	Cloudy	--
6	3827614	2014	2:46 PM	2014-05-13	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Cloudy	--
7	3827610	2014	4:00 PM	2014-05-19	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear	--
8	3867862	2014	2:09 PM	2014-06-06	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear	--
9	3878455	2014	9:43 PM	2014-06-30	Property damage only (none injured)	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear/Clear	--
10	3891932	2014	2:13 PM	2014-07-11	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear	--
11	4003444	2014	10:09 PM	2014-12-17	Not Reported	Rear-end	Dry	Dark - lighted roadway	Cloudy	--
12	4003520	2014	9:01 PM	2014-12-18	Non-fatal injury	Rear-end	Dry	Dark - lighted roadway	Clear	--
13	4033240	2015	2:25 PM	2015-03-11	Non-fatal injury	Rear-end	Dry	Daylight	Clear	--
14	4066311	2015	6:37 AM	2015-07-09	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--
15	4066105	2015	5:06 PM	2015-07-18	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Clear/Clear	--
16	4117395	2015	10:44 AM	2015-07-24	Non-fatal injury	Rear-end	Dry	Daylight	Cloudy	--
17	4096432	2015	11:24 AM	2015-07-26	Non-fatal injury	Angle	Dry	Daylight	Cloudy	--
18	4106619	2015	1:42 PM	2015-08-09	Non-fatal injury	Rear-end	Dry	Daylight	Cloudy	--
19	4170300	2016	7:36 AM	2016-01-04	Non-fatal injury	Rear-end	Dry	Daylight	Cloudy	--
20	4172349	2016	00:02 AM	2016-01-05	Property damage only (none injured)	Single vehicle crash	Dry	Dark - lighted roadway	Clear	--
21	4175920	2016	2:18 PM	2016-02-06	Non-fatal injury	Angle	Dry	Daylight	Clear/Clear	--
22	4417283	2016	11:30 AM	2016-09-26	Non-fatal injury	Angle	Dry	Daylight	Clear/Clear	--
23	4349821	2017	4:35 PM	2017-02-26	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear	--
24	4523751	2017	12:58 PM	2017-05-10	Non-fatal injury	Angle	Dry	Daylight	Cloudy	--
25	4432725	2017	10:49 PM	2017-09-24	Non-fatal injury	Rear-end	Dry	Dark - lighted roadway	Clear/Clear	--
26	4432729	2017	3:31 PM	2017-09-30	Non-fatal injury	Rear-end	Wet	Daylight	Cloudy/Rain	--
27	4453220	2017	3:19 PM	2017-11-06	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear	--
28	4458532	2017	8:29 AM	2017-11-22	Non-fatal injury	Head-on	Wet	Daylight	Rain/Rain	--
29	4175177	2016	6:25 PM	2016-01-19	Property damage only (none injured)	Sideswipe, same direction	Dry	Dawn	Clear	--

NOTE: The numbers next to each collision can be used to look up crash record information included in Appendix D.



SYMBOLS		TYPES OF CRASH		SEVERITY	
 Moving Vehicle	 Parked Vehicle	 Head On	 Sideswipe	 Injury Crash	 Fatal Crash
 Backing Vehicle	 Fixed Object	 Angle	 Out of Control		
 Non-Involved Vehicle	 Bicycle	 Rear End			
 Pedestrian	 Animal				



**Figure 12**  
**Collision Diagram: Randolph Avenue at Hallen Avenue**  
**January 1, 2013, to December 31, 2017**



## Route 28 at Hallen Avenue

Collision ID	Crash Number	Crash Year	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface			Bike or Pedestrian
							Condition	Ambient Light	Weather Condition	
1	3374318	2013	3:44 PM	2013-01-11	Non-fatal injury	Angle	Dry	Daylight	Cloudy/Cloudy	--
2	3374268	2013	1:28 AM	2013-01-20	Property damage only (none injured)	Rear-end	Dry	Dark - lighted roadway	Clear/Clear	--
3	3430721	2013	4:26 PM	2013-05-20	Non-fatal injury	Sideswipe, opposite direction	Dry	Daylight	Clear/Clear	--
4	3727457	2013	4:55 PM	2013-12-14	Property damage only (none injured)	Angle	Wet	Dark - lighted roadway	Snow/Sleet, hail	--
5	3937031	2014	9:14 PM	2014-08-06	Property damage only (none injured)	Unknown	Dry	Dark - lighted roadway	Clear/Clear	--
6	3950624	2014	4:56 PM	2014-09-10	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear/Clear	--
7	3963810	2014	4:28 PM	2014-10-13	Non-fatal injury	Angle	Dry	Daylight	Cloudy	--
8	3999006	2014	5:45 PM	2014-12-16	Property damage only (none injured)	Rear-end	Dry	Dark - lighted roadway	Clear/Cloudy	--
9	4003562	2014	00:00 AM	2014-12-28	Non-fatal injury	Single vehicle crash	Dry	Dark - lighted roadway	Cloudy	--
10	4048603	2015	9:55 AM	2015-05-03	Non-fatal injury	Rear-end	Dry	Daylight	Cloudy	--
11	4092703	2015	11:47 AM	2015-08-01	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Cloudy	--
12	4139964	2015	5:39 PM	2015-11-12	Property damage only (none injured)	Head-on	Wet	Dark - lighted roadway	Rain	--
13	4175083	2016	10:32 AM	2016-01-22	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Cloudy	--
14	4180489	2016	3:00 PM	2016-02-13	Property damage only (none injured)	Rear-end	Dry	Daylight	Cloudy	--
15	4417226	2016	6:51 PM	2016-10-07	Property damage only (none injured)	Rear-end	Dry	Dark - lighted roadway	Clear/Clear	--
16	4417154	2016	5:23 PM	2016-12-05	Property damage only (none injured)	Rear-end	Unknown	Dark - lighted roadway	Clear	--
17	4522653	2017	7:15 AM	2017-01-22	Non-fatal injury	Single vehicle crash	Dry	Daylight	Clear/Clear	--
18	4522153	2017	1:43 PM	2017-03-06	Non-fatal injury	Rear-end	Dry	Daylight	Clear	--
19	4525534	2017	5:44 PM	2017-04-27	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Clear/Unknown	--
20	4385287	2017	6:34 PM	2017-06-03	Non-fatal injury	Rear-end	Dry	Daylight	Cloudy	--
21	4405682	2017	3:28 PM	2017-08-09	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Clear	--
22	4405684	2017	4:39 PM	2017-08-09	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear	--
23	4412987	2017	2:27 PM	2017-08-22	Non-fatal injury	Rear-end	Dry	Daylight	Clear	--
24	4525727	2017	8:42 AM	2017-08-31	Fatal injury	Angle	Dry	Daylight	Clear	--

NOTE: The numbers next to each collision can be used to look up crash record information included in Appendix D.



\*NOT TO SCALE

SYMBOLS		TYPES OF CRASH		SEVERITY	
→ Moving Vehicle	→ [hatched box] Parked Vehicle	↔↔ Head On	↔ Sideswipe	○ Injury Crash	◉ Fatal Crash
↔ Backing Vehicle	→ [square] Fixed Object	↘↙ Angle	↻ Out of Control		
- - - Non-Involved Vehicle	→ [bicycle] Bicycle	→↘ Rear End			
→ [stick figure] Pedestrian	→ [animal] Animal				



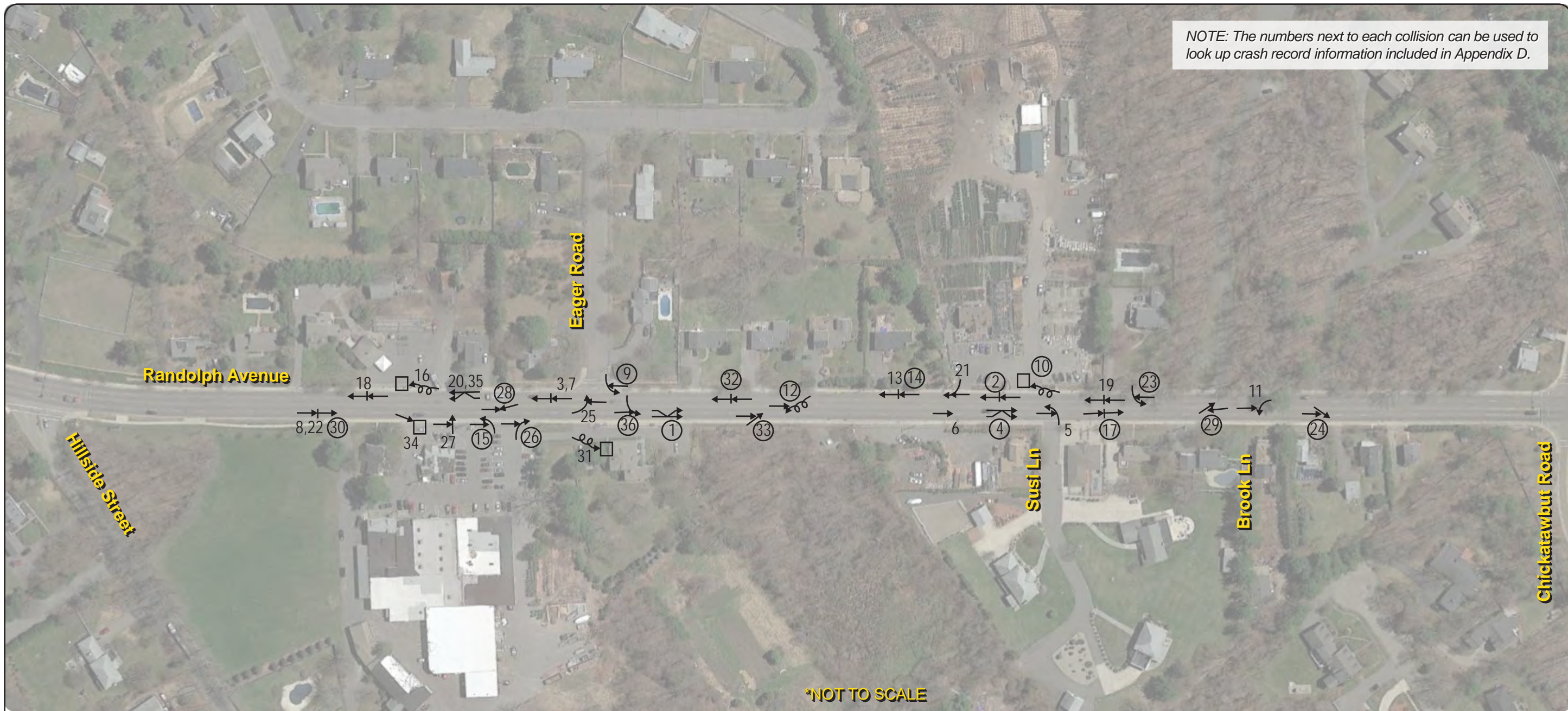
**Figure 13**  
**Collision Diagram: Randolph Avenue Segment Between Hallen Avenue and Hillside Street**  
 January 1, 2013, to December 31, 2017

## Hallen Avenue and Hillside Street

Collision ID	Crash Number	Crash Year	Crash Time	Crash Date 1	Crash Severity	Manner of Collision	Road Surface		Weather Condition	Bike or Pedestrian
							Condition	Ambient Light		
1	3372348	2013	2:23 AM	02-Feb-2013	Non-fatal injury	Head-on	Dry	Dark - lighted roadway	Clear/Clear	--
2	3403567	2013	8:31 AM	26-Apr-2013	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Clear	--
3	3451748	2013	9:37 AM	31-May-2013	Non-fatal injury	Angle	Dry	Daylight	Clear	--
4	3451744	2013	3:16 PM	05-Jun-2013	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear/Clear	--
5	3728099	2013	10:37 AM	23-Nov-2013	Non-fatal injury	Angle	Dry	Daylight	Clear	--
6	3728230	2013	7:55 AM	28-Nov-2013	Fatal injury	Single vehicle crash	Dry	Daylight	Clear	--
7	3712354	2013	3:39 PM	07-Dec-2013	Non-fatal injury	Angle	Dry	Daylight	Clear/Clear	--
8	3739739	2013	6:25 PM	31-Dec-2013	Not Reported	Single vehicle crash	Dry	Dark - lighted roadway	Clear/Clear	--
9	3723374	2014	5:10 PM	06-Jan-2014	Non-fatal injury	Rear-end	Wet	Dark - lighted roadway	Rain	--
10	3767839	2014	9:27 AM	22-Jan-2014	Non-fatal injury	Rear-end	Wet	Daylight	Clear	--
11	3782467	2014	4:48 PM	12-Feb-2014	Not Reported	Angle	Dry	Daylight	Clear/Clear	--
12	3928316	2014	10:04 PM	27-Aug-2014	Not Reported	Head-on	Wet	Dark - lighted roadway	Rain/Rain	--
13	3928318	2014	7:09 PM	28-Aug-2014	Property damage only (none injured)	Rear-end	Dry	Dusk	Clear/Clear	--
14	4034579	2015	6:18 AM	18-Jan-2015	Not Reported	Sideswipe, opposite direction	Dry	Dark - lighted roadway	Clear	--
15	4053894	2015	7:38 PM	12-Apr-2015	Property damage only (none injured)	Rear-end	Dry	Dusk	Clear	--
16	4170384	2016	6:47 PM	03-Jan-2016	Property damage only (none injured)	Single vehicle crash	Dry	Dark - lighted roadway	Clear/Clear	--
17	4212403	2016	00:28 AM	08-Jun-2016	Property damage only (none injured)	Single vehicle crash	Wet	Dark - lighted roadway	Clear/Clear	--
18	4238801	2016	3:39 PM	24-Jul-2016	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear	--
19	4522139	2017	11:07 AM	07-Feb-2017	Property damage only (none injured)	Angle	Snow	Daylight	Snow/Sleet	--
20	4525525	2017	5:55 PM	07-Apr-2017	Non-fatal injury	Rear-end	Dry	Daylight	Cloudy/Clear	--
21	4383717	2017	4:03 PM	25-Apr-2017	Fatal injury	Head-on	Wet	Daylight	Rain/Cloudy	--
22	4392915	2017	2:10 AM	17-Jul-2017	Non-fatal injury	Rear-end	Dry	Dark - lighted roadway	Clear/Clear	cyc
23	4407627	2017	4:10 AM	14-Aug-2017	Not Reported	Single vehicle crash	Dry	Dark - lighted roadway	Clear	--
24	4438732	2017	12:18 PM	12-Oct-2017	Non-fatal injury	Rear-end	Dry	Daylight	Cloudy/Cloudy	--
25	4443320	2017	4:03 PM	20-Oct-2017	Non-fatal injury	Sideswipe, opposite direction	Dry	Daylight	Clear	--
26	4446376	2017	6:47 PM	27-Oct-2017	Non-fatal injury	Rear-end	Dry	Dark - lighted roadway	Clear/Clear	--
27	4476651	2017	6:56 PM	26-Dec-2017	Non-fatal injury	Unknown	Snow	Dark - lighted roadway	Clear	--
28	4174667	2016	10:52 PM	19-Jan-2016	Property damage only (none injured)	Rear-end	Dry	Dark - lighted roadway	Clear	--



NOTE: The numbers next to each collision can be used to look up crash record information included in Appendix D.



SYMBOLS		TYPES OF CRASH		SEVERITY	
→	Moving Vehicle	→	Head On	○	Injury Crash
←←←	Backing Vehicle	↘ ↙	Angle	⊙	Fatal Crash
- - - - -	Non-Involved Vehicle	→	Rear End		
→	Pedestrian	→	→		
→	Parked Vehicle	→	↘ ↙		
→	Fixed Object	→	↻		
→	Bicycle				
→	Animal				



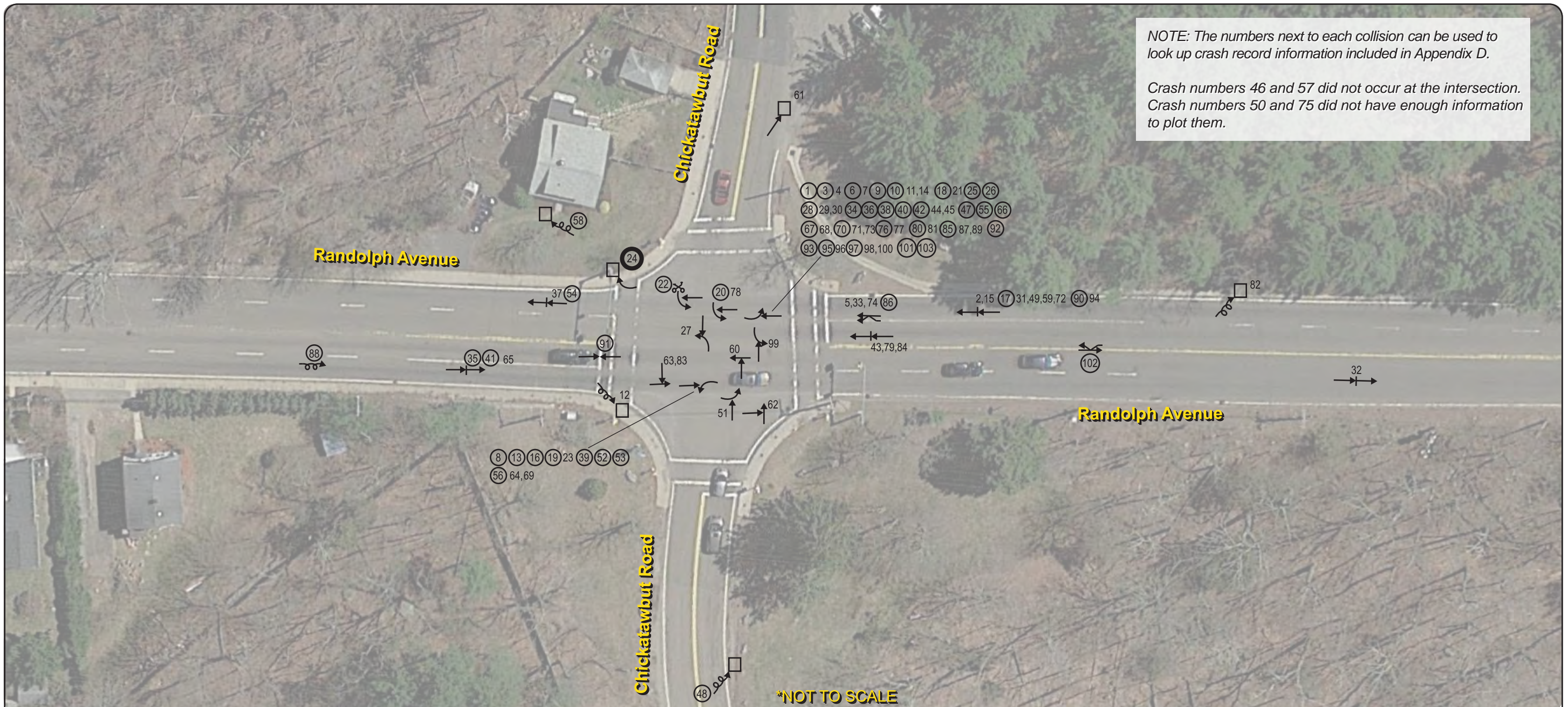
**Figure 14**  
**Collision Diagram: Randolph Avenue Segment Between Hillside Street and Chickatawbut Road**  
 January 1, 2013, to December 31, 2017



Segment Between  
Hillside Street and Chickatawbut Road

Collision ID	Crash		Crash Date	Crash Severity	Manner of Collision	Road Surface	Ambient Light	Weather Condition	Bike or Pedestrian
	Number	Crash Time				Condition			
1	3498032	7:17 PM	2013-06-19	Non-fatal injury	Sideswipe, same direction	Dry	Daylight	Clear/Clear	--
2	3510903	5:22 PM	2013-07-06	Non-fatal injury	Rear-end	Dry	Daylight	Clear/Clear	--
3	3656836	12:07 PM	2013-10-13	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear/Clear	--
4	3714669	5:19 PM	2013-11-05	Non-fatal injury	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear/Clear	--
5	3739746	6:15 AM	2013-12-28	Property damage only (none injured)	Angle	Dry	Dark - lighted roadway	Clear/Clear	--
6	3786069	7:54 AM	2014-02-20	Property damage only (none injured)	Single vehicle crash	Dry	Daylight	Clear	--
7	3827591	12:50 PM	2014-05-21	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear	--
8	3982998	6:54 PM	2014-11-14	Property damage only (none injured)	Rear-end	Dry	Dark - lighted roadway	Clear/Clear	--
9	3998983	6:16 PM	2014-12-10	Non-fatal injury	Angle	Wet	Dark - lighted roadway	Rain/Cloudy	--
10	3998994	12:19 PM	2014-12-17	Non-fatal injury	Single vehicle crash	Wet	Daylight	Cloudy	--
11	4009886	2:47 PM	2015-01-23	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--
12	4106616	4:32 PM	2015-08-13	Non-fatal injury	Angle	Dry	Daylight	Clear/Clear	--
13	4106595	5:43 PM	2015-08-19	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear/Clear	--
14	4115776	3:37 PM	2015-09-05	Non-fatal injury	Rear-end	Dry	Daylight	Clear/Clear	--
15	4089476	11:12 AM	2015-09-11	Non-fatal injury	Angle	Wet	Daylight	Rain/Cloudy	--
16	4149527	11:26 AM	2015-11-20	Property damage only (none injured)	Single vehicle crash	Dry	Daylight	Cloudy/Cloudy	--
17	4149548	4:51 PM	2015-11-24	Non-fatal injury	Rear-end	Dry	Dark - lighted roadway	Clear	--
18	4130795	4:58 PM	2015-12-22	Property damage only (none injured)	Rear-end	Wet	Dark - lighted roadway	Rain/Rain	--
19	4170346	11:28 AM	2016-01-03	Property damage only (none injured)	Rear-end	Dry	Daylight	Cloudy	--
20	4191764	12:00 PM	2016-04-01	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Cloudy	--
21	4195999	2:00 PM	2016-05-04	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--
22	4212390	4:32 PM	2016-06-15	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear	--
23	4226274	7:49 PM	2016-07-14	Non-fatal injury	Angle	Dry	Dark - lighted roadway	Cloudy	--
24	4417136	2:56 PM	2016-10-28	Non-fatal injury	Angle	Wet	Daylight	Rain/Cloudy	--
25	4417142	5:13 PM	2016-11-14	Property damage only (none injured)	Angle	Dry	Dark - lighted roadway	Clear	--
26	4522143	1:56 PM	2017-02-14	Non-fatal injury	Angle	Dry	Daylight	Cloudy	--
27	4385373	4:25 AM	2017-02-15	Property damage only (none injured)	Angle	Wet	Dark - lighted roadway	Clear/Clear	--
28	4522151	5:51 PM	2017-03-02	Non-fatal injury	Head-on	Dry	Dusk	Clear	--
29	4525155	2:42 AM	2017-04-08	Non-fatal injury	Angle	Dry	Dark - lighted roadway	Clear/Clear	--
30	4523732	10:18 AM	2017-05-15	Non-fatal injury	Rear-end	Wet	Daylight	Rain/Cloudy	--
31	4525170	2:11 PM	2017-06-06	Not Reported	Single vehicle crash	Wet	Daylight	Cloudy/Rain	--
32	4397626	1:48 PM	2017-07-26	Non-fatal injury	Rear-end	Not reported	Daylight	Cloudy	--
33	4403224	3:04 PM	2017-08-02	Non-fatal injury	Angle	Dry	Daylight	Cloudy	--
34	4413403	4:55 PM	2017-08-28	Property damage only (none injured)	Single vehicle crash	Dry	Daylight	Clear/Clear	--
35	4418220	4:28 PM	2017-08-30	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Clear/Clear	--
36	4432632	7:56 PM	2017-09-30	Non-fatal injury	Angle	Wet	Dark - lighted roadway	Clear/Clear	--





SYMBOLS		TYPES OF CRASH		SEVERITY	
→ Moving Vehicle	→ [hatched box] Parked Vehicle	↔↔ Head On	↔ Sideswipe	○ Injury Crash	◉ Fatal Crash
↔ Backing Vehicle	→ [square] Fixed Object	↘↔ Angle	↻ Out of Control		
- - - Non-Involved Vehicle	→ [bicycle] Bicycle	→↔ Rear End			
→ [stick figure] Pedestrian	→ [animal] Animal				



## Route 28 at Chickatawbut Road

Collision ID	Crash Number	Crash Date	Crash			Manner of Collision	Road Surface		Weather Condition	Bike or Pedestrian
			Time	Crash Severity	Condition		Ambient Light			
1	3372354	29-Jan-2013	11:26 AM	Non-fatal injury	Angle	Wet	Daylight	Cloudy	--	
2	3384755	31-Jan-2013	8:46 AM	Property damage only (none injured)	Rear-end	Wet	Daylight	Not Reported	--	
3	3392806	13-Feb-2013	11:53 AM	Non-fatal injury	Angle	Dry	Daylight	Clear	--	
4	3430733	15-May-2013	7:30 AM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--	
5	3442431	21-May-2013	8:37 AM	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Clear	--	
6	3470431	06-Jun-2013	1:04 PM	Non-fatal injury	Angle	Dry	Daylight	Clear	--	
7	3526831	07-Jul-2013	1:22 PM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--	
8	3541936	12-Jul-2013	2:42 PM	Non-fatal injury	Angle	Dry	Daylight	Cloudy	--	
9	3587379	02-Aug-2013	11:41 AM	Non-fatal injury	Angle	Dry	Daylight	Clear/Clear	--	
10	3584842	09-Aug-2013	6:36 PM	Non-fatal injury	Head-on	Dry	Daylight	Clear/Clear	--	
11	3584836	16-Aug-2013	11:17 AM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--	
12	3588721	04-Sep-2013	7:04 AM	Property damage only (none injured)	Single vehicle crash	Dry	Daylight	Clear	--	
13	3728334	19-Nov-2013	6:45 AM	Non-fatal injury	Head-on	Dry	Daylight	Clear/Clear	--	
14	3805634	26-Jan-2014	4:58 PM	Property damage only (none injured)	Head-on	Dry	Dusk	Clear	--	
15	3824833	27-Mar-2014	9:12 AM	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear	--	
16	3801613	01-Apr-2014	7:10 AM	Non-fatal injury	Angle	Dry	Daylight	Clear	--	
17	3794622	03-Apr-2014	8:50 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear	--	
18	3801606	11-Apr-2014	7:06 PM	Non-fatal injury	Sideswipe, opposite direction	Dry	Dusk	Cloudy/Cloudy	ped	
19	3810951	22-Apr-2014	3:41 PM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--	
20	3804112	25-Apr-2014	7:38 PM	Non-fatal injury	Angle	Dry	Dusk	Clear	--	
21	3827586	21-May-2014	10:22 AM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--	
22	3862373	24-May-2014	8:54 AM	Non-fatal injury	Angle	Dry	Daylight	Cloudy/Cloudy	cyc	
23	3862380	24-May-2014	4:55 PM	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear	--	
24	4114139	31-May-2014	1:49 AM	Fatal injury	Single vehicle crash	Wet	Dark - lighted roadway	Clear/Clear	--	
25	3886567	13-Jun-2014	6:21 AM	Non-fatal injury	Angle	Dry	Daylight	Cloudy	--	
26	3936831	14-Aug-2014	7:01 PM	Non-fatal injury	Angle	Dry	Daylight	Clear	--	
27	3983014	14-Nov-2014	6:17 PM	Property damage only (none injured)	Angle	Dry	Dark - lighted roadway	Clear/Clear	--	
28	3981128	17-Nov-2014	2:53 PM	Non-fatal injury	Angle	Wet	Daylight	Rain	--	
29	3998986	14-Dec-2014	9:49 AM	Property damage only (none injured)	Angle	Dry	Daylight	Cloudy	--	
30	3999003	17-Dec-2014	9:46 AM	Property damage only (none injured)	Angle	Wet	Daylight	Rain/Cloudy	--	
31	4007303	20-Jan-2015	5:40 PM	Property damage only (none injured)	Rear-end	Dry	Dark - roadway not lighted	Clear	--	
32	4023798	05-Mar-2015	1:55 AM	Property damage only (none injured)	Rear-end	Dry	Dark - roadway not lighted	Clear	--	
33	4021464	07-Mar-2015	1:16 PM	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Clear/Clear	--	
34	4032277	11-Mar-2015	10:21 AM	Non-fatal injury	Angle	Dry	Daylight	Clear	--	
35	4048669	21-Apr-2015	4:55 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear/Clear	--	
36	4048625	27-Apr-2015	7:58 AM	Non-fatal injury	Angle	Dry	Daylight	Cloudy	--	
37	4048594	04-May-2015	9:37 PM	Not Reported	Rear-end	Dry	Dark - lighted roadway	Clear	--	
38	4113697	08-Jun-2015	8:17 AM	Non-fatal injury	Angle	Dry	Daylight	Clear/Clear	--	
39	4089028	05-Jul-2015	4:31 PM	Non-fatal injury	Angle	Dry	Daylight	Clear	--	
40	4116708	22-Sep-2015	2:19 PM	Non-fatal injury	Head-on	Dry	Daylight	Cloudy	--	
41	4129334	07-Oct-2015	6:23 PM	Non-fatal injury	Rear-end	Dry	Dusk	Clear	--	
42	4125337	21-Oct-2015	10:48 AM	Non-fatal injury	Angle	Wet	Daylight	Rain	--	
43	4132361	28-Oct-2015	7:02 PM	Property damage only (none injured)	Rear-end	Wet	Dark - lighted roadway	Rain	--	
44	4127422	11-Dec-2015	9:18 AM	Property damage only (none injured)	Angle	Wet	Daylight	Cloudy	--	
45	4151243	16-Dec-2015	4:45 PM	Property damage only (none injured)	Angle	Dry	Dark - lighted roadway	Clear/Clear	--	
47	4175169	28-Jan-2016	6:36 PM	Non-fatal injury	Angle	Dry	Dark - lighted roadway	Clear/Clear	--	

## Route 28 at Chickatawbut Road

Collision ID	Crash Number	Crash Date	Crash		Manner of Collision	Road Surface		Weather Condition	Bike or Pedestrian
			Crash Time	Crash Severity		Condition	Ambient Light		
48	4150845	31-Jan-2016	12:03 AM	Non-fatal injury	Single vehicle crash	Dry	Dark - lighted roadway	Clear	--
49	4152017	12-Feb-2016	7:15 AM	Property damage only (none injured)	Rear-end	Dry	Daylight	Not Reported	--
50	4181491	07-Mar-2016	7:44 AM	Property damage only (none injured)	Angle	Dry	Daylight	Cloudy	--
51	4187017	12-Mar-2016	3:02 PM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--
52	4186961	16-Mar-2016	9:04 AM	Non-fatal injury	Angle	Dry	Daylight	Cloudy	--
53	4191822	07-Apr-2016	11:32 AM	Non-fatal injury	Single vehicle crash	Wet	Daylight	Rain/Cloudy	--
54	4193494	08-Apr-2016	4:02 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear/Clear	--
55	4193490	11-Apr-2016	8:57 PM	Non-fatal injury	Angle	Dry	Dark - lighted roadway	Clear/Clear	--
56	4192897	16-Apr-2016	4:29 PM	Non-fatal injury	Head-on	Dry	Daylight	Clear	--
58	4195312	30-Apr-2016	9:03 AM	Non-fatal injury	Not reported	Dry	Daylight	Cloudy	--
59	4206088	15-May-2016	2:47 PM	Property damage only (none injured)	Rear-end	Dry	Daylight	Cloudy	--
60	4212391	14-Jun-2016	4:11 PM	Property damage only (none injured)	Sideswipe, opposite direction	Dry	Daylight	Clear	--
61	4221071	19-Jun-2016	11:15 AM	Property damage only (none injured)	Single vehicle crash	Dry	Daylight	Not Reported	--
62	4222162	21-Jun-2016	6:05 AM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--
63	4221144	21-Jun-2016	7:05 AM	Property damage only (none injured)	Angle	Dry	Daylight	Cloudy	--
64	4218462	25-Jun-2016	11:18 AM	Not Reported	Angle	Dry	Daylight	Cloudy/Clear	--
65	4226104	30-Jun-2016	2:41 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear	--
66	4226273	19-Jul-2016	8:32 AM	Non-fatal injury	Angle	Dry	Daylight	Cloudy	--
67	4240031	05-Aug-2016	8:42 AM	Non-fatal injury	Not reported	Dry	Daylight	Cloudy	--
68	4417281	15-Sep-2016	1:39 PM	Property damage only (none injured)	Angle	Dry	Daylight	Cloudy	--
69	4417282	18-Sep-2016	10:28 AM	Property damage only (none injured)	Angle	Dry	Daylight	Cloudy	--
70	4417168	29-Sep-2016	1:47 PM	Non-fatal injury	Head-on	Dry	Daylight	Cloudy	--
71	4417124	02-Oct-2016	2:36 PM	Property damage only (none injured)	Angle	Wet	Daylight	Rain	--
72	4273105	27-Oct-2016	3:00 PM	Property damage only (none injured)	Rear-end	Wet	Daylight	Cloudy/Rain	--
73	4417237	30-Oct-2016	8:55 PM	Property damage only (none injured)	Angle	Wet	Dark - lighted roadway	Rain/Cloudy	--
74	4417243	13-Nov-2016	12:45 PM	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Clear/Clear	--
75	4417815	23-Nov-2016	1:20 PM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--
76	4417257	27-Nov-2016	12:10 PM	Non-fatal injury	Angle	Dry	Daylight	Cloudy	--
77	4417268	13-Dec-2016	7:14 PM	Non-fatal injury	Angle	Dry	Dark - lighted roadway	Clear/Clear	--
78	4417277	23-Dec-2016	1:02 PM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--
79	4522161	07-Jan-2017	4:10 PM	Property damage only (none injured)	Rear-end	Snow	Dusk	Snow	--
80	4522124	15-Jan-2017	2:13 PM	Non-fatal injury	Angle	Dry	Daylight	Cloudy	--
81	4522130	24-Jan-2017	7:24 AM	Property damage only (none injured)	Angle	Wet	Other	Cloudy/Rain	--
82	4323114	30-Jan-2017	2:53 AM	Property damage only (none injured)	Single vehicle crash	Dry	Dark - lighted roadway	Clear	--
83	4373410	15-Feb-2017	6:29 PM	Property damage only (none injured)	Angle	Wet	Dark - lighted roadway	Cloudy/Rain	--
84	4525176	13-Mar-2017	7:28 PM	Property damage only (none injured)	Rear-end	Dry	Dark - lighted roadway	Clear/Clear	--
85	4525528	13-Apr-2017	8:51 AM	Non-fatal injury	Angle	Dry	Daylight	Cloudy	--
86	4380353	29-May-2017	5:10 PM	Non-fatal injury	Sideswipe, same direction	Wet	Daylight	Rain	--
87	4394523	22-Jul-2017	1:20 PM	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear	--
88	4397737	26-Jul-2017	8:04 AM	Non-fatal injury	Single vehicle crash	Sand	Daylight	Cloudy	--
89	4398769	29-Jul-2017	2:53 PM	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear	--
90	4408021	12-Aug-2017	10:30 PM	Non-fatal injury	Rear-end	Dry	Dark - lighted roadway	Clear/Clear	--
91	4408022	14-Aug-2017	6:14 AM	Non-fatal injury	Head-on	Dry	Daylight	Clear	--
92	4418126	03-Sep-2017	3:49 PM	Non-fatal injury	Angle	Wet	Daylight	Rain	--
93	4420325	09-Sep-2017	11:38 AM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	--
94	4428130	24-Sep-2017	12:04 PM	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear	--



## Route 28 at Chickatawbut Road

Collision ID	Crash Number	Crash Date	Crash		Manner of Collision	Road Surface		Weather Condition	Bike or Pedestrian
			Time	Crash Severity		Condition	Ambient Light		
95	4436719	01-Oct-2017	11:01 AM	Non-fatal injury	Angle	Dry	Daylight	Cloudy/Cloudy	--
96	4433819	03-Oct-2017	8:50 AM	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear	--
97	4444203	26-Oct-2017	7:53 AM	Non-fatal injury	Angle	Wet	Daylight	Clear	--
98	4446223	30-Oct-2017	2:44 PM	Property damage only (none injured)	Sideswipe, opposite direction	Dry	Daylight	Cloudy/Cloudy	--
99	4453036	10-Nov-2017	7:48 PM	Property damage only (none injured)	Angle	Dry	Dark - lighted roadway	Clear/Clear	--
100	4464626	06-Dec-2017	12:29 PM	Property damage only (none injured)	Angle	Dry	Daylight	Cloudy/Cloudy	--
101	4476731	22-Dec-2017	7:10 AM	Non-fatal injury	Angle	Dry	Daylight	Clear/Clear	--
102	4475352	24-Dec-2017	7:05 AM	Non-fatal injury	Sideswipe, opposite direction	Snow	Daylight	Cloudy	--
103	4476734	27-Dec-2017	9:32 AM	Non-fatal injury	Angle	Ice	Daylight	Cloudy	--

## **Part 2: Expected Crash Analysis**

**Required Input**

**Select from Drop-Down List**

**Model Output**

General Information		Location Information	
Analyst	Seth Asante	Intersection	Route 28 at Blue Hill Parkway
Agency or Company	CTPS	Intersection Type	4SG
Date Performed	3/19/2020	Jurisdiction	MassDOT District 6
City	Milton	Analysis Year	2020

Input Information					
Year	Observed MV crashes	Observed total crashes	Predicted MV crashes	Predicted total crashes	Combined CMF for veh-ped crashes
2013	5	5	5.70	6.90	3.75
2014	3	4	5.70	6.90	3.75
2015	7	10	5.70	6.90	3.75
2016	10	12	5.70	6.90	3.75
2017	8	10	5.70	6.90	3.75

33                      41                      34.50

Output Information											
Observed MV crashes	Average observed total crashes	Total predicted MV crashes	Average predicted total crashes	Standard deviation of predicted total crashes	Weight	Total expected MV crashes	No of expected total crashes	Average expected total crashes	High-risk Intersection (Y/N)	Potential for Safety Improvement (PSI)	If avg observed total crashes > avg expected crashes
33.00	8.20	28.50	6.90	0.00	0.27	31.79	7.47	7.47	Y	0.57	Y
							7.47				
							7.47				
							7.47				
							7.47				

37.34

MV = Multiple-vehicle

**Required Input**

**Select from Drop-Down List**

**Model Output**

General Information		Location Information	
Analyst	Seth Asante	Intersection	Route 28 at Central Avenue
Agency or Company	CTPS	Intersection Type	4SG
Date Performed	3/20/2020	Jurisdiction	MassDOT District 6
City	Milton	Analysis Year	2020

Input Information					
Year	Observed MV crashes	Observed total crashes	Predicted MV crashes	Predicted total crashes	Combined CMF for veh-ped crashes
2013	7	7	5.10	6.40	5.60
2014	2	5	5.10	6.40	5.60
2015	9	11	5.10	6.40	5.60
2016	9	9	5.10	6.40	5.60
2017	8	10	5.10	6.40	5.60

42

32.00

Output Information											
Observed MV crashes	Average observed total crashes	Total predicted MV crashes	Average predicted total crashes	Standard deviation of predicted total crashes	Weight	Total expected MV crashes	No of expected total crashes	Average expected total crashes	High-risk Intersection (Y/N)	Potential for Safety Improvement (PSI)	If avg observed total crashes > avg expected crashes
35.00	8.40	25.50	6.40	0.00	0.29	32.22	7.83	7.83	Y	1.43	Y
							7.83				
							7.83				
							7.83				
							7.83				

39.16

MV = Multiple-vehicle



**Required Input**

**Select from Drop-Down List**

**Model Output**

General Information		Location Information	
Analyst	Seth Asante	Intersection	Route 28 at Centre Street-Canton Avenue
Agency or Company	CTPS	Intersection Type	4SG
Date Performed	3/20/2020	Jurisdiction	MassDOT District 6
City	Milton	Analysis Year	2020

Input Information					
Year	Observed MV crashes	Observed total crashes	Predicted MV crashes	Predicted total crashes	Combined CMF for veh-ped crashes
2013	5	6	6.00	7.20	2.78
2014	7	7	6.00	7.20	2.78
2015	5	7	6.00	7.20	2.78
2016	9	11	6.00	7.20	2.78
2017	6	6	6.00	7.20	2.78

37

36.00

Output Information											
Observed MV crashes	Average observed total crashes	Total predicted MV crashes	Average predicted total crashes	Standard deviation of predicted total crashes	Weight	Total expected MV crashes	No of expected total crashes	Average expected total crashes	High-risk Intersection (Y/N)	Potential for Safety Improvement (PSI)	If avg observed total crashes > avg expected crashes
32.00	7.40	30.00	7.20	0.00	0.26	31.48	7.26	7.26	Y	0.06	Y
							7.26				
							7.26				
							7.26				
							7.26				

36.32

MV = Multiple-vehicle

**Required Input**

**Select from Drop-Down List**

**Model Output**

General Information		Location Information	
Analyst	Seth Asante	Intersection	Route 28 at Randolph Ave and Reedsdale Rd
Agency or Company	CTPS	Intersection Type	4SG
Date Performed	3/27/2020	Jurisdiction	MassDOT Highway District 6
City	Milton	Analysis Year	2020

Input Information					
Year	Observed MV crashes	Observed total crashes	Predicted MV crashes	Predicted total crashes	Combined CMF for veh-ped crashes
2013	2	3	8.99	10.56	2.78
2014	7	7	8.99	10.56	2.78
2015	8	8	8.99	10.56	2.78
2016	6	7	8.99	10.56	2.78
2017	6	6	8.99	10.56	2.78
	29	31		52.80	

Output Information												
Observed MV crashes	Average observed total crashes	Total predicted MV crashes	Average predicted total crashes	Standard deviation of predicted total crashes	Weight	Total expected MV crashes	No of expected total crashes	Average expected total crashes	High-risk Intersection (Y/N)	Potential for Safety Improvement (PSI)	If avg observed total crashes > avg expected crashes	
29.00	6.20	44.95	10.56	0.00	0.19	32.03	7.39	7.39	N	-3.17	N	
							7.39					
							7.39					
							7.39					
							7.39					
							36.95					

MV = Multiple-vehicle

**Required Input**

**Select from Drop-Down List**

**Model Output**

General Information		Location Information	
Analyst	Seth	Intersection	Route 28 at Hallen Avenue
Agency or Company	CTPS	Intersection Type	3ST
Date Performed	06-04-200	Jurisdiction	MassDOT District 6
City	Milton	Analysis Year	2020

Input Information					
Year	Observed MV crashes	Observed total crashes	Predicted MV crashes	Predicted total crashes	Combined CMF for veh-ped crashes
2013	4	4	5.50	6.50	0.91
2014	5	5	5.50	6.50	0.91
2015	3	3	5.50	6.50	0.91
2016	4	4	5.50	6.50	0.91
2017	8	8	5.50	6.50	0.91

24

32.50

Output Information											
Observed MV crashes	Average observed total crashes	Total predicted MV crashes	Average predicted total crashes	Standard deviation of predicted total crashes	Weight	Total expected MV crashes	No of expected total crashes	Average expected total crashes	High-risk Intersection (Y/N)	Potential for Safety Improvement (PSI)	If avg observed total crashes > avg expected crashes
24.00	4.80	27.50	6.50	0.00	0.13	24.46	5.44	5.44	N	-1.06	N
							5.44				
							5.44				
							5.44				
							5.44				

27.22

MV = Multiple-vehicle

**Required Input**

**Select from Drop-Down List**

**Model Output**

General Information		Location Information	
Analyst	Seth	Intersection	Route 28 at Hillside Street
Agency or Company	CTPS	Intersection Type	4SG
Date Performed	6/4/2020	Jurisdiction	MassDOT District 6
City	Milton	Analysis Year	2020

Input Information					
Year	Observed MV crashes	Observed total crashes	Predicted MV crashes	Predicted total crashes	Combined CMF for veh-ped crashes
2013	3	3	12.30	14.50	2.78
2014	1	1	12.30	14.50	2.78
2015	0	0	12.30	14.50	2.78
2016	3	3	12.30	14.50	2.78
2017	4	4	12.30	14.50	2.78

11      61.50      72.50

Output Information											
Observed MV crashes	Average observed total crashes	Total predicted MV crashes	Average predicted total crashes	Standard deviation of predicted total crashes	Weight	Total expected MV crashes	No of expected total crashes	Average expected total crashes	High-risk Intersection (Y/N)	Potential for Safety Improvement (PSI)	If avg observed total crashes > avg expected crashes
11.00	2.20	61.50	14.50	0.00	0.15	18.38	4.24	4.24	N	-10.26	N
							4.24				
							4.24				
							4.24				
							4.24				

21.20

MV = Multiple-vehicle



**Required Input**

**Select from Drop-Down List**

**Model Output**

General Information		Location Information	
Analyst	Seth	Intersection	Route 28 at Chikatawbut Road
Agency or Company	CTPS	Intersection Type	4SG
Date Performed	6/8/2020	Jurisdiction	MassDOT
City	Milton	Analysis Year	2020

Input Information					
Year	Observed MV crashes	Observed total crashes	Predicted MV crashes	Predicted total crashes	Combined CMF for veh-ped crashes
2013	13	13	10.56	11.86	1.00
2014	15	16	10.56	11.86	1.00
2015	15	15	10.56	11.86	1.00
2016	32	32	10.56	11.86	1.00
2017	25	25	10.56	11.86	1.00

100      101      59.30

Output Information											
Observed MV crashes	Average observed total crashes	Total predicted MV crashes	Average predicted total crashes	Standard deviation of predicted total crashes	Weight	Total expected MV crashes	No of expected total crashes	Average expected total crashes	High-risk Intersection (Y/N)	Potential for Safety Improvement (PSI)	If avg observed total crashes > avg expected crashes
100.00	20.20	52.80	11.86	0.00	0.17	92.16	20.55	20.55	Y	8.69	N
							20.55				
							20.55				
							20.55				
							20.55				

102.74

MV = Multiple-vehicle

# Appendix E:

## Intersection Level of Service Analysis

Part 1: Existing Conditions

Part 2: Short-Term Improvements

Part 3: Brook Road: Concept 1

Part 4: Brook Road: Concept 2 and 3

Part 5: Brook Road and Central Avenue: Roundabout Retrofit

Part 6: Reedsdale Road: Concept 1 and 2

Part 7: Reedsdale Road: Concept 3

Part 8: Reedsdale Road and Randolph Avenue: Roundabout Retrofit

Part 9: Randolph Avenue Concept 1

Part 10: Randolph Avenue: Concept 2

Part 11: Randolph Avenue: Concept 3

# Part 1: Existing Conditions

Existing Conditions  
1: Blue Hill Pkwy & Brook Rd

AM Peak-Hour  
04/20/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	200	20	0	0	880	0	450	60	400	250	0
Future Volume (vph)	20	200	20	0	0	880	0	450	60	400	250	0
Satd. Flow (prot)	0	1835	0	0	0	2787	0	3476	0	1681	1748	0
Flt Permitted		0.996								0.950	0.988	
Satd. Flow (perm)	0	1835	0	0	0	2787	0	3476	0	1681	1748	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	253	0	0	0	926	0	537	0	337	347	0
Turn Type	Perm	NA				Over		NA		Split	NA	
Protected Phases		3				2		4		2	2	
Permitted Phases	3											
Total Split (s)	28.0	28.0				45.0		29.0		45.0	45.0	
Total Lost Time (s)		8.0				4.5		7.0		4.5	4.5	
Act Effct Green (s)		18.2				40.7		20.3		40.7	40.7	
Actuated g/C Ratio		0.18				0.40		0.20		0.40	0.40	
v/c Ratio		0.77				0.83		0.78		0.50	0.50	
Control Delay		57.9				36.8		48.1		28.2	27.9	
Queue Delay		0.0				0.0		0.0		0.0	0.0	
Total Delay		57.9				36.8		48.1		28.2	27.9	
LOS		E				D		D		C	C	
Approach Delay		57.9			36.8			48.1			28.0	
Approach LOS		E			D			D			C	
Queue Length 50th (ft)		155				303		172		171	175	
Queue Length 95th (ft)		#324				#551		#294		328	334	
Internal Link Dist (ft)		527			190			615			531	
Turn Bay Length (ft)												
Base Capacity (vph)		364				1120		759		676	703	
Starvation Cap Reductn		0				0		0		0	0	
Spillback Cap Reductn		0				0		0		0	0	
Storage Cap Reductn		0				0		0		0	0	
Reduced v/c Ratio		0.70				0.83		0.71		0.50	0.49	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 101.7  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 39.1  
 Intersection LOS: D  
 Intersection Capacity Utilization 74.2%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Blue Hill Pkwy & Brook Rd





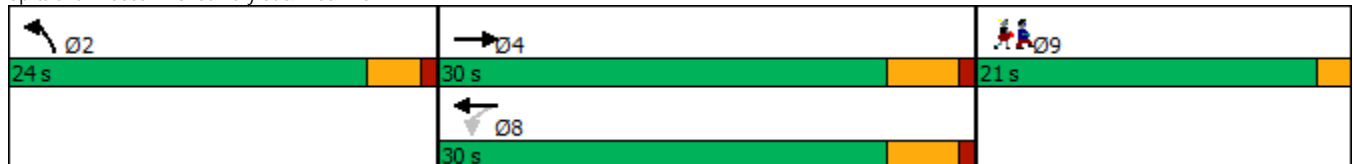


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø9
Lane Configurations	↕↕			↕↕	↕↕		
Traffic Volume (vph)	560	20	50	800	10	25	
Future Volume (vph)	560	20	50	800	10	25	
Satd. Flow (prot)	3522	0	0	3529	1660	0	
Flt Permitted				0.896	0.985		
Satd. Flow (perm)	3522	0	0	3171	1660	0	
Satd. Flow (RTOR)	5				26		
Lane Group Flow (vph)	610	0	0	895	37	0	
Turn Type	NA		Perm	NA	Prot		
Protected Phases	4			8	2		9
Permitted Phases			8				
Total Split (s)	30.0		30.0	30.0	24.0		21.0
Total Lost Time (s)	5.0			5.0	4.0		
Act Effct Green (s)	32.1			32.1	6.5		
Actuated g/C Ratio	0.88			0.88	0.18		
v/c Ratio	0.20			0.32	0.12		
Control Delay	4.2			5.0	11.6		
Queue Delay	0.0			0.0	0.0		
Total Delay	4.2			5.0	11.6		
LOS	A			A	B		
Approach Delay	4.2			5.0	11.6		
Approach LOS	A			A	B		
Queue Length 50th (ft)	0			0	1		
Queue Length 95th (ft)	121			201	27		
Internal Link Dist (ft)	687			636	299		
Turn Bay Length (ft)							
Base Capacity (vph)	3103			2793	1003		
Starvation Cap Reductn	0			0	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.20			0.32	0.04		

Intersection Summary

Cycle Length: 75  
 Actuated Cycle Length: 36.4  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.32  
 Intersection Signal Delay: 4.9  
 Intersection Capacity Utilization 59.4%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service B

Splits and Phases: 3: St Mary St & Brook Rd



Existing Conditions  
4: Brook Rd & Standish St

AM Peak-Hour  
04/20/2021



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	20	565	5	5	850	20	0	0	0	10	5	10
Future Volume (vph)	20	565	5	5	850	20	0	0	0	10	5	10
Satd. Flow (prot)	0	3529	0	0	3529	0	0	0	0	0	1725	0
Flt Permitted		0.915			0.952						0.980	
Satd. Flow (perm)	0	3235	0	0	3359	0	0	0	0	0	1725	0
Satd. Flow (RTOR)		1			3						11	
Lane Group Flow (vph)	0	621	0	0	921	0	0	0	0	0	27	0
Turn Type	Perm	NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases	4			8								
Total Split (s)	30.0	30.0		30.0	30.0					22.5	22.5	
Total Lost Time (s)		5.0			5.0						4.5	
Act Effct Green (s)		25.8			25.8						6.2	
Actuated g/C Ratio		0.58			0.58						0.14	
v/c Ratio		0.33			0.47						0.11	
Control Delay		7.3			8.4						16.8	
Queue Delay		0.0			0.0						0.0	
Total Delay		7.3			8.4						16.8	
LOS		A			A						B	
Approach Delay		7.3			8.4						16.8	
Approach LOS		A			A						B	
Queue Length 50th (ft)		26			43						3	
Queue Length 95th (ft)		128			204						25	
Internal Link Dist (ft)		684			1299			80			255	
Turn Bay Length (ft)												
Base Capacity (vph)		1868			1940						723	
Starvation Cap Reductn		0			0						0	
Spillback Cap Reductn		0			0						0	
Storage Cap Reductn		0			0						0	
Reduced v/c Ratio		0.33			0.47						0.04	

Intersection Summary

Cycle Length: 73.5

Actuated Cycle Length: 44.6

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 8.1

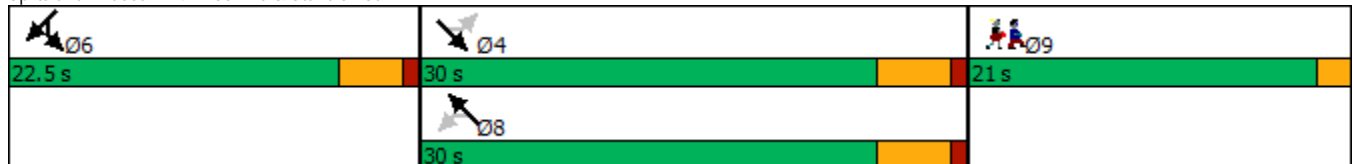
Intersection LOS: A

Intersection Capacity Utilization 42.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Brook Rd & Standish St

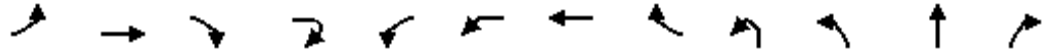


Existing Conditions

AM Peak-Hour

5: Central Ave & Reedsdale Ave & Brook Rd

04/20/2021



Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	50	350	290	50	20	150	300	75	10	540	150	20
Future Volume (vph)	50	350	290	50	20	150	300	75	10	540	150	20
Satd. Flow (prot)	0	1852	1583	0	0	1770	3433	0	0	0	3395	0
Fit Permitted		*0.800				*0.800					0.963	
Satd. Flow (perm)	0	1490	1583	0	0	1490	3433	0	0	0	3395	0
Satd. Flow (RTOR)											2	
Lane Group Flow (vph)	0	421	358	0	0	179	395	0	0	0	758	0
Turn Type	Perm	NA	Perm		pm+pt	pm+pt	NA		Split	Split	NA	
Protected Phases		4			3	3	8		2	2	2	
Permitted Phases	4		4		8	8						
Total Split (s)	32.0	32.0	32.0		12.0	12.0	44.0		35.0	35.0	35.0	
Total Lost Time (s)		7.0	7.0			5.0	7.0				5.0	
Act Effct Green (s)		25.0	25.0			39.0	37.0				30.0	
Actuated g/C Ratio		0.19	0.19			0.29	0.27				0.22	
v/c Ratio		1.53	1.22			0.40	0.42				1.46dl	
Control Delay		290.2	171.5			42.8	42.2				84.7	
Queue Delay		0.0	0.0			0.0	0.0				0.0	
Total Delay		290.2	171.5			42.8	42.2				84.7	
LOS		F	F			D	D				F	
Approach Delay		235.6					42.4				84.7	
Approach LOS		F					D				F	
Queue Length 50th (ft)		-516	-386			125	150				-354	
Queue Length 95th (ft)		#755	#609			203	210				#522	
Internal Link Dist (ft)		1299					322				345	
Turn Bay Length (ft)						150						
Base Capacity (vph)		276	293			446	944				758	
Starvation Cap Reductn		0	0			0	0				0	
Spillback Cap Reductn		0	0			0	0				0	
Storage Cap Reductn		0	0			0	0				0	
Reduced v/c Ratio		1.53	1.22			0.40	0.42				1.00	

Intersection Summary

Cycle Length: 145

Actuated Cycle Length: 134.7

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.53

Intersection Signal Delay: 117.3

Intersection LOS: F

Intersection Capacity Utilization 103.3%

ICU Level of Service G

Analysis Period (min) 15

\* User Entered Value

- Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 5: Central Ave & Reedsdale Ave & Brook Rd

30 s	35 s	32 s	12 s	21 s	15 s
		44 s			

Existing Conditions

5: Central Ave & Reedsdale Ave & Brook Rd

AM Peak-Hour

04/20/2021



Lane Group	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2	Ø9
Lane Configurations									
Traffic Volume (vph)	50	150	50	10	10	50	100	5	
Future Volume (vph)	50	150	50	10	10	50	100	5	
Satd. Flow (prot)	0	3381	0	0	0	1674	0	0	
Flt Permitted		0.990				0.982			
Satd. Flow (perm)	0	3381	0	0	0	1674	0	0	
Satd. Flow (RTOR)						*100			
Lane Group Flow (vph)	0	275	0	0	0	174	0	0	
Turn Type	Split	NA			Prot	Prot			
Protected Phases	1	1			10	10			9
Permitted Phases									
Total Split (s)	30.0	30.0			15.0	15.0			21.0
Total Lost Time (s)		5.0				5.0			
Act Effct Green (s)		16.2				9.4			
Actuated g/C Ratio		0.12				0.07			
v/c Ratio		0.68				0.83			
Control Delay		65.6				58.0			
Queue Delay		0.0				0.0			
Total Delay		65.6				58.0			
LOS		E				E			
Approach Delay		65.6				58.0			
Approach LOS		E				E			
Queue Length 50th (ft)		123				64			
Queue Length 95th (ft)		172				#194			
Internal Link Dist (ft)		719				676			
Turn Bay Length (ft)									
Base Capacity (vph)		628				216			
Starvation Cap Reductn		0				0			
Spillback Cap Reductn		0				0			
Storage Cap Reductn		0				0			
Reduced v/c Ratio		0.44				0.81			
<b>Intersection Summary</b>									

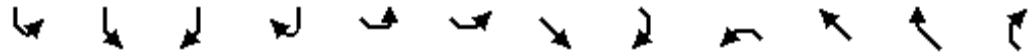


Existing Conditions

AM Peak-Hour

6: Canton Ave & Reedsdale Ave & Centre St

04/20/2021



Lane Group	SBL2	SBL	SBR	SBR2	SEL2	SEL	SET	SER	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	5	50	75	5	5	30	370	50	150	670	50	100
Future Volume (vph)	5	50	75	5	5	30	370	50	150	670	50	100
Satd. Flow (prot)	0	1679	0	0	0	0	3465	0	0	3430	0	0
Flt Permitted		0.980					*0.840			*0.940		
Satd. Flow (perm)	0	1679	0	0	0	0	2922	0	0	3250	0	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	142	0	0	0	0	479	0	0	1021	0	0
Turn Type	Prot	Prot			Perm	Perm	NA		pm+pt	NA		
Protected Phases	10	10					6		5	2		
Permitted Phases					6	6			2			
Total Split (s)	25.0	25.0			41.0	41.0	41.0		13.0	54.0		
Total Lost Time (s)		5.0					6.0			6.0		
Act Effct Green (s)		17.6					48.2			48.2		
Actuated g/C Ratio		0.11					0.29			0.29		
v/c Ratio		0.79					0.56			1.07		
Control Delay		102.3					53.8			104.2		
Queue Delay		0.0					0.0			0.0		
Total Delay		102.3					53.8			104.2		
LOS		F					D			F		
Approach Delay		102.3					53.8			104.2		
Approach LOS		F					D			F		
Queue Length 50th (ft)		143					218			~595		
Queue Length 95th (ft)		#275					327			#889		
Internal Link Dist (ft)		638					1222			851		
Turn Bay Length (ft)												
Base Capacity (vph)		205					856			952		
Starvation Cap Reductn		0					0			0		
Spillback Cap Reductn		0					0			0		
Storage Cap Reductn		0					0			0		
Reduced v/c Ratio		0.69					0.56			1.07		

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 164.6

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 96.3

Intersection LOS: F

Intersection Capacity Utilization 113.5%

ICU Level of Service H

Analysis Period (min) 15

\* User Entered Value

- Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Canton Ave & Reedsdale Ave & Centre St

02	04	09	10	12
54 s	40 s	21 s	25 s	40 s
05	06			
13 s	41 s			



Lane Group	NEL2	NEL	NET	NER	SWL	SWT	SWR	SWR2	Ø9
Lane Configurations									
Traffic Volume (vph)	25	75	300	150	70	300	20	5	
Future Volume (vph)	25	75	300	150	70	300	20	5	
Satd. Flow (prot)	0	0	1840	1770	0	1831	0	0	
Flt Permitted			*0.841			0.991			
Satd. Flow (perm)	0	0	1567	1770	0	1831	0	0	
Satd. Flow (RTOR)				109					
Lane Group Flow (vph)	0	0	421	158	0	416	0	0	
Turn Type	Split	Split	NA	Perm	Split	NA			
Protected Phases	4	4	4		12	12			9
Permitted Phases				4					
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0			21.0
Total Lost Time (s)			5.0	5.0		5.0			
Act Effct Green (s)			35.2	35.2		35.2			
Actuated g/C Ratio			0.21	0.21		0.21			
v/c Ratio			1.07	0.34		1.06			
Control Delay			125.0	21.9		122.9			
Queue Delay			0.0	0.0		0.0			
Total Delay			125.0	21.9		122.9			
LOS			F	C		F			
Approach Delay			96.9			122.9			
Approach LOS			F			F			
Queue Length 50th (ft)			-466	41		-457			
Queue Length 95th (ft)			#815	123		#802			
Internal Link Dist (ft)			500			457			
Turn Bay Length (ft)				200					
Base Capacity (vph)			393	463		391			
Starvation Cap Reductn			0	0		0			
Spillback Cap Reductn			0	0		0			
Storage Cap Reductn			0	0		0			
Reduced v/c Ratio			1.07	0.34		1.06			
<b>Intersection Summary</b>									

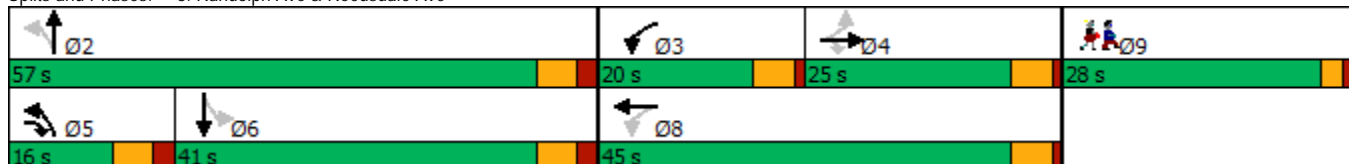


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	300	315	160	270	25	790	520	10	20	250	20
Future Volume (vph)	15	300	315	160	270	25	790	520	10	20	250	20
Satd. Flow (prot)	0	1859	1583	0	3451	0	1770	1857	0	0	1840	0
Flt Permitted		0.967			0.639		*0.600				0.938	
Satd. Flow (perm)	0	1801	1583	0	2243	0	1118	1857	0	0	1732	0
Satd. Flow (RTOR)			*100									
Lane Group Flow (vph)	0	332	332	0	478	0	832	558	0	0	305	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	25.0	25.0	16.0	20.0	45.0		16.0	57.0		41.0	41.0	
Total Lost Time (s)		5.0	6.0		5.0		6.0	6.0			6.0	
Act Effct Green (s)		26.4	41.7		26.4		38.4	38.4			21.3	
Actuated g/C Ratio		0.33	0.53		0.33		0.48	0.48			0.27	
v/c Ratio		0.55	0.38		0.64		1.32	0.62			0.65	
Control Delay		27.9	8.8		28.9		177.7	21.3			34.8	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		27.9	8.8		28.9		177.7	21.3			34.8	
LOS		C	A		C		F	C			C	
Approach Delay		18.4			28.9			114.9			34.8	
Approach LOS		B			C			F			C	
Queue Length 50th (ft)		117	50		91		-466	159			115	
Queue Length 95th (ft)		316	131		233		#1193	505			310	
Internal Link Dist (ft)		1637			555			1087			816	
Turn Bay Length (ft)												
Base Capacity (vph)		599	879		1208		629	1275			816	
Starvation Cap Reductn		0	0		0		0	0			0	
Spillback Cap Reductn		0	0		0		0	0			0	
Storage Cap Reductn		0	0		0		0	0			0	
Reduced v/c Ratio		0.55	0.38		0.40		1.32	0.44			0.37	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 79.3  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.32  
 Intersection Signal Delay: 69.2  
 Intersection Capacity Utilization 107.1%  
 Analysis Period (min) 15  
 \* User Entered Value  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 8: Randolph Ave & Reedsdale Ave



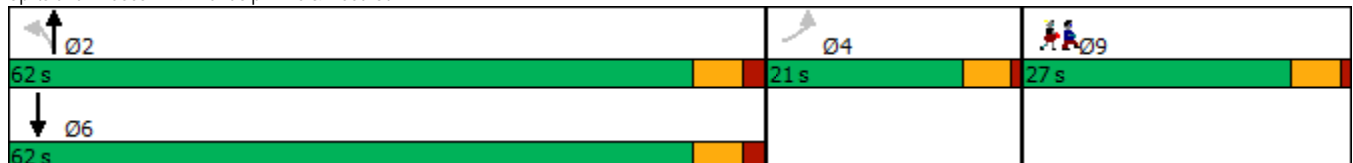


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	25	5	5	1725	700	0	
Future Volume (vph)	25	5	5	1725	700	0	
Satd. Flow (prot)	1749	0	0	3539	3539	0	
Flt Permitted	0.960			0.953			
Satd. Flow (perm)	1749	0	0	3373	3539	0	
Satd. Flow (RTOR)	5						
Lane Group Flow (vph)	31	0	0	1821	737	0	
Turn Type	Perm		Perm	NA	NA		
Protected Phases				2	6		9
Permitted Phases	4		2				
Total Split (s)	21.0		62.0	62.0	62.0		27.0
Total Lost Time (s)	5.0			6.0	6.0		
Act Effct Green (s)	8.5			61.8	61.8		
Actuated g/C Ratio	0.12			0.86	0.86		
v/c Ratio	0.15			0.63	0.24		
Control Delay	32.9			9.2	4.8		
Queue Delay	0.0			0.0	0.0		
Total Delay	32.9			9.2	4.8		
LOS	C			A	A		
Approach Delay	32.9			9.2	4.8		
Approach LOS	C			A	A		
Queue Length 50th (ft)	9			0	0		
Queue Length 95th (ft)	46			#797	182		
Internal Link Dist (ft)	354			1436	868		
Turn Bay Length (ft)							
Base Capacity (vph)	410			2873	3014		
Starvation Cap Reductn	0			0	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.08			0.63	0.24		

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 72  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.63  
 Intersection Signal Delay: 8.2  
 Intersection LOS: A  
 Intersection Capacity Utilization 67.0%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 9: Randolph Ave & Reed St





Existing Conditions  
11: Randolph Ave & Hillside St

AM Peak-Hour  
04/20/2021

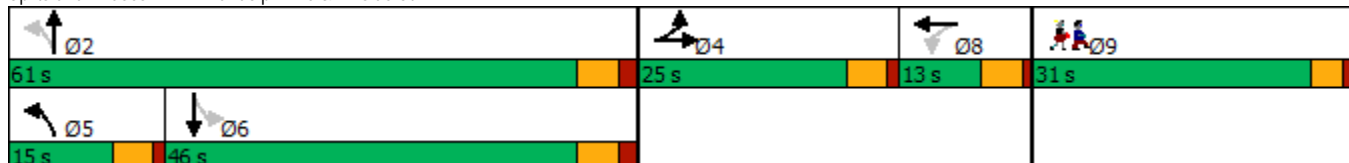


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	2	20	2	1	2	20	1680	10	5	715	30
Future Volume (vph)	80	2	20	2	1	2	20	1680	10	5	715	30
Satd. Flow (prot)	0	1745	0	0	1727	0	0	3532	0	0	3518	0
Flt Permitted		0.962						0.940			0.941	
Satd. Flow (perm)	0	1745	0	0	1762	0	0	3324	0	0	3310	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	107	0	0	5	0	0	1800	0	0	790	0
Turn Type	Split	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	4	4			8		5	2			6	
Permitted Phases				8			2			6		
Total Split (s)	25.0	25.0		13.0	13.0		15.0	61.0		46.0	46.0	
Total Lost Time (s)		5.0			5.0			6.0			6.0	
Act Effct Green (s)		10.8			6.0			56.8			56.8	
Actuated g/C Ratio		0.13			0.07			0.68			0.68	
v/c Ratio		0.48			0.04			0.80			0.35	
Control Delay		43.6			44.0			16.7			9.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		43.6			44.0			16.7			9.1	
LOS		D			D			B			A	
Approach Delay		43.6			44.0			16.7			9.1	
Approach LOS		D			D			B			A	
Queue Length 50th (ft)		48			2			214			56	
Queue Length 95th (ft)		132			17			#980			268	
Internal Link Dist (ft)		670			257			2385			2760	
Turn Bay Length (ft)												
Base Capacity (vph)		429			173			2251			2242	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.25			0.03			0.80			0.35	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 83.8  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay: 15.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 80.5%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 11: Randolph Ave & Hillside St



Existing Conditions  
1: Blue Hill Pkwy & Brook Rd

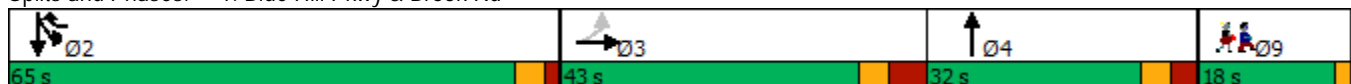
PM Peak-Hour  
04/20/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	210	20	0	0	770	0	350	70	780	680	0
Future Volume (vph)	50	210	20	0	0	770	0	350	70	780	680	0
Satd. Flow (prot)	0	1828	0	0	0	2787	0	3451	0	1681	1761	0
Flt Permitted		0.991								0.950	0.995	
Satd. Flow (perm)	0	1828	0	0	0	2787	0	3451	0	1681	1761	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	295	0	0	0	811	0	442	0	739	798	0
Turn Type	Perm	NA				Over		NA		Split	NA	
Protected Phases		3				2		4		2	2	
Permitted Phases	3											
Total Split (s)	43.0	43.0				65.0		32.0		65.0	65.0	
Total Lost Time (s)		8.0				5.5		7.0		5.5	5.5	
Act Effct Green (s)		26.5				60.5		21.5		60.5	60.5	
Actuated g/C Ratio		0.20				0.45		0.16		0.45	0.45	
v/c Ratio		0.83				0.65		0.81		0.98	1.01	
Control Delay		72.7				35.3		68.5		67.1	73.4	
Queue Delay		0.0				0.0		0.0		0.0	0.0	
Total Delay		72.7				35.3		68.5		67.1	73.4	
LOS		E				D		E		E	E	
Approach Delay		72.7			35.3			68.5			70.4	
Approach LOS		E			D			E			E	
Queue Length 50th (ft)		235				283		185		606	670	
Queue Length 95th (ft)		395				505		299		#1207	#1309	
Internal Link Dist (ft)		527			190			615			531	
Turn Bay Length (ft)												
Base Capacity (vph)		481				1247		649		752	788	
Starvation Cap Reductn		0				0		0		0	0	
Spillback Cap Reductn		0				0		0		0	0	
Storage Cap Reductn		0				0		0		0	0	
Reduced v/c Ratio		0.61				0.65		0.68		0.98	1.01	

Intersection Summary

Cycle Length: 158  
 Actuated Cycle Length: 135.2  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.01  
 Intersection Signal Delay: 61.1  
 Intersection LOS: E  
 Intersection Capacity Utilization 83.5%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Blue Hill Pkwy & Brook Rd



Existing Conditions  
3: St Mary St & Brook Rd

PM Peak-Hour  
04/20/2021

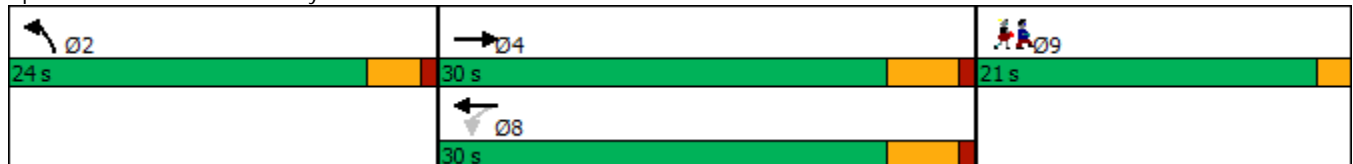


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø9
Lane Configurations	↑↑			↑↑	↔		
Traffic Volume (vph)	860	20	20	650	20	20	
Future Volume (vph)	860	20	20	650	20	20	
Satd. Flow (prot)	3529	0	0	3536	1694	0	
Flt Permitted				0.921	0.976		
Satd. Flow (perm)	3529	0	0	3260	1694	0	
Satd. Flow (RTOR)	3				21		
Lane Group Flow (vph)	926	0	0	705	42	0	
Turn Type	NA		Perm	NA	Prot		
Protected Phases	4			8	2		9
Permitted Phases			8				
Total Split (s)	30.0		30.0	30.0	24.0		21.0
Total Lost Time (s)	5.0			5.0	4.0		
Act Effect Green (s)	32.1			32.1	6.6		
Actuated g/C Ratio	0.88			0.88	0.18		
v/c Ratio	0.30			0.25	0.13		
Control Delay	4.8			4.6	12.8		
Queue Delay	0.0			0.0	0.0		
Total Delay	4.8			4.6	12.8		
LOS	A			A	B		
Approach Delay	4.8			4.6	12.8		
Approach LOS	A			A	B		
Queue Length 50th (ft)	0			0	3		
Queue Length 95th (ft)	201			149	32		
Internal Link Dist (ft)	687			636	299		
Turn Bay Length (ft)							
Base Capacity (vph)	3107			2870	1020		
Starvation Cap Reductn	0			0	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.30			0.25	0.04		

Intersection Summary

Cycle Length: 75  
 Actuated Cycle Length: 36.5  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.30  
 Intersection Signal Delay: 4.9  
 Intersection LOS: A  
 Intersection Capacity Utilization 43.3%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 3: St Mary St & Brook Rd



Existing Conditions  
4: Standish St & Brook Rd

PM Peak-Hour  
04/20/2021



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔↔			↔↔						↔	
Traffic Volume (vph)	20	890	10	30	670	20	0	0	0	20	10	10
Future Volume (vph)	20	890	10	30	670	20	0	0	0	20	10	10
Satd. Flow (prot)	0	3529	0	0	3518	0	0	0	0	0	1754	0
Flt Permitted		0.933			0.893						0.976	
Satd. Flow (perm)	0	3295	0	0	3148	0	0	0	0	0	1754	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	969	0	0	758	0	0	0	0	0	43	0
Turn Type	Perm	NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases	4			8								
Total Split (s)	30.0	30.0		30.0	30.0					22.5	22.5	
Total Lost Time (s)		5.0			5.0						4.5	
Act Effct Green (s)		25.8			25.8						6.8	
Actuated g/C Ratio		0.57			0.57						0.15	
v/c Ratio		0.52			0.42						0.16	
Control Delay		9.2			8.4						20.8	
Queue Delay		0.0			0.0						0.0	
Total Delay		9.2			8.4						20.8	
LOS		A			A						C	
Approach Delay		9.2			8.4						20.8	
Approach LOS		A			A						C	
Queue Length 50th (ft)		50			36						9	
Queue Length 95th (ft)		230			171						40	
Internal Link Dist (ft)		684			1299			95			255	
Turn Bay Length (ft)												
Base Capacity (vph)		1879			1796						720	
Starvation Cap Reductn		0			0						0	
Spillback Cap Reductn		0			0						0	
Storage Cap Reductn		0			0						0	
Reduced v/c Ratio		0.52			0.42						0.06	

Intersection Summary

Cycle Length: 73.5  
 Actuated Cycle Length: 45.2  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.52  
 Intersection Signal Delay: 9.1  
 Intersection Capacity Utilization 53.4%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service A

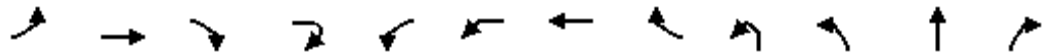
Splits and Phases: 4: Standish St & Brook Rd





Existing Conditions  
5: Central Ave & Reedsdale Ave & Brook Rd

PM Peak-Hour  
04/20/2021

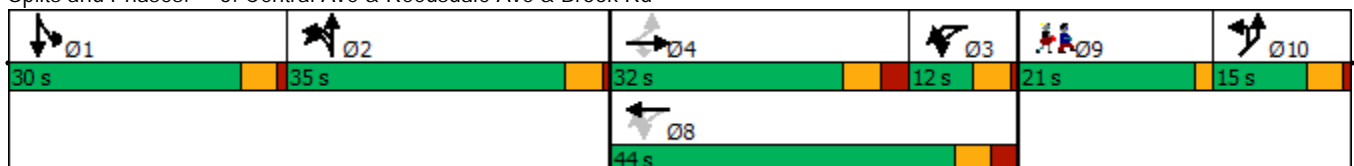


Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations		↕	↕			↕	↕				↕	↕
Traffic Volume (vph)	40	400	450	20	30	150	350	50	20	350	100	20
Future Volume (vph)	40	400	450	20	30	150	350	50	20	350	100	20
Satd. Flow (prot)	0	1853	1770	0	0	1770	3472	0	0	0	3391	0
Flt Permitted		*0.800				*0.800					0.964	
Satd. Flow (perm)	0	1490	1770	0	0	1490	3472	0	0	0	3391	0
Satd. Flow (RTOR)			158									
Lane Group Flow (vph)	0	463	495	0	0	190	421	0	0	0	515	0
Turn Type	Perm	NA	Perm		pm+pt	pm+pt	NA		Split	Split	NA	
Protected Phases		4			3	3	8		2	2	2	
Permitted Phases	4		4		8	8						
Total Split (s)	32.0	32.0	32.0		12.0	12.0	44.0		35.0	35.0	35.0	
Total Lost Time (s)		7.0	7.0			5.0	7.0				5.0	
Act Effect Green (s)		25.1	25.1			39.1	37.1				25.6	
Actuated g/C Ratio		0.18	0.18			0.29	0.27				0.19	
v/c Ratio		1.70	1.10			0.43	0.45				1.18dl	
Control Delay		365.1	105.5			45.4	44.4				64.6	
Queue Delay		0.0	0.0			0.0	0.0				0.0	
Total Delay		365.1	105.5			45.4	44.4				64.6	
LOS		F	F			D	D				E	
Approach Delay		231.0					44.7				64.6	
Approach LOS		F					D				E	
Queue Length 50th (ft)		~628	~393			142	171				238	
Queue Length 95th (ft)		#869	#635			222	231				306	
Internal Link Dist (ft)		1299					297				359	
Turn Bay Length (ft)						150						
Base Capacity (vph)		272	452			439	940				744	
Starvation Cap Reductn		0	0			0	0				0	
Spillback Cap Reductn		0	0			0	0				0	
Storage Cap Reductn		0	0			0	0				0	
Reduced v/c Ratio		1.70	1.10			0.43	0.45				0.69	

Intersection Summary

Cycle Length: 145  
 Actuated Cycle Length: 137.1  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.70  
 Intersection Signal Delay: 137.4  
 Intersection LOS: F  
 Intersection Capacity Utilization 103.1%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 5: Central Ave & Reedsdale Ave & Brook Rd



Existing Conditions  
5: Central Ave & Reedsdale Ave & Brook Rd

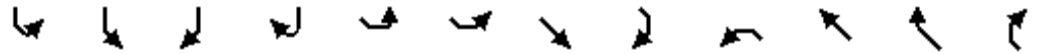
PM Peak-Hour  
04/20/2021



Lane Group	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2	Ø9
Lane Configurations									
Traffic Volume (vph)	50	250	100	20	20	90	100	10	
Future Volume (vph)	50	250	100	20	20	90	100	10	
Satd. Flow (prot)	0	3367	0	0	0	1818	0	0	
Flt Permitted		0.994				0.976			
Satd. Flow (perm)	0	3367	0	0	0	1818	0	0	
Satd. Flow (RTOR)						*25			
Lane Group Flow (vph)	0	442	0	0	0	232	0	0	
Turn Type	Split	NA			Prot	Prot			
Protected Phases	1	1			10	10			9
Permitted Phases									
Total Split (s)	30.0	30.0			15.0	15.0			21.0
Total Lost Time (s)		5.0				5.0			
Act Effct Green (s)		22.2				10.0			
Actuated g/C Ratio		0.16				0.07			
v/c Ratio		0.81				1.49			
Control Delay		68.5				288.1			
Queue Delay		0.0				0.0			
Total Delay		68.5				288.1			
LOS		E				F			
Approach Delay		68.5				288.1			
Approach LOS		E				F			
Queue Length 50th (ft)		205				~275			
Queue Length 95th (ft)		273				#460			
Internal Link Dist (ft)		719				676			
Turn Bay Length (ft)									
Base Capacity (vph)		615				156			
Starvation Cap Reductn		0				0			
Spillback Cap Reductn		0				0			
Storage Cap Reductn		0				0			
Reduced v/c Ratio		0.72				1.49			
<b>Intersection Summary</b>									

Existing Conditions  
6: Canton Ave & Reedsdale Ave

PM Peak-Hour  
04/20/2021

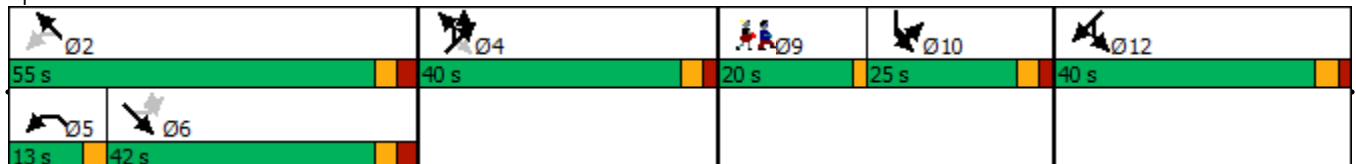


Lane Group	SBL2	SBL	SBR	SBR2	SEL2	SEL	SET	SER	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	5	120	75	15	5	20	670	75	150	420	30	50
Future Volume (vph)	5	120	75	15	5	20	670	75	150	420	30	50
Satd. Flow (prot)	0	1707	0	0	0	0	3479	0	0	3434	0	0
Flt Permitted		0.972					0.763			*0.800		
Satd. Flow (perm)	0	1707	0	0	0	0	2660	0	0	2778	0	0
Satd. Flow (RTOR)							6					
Lane Group Flow (vph)	0	226	0	0	0	0	810	0	0	685	0	0
Turn Type	Prot	Prot			Perm	Perm	NA		pm+pt	NA		
Protected Phases	10	10					6		5	2		
Permitted Phases					6	6			2			
Total Split (s)	25.0	25.0			42.0	42.0	42.0		13.0	55.0		
Total Lost Time (s)		5.0					6.0			6.0		
Act Effct Green (s)		20.2					44.0			44.0		
Actuated g/C Ratio		0.12					0.27			0.27		
v/c Ratio		1.08					1.12			0.91		
Control Delay		147.3					125.2			75.7		
Queue Delay		0.0					0.0			0.0		
Total Delay		147.3					125.2			75.7		
LOS		F					F			E		
Approach Delay		147.3					125.2			75.7		
Approach LOS		F					F			E		
Queue Length 50th (ft)		-249					-466			348		
Queue Length 95th (ft)		#509					#711			#530		
Internal Link Dist (ft)		638					1207			921		
Turn Bay Length (ft)												
Base Capacity (vph)		210					721			841		
Starvation Cap Reductn		0					0			0		
Spillback Cap Reductn		0					0			0		
Storage Cap Reductn		0					0			0		
Reduced v/c Ratio		1.08					1.12			0.81		

Intersection Summary

Cycle Length: 180  
 Actuated Cycle Length: 163.1  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.14  
 Intersection Signal Delay: 109.3  
 Intersection LOS: F  
 Intersection Capacity Utilization 118.1%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Canton Ave & Reedsdale Ave



Existing Conditions  
6: Canton Ave & Reedsdale Ave

PM Peak-Hour  
04/20/2021



Lane Group	NEL2	NEL	NET	NER	SWL	SWT	SWR	SWR2	Ø9
Lane Configurations			↕	↗		↕			
Traffic Volume (vph)	40	90	300	150	50	300	20	5	
Future Volume (vph)	40	90	300	150	50	300	20	5	
Satd. Flow (prot)	0	0	1835	1583	0	1833	0	0	
Flt Permitted			*0.850			0.993			
Satd. Flow (perm)	0	0	1583	1583	0	1833	0	0	
Satd. Flow (RTOR)				109					
Lane Group Flow (vph)	0	0	453	158	0	395	0	0	
Turn Type	Split	Split	NA	Perm	Split	NA			
Protected Phases	4	4	4		12	12			9
Permitted Phases				4					
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0			20.0
Total Lost Time (s)			5.0	5.0		5.0			
Act Effect Green (s)			35.3	35.3		35.3			
Actuated g/C Ratio			0.22	0.22		0.22			
v/c Ratio			1.14	0.37		1.00			
Control Delay			145.2	22.6		107.0			
Queue Delay			0.0	0.0		0.0			
Total Delay			145.2	22.6		107.0			
LOS			F	C		F			
Approach Delay			113.5			107.0			
Approach LOS			F			F			
Queue Length 50th (ft)			~527	41		405			
Queue Length 95th (ft)			#906	125		#755			
Internal Link Dist (ft)			500			457			
Turn Bay Length (ft)				200					
Base Capacity (vph)			396	427		396			
Starvation Cap Reductn			0	0		0			
Spillback Cap Reductn			0	0		0			
Storage Cap Reductn			0	0		0			
Reduced v/c Ratio			1.14	0.37		1.00			
<b>Intersection Summary</b>									



Existing Conditions  
8: Randolph Ave & Reedsdale Ave

PM Peak-Hour  
04/20/2021

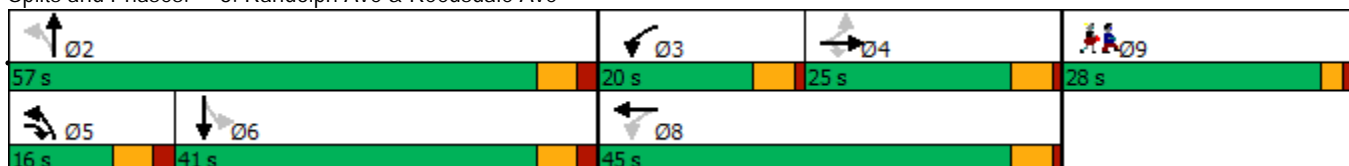


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖↗		↖	↗			↕	
Traffic Volume (vph)	20	300	750	350	200	20	400	350	20	15	400	20
Future Volume (vph)	20	300	750	350	200	20	400	350	20	15	400	20
Satd. Flow (prot)	0	1857	1583	0	3416	0	1770	1848	0	0	1848	0
Flt Permitted		0.944			0.574		*0.320				0.979	
Satd. Flow (perm)	0	1758	1583	0	2021	0	596	1848	0	0	1813	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	337	789	0	600	0	421	389	0	0	458	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	25.0	25.0	16.0	20.0	45.0		16.0	57.0		41.0	41.0	
Total Lost Time (s)		5.0	6.0		5.0		6.0	6.0			6.0	
Act Effct Green (s)		29.3	44.0		29.3		47.7	47.7			31.1	
Actuated g/C Ratio		0.32	0.48		0.32		0.52	0.52			0.34	
v/c Ratio		0.60	1.04		1.67dl		0.95	0.40			0.74	
Control Delay		32.6	67.6		53.2		53.5	17.5			37.5	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		32.6	67.6		53.2		53.5	17.5			37.5	
LOS		C	E		D		D	B			D	
Approach Delay		57.2			53.2			36.2			37.5	
Approach LOS		E			D			D			D	
Queue Length 50th (ft)		157	~439		168		129	115			212	
Queue Length 95th (ft)		324	#905		#354		#591	322			#538	
Internal Link Dist (ft)		1512			555			1087			816	
Turn Bay Length (ft)												
Base Capacity (vph)		562	760		915		443	1067			718	
Starvation Cap Reductn		0	0		0		0	0			0	
Spillback Cap Reductn		0	0		0		0	0			0	
Storage Cap Reductn		0	0		0		0	0			0	
Reduced v/c Ratio		0.60	1.04		0.66		0.95	0.36			0.64	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 91.5  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.04  
 Intersection Signal Delay: 47.7  
 Intersection LOS: D  
 Intersection Capacity Utilization 103.1%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Randolph Ave & Reedsdale Ave



Existing Conditions  
9: Randolph Ave & Reed St

PM Peak-Hour  
04/20/2021

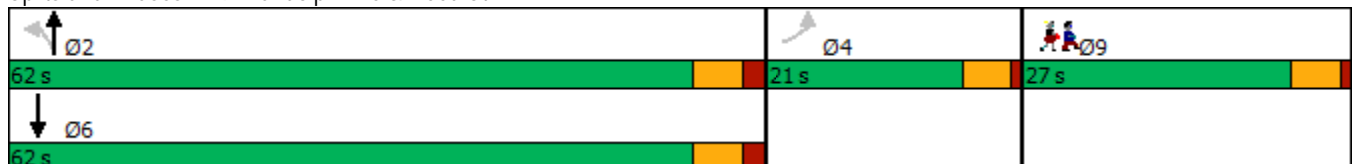


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	10	50	10	1050	1500	10	
Future Volume (vph)	10	50	10	1050	1500	10	
Satd. Flow (prot)	1639	0	0	3539	3536	0	
Flt Permitted	0.991			0.923			
Satd. Flow (perm)	1639	0	0	3267	3536	0	
Satd. Flow (RTOR)					1		
Lane Group Flow (vph)	64	0	0	1116	1590	0	
Turn Type	Perm		Perm	NA	NA		
Protected Phases				2	6		9
Permitted Phases	4		2				
Total Split (s)	21.0		62.0	62.0	62.0		27.0
Total Lost Time (s)	5.0			6.0	6.0		
Act Effect Green (s)	16.9			41.9	41.9		
Actuated g/C Ratio	0.23			0.57	0.57		
v/c Ratio	0.17			0.60	0.79		
Control Delay	31.2			13.3	17.6		
Queue Delay	0.0			0.0	0.0		
Total Delay	31.2			13.3	17.6		
LOS	C			B	B		
Approach Delay	31.2			13.3	17.6		
Approach LOS	C			B	B		
Queue Length 50th (ft)	21			130	221		
Queue Length 95th (ft)	83			372	621		
Internal Link Dist (ft)	354			1436	868		
Turn Bay Length (ft)							
Base Capacity (vph)	373			2604	2818		
Starvation Cap Reductn	0			0	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.17			0.43	0.56		

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 74  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 16.2  
 Intersection LOS: B  
 Intersection Capacity Utilization 57.6%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 9: Randolph Ave & Reed St





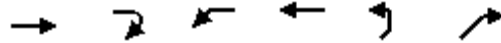
# Part 2: Short-Term Improvements





Short-Term Improvements  
3: St Mary St & Brook Rd

AM Peak-Hour  
04/20/2021



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø9
Lane Configurations	↑↑			↑↑	↔		
Traffic Volume (vph)	560	20	50	800	10	25	
Future Volume (vph)	560	20	50	800	10	25	
Satd. Flow (prot)	3169	0	0	3176	1494	0	
Flt Permitted				0.896	0.985		
Satd. Flow (perm)	3169	0	0	2854	1494	0	
Satd. Flow (RTOR)	5				26		
Lane Group Flow (vph)	610	0	0	895	37	0	
Turn Type	NA		Perm	NA	Prot		
Protected Phases	4			8	2		9
Permitted Phases			8				
Total Split (s)	30.0		30.0	30.0	24.0		21.0
Total Lost Time (s)	5.0			5.0	4.0		
Act Effect Green (s)	32.1			32.1	6.5		
Actuated g/C Ratio	0.88			0.88	0.18		
v/c Ratio	0.22			0.36	0.13		
Control Delay	4.5			5.8	11.7		
Queue Delay	0.0			0.0	0.0		
Total Delay	4.5			5.8	11.7		
LOS	A			A	B		
Approach Delay	4.5			5.8	11.7		
Approach LOS	A			A	B		
Queue Length 50th (ft)	0			0	1		
Queue Length 95th (ft)	126			216	27		
Internal Link Dist (ft)	677			606	127		
Turn Bay Length (ft)							
Base Capacity (vph)	2791			2513	903		
Starvation Cap Reductn	0			0	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.22			0.36	0.04		

Intersection Summary

Cycle Length: 75  
 Actuated Cycle Length: 36.4  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.36  
 Intersection Signal Delay: 5.4  
 Intersection LOS: A  
 Intersection Capacity Utilization 62.0%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 3: St Mary St & Brook Rd



Short-Term Improvements  
4: Brook Rd & Standish St

AM Peak-Hour  
04/20/2021



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕↕			↕↕						↕	
Traffic Volume (vph)	20	565	5	2	850	20	0	0	0	10	5	10
Future Volume (vph)	20	565	5	2	850	20	0	0	0	10	5	10
Satd. Flow (prot)	0	3529	0	0	3529	0	0	0	0	0	1725	0
Flt Permitted		0.915			0.954						0.980	
Satd. Flow (perm)	0	3235	0	0	3366	0	0	0	0	0	1725	0
Satd. Flow (RTOR)		1			3						11	
Lane Group Flow (vph)	0	621	0	0	918	0	0	0	0	0	27	0
Turn Type	Perm	NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases	4			8								
Total Split (s)	30.0	30.0		30.0	30.0					22.5	22.5	
Total Lost Time (s)		5.0			5.0						4.5	
Act Effct Green (s)		25.8			25.8						6.2	
Actuated g/C Ratio		0.58			0.58						0.14	
v/c Ratio		0.33			0.47						0.11	
Control Delay		7.3			8.3						16.8	
Queue Delay		0.0			0.0						0.0	
Total Delay		7.3			8.3						16.8	
LOS		A			A						B	
Approach Delay		7.3			8.3						16.8	
Approach LOS		A			A						B	
Queue Length 50th (ft)		26			43						3	
Queue Length 95th (ft)		128			202						25	
Internal Link Dist (ft)		719			759			87			255	
Turn Bay Length (ft)												
Base Capacity (vph)		1868			1944						723	
Starvation Cap Reductn		0			0						0	
Spillback Cap Reductn		0			0						0	
Storage Cap Reductn		0			0						0	
Reduced v/c Ratio		0.33			0.47						0.04	

Intersection Summary

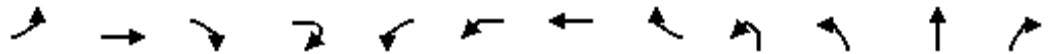
Cycle Length: 73.5  
 Actuated Cycle Length: 44.6  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.47  
 Intersection Signal Delay: 8.1  
 Intersection Capacity Utilization 42.4%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 4: Brook Rd & Standish St



Short-Term Improvements  
5: Central Ave & Reedsdale Ave & Brook Rd

AM Peak-Hour  
04/20/2021

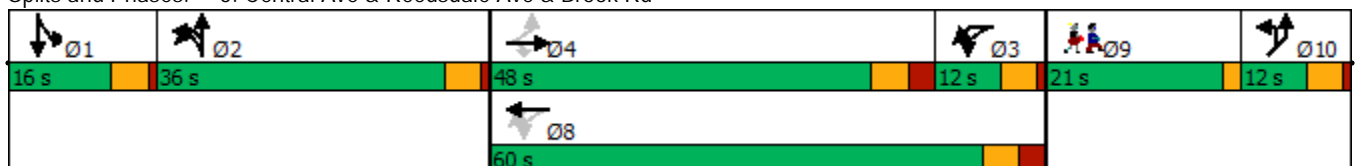


Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations		↖	↗			↖	↗				↖	↗
Traffic Volume (vph)	50	350	290	50	20	150	300	75	10	540	150	20
Future Volume (vph)	50	350	290	50	20	150	300	75	10	540	150	20
Satd. Flow (prot)	0	1852	1583	0	0	1770	3433	0	0	0	3395	0
Flt Permitted		*0.800				*0.800					0.963	
Satd. Flow (perm)	0	1490	1583	0	0	1490	3433	0	0	0	3395	0
Satd. Flow (RTOR)											2	
Lane Group Flow (vph)	0	421	358	0	0	179	395	0	0	0	758	0
Turn Type	Perm	NA	Perm		pm+pt	pm+pt	NA		Split	Split	NA	
Protected Phases		4			3	3	8		2	2	2	
Permitted Phases	4		4		8	8						
Total Split (s)	48.0	48.0	48.0		12.0	12.0	60.0		36.0	36.0	36.0	
Total Lost Time (s)		7.0	7.0			5.0	7.0				5.0	
Act Effect Green (s)		41.0	41.0			55.0	53.0				31.0	
Actuated g/C Ratio		0.28	0.28			0.38	0.37				0.22	
v/c Ratio		0.99	0.80			0.31	0.31				1.52dl	
Control Delay		92.9	61.9			33.1	33.4				96.8	
Queue Delay		0.0	0.0			0.0	0.0				0.0	
Total Delay		92.9	61.9			33.1	33.4				96.8	
LOS		F	E			C	C				F	
Approach Delay		78.7					33.3				96.8	
Approach LOS		E					C				F	
Queue Length 50th (ft)		395	312			115	138				~400	
Queue Length 95th (ft)		#620	#462			176	182				#533	
Internal Link Dist (ft)		481					240				294	
Turn Bay Length (ft)						150						
Base Capacity (vph)		424	450			582	1263				732	
Starvation Cap Reductn		0	0			0	0				0	
Spillback Cap Reductn		0	0			0	0				0	
Storage Cap Reductn		0	0			0	0				0	
Reduced v/c Ratio		0.99	0.80			0.31	0.31				1.04	

Intersection Summary

Cycle Length: 145  
 Actuated Cycle Length: 144  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.07  
 Intersection Signal Delay: 81.0  
 Intersection LOS: F  
 Intersection Capacity Utilization 103.3%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

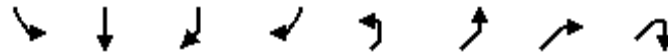
Splits and Phases: 5: Central Ave & Reedsdale Ave & Brook Rd





Short-Term Improvements  
5: Central Ave & Reedsdale Ave & Brook Rd

AM Peak-Hour  
04/20/2021



Lane Group	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2	Ø9
Lane Configurations		↔↔				↔			
Traffic Volume (vph)	50	150	50	10	10	50	100	5	
Future Volume (vph)	50	150	50	10	10	50	100	5	
Satd. Flow (prot)	0	3381	0	0	0	1674	0	0	
Flt Permitted		0.990				0.982			
Satd. Flow (perm)	0	3381	0	0	0	1674	0	0	
Satd. Flow (RTOR)						*100			
Lane Group Flow (vph)	0	275	0	0	0	174	0	0	
Turn Type	Split	NA			Prot	Prot			
Protected Phases	1	1			10	10			9
Permitted Phases									
Total Split (s)	16.0	16.0			12.0	12.0			21.0
Total Lost Time (s)		5.0				5.0			
Act Effct Green (s)		11.0				7.0			
Actuated g/C Ratio		0.08				0.05			
v/c Ratio		1.07				0.99			
Control Delay		135.7				93.7			
Queue Delay		0.0				0.0			
Total Delay		135.7				93.7			
LOS		F				F			
Approach Delay		135.7				93.7			
Approach LOS		F				F			
Queue Length 50th (ft)		~149				71			
Queue Length 95th (ft)		#246				#229			
Internal Link Dist (ft)		330				737			
Turn Bay Length (ft)									
Base Capacity (vph)		258				176			
Starvation Cap Reductn		0				0			
Spillback Cap Reductn		0				0			
Storage Cap Reductn		0				0			
Reduced v/c Ratio		1.07				0.99			
<b>Intersection Summary</b>									

Short-Term Improvements  
6: Canton Ave & Reedsdale Ave & Center St

AM Peak-Hour  
04/20/2021



Lane Group	SBL2	SBL	SBR	SBR2	SEL2	SET	SER	NWL	NWT	NWR	NWR2	NEL2
Lane Configurations												
Traffic Volume (vph)	5	50	75	5	5	370	50	150	670	50	100	25
Future Volume (vph)	5	50	75	5	5	370	50	150	670	50	100	25
Satd. Flow (prot)	0	1679	0	0	0	3472	0	0	3430	0	0	0
Flt Permitted		0.980				0.866			*0.940			
Satd. Flow (perm)	0	1679	0	0	0	3010	0	0	3250	0	0	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	142	0	0	0	447	0	0	1021	0	0	0
Turn Type	Prot	Prot			Perm	NA		pm+pt	NA			Split
Protected Phases	10	10				6		5	2			4
Permitted Phases					6			2				
Total Split (s)	18.0	18.0			50.0	50.0		10.0	60.0			41.0
Total Lost Time (s)		5.0				6.0			6.0			
Act Effct Green (s)		13.0				54.2			54.2			
Actuated g/C Ratio		0.08				0.32			0.32			
v/c Ratio		1.08				0.46			0.97			
Control Delay		171.4				47.8			75.9			
Queue Delay		0.0				0.0			0.0			
Total Delay		171.4				47.8			75.9			
LOS		F				D			E			
Approach Delay		171.4				47.8			75.9			
Approach LOS		F				D			E			
Queue Length 50th (ft)		~158				190			538			
Queue Length 95th (ft)		#355				288			#820			
Internal Link Dist (ft)		462				1254			875			
Turn Bay Length (ft)												
Base Capacity (vph)		131				976			1054			
Starvation Cap Reductn		0				0			0			
Spillback Cap Reductn		0				0			0			
Storage Cap Reductn		0				0			0			
Reduced v/c Ratio		1.08				0.46			0.97			

Intersection Summary

Cycle Length: 179  
 Actuated Cycle Length: 167  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.08  
 Intersection Signal Delay: 88.8  
 Intersection LOS: F  
 Intersection Capacity Utilization 112.6%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Canton Ave & Reedsdale Ave & Center St

60 s	41 s	20 s	18 s	40 s
10 s	50 s			

Short-Term Improvements  
6: Canton Ave & Reedsdale Ave & Center St

AM Peak-Hour  
04/20/2021



Lane Group	NEL	NET	NER	SWL	SWT	SWR	SWR2	Ø9
Lane Configurations								
Traffic Volume (vph)	75	300	150	70	300	20	5	
Future Volume (vph)	75	300	150	70	300	20	5	
Satd. Flow (prot)	0	1840	1770	0	1831	0	0	
Flt Permitted		*0.840			0.991			
Satd. Flow (perm)	0	1565	1770	0	1831	0	0	
Satd. Flow (RTOR)			110					
Lane Group Flow (vph)	0	421	158	0	416	0	0	
Turn Type	Split	NA	Perm	Split	NA			
Protected Phases	4	4		12	12			9
Permitted Phases			4					
Total Split (s)	41.0	41.0	41.0	40.0	40.0			20.0
Total Lost Time (s)		5.0	5.0		5.0			
Act Effect Green (s)		36.1	36.1		35.1			
Actuated g/C Ratio		0.22	0.22		0.21			
v/c Ratio		1.06	0.34		1.08			
Control Delay		121.8	21.4		128.6			
Queue Delay		0.0	0.0		0.0			
Total Delay		121.8	21.4		128.6			
LOS		F	C		F			
Approach Delay		94.4			128.6			
Approach LOS		F			F			
Queue Length 50th (ft)		-450	40		-462			
Queue Length 95th (ft)		#802	121		#802			
Internal Link Dist (ft)		357			225			
Turn Bay Length (ft)			200					
Base Capacity (vph)		398	468		385			
Starvation Cap Reductn		0	0		0			
Spillback Cap Reductn		0	0		0			
Storage Cap Reductn		0	0		0			
Reduced v/c Ratio		1.06	0.34		1.08			
<b>Intersection Summary</b>								

Short-Term Improvements  
8: Randolph Ave & Reedsdale Ave

AM Peak-Hour  
04/20/2021

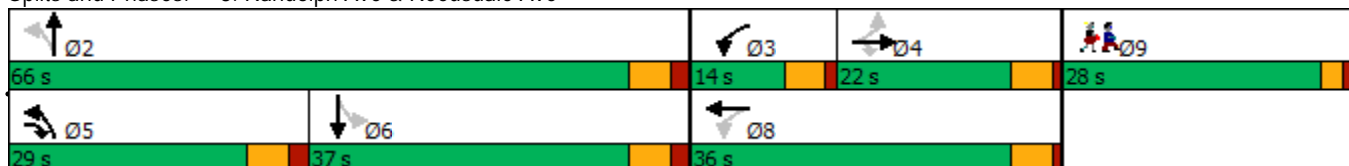


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖↗		↖	↗			↖↗	
Traffic Volume (vph)	15	300	315	160	270	25	790	520	10	20	250	20
Future Volume (vph)	15	300	315	160	270	25	790	520	10	20	250	20
Satd. Flow (prot)	0	1859	1583	0	3451	0	1625	1685	0	0	1779	0
Flt Permitted		0.965			0.581		0.371	0.618			0.919	
Satd. Flow (perm)	0	1798	1583	0	2040	0	635	1055	0	0	1640	0
Satd. Flow (RTOR)			332		4			1			3	
Lane Group Flow (vph)	0	332	332	0	478	0	641	749	0	0	305	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	22.0	22.0	29.0	14.0	36.0		29.0	66.0		37.0	37.0	
Total Lost Time (s)		5.0	6.0		5.0		6.0	6.0			6.0	
Act Effct Green (s)		26.7	54.0		26.7		60.7	60.7			31.3	
Actuated g/C Ratio		0.26	0.53		0.26		0.60	0.60			0.31	
v/c Ratio		0.70	0.33		1.14dl		1.06	0.97			0.60	
Control Delay		44.0	2.1		56.5		74.0	46.6			38.0	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		44.0	2.1		56.5		74.0	46.6			38.0	
LOS		D	A		E		E	D			D	
Approach Delay		23.1			56.5			59.3			38.0	
Approach LOS		C			E			E			D	
Queue Length 50th (ft)		184	0		146		-287	329			161	
Queue Length 95th (ft)		353	31		#302		#925	#1012			328	
Internal Link Dist (ft)		722			555			1094			767	
Turn Bay Length (ft)												
Base Capacity (vph)		471	994		629		603	771			506	
Starvation Cap Reductn		0	0		0		0	0			0	
Spillback Cap Reductn		0	0		0		0	0			0	
Storage Cap Reductn		0	0		0		0	0			0	
Reduced v/c Ratio		0.70	0.33		0.76		1.06	0.97			0.60	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 102  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.06  
 Intersection Signal Delay: 48.0  
 Intersection LOS: D  
 Intersection Capacity Utilization 99.2%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Randolph Ave & Reedsdale Ave









Short-Term Improvements  
1: Blue Hill Pkwy & Brook Rd

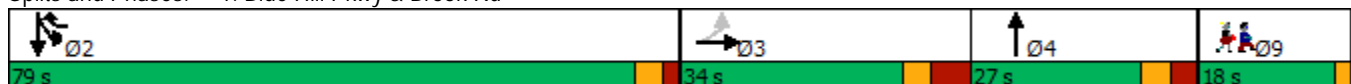
PM Peak-Hour  
04/20/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	210	20	0	0	770	0	350	70	780	680	0
Future Volume (vph)	50	210	20	0	0	770	0	350	70	780	680	0
Satd. Flow (prot)	0	1828	0	0	0	2787	0	3451	0	1681	1761	0
Flt Permitted		0.991								0.950	0.995	
Satd. Flow (perm)	0	1828	0	0	0	2787	0	3451	0	1681	1761	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	295	0	0	0	811	0	442	0	739	798	0
Turn Type	Perm	NA				Over		NA		Split	NA	
Protected Phases		3				2		4		2	2	
Permitted Phases	3											
Total Split (s)	34.0	34.0				79.0		27.0		79.0	79.0	
Total Lost Time (s)		8.0				5.5		7.0		5.5	5.5	
Act Effct Green (s)		26.1				73.7		20.1		73.7	73.7	
Actuated g/C Ratio		0.18				0.50		0.14		0.50	0.50	
v/c Ratio		0.91				0.58		0.94		0.88	0.90	
Control Delay		90.7				28.8		90.8		46.5	48.9	
Queue Delay		0.0				0.0		0.0		0.0	0.0	
Total Delay		90.7				28.8		90.8		46.5	48.9	
LOS		F				C		F		D	D	
Approach Delay		90.7			28.8			90.8			47.7	
Approach LOS		F			C			F			D	
Queue Length 50th (ft)		264				273		211		584	646	
Queue Length 95th (ft)		#501				428		#366		#1038	#1133	
Internal Link Dist (ft)		326			200			594			517	
Turn Bay Length (ft)												
Base Capacity (vph)		324				1399		471		844	884	
Starvation Cap Reductn		0				0		0		0	0	
Spillback Cap Reductn		0				0		0		0	0	
Storage Cap Reductn		0				0		0		0	0	
Reduced v/c Ratio		0.91				0.58		0.94		0.88	0.90	

Intersection Summary

Cycle Length: 158  
 Actuated Cycle Length: 146.8  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.94  
 Intersection Signal Delay: 53.0  
 Intersection LOS: D  
 Intersection Capacity Utilization 83.5%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Blue Hill Pkwy & Brook Rd



Short-Term Improvements  
3: St Mary St & Brook Rd

PM Peak-Hour  
04/20/2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø9
Lane Configurations	↑↑			↑↑	↔		
Traffic Volume (vph)	860	20	20	650	20	20	
Future Volume (vph)	860	20	20	650	20	20	
Satd. Flow (prot)	3529	0	0	3536	1694	0	
Flt Permitted				0.921	0.976		
Satd. Flow (perm)	3529	0	0	3260	1694	0	
Satd. Flow (RTOR)	3				21		
Lane Group Flow (vph)	926	0	0	705	42	0	
Turn Type	NA		Perm	NA	Prot		
Protected Phases	4			8	2		9
Permitted Phases			8				
Total Split (s)	30.0		30.0	30.0	24.0		21.0
Total Lost Time (s)	5.0			5.0	4.0		
Act Effect Green (s)	32.1			32.1	6.6		
Actuated g/C Ratio	0.88			0.88	0.18		
v/c Ratio	0.30			0.25	0.13		
Control Delay	4.8			4.6	12.8		
Queue Delay	0.0			0.0	0.0		
Total Delay	4.8			4.6	12.8		
LOS	A			A	B		
Approach Delay	4.8			4.6	12.8		
Approach LOS	A			A	B		
Queue Length 50th (ft)	0			0	3		
Queue Length 95th (ft)	201			149	32		
Internal Link Dist (ft)	677			615	118		
Turn Bay Length (ft)							
Base Capacity (vph)	3107			2870	1020		
Starvation Cap Reductn	0			0	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.30			0.25	0.04		

Intersection Summary

Cycle Length: 75  
 Actuated Cycle Length: 36.5  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.30  
 Intersection Signal Delay: 4.9  
 Intersection LOS: A  
 Intersection Capacity Utilization 43.3%  
 ICU Level of Service A  
 Analysis Period (min) 15

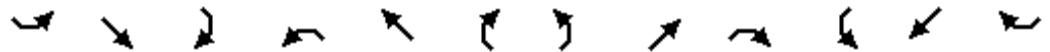
Splits and Phases: 3: St Mary St & Brook Rd





Short-Term Improvements  
4: Standish St & Brook Rd

PM Peak-Hour  
04/20/2021



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕↕			↕↕						↕↕	
Traffic Volume (vph)	20	890	10	30	670	20	0	0	0	20	10	10
Future Volume (vph)	20	890	10	30	670	20	0	0	0	20	10	10
Satd. Flow (prot)	0	3529	0	0	3518	0	0	0	0	0	1754	0
Flt Permitted		0.933			0.893						0.976	
Satd. Flow (perm)	0	3295	0	0	3148	0	0	0	0	0	1754	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	969	0	0	758	0	0	0	0	0	43	0
Turn Type	Perm	NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases	4			8								
Total Split (s)	30.0	30.0		30.0	30.0					22.5	22.5	
Total Lost Time (s)		5.0			5.0						4.5	
Act Effct Green (s)		25.8			25.8						6.8	
Actuated g/C Ratio		0.57			0.57						0.15	
v/c Ratio		0.52			0.42						0.16	
Control Delay		9.2			8.4						20.8	
Queue Delay		0.0			0.0						0.0	
Total Delay		9.2			8.4						20.8	
LOS		A			A						C	
Approach Delay		9.2			8.4						20.8	
Approach LOS		A			A						C	
Queue Length 50th (ft)		50			36						9	
Queue Length 95th (ft)		230			171						40	
Internal Link Dist (ft)		708			777			174			255	
Turn Bay Length (ft)												
Base Capacity (vph)		1879			1796						720	
Starvation Cap Reductn		0			0						0	
Spillback Cap Reductn		0			0						0	
Storage Cap Reductn		0			0						0	
Reduced v/c Ratio		0.52			0.42						0.06	

Intersection Summary

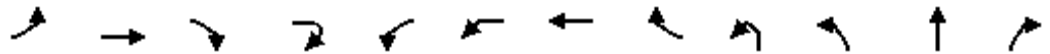
Cycle Length: 73.5	
Actuated Cycle Length: 45.2	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 9.1	Intersection LOS: A
Intersection Capacity Utilization 53.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Standish St & Brook Rd



Short-Term Improvements  
5: Central Ave & Reedsdale Ave & Brook Rd

PM Peak-Hour  
04/20/2021

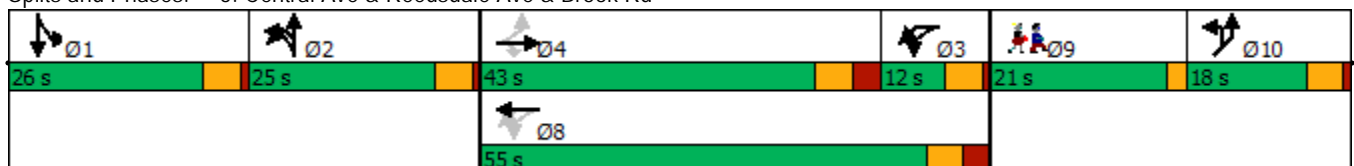


Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	40	400	450	20	30	150	350	50	20	350	100	20
Future Volume (vph)	40	400	450	20	30	150	350	50	20	350	100	20
Satd. Flow (prot)	0	1853	1583	0	0	1770	3472	0	0	0	3391	0
Flt Permitted		*0.800				*0.800					0.964	
Satd. Flow (perm)	0	1490	1583	0	0	1490	3472	0	0	0	3391	0
Satd. Flow (RTOR)			158									
Lane Group Flow (vph)	0	463	495	0	0	190	421	0	0	0	515	0
Turn Type	Perm	NA	Perm		pm+pt	pm+pt	NA		Split	Split	NA	
Protected Phases		4			3	3	8		2	2	2	
Permitted Phases	4		4		8	8						
Total Split (s)	43.0	43.0	43.0		12.0	12.0	55.0		25.0	25.0	25.0	
Total Lost Time (s)		7.0	7.0			5.0	7.0				5.0	
Act Effct Green (s)		36.0	36.0			50.0	48.0				20.0	
Actuated g/C Ratio		0.25	0.25			0.35	0.33				0.14	
v/c Ratio		1.24	0.96			0.36	0.36				1.58dl	
Control Delay		173.8	67.2			37.5	37.4				125.2	
Queue Delay		0.0	0.0			0.0	0.0				0.0	
Total Delay		173.8	67.2			37.5	37.4				125.2	
LOS		F	E			D	D				F	
Approach Delay		118.7					37.5				125.2	
Approach LOS		F					D				F	
Queue Length 50th (ft)		~538	338			130	157				~286	
Queue Length 95th (ft)		#758	#571			197	206				#405	
Internal Link Dist (ft)		458					227				291	
Turn Bay Length (ft)						150						
Base Capacity (vph)		373	515			531	1159				471	
Starvation Cap Reductn		0	0			0	0				0	
Spillback Cap Reductn		0	0			0	0				0	
Storage Cap Reductn		0	0			0	0				0	
Reduced v/c Ratio		1.24	0.96			0.36	0.36				1.09	

Intersection Summary

Cycle Length: 145  
 Actuated Cycle Length: 143.7  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.25  
 Intersection Signal Delay: 102.5  
 Intersection LOS: F  
 Intersection Capacity Utilization 103.1%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 5: Central Ave & Reedsdale Ave & Brook Rd



Short-Term Improvements  
 5: Central Ave & Reedsdale Ave & Brook Rd

PM Peak-Hour  
 04/20/2021



Lane Group	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2	Ø9
Lane Configurations									
Traffic Volume (vph)	50	250	100	20	20	90	100	10	
Future Volume (vph)	50	250	100	20	20	90	100	10	
Satd. Flow (prot)	0	3387	0	0	0	1818	0	0	
Flt Permitted						0.976			
Satd. Flow (perm)	0	3387	0	0	0	1818	0	0	
Satd. Flow (RTOR)						*25			
Lane Group Flow (vph)	0	442	0	0	0	232	0	0	
Turn Type	Split	NA			Prot	Prot			
Protected Phases	1	1			10	10			9
Permitted Phases									
Total Split (s)	26.0	26.0			18.0	18.0			21.0
Total Lost Time (s)		5.0				5.0			
Act Effct Green (s)		20.7				13.0			
Actuated g/C Ratio		0.14				0.09			
v/c Ratio		0.91				1.25			
Control Delay		83.6				192.5			
Queue Delay		0.0				0.0			
Total Delay		83.6				192.5			
LOS		F				F			
Approach Delay		83.6				192.5			
Approach LOS		F				F			
Queue Length 50th (ft)		217				~248			
Queue Length 95th (ft)		#314				#424			
Internal Link Dist (ft)		619				393			
Turn Bay Length (ft)									
Base Capacity (vph)		494				186			
Starvation Cap Reductn		0				0			
Spillback Cap Reductn		0				0			
Storage Cap Reductn		0				0			
Reduced v/c Ratio		0.89				1.25			
<b>Intersection Summary</b>									

Short-Term Improvements  
6: Canton Ave & Reedsdale Ave & Centre Street

PM Peak-Hour  
04/20/2021

Lane Group	SBL2	SBL	SBR	SBR2	SEL2	SEL	SET	SER	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	5	120	75	15	5	20	670	75	150	420	30	50
Future Volume (vph)	5	120	75	15	5	20	670	75	150	420	30	50
Satd. Flow (prot)	0	1707	0	0	0	0	3479	0	0	3434	0	0
Flt Permitted		0.972					0.804			*0.800		
Satd. Flow (perm)	0	1707	0	0	0	0	2803	0	0	2778	0	0
Satd. Flow (RTOR)							6					
Lane Group Flow (vph)	0	226	0	0	0	0	810	0	0	685	0	0
Turn Type	Prot	Prot			Perm	Perm	NA		pm+pt	NA		
Protected Phases	10	10					6		5	2		
Permitted Phases					6	6			2			
Total Split (s)	25.0	25.0			50.0	50.0	50.0		10.0	60.0		
Total Lost Time (s)		5.0					6.0			6.0		
Act Effct Green (s)		20.2					48.0			48.0		
Actuated g/C Ratio		0.13					0.30			0.30		
v/c Ratio		1.06					0.97			0.83		
Control Delay		142.3					79.2			63.2		
Queue Delay		0.0					0.0			0.0		
Total Delay		142.3					79.2			63.2		
LOS		F					E			E		
Approach Delay		142.3					79.2			63.2		
Approach LOS		F					E			E		
Queue Length 50th (ft)		223					408			328		
Queue Length 95th (ft)		#505					#629			480		
Internal Link Dist (ft)		522					1243			888		
Turn Bay Length (ft)												
Base Capacity (vph)		213					838			939		
Starvation Cap Reductn		0					0			0		
Spillback Cap Reductn		0					0			0		
Storage Cap Reductn		0					0			0		
Reduced v/c Ratio		1.06					0.97			0.73		

Intersection Summary

Cycle Length: 179  
 Actuated Cycle Length: 161  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.11  
 Intersection Signal Delay: 95.7  
 Intersection LOS: F  
 Intersection Capacity Utilization 115.9%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Canton Ave & Reedsdale Ave & Centre Street

60 s	37 s	20 s	25 s	37 s
10 s	50 s			



Short-Term Improvements  
6: Canton Ave & Reedsdale Ave & Centre Street

PM Peak-Hour  
04/20/2021



Lane Group	NEL2	NEL	NET	NER	SWL	SWT	SWR	SWR2	Ø9
Lane Configurations			↕	↗		↕			
Traffic Volume (vph)	40	50	300	150	50	300	20	5	
Future Volume (vph)	40	50	300	150	50	300	20	5	
Satd. Flow (prot)	0	0	1842	1583	0	1833	0	0	
Flt Permitted			*0.800			0.993			
Satd. Flow (perm)	0	0	1490	1583	0	1833	0	0	
Satd. Flow (RTOR)				*1					
Lane Group Flow (vph)	0	0	411	158	0	395	0	0	
Turn Type	Split	Split	NA	Perm	Split	NA			
Protected Phases	4	4	4		12	12			9
Permitted Phases				4					
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0			20.0
Total Lost Time (s)			5.0	5.0		5.0			
Act Effect Green (s)			32.3	32.3		32.3			
Actuated g/C Ratio			0.20	0.20		0.20			
v/c Ratio			1.11	0.50		1.08			
Control Delay			138.0	65.6		127.5			
Queue Delay			0.0	0.0		0.0			
Total Delay			138.0	65.6		127.5			
LOS			F	E		F			
Approach Delay			117.9			127.5			
Approach LOS			F			F			
Queue Length 50th (ft)			~430	134		~390			
Queue Length 95th (ft)			#828	257		#788			
Internal Link Dist (ft)			307			271			
Turn Bay Length (ft)				200					
Base Capacity (vph)			369	317		367			
Starvation Cap Reductn			0	0		0			
Spillback Cap Reductn			0	0		0			
Storage Cap Reductn			0	0		0			
Reduced v/c Ratio			1.11	0.50		1.08			

Intersection Summary

Short-Term Improvements  
8: Randolph Ave & Reedsdale Ave

PM Peak-Hour  
04/20/2021

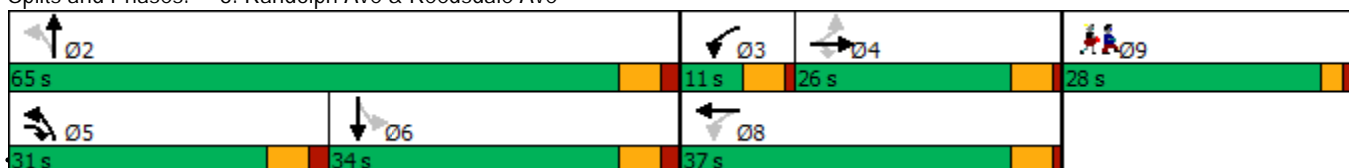


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕↔		↖	↕			↕	
Traffic Volume (vph)	20	300	750	350	200	20	400	350	20	15	400	20
Future Volume (vph)	20	300	750	350	200	20	400	350	20	15	400	20
Satd. Flow (prot)	0	1857	1583	0	3416	0	1625	1687	0	0	1786	0
Flt Permitted		0.942			0.558		0.185	0.727			0.973	
Satd. Flow (perm)	0	1755	1583	0	1965	0	316	1235	0	0	1742	0
Satd. Flow (RTOR)			506		3			2			2	
Lane Group Flow (vph)	0	337	789	0	600	0	354	456	0	0	458	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	26.0	26.0	31.0	11.0	37.0		31.0	65.0		34.0	34.0	
Total Lost Time (s)		5.0	6.0		5.0		6.0	6.0			6.0	
Act Effct Green (s)		31.7	60.8		31.7		59.4	59.4			28.2	
Actuated g/C Ratio		0.30	0.58		0.30		0.56	0.56			0.27	
v/c Ratio		0.64	0.70		1.95dl		0.73	0.57			0.98	
Control Delay		39.9	8.3		78.9		28.4	18.8			78.0	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		39.9	8.3		78.9		28.4	18.8			78.0	
LOS		D	A		E		C	B			E	
Approach Delay		17.8			78.9			23.0			78.0	
Approach LOS		B			E			C			E	
Queue Length 50th (ft)		186	92		201		134	168			292	
Queue Length 95th (ft)		357	196		#419		#375	374			#639	
Internal Link Dist (ft)		707			556			1090			816	
Turn Bay Length (ft)												
Base Capacity (vph)		525	1125		600		488	801			465	
Starvation Cap Reductn		0	0		0		0	0			0	
Spillback Cap Reductn		0	0		0		0	0			0	
Storage Cap Reductn		0	0		0		0	0			0	
Reduced v/c Ratio		0.64	0.70		1.00		0.73	0.57			0.98	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 105.7  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.02  
 Intersection Signal Delay: 40.6  
 Intersection LOS: D  
 Intersection Capacity Utilization 103.1%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Randolph Ave & Reedsdale Ave



Short-Term Improvements  
9: Randolph Ave & Reed St

PM Peak-Hour  
04/20/2021

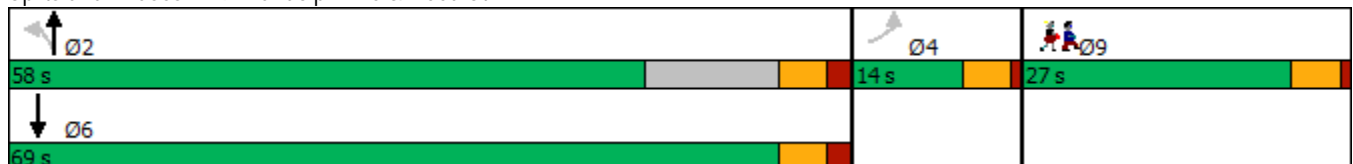


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	10	50	10	1050	1500	10	
Future Volume (vph)	10	50	10	1050	1500	10	
Satd. Flow (prot)	1585	0	0	3421	3418	0	
Flt Permitted	0.991			0.931			
Satd. Flow (perm)	1585	0	0	3185	3418	0	
Satd. Flow (RTOR)					1		
Lane Group Flow (vph)	64	0	0	1116	1590	0	
Turn Type	Perm		Perm	NA	NA		
Protected Phases				2	6		9
Permitted Phases	4		2				
Total Split (s)	14.0		58.0	58.0	69.0		27.0
Total Lost Time (s)	5.0			6.0	6.0		
Act Effct Green (s)	9.9			38.9	38.9		
Actuated g/C Ratio	0.15			0.61	0.61		
v/c Ratio	0.26			0.58	0.77		
Control Delay	35.2			9.9	13.3		
Queue Delay	0.0			0.0	0.0		
Total Delay	35.2			9.9	13.3		
LOS	D			A	B		
Approach Delay	35.2			9.9	13.3		
Approach LOS	D			A	B		
Queue Length 50th (ft)	19			87	152		
Queue Length 95th (ft)	90			323	548		
Internal Link Dist (ft)	354			1436	865		
Turn Bay Length (ft)							
Base Capacity (vph)	245			2913	3126		
Starvation Cap Reductn	0			0	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.26			0.38	0.51		

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 64.1  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 12.4  
 Intersection LOS: B  
 Intersection Capacity Utilization 57.6%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 9: Randolph Ave & Reed St







# Part 3: Brook Road: Concept 1





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø9
Lane Configurations	↻			↻	↻		
Traffic Volume (vph)	560	20	50	800	10	25	
Future Volume (vph)	560	20	50	800	10	25	
Satd. Flow (prot)	1853	0	0	1857	1659	0	
Flt Permitted				0.941	0.986		
Satd. Flow (perm)	1853	0	0	1753	1659	0	
Satd. Flow (RTOR)	3				28		
Lane Group Flow (vph)	641	0	0	939	39	0	
Turn Type	NA		Perm	NA	Prot		
Protected Phases	4			8	1		9
Permitted Phases			8				
Total Split (s)	32.4		42.0	42.0	22.5		20.0
Total Lost Time (s)	5.0			5.0	4.0		
Act Effct Green (s)	42.5			42.5	6.4		
Actuated g/C Ratio	0.84			0.84	0.13		
v/c Ratio	0.41			0.64	0.17		
Control Delay	6.6			11.4	15.9		
Queue Delay	0.0			0.0	0.0		
Total Delay	6.6			11.4	15.9		
LOS	A			B	B		
Approach Delay	6.6			11.4	15.9		
Approach LOS	A			B	B		
Queue Length 50th (ft)	0			0	2		
Queue Length 95th (ft)	331			#706	31		
Internal Link Dist (ft)	321			623	132		
Turn Bay Length (ft)							
Base Capacity (vph)	1559			1474	655		
Starvation Cap Reductn	0			0	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.41			0.64	0.06		

**Intersection Summary**

Cycle Length: 84.5  
 Actuated Cycle Length: 50.5  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.64  
 Intersection Signal Delay: 9.6  
 Intersection LOS: A  
 Intersection Capacity Utilization 94.3%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

**Splits and Phases: 3: St Mary St & Brook Rd**



Brook Road: Concept 1  
4: Standish St & Brook Rd

AM Peak-Hour  
05/31/2021

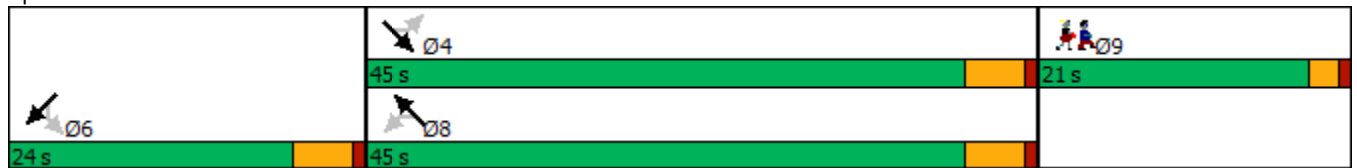


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	20	565	10	20	850	20	0	0	0	10	5	10
Future Volume (vph)	20	565	10	20	850	20	0	0	0	10	5	10
Satd. Flow (prot)	0	1855	0	0	1855	0	0	0	0	0	1731	0
Flt Permitted		0.960			0.983						0.981	
Satd. Flow (perm)	0	1785	0	0	1826	0	0	0	0	0	1731	0
Satd. Flow (RTOR)		1			2						11	
Lane Group Flow (vph)	0	657	0	0	983	0	0	0	0	0	28	0
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases	4			8						6		
Total Split (s)	45.0	45.0		45.0	45.0					24.0	24.0	
Total Lost Time (s)		5.0			5.0						5.0	
Act Effct Green (s)		46.7			46.7						6.4	
Actuated g/C Ratio		0.90			0.90						0.12	
v/c Ratio		0.41			0.60						0.12	
Control Delay		6.0			9.4						20.6	
Queue Delay		0.0			0.0						0.0	
Total Delay		6.0			9.4						20.6	
LOS		A			A						C	
Approach Delay		6.0			9.4						20.6	
Approach LOS		A			A						C	
Queue Length 50th (ft)		0			0						4	
Queue Length 95th (ft)		370			#775						31	
Internal Link Dist (ft)		716			871			91			255	
Turn Bay Length (ft)												
Base Capacity (vph)		1609			1646						674	
Starvation Cap Reductn		0			0						0	
Spillback Cap Reductn		0			0						0	
Storage Cap Reductn		0			0						0	
Reduced v/c Ratio		0.41			0.60						0.04	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 51.8  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.60  
 Intersection Signal Delay: 8.3  
 Intersection LOS: A  
 Intersection Capacity Utilization 69.3%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

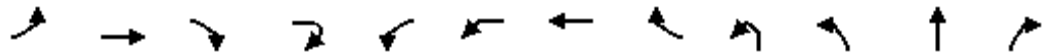
Splits and Phases: 4: Standish St & Brook Rd





Brook Road: Concept 1  
5: Central Ave & Reedsdale Ave & Brook Rd

AM Peak-Hour  
05/31/2021

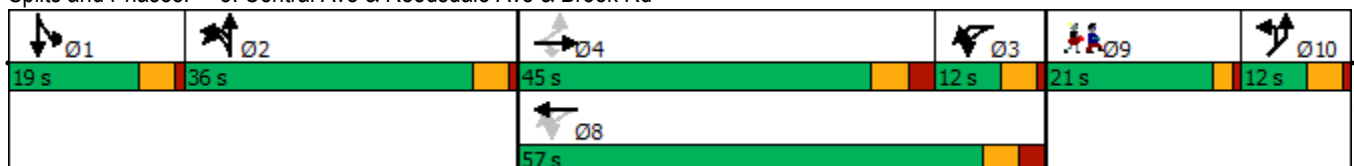


Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations		↕	↕			↕	↕				↕	↕
Traffic Volume (vph)	50	350	290	50	20	150	300	75	10	540	150	20
Future Volume (vph)	50	350	290	50	20	150	300	75	10	540	150	20
Satd. Flow (prot)	0	1852	1583	0	0	1770	3433	0	0	0	3395	0
Flt Permitted		0.794				*0.900					0.963	
Satd. Flow (perm)	0	1479	1583	0	0	1676	3433	0	0	0	3395	0
Satd. Flow (RTOR)			166				23				2	
Lane Group Flow (vph)	0	442	376	0	0	188	415	0	0	0	796	0
Turn Type	Perm	NA	Perm		pm+pt	pm+pt	NA		Split	Split	NA	
Protected Phases		4			3	3	8		2	2	2	
Permitted Phases	4		4		8	8						
Total Split (s)	45.0	45.0	45.0		12.0	12.0	57.0		36.0	36.0	36.0	
Total Lost Time (s)		7.0	7.0			5.0	7.0				5.0	
Act Effct Green (s)		38.0	38.0			52.0	50.0				31.0	
Actuated g/C Ratio		0.26	0.26			0.36	0.35				0.21	
v/c Ratio		1.14	0.70			0.31	0.34				1.60dl	
Control Delay		135.6	34.0			35.2	34.0				112.4	
Queue Delay		0.0	0.0			0.0	0.0				0.0	
Total Delay		135.6	34.0			35.2	34.0				112.4	
LOS		F	C			D	C				F	
Approach Delay		88.9					34.4				112.4	
Approach LOS		F					C				F	
Queue Length 50th (ft)		~481	182			126	143				~440	
Queue Length 95th (ft)		#704	309			192	191				#580	
Internal Link Dist (ft)		370					368				338	
Turn Bay Length (ft)						150						
Base Capacity (vph)		389	538			608	1203				730	
Starvation Cap Reductn		0	0			0	0				0	
Spillback Cap Reductn		0	0			0	0				0	
Storage Cap Reductn		0	0			0	0				0	
Reduced v/c Ratio		1.14	0.70			0.31	0.34				1.09	

Intersection Summary

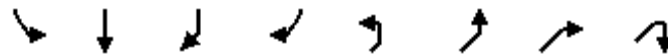
Cycle Length: 145  
 Actuated Cycle Length: 144.4  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.14  
 Intersection Signal Delay: 79.5  
 Intersection LOS: E  
 Intersection Capacity Utilization 107.2%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 5: Central Ave & Reedsdale Ave & Brook Rd



Brook Road: Concept 1  
 5: Central Ave & Reedsdale Ave & Brook Rd

AM Peak-Hour  
 05/31/2021



Lane Group	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2	Ø9
Lane Configurations		↔↔				↔			
Traffic Volume (vph)	50	150	50	10	10	50	100	5	
Future Volume (vph)	50	150	50	10	10	50	100	5	
Satd. Flow (prot)	0	3388	0	0	0	1672	0	0	
Flt Permitted		0.991				0.982			
Satd. Flow (perm)	0	3388	0	0	0	1672	0	0	
Satd. Flow (RTOR)		2				181			
Lane Group Flow (vph)	0	287	0	0	0	183	0	0	
Turn Type	Split	NA			Prot	Prot			
Protected Phases	1	1			10	10			9
Permitted Phases									
Total Split (s)	19.0	19.0			12.0	12.0			21.0
Total Lost Time (s)		5.0				5.0			
Act Effct Green (s)		14.0				6.4			
Actuated g/C Ratio		0.10				0.04			
v/c Ratio		0.87				0.74			
Control Delay		89.6				27.5			
Queue Delay		0.0				0.0			
Total Delay		89.6				27.5			
LOS		F				C			
Approach Delay		89.6				27.5			
Approach LOS		F				C			
Queue Length 50th (ft)		141				2			
Queue Length 95th (ft)		#225				#98			
Internal Link Dist (ft)		698				609			
Turn Bay Length (ft)									
Base Capacity (vph)		330				253			
Starvation Cap Reductn		0				0			
Spillback Cap Reductn		0				0			
Storage Cap Reductn		0				0			
Reduced v/c Ratio		0.87				0.72			
<b>Intersection Summary</b>									





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø9
Lane Configurations	→			←	↔		
Traffic Volume (vph)	860	20	20	650	20	20	
Future Volume (vph)	860	20	20	650	20	20	
Satd. Flow (prot)	1857	0	0	1861	1694	0	
Flt Permitted				0.965	0.976		
Satd. Flow (perm)	1857	0	0	1798	1694	0	
Satd. Flow (RTOR)	2				22		
Lane Group Flow (vph)	973	0	0	740	44	0	
Turn Type	NA		Perm	NA	Prot		
Protected Phases	4			8	2		9
Permitted Phases			8				
Total Split (s)	30.0		30.0	30.0	24.0		21.0
Total Lost Time (s)	5.0			5.0	4.0		
Act Effct Green (s)	32.1			32.1	6.6		
Actuated g/C Ratio	0.88			0.88	0.18		
v/c Ratio	0.60			0.47	0.13		
Control Delay	11.1			9.4	12.8		
Queue Delay	0.0			0.0	0.0		
Total Delay	11.1			9.4	12.8		
LOS	B			A	B		
Approach Delay	11.1			9.4	12.8		
Approach LOS	B			A	B		
Queue Length 50th (ft)	0			0	3		
Queue Length 95th (ft)	#705			#495	32		
Internal Link Dist (ft)	687			614	299		
Turn Bay Length (ft)							
Base Capacity (vph)	1635			1583	1020		
Starvation Cap Reductn	0			0	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.60			0.47	0.04		

Intersection Summary

Cycle Length: 75  
 Actuated Cycle Length: 36.5  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.60  
 Intersection Signal Delay: 10.4  
 Intersection LOS: B  
 Intersection Capacity Utilization 63.7%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 3: St Mary St & Brook Rd

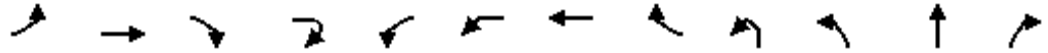






Brook Road: Concept 1  
5: Central Ave & Reedsdale Ave & Brook Rd

PM Peak-Hour  
05/31/2021



Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations		↖	↗			↖	↗				↖	↗
Traffic Volume (vph)	40	400	450	20	30	150	350	50	20	350	100	20
Future Volume (vph)	40	400	450	20	30	150	350	50	20	350	100	20
Satd. Flow (prot)	0	1853	1583	0	0	1770	3472	0	0	0	3391	0
Flt Permitted		0.860				0.153					0.964	
Satd. Flow (perm)	0	1602	1583	0	0	285	3472	0	0	0	3391	0
Satd. Flow (RTOR)			158				12				2	
Lane Group Flow (vph)	0	486	519	0	0	199	442	0	0	0	542	0
Turn Type	Perm	NA	Perm		pm+pt	pm+pt	NA		Split	Split	NA	
Protected Phases		4			3	3	8		2	2	2	
Permitted Phases	4		4		8	8						
Total Split (s)	46.0	46.0	46.0		12.0	12.0	58.0		26.0	26.0	26.0	
Total Lost Time (s)		7.0	7.0			5.0	7.0				5.0	
Act Effct Green (s)		39.0	39.0			53.0	51.0				21.0	
Actuated g/C Ratio		0.27	0.27			0.37	0.36				0.15	
v/c Ratio		1.12	0.95			1.12	0.36				1.57dl	
Control Delay		125.9	63.9			151.7	34.2				121.6	
Queue Delay		0.0	0.0			0.0	0.0				0.0	
Total Delay		125.9	63.9			151.7	34.2				121.6	
LOS		F	E			F	C				F	
Approach Delay		93.9					70.6				121.6	
Approach LOS		F					E				F	
Queue Length 50th (ft)		~523	360			~155	156				~300	
Queue Length 95th (ft)		#745	#593			#319	204				#423	
Internal Link Dist (ft)		394					311				325	
Turn Bay Length (ft)						150						
Base Capacity (vph)		435	545			178	1243				498	
Starvation Cap Reductn		0	0			0	0				0	
Spillback Cap Reductn		0	0			0	0				0	
Storage Cap Reductn		0	0			0	0				0	
Reduced v/c Ratio		1.12	0.95			1.12	0.36				1.09	

Intersection Summary

Cycle Length: 145  
 Actuated Cycle Length: 143.3  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.12  
 Intersection Signal Delay: 89.7  
 Intersection LOS: F  
 Intersection Capacity Utilization 107.1%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 5: Central Ave & Reedsdale Ave & Brook Rd



Brook Road: Concept 1  
 5: Central Ave & Reedsdale Ave & Brook Rd

PM Peak-Hour  
 05/31/2021



Lane Group	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2	Ø9
Lane Configurations		↕↕				↗			
Traffic Volume (vph)	50	250	100	20	20	90	100	10	
Future Volume (vph)	50	250	100	20	20	90	100	10	
Satd. Flow (prot)	0	3367	0	0	0	1694	0	0	
Flt Permitted		0.994				0.976			
Satd. Flow (perm)	0	3367	0	0	0	1694	0	0	
Satd. Flow (RTOR)		3				173			
Lane Group Flow (vph)	0	464	0	0	0	243	0	0	
Turn Type	Split	NA			Prot	Prot			
Protected Phases	1	1			10	10			9
Permitted Phases									
Total Split (s)	28.0	28.0			12.0	12.0			21.0
Total Lost Time (s)		5.0				5.0			
Act Effct Green (s)		22.3				7.0			
Actuated g/C Ratio		0.16				0.05			
v/c Ratio		0.88				0.99			
Control Delay		77.8				74.3			
Queue Delay		0.0				0.0			
Total Delay		77.8				74.3			
LOS		E				E			
Approach Delay		77.8				74.3			
Approach LOS		E				E			
Queue Length 50th (ft)		224				66			
Queue Length 95th (ft)		#313				#247			
Internal Link Dist (ft)		517				676			
Turn Bay Length (ft)									
Base Capacity (vph)		543				246			
Starvation Cap Reductn		0				0			
Spillback Cap Reductn		0				0			
Storage Cap Reductn		0				0			
Reduced v/c Ratio		0.85				0.99			
Intersection Summary									

# Part 4: Brook Road: Concepts 2 and 3





Brook Road: Concepts 2 and 3  
 3: St Mary St & Brook Rd

AM Peak-Hour  
 05/31/2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø9
Lane Configurations	↔		↔	↔	↔		
Traffic Volume (vph)	560	20	50	800	10	25	
Future Volume (vph)	560	20	50	800	10	25	
Satd. Flow (prot)	1853	0	1770	1863	1659	0	
Flt Permitted			0.376		0.986		
Satd. Flow (perm)	1853	0	700	1863	1659	0	
Satd. Flow (RTOR)	3				28		
Lane Group Flow (vph)	641	0	55	884	39	0	
Turn Type	NA		Perm	NA	Prot		
Protected Phases	4			8	1		9
Permitted Phases			8				
Total Split (s)	42.0		42.0	42.0	22.5		20.0
Total Lost Time (s)	5.0		5.0	5.0	4.0		
Act Effct Green (s)	42.4		42.4	42.4	6.4		
Actuated g/C Ratio	0.84		0.84	0.84	0.13		
v/c Ratio	0.41		0.09	0.56	0.17		
Control Delay	6.6		5.9	9.7	16.0		
Queue Delay	0.0		0.0	0.0	0.0		
Total Delay	6.6		5.9	9.7	16.0		
LOS	A		A	A	B		
Approach Delay	6.6			9.5	16.0		
Approach LOS	A			A	B		
Queue Length 50th (ft)	0		0	0	2		
Queue Length 95th (ft)	331		33	#623	31		
Internal Link Dist (ft)	321			623	132		
Turn Bay Length (ft)			120				
Base Capacity (vph)	1519		574	1527	657		
Starvation Cap Reductn	0		0	0	0		
Spillback Cap Reductn	0		0	0	0		
Storage Cap Reductn	0		0	0	0		
Reduced v/c Ratio	0.42		0.10	0.58	0.06		

Intersection Summary

Cycle Length: 84.5  
 Actuated Cycle Length: 50.4  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.56  
 Intersection Signal Delay: 8.5  
 Intersection LOS: A  
 Intersection Capacity Utilization 55.0%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 3: St Mary St & Brook Rd



Brook Road: Concepts 2 and 3  
4: Standish St & Brook Rd

AM Peak-Hour  
05/31/2021

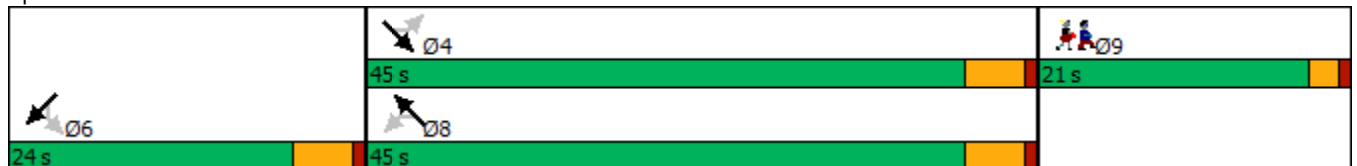


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	20	565	10	20	850	20	0	0	0	10	5	10
Future Volume (vph)	20	565	10	20	850	20	0	0	0	10	5	10
Satd. Flow (prot)	1770	1857	0	1770	1857	0	0	0	0	0	1731	0
Flt Permitted	0.209			0.384							0.981	
Satd. Flow (perm)	389	1857	0	715	1857	0	0	0	0	0	1731	0
Satd. Flow (RTOR)		1			2						11	
Lane Group Flow (vph)	22	635	0	22	961	0	0	0	0	0	28	0
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		4			8							6
Permitted Phases	4			8						6		
Total Split (s)	45.0	45.0		45.0	45.0					24.0	24.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0						5.0	
Act Effct Green (s)	46.7	46.7		46.7	46.7						6.4	
Actuated g/C Ratio	0.90	0.90		0.90	0.90						0.12	
v/c Ratio	0.06	0.38		0.03	0.57						0.12	
Control Delay	6.0	5.6		5.2	9.0						20.6	
Queue Delay	0.0	0.0		0.0	0.0						0.0	
Total Delay	6.0	5.6		5.2	9.0						20.6	
LOS	A	A		A	A						C	
Approach Delay		5.6			8.9						20.6	
Approach LOS		A			A						C	
Queue Length 50th (ft)	0	0		0	0						4	
Queue Length 95th (ft)	19	341		17	#742						31	
Internal Link Dist (ft)		716			871			91			255	
Turn Bay Length (ft)	120			120								
Base Capacity (vph)	350	1673		644	1674						674	
Starvation Cap Reductn	0	0		0	0						0	
Spillback Cap Reductn	0	0		0	0						0	
Storage Cap Reductn	0	0		0	0						0	
Reduced v/c Ratio	0.06	0.38		0.03	0.57						0.04	

Intersection Summary

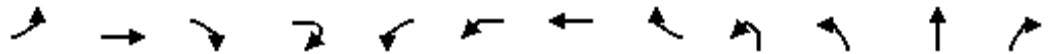
Cycle Length: 90  
 Actuated Cycle Length: 51.8  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.57  
 Intersection Signal Delay: 7.8  
 Intersection LOS: A  
 Intersection Capacity Utilization 60.7%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 4: Standish St & Brook Rd



Brook Road: Concepts 2 and 3  
5: Central Ave & Reedsdale Ave & Brook Rd

AM Peak-Hour  
05/31/2021

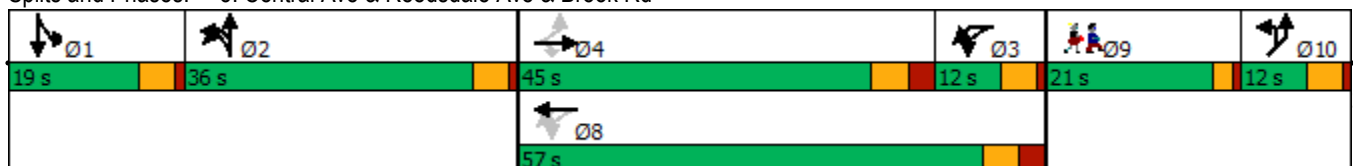


Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations		↔	↔			↔	↔				↔	↔
Traffic Volume (vph)	50	350	290	50	20	150	300	75	10	540	150	20
Future Volume (vph)	50	350	290	50	20	150	300	75	10	540	150	20
Satd. Flow (prot)	0	1852	1583	0	0	1770	3433	0	0	0	3395	0
Flt Permitted		0.794				*0.900					0.963	
Satd. Flow (perm)	0	1479	1583	0	0	1676	3433	0	0	0	3395	0
Satd. Flow (RTOR)			166				23				2	
Lane Group Flow (vph)	0	442	376	0	0	188	415	0	0	0	796	0
Turn Type	Perm	NA	Perm		pm+pt	pm+pt	NA		Split	Split	NA	
Protected Phases		4			3	3	8		2	2	2	
Permitted Phases	4		4		8	8						
Total Split (s)	45.0	45.0	45.0		12.0	12.0	57.0		36.0	36.0	36.0	
Total Lost Time (s)		7.0	7.0			5.0	7.0				5.0	
Act Effct Green (s)		38.0	38.0			52.0	50.0				31.0	
Actuated g/C Ratio		0.26	0.26			0.36	0.35				0.21	
v/c Ratio		1.14	0.70			0.31	0.34				1.60dl	
Control Delay		135.6	34.0			35.2	34.0				112.4	
Queue Delay		0.0	0.0			0.0	0.0				0.0	
Total Delay		135.6	34.0			35.2	34.0				112.4	
LOS		F	C			D	C				F	
Approach Delay		88.9					34.4				112.4	
Approach LOS		F					C				F	
Queue Length 50th (ft)		~481	182			126	143				~440	
Queue Length 95th (ft)		#704	309			192	191				#580	
Internal Link Dist (ft)		370					368				338	
Turn Bay Length (ft)						150						
Base Capacity (vph)		389	538			608	1203				730	
Starvation Cap Reductn		0	0			0	0				0	
Spillback Cap Reductn		0	0			0	0				0	
Storage Cap Reductn		0	0			0	0				0	
Reduced v/c Ratio		1.14	0.70			0.31	0.34				1.09	

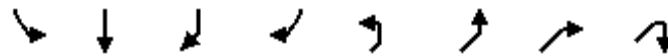
Intersection Summary

Cycle Length: 145  
 Actuated Cycle Length: 144.4  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.14  
 Intersection Signal Delay: 79.5  
 Intersection LOS: E  
 Intersection Capacity Utilization 107.2%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 5: Central Ave & Reedsdale Ave & Brook Rd







Lane Group	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2	Ø9
Lane Configurations		↔↔				↔			
Traffic Volume (vph)	50	150	50	10	10	50	100	5	
Future Volume (vph)	50	150	50	10	10	50	100	5	
Satd. Flow (prot)	0	3388	0	0	0	1672	0	0	
Flt Permitted		0.991				0.982			
Satd. Flow (perm)	0	3388	0	0	0	1672	0	0	
Satd. Flow (RTOR)		2				181			
Lane Group Flow (vph)	0	287	0	0	0	183	0	0	
Turn Type	Split	NA			Prot	Prot			
Protected Phases	1	1			10	10			9
Permitted Phases									
Total Split (s)	19.0	19.0			12.0	12.0			21.0
Total Lost Time (s)		5.0				5.0			
Act Effct Green (s)		14.0				6.4			
Actuated g/C Ratio		0.10				0.04			
v/c Ratio		0.87				0.74			
Control Delay		89.6				27.5			
Queue Delay		0.0				0.0			
Total Delay		89.6				27.5			
LOS		F				C			
Approach Delay		89.6				27.5			
Approach LOS		F				C			
Queue Length 50th (ft)		141				2			
Queue Length 95th (ft)		#225				#98			
Internal Link Dist (ft)		698				609			
Turn Bay Length (ft)									
Base Capacity (vph)		330				253			
Starvation Cap Reductn		0				0			
Spillback Cap Reductn		0				0			
Storage Cap Reductn		0				0			
Reduced v/c Ratio		0.87				0.72			
Intersection Summary									



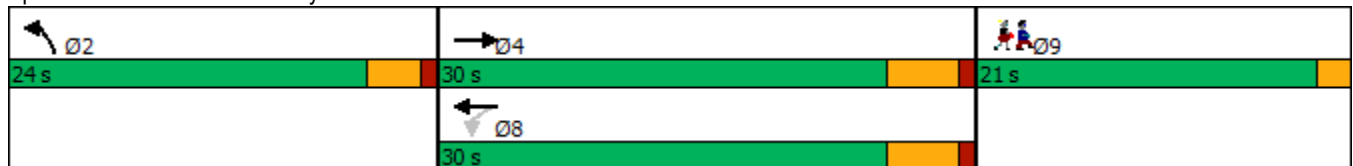


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø9
Lane Configurations	↻		↻	↻	↻		
Traffic Volume (vph)	860	20	20	650	20	20	
Future Volume (vph)	860	20	20	650	20	20	
Satd. Flow (prot)	1857	0	1770	1863	1694	0	
Flt Permitted			0.177		0.976		
Satd. Flow (perm)	1857	0	330	1863	1694	0	
Satd. Flow (RTOR)	2				22		
Lane Group Flow (vph)	973	0	22	718	44	0	
Turn Type	NA		Perm	NA	Prot		
Protected Phases	4			8	2		9
Permitted Phases			8				
Total Split (s)	30.0		30.0	30.0	24.0		21.0
Total Lost Time (s)	5.0		5.0	5.0	4.0		
Act Effct Green (s)	32.1		32.1	32.1	6.6		
Actuated g/C Ratio	0.88		0.88	0.88	0.18		
v/c Ratio	0.60		0.08	0.44	0.13		
Control Delay	11.1		7.6	8.7	12.8		
Queue Delay	0.0		0.0	0.0	0.0		
Total Delay	11.1		7.6	8.7	12.8		
LOS	B		A	A	B		
Approach Delay	11.1			8.7	12.8		
Approach LOS	B			A	B		
Queue Length 50th (ft)	0		0	0	3		
Queue Length 95th (ft)	#705		20	#465	32		
Internal Link Dist (ft)	687			614	299		
Turn Bay Length (ft)			120				
Base Capacity (vph)	1635		290	1640	1020		
Starvation Cap Reductn	0		0	0	0		
Spillback Cap Reductn	0		0	0	0		
Storage Cap Reductn	0		0	0	0		
Reduced v/c Ratio	0.60		0.08	0.44	0.04		

**Intersection Summary**

Cycle Length: 75  
 Actuated Cycle Length: 36.5  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.60  
 Intersection Signal Delay: 10.2  
 Intersection LOS: B  
 Intersection Capacity Utilization 59.6%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 3: St Mary St & Brook Rd



Brook Road: Concept 2 and 3  
4: Standish St & Brook Rd

PM Peak-Hour  
05/31/2021

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	20	890	10	30	670	20	0	0	0	20	10	10
Future Volume (vph)	20	890	10	30	670	20	0	0	0	20	10	10
Satd. Flow (prot)	1770	1859	0	1770	1855	0	0	0	0	0	1756	0
Flt Permitted	0.305			0.181							0.976	
Satd. Flow (perm)	568	1859	0	337	1855	0	0	0	0	0	1756	0
Satd. Flow (RTOR)		1			3						11	
Lane Group Flow (vph)	22	995	0	33	763	0	0	0	0	0	44	0
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		4			8							6
Permitted Phases	4			8						6		
Total Split (s)	55.0	55.0		55.0	55.0					14.0	14.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0						4.5	
Act Effct Green (s)	44.6	44.6		44.6	44.6						7.6	
Actuated g/C Ratio	0.81	0.81		0.81	0.81						0.14	
v/c Ratio	0.05	0.66		0.12	0.51						0.18	
Control Delay	6.1	11.4		7.5	7.9						26.6	
Queue Delay	0.0	0.0		0.0	0.0						0.0	
Total Delay	6.1	11.4		7.5	7.9						26.6	
LOS	A	B		A	A						C	
Approach Delay		11.3			7.9						26.6	
Approach LOS		B			A						C	
Queue Length 50th (ft)	2	151		3	91						11	
Queue Length 95th (ft)	17	#796		26	442						49	
Internal Link Dist (ft)		714			850			90			255	
Turn Bay Length (ft)	120			120								
Base Capacity (vph)	474	1551		281	1548						363	
Starvation Cap Reductn	0	0		0	0						0	
Spillback Cap Reductn	0	0		0	0						0	
Storage Cap Reductn	0	0		0	0						0	
Reduced v/c Ratio	0.05	0.64		0.12	0.49						0.12	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 55.4  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.66  
 Intersection Signal Delay: 10.2  
 Intersection LOS: B  
 Intersection Capacity Utilization 61.9%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

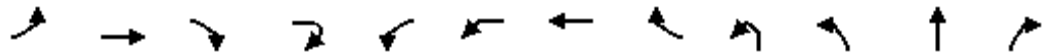
Splits and Phases: 4: Standish St & Brook Rd





Brook Road: Concept 2 and 3  
5: Central Ave & Reedsdale Ave & Brook Rd

PM Peak-Hour  
05/31/2021

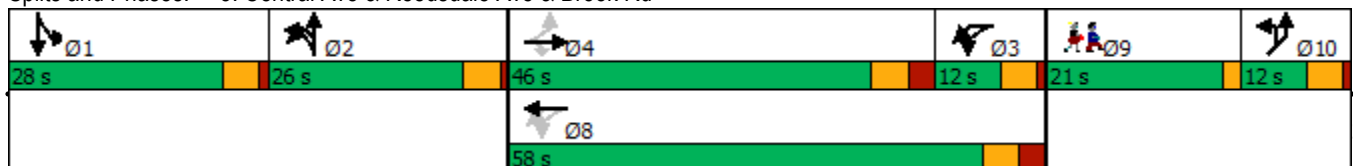


Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations		↕	↕			↕	↕				↕	↕
Traffic Volume (vph)	40	400	450	20	30	150	350	50	20	350	100	20
Future Volume (vph)	40	400	450	20	30	150	350	50	20	350	100	20
Satd. Flow (prot)	0	1853	1583	0	0	1770	3472	0	0	0	3391	0
Flt Permitted		0.860				0.153					0.964	
Satd. Flow (perm)	0	1602	1583	0	0	285	3472	0	0	0	3391	0
Satd. Flow (RTOR)			158				12				2	
Lane Group Flow (vph)	0	486	519	0	0	199	442	0	0	0	542	0
Turn Type	Perm	NA	Perm		pm+pt	pm+pt	NA		Split	Split	NA	
Protected Phases		4			3	3	8		2	2	2	
Permitted Phases	4		4		8	8						
Total Split (s)	46.0	46.0	46.0		12.0	12.0	58.0		26.0	26.0	26.0	
Total Lost Time (s)		7.0	7.0			5.0	7.0				5.0	
Act Effct Green (s)		39.0	39.0			53.0	51.0				21.0	
Actuated g/C Ratio		0.27	0.27			0.37	0.36				0.15	
v/c Ratio		1.12	0.95			1.12	0.36				1.57dl	
Control Delay		125.9	63.9			151.7	34.2				121.6	
Queue Delay		0.0	0.0			0.0	0.0				0.0	
Total Delay		125.9	63.9			151.7	34.2				121.6	
LOS		F	E			F	C				F	
Approach Delay		93.9					70.6				121.6	
Approach LOS		F					E				F	
Queue Length 50th (ft)		~523	360			~155	156				~300	
Queue Length 95th (ft)		#745	#593			#319	204				#423	
Internal Link Dist (ft)		394					311				325	
Turn Bay Length (ft)						150						
Base Capacity (vph)		435	545			178	1243				498	
Starvation Cap Reductn		0	0			0	0				0	
Spillback Cap Reductn		0	0			0	0				0	
Storage Cap Reductn		0	0			0	0				0	
Reduced v/c Ratio		1.12	0.95			1.12	0.36				1.09	

Intersection Summary

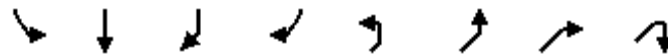
Cycle Length: 145  
 Actuated Cycle Length: 143.3  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.12  
 Intersection Signal Delay: 89.7  
 Intersection LOS: F  
 Intersection Capacity Utilization 107.1%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 5: Central Ave & Reedsdale Ave & Brook Rd



Brook Road: Concept 2 and 3  
 5: Central Ave & Reedsdale Ave & Brook Rd

PM Peak-Hour  
 05/31/2021



Lane Group	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2	Ø9
Lane Configurations									
Traffic Volume (vph)	50	250	100	20	20	90	100	10	
Future Volume (vph)	50	250	100	20	20	90	100	10	
Satd. Flow (prot)	0	3367	0	0	0	1694	0	0	
Flt Permitted		0.994				0.976			
Satd. Flow (perm)	0	3367	0	0	0	1694	0	0	
Satd. Flow (RTOR)		3				173			
Lane Group Flow (vph)	0	464	0	0	0	243	0	0	
Turn Type	Split	NA			Prot	Prot			
Protected Phases	1	1			10	10			9
Permitted Phases									
Total Split (s)	28.0	28.0			12.0	12.0			21.0
Total Lost Time (s)		5.0				5.0			
Act Effct Green (s)		22.3				7.0			
Actuated g/C Ratio		0.16				0.05			
v/c Ratio		0.88				0.99			
Control Delay		77.8				74.3			
Queue Delay		0.0				0.0			
Total Delay		77.8				74.3			
LOS		E				E			
Approach Delay		77.8				74.3			
Approach LOS		E				E			
Queue Length 50th (ft)		224				66			
Queue Length 95th (ft)		#313				#247			
Internal Link Dist (ft)		517				676			
Turn Bay Length (ft)									
Base Capacity (vph)		543				246			
Starvation Cap Reductn		0				0			
Spillback Cap Reductn		0				0			
Storage Cap Reductn		0				0			
Reduced v/c Ratio		0.85				0.99			
<b>Intersection Summary</b>									

## Part 5: Brook Road and Central Avenue: Roundabout Retrofit

Intersection									
Intersection Delay, s/veh	12.2								
Intersection LOS	B								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	818		603		796		287		
Demand Flow Rate, veh/h	834		615		811		292		
Vehicles Circulating, veh/h	483		912		687		1161		
Vehicles Exiting, veh/h	970		586		524		366		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	10.1		14.1		13.5		11.9		
Approach LOS	B		B		B		B		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	R	LT	TR	L	LTR	LT	TR	
Assumed Moves	LT	R	LT	TR	L	LTR	LT	TR	
RT Channelized									
Lane Util	0.541	0.459	0.470	0.530	0.530	0.470	0.469	0.531	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	451	383	289	326	430	381	137	155	
Cap Entry Lane, veh/h	866	942	583	654	718	792	464	529	
Entry HV Adj Factor	0.981	0.982	0.981	0.980	0.980	0.981	0.984	0.980	
Flow Entry, veh/h	442	376	283	320	422	374	135	152	
Cap Entry, veh/h	849	925	572	641	703	777	456	519	
V/C Ratio	0.521	0.407	0.495	0.498	0.599	0.481	0.295	0.293	
Control Delay, s/veh	11.4	8.6	14.8	13.6	15.5	11.3	12.6	11.3	
LOS	B	A	B	B	C	B	B	B	
95th %tile Queue, veh	3	2	3	3	4	3	1	1	



Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	NE
Entry Lanes	1
Conflicting Circle Lanes	2
Adj Approach Flow, veh/h	183
Demand Flow Rate, veh/h	186
Vehicles Circulating, veh/h	1025
Vehicles Exiting, veh/h	292
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	10.5
Approach LOS	B
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.535
Critical Headway, s	4.328
Entry Flow, veh/h	186
Cap Entry Lane, veh/h	594
Entry HV Adj Factor	0.983
Flow Entry, veh/h	183
Cap Entry, veh/h	584
V/C Ratio	0.313
Control Delay, s/veh	10.5
LOS	B
95th %tile Queue, veh	1

Intersection									
Intersection Delay, s/veh	17.7								
Intersection LOS	C								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	1005		641		542		464		
Demand Flow Rate, veh/h	1025		654		552		473		
Vehicles Circulating, veh/h	676		698		788		1037		
Vehicles Exiting, veh/h	834		642		834		315		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	17.5		10.9		28.3		13.6		
Approach LOS	C		B		D		B		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	R	LT	TR	LT	R	LT	TR	
Assumed Moves	LT	R	LT	TR	LT	R	LT	TR	
RT Channelized									
Lane Util	0.484	0.516	0.469	0.531	0.960	0.040	0.469	0.531	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	496	529	307	347	530	22	222	251	
Cap Entry Lane, veh/h	725	799	710	785	654	727	520	588	
Entry HV Adj Factor	0.980	0.981	0.982	0.980	0.980	1.000	0.983	0.981	
Flow Entry, veh/h	486	519	302	340	519	22	218	246	
Cap Entry, veh/h	710	784	698	769	641	727	511	577	
V/C Ratio	0.684	0.662	0.432	0.442	0.811	0.030	0.427	0.427	
Control Delay, s/veh	18.7	16.4	11.2	10.6	29.2	5.3	14.3	12.9	
LOS	C	C	B	B	D	A	B	B	
95th %tile Queue, veh	5	5	2	2	8	0	2	2	

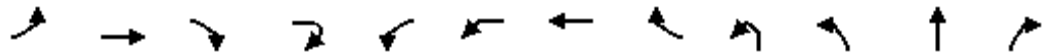
Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	NE
Entry Lanes	1
Conflicting Circle Lanes	2
Adj Approach Flow, veh/h	243
Demand Flow Rate, veh/h	247
Vehicles Circulating, veh/h	1375
Vehicles Exiting, veh/h	326
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	21.2
Approach LOS	C
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.535
Critical Headway, s	4.328
Entry Flow, veh/h	247
Cap Entry Lane, veh/h	441
Entry HV Adj Factor	0.982
Flow Entry, veh/h	243
Cap Entry, veh/h	433
V/C Ratio	0.560
Control Delay, s/veh	21.2
LOS	C
95th %tile Queue, veh	3

## Part 6: Reedsdale Road: Concept 1 and 2



Reedsdale Road: Concepts 1 and 2  
5: Central Ave & Reedsdale Ave & Brook Rd

AM Peak-Hour  
05/31/2021

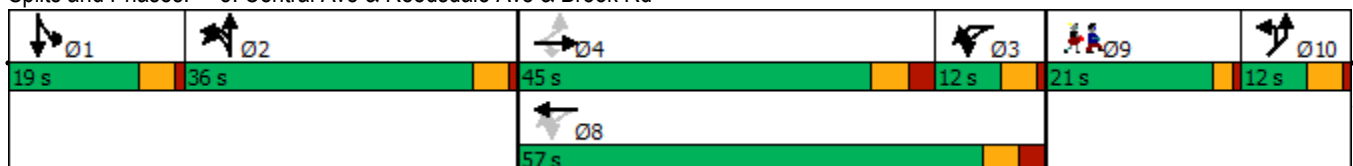


Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations		↕	↕			↕	↕				↕	↕
Traffic Volume (vph)	50	350	290	50	20	150	300	75	10	540	150	20
Future Volume (vph)	50	350	290	50	20	150	300	75	10	540	150	20
Satd. Flow (prot)	0	1852	1583	0	0	1770	3433	0	0	0	3395	0
Flt Permitted		0.794				*0.900					0.963	
Satd. Flow (perm)	0	1479	1583	0	0	1676	3433	0	0	0	3395	0
Satd. Flow (RTOR)			166				23				2	
Lane Group Flow (vph)	0	442	376	0	0	188	415	0	0	0	796	0
Turn Type	Perm	NA	Perm		pm+pt	pm+pt	NA		Split	Split	NA	
Protected Phases		4			3	3	8		2	2	2	
Permitted Phases	4		4		8	8						
Total Split (s)	45.0	45.0	45.0		12.0	12.0	57.0		36.0	36.0	36.0	
Total Lost Time (s)		7.0	7.0			5.0	7.0				5.0	
Act Effct Green (s)		38.0	38.0			52.0	50.0				31.0	
Actuated g/C Ratio		0.26	0.26			0.36	0.35				0.21	
v/c Ratio		1.14	0.70			0.31	0.34				1.60dl	
Control Delay		135.6	34.0			35.2	34.0				112.4	
Queue Delay		0.0	0.0			0.0	0.0				0.0	
Total Delay		135.6	34.0			35.2	34.0				112.4	
LOS		F	C			D	C				F	
Approach Delay		88.9					34.4				112.4	
Approach LOS		F					C				F	
Queue Length 50th (ft)		~481	182			126	143				~440	
Queue Length 95th (ft)		#704	309			192	191				#580	
Internal Link Dist (ft)		370					368				338	
Turn Bay Length (ft)						150						
Base Capacity (vph)		389	538			608	1203				730	
Starvation Cap Reductn		0	0			0	0				0	
Spillback Cap Reductn		0	0			0	0				0	
Storage Cap Reductn		0	0			0	0				0	
Reduced v/c Ratio		1.14	0.70			0.31	0.34				1.09	

Intersection Summary

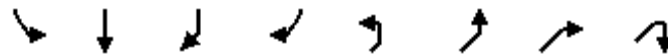
Cycle Length: 145  
 Actuated Cycle Length: 144.4  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.14  
 Intersection Signal Delay: 79.5  
 Intersection LOS: E  
 Intersection Capacity Utilization 107.2%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 5: Central Ave & Reedsdale Ave & Brook Rd



Reedsdale Road: Concepts 1 and 2  
 5: Central Ave & Reedsdale Ave & Brook Rd

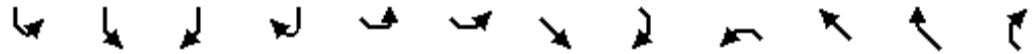
AM Peak-Hour  
 05/31/2021



Lane Group	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2	Ø9
Lane Configurations									
Traffic Volume (vph)	50	150	50	10	10	50	100	5	
Future Volume (vph)	50	150	50	10	10	50	100	5	
Satd. Flow (prot)	0	3388	0	0	0	1672	0	0	
Flt Permitted		0.991				0.982			
Satd. Flow (perm)	0	3388	0	0	0	1672	0	0	
Satd. Flow (RTOR)		2				181			
Lane Group Flow (vph)	0	287	0	0	0	183	0	0	
Turn Type	Split	NA			Prot	Prot			
Protected Phases	1	1			10	10			9
Permitted Phases									
Total Split (s)	19.0	19.0			12.0	12.0			21.0
Total Lost Time (s)		5.0				5.0			
Act Effct Green (s)		14.0				6.4			
Actuated g/C Ratio		0.10				0.04			
v/c Ratio		0.87				0.74			
Control Delay		89.6				27.5			
Queue Delay		0.0				0.0			
Total Delay		89.6				27.5			
LOS		F				C			
Approach Delay		89.6				27.5			
Approach LOS		F				C			
Queue Length 50th (ft)		141				2			
Queue Length 95th (ft)		#225				#98			
Internal Link Dist (ft)		698				609			
Turn Bay Length (ft)									
Base Capacity (vph)		330				253			
Starvation Cap Reductn		0				0			
Spillback Cap Reductn		0				0			
Storage Cap Reductn		0				0			
Reduced v/c Ratio		0.87				0.72			
Intersection Summary									

Reedsdale Road: Concepts 1 and 2  
6: Canton Ave & Reedsdale Ave & Center St

AM Peak-Hour  
05/31/2021

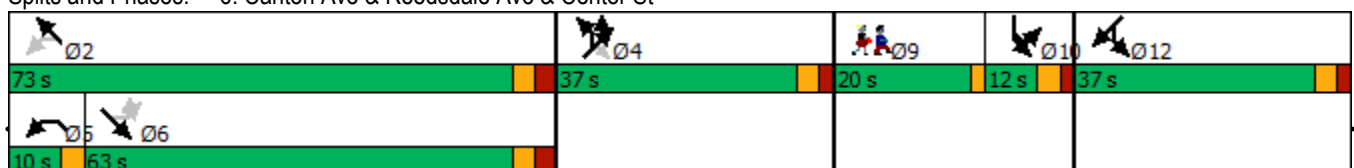


Lane Group	SBL2	SBL	SBR	SBR2	SEL2	SEL	SET	SER	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	5	50	75	5	5	30	370	50	150	670	50	100
Future Volume (vph)	5	50	75	5	5	30	370	50	150	670	50	100
Satd. Flow (prot)	0	1679	0	0	0	0	3469	0	0	3430	0	0
Flt Permitted		0.980					0.664			0.704		
Satd. Flow (perm)	0	1679	0	0	0	0	2312	0	0	2434	0	0
Satd. Flow (RTOR)		110					8			8		
Lane Group Flow (vph)	0	150	0	0	0	0	503	0	0	1073	0	0
Turn Type	Prot	Prot			Perm	Perm	NA		pm+pt	NA		
Protected Phases	10	10					6		5	2		
Permitted Phases					6	6			2			
Total Split (s)	12.0	12.0			63.0	63.0	63.0		10.0	73.0		
Total Lost Time (s)		5.0					6.0			6.0		
Act Effct Green (s)		7.0					67.0			67.0		
Actuated g/C Ratio		0.04					0.42			0.42		
v/c Ratio		0.84					0.51			1.04		
Control Delay		57.8					35.7			83.4		
Queue Delay		0.0					0.0			0.0		
Total Delay		57.8					35.7			83.4		
LOS		E					D			F		
Approach Delay		57.8					35.7			83.4		
Approach LOS		E					D			F		
Queue Length 50th (ft)		42					198			~630		
Queue Length 95th (ft)		#168					257			#771		
Internal Link Dist (ft)		638					186			282		
Turn Bay Length (ft)												
Base Capacity (vph)		179					978			1030		
Starvation Cap Reductn		0					0			0		
Spillback Cap Reductn		0					0			0		
Storage Cap Reductn		0					0			0		
Reduced v/c Ratio		0.84					0.51			1.04		

Intersection Summary

Cycle Length: 179  
 Actuated Cycle Length: 159  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.20  
 Intersection Signal Delay: 94.9  
 Intersection LOS: F  
 Intersection Capacity Utilization 118.0%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Canton Ave & Reedsdale Ave & Center St





Lane Group	NEL2	NEL	NET	NER	SWL	SWT	SWR	SWR2	Ø9
Lane Configurations									
Traffic Volume (vph)	25	75	300	150	70	300	20	5	
Future Volume (vph)	25	75	300	150	70	300	20	5	
Satd. Flow (prot)	0	0	1840	1583	0	1829	0	0	
Flt Permitted			0.988			0.991			
Satd. Flow (perm)	0	0	1840	1583	0	1829	0	0	
Satd. Flow (RTOR)				110					
Lane Group Flow (vph)	0	0	443	166	0	437	0	0	
Turn Type	Split	Split	NA	Perm	Split	NA			
Protected Phases	4	4	4		12	12			9
Permitted Phases				4					
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0			20.0
Total Lost Time (s)			5.0	5.0		5.0			
Act Effct Green (s)			32.0	32.0		32.0			
Actuated g/C Ratio			0.20	0.20		0.20			
v/c Ratio			1.20	0.41		1.19			
Control Delay			164.3	22.9		161.1			
Queue Delay			0.0	0.0		0.0			
Total Delay			164.3	22.9		161.1			
LOS			F	C		F			
Approach Delay			125.8			161.1			
Approach LOS			F			F			
Queue Length 50th (ft)			~555	49		~545			
Queue Length 95th (ft)			#779	123		#769			
Internal Link Dist (ft)			500			457			
Turn Bay Length (ft)				200					
Base Capacity (vph)			370	406		368			
Starvation Cap Reductn			0	0		0			
Spillback Cap Reductn			0	0		0			
Storage Cap Reductn			0	0		0			
Reduced v/c Ratio			1.20	0.41		1.19			
<b>Intersection Summary</b>									



Reedsdale Road: Concepts 1 and 2  
8: Randolph Ave & Reedsdale Ave

AM Peak-Hour  
05/31/2021

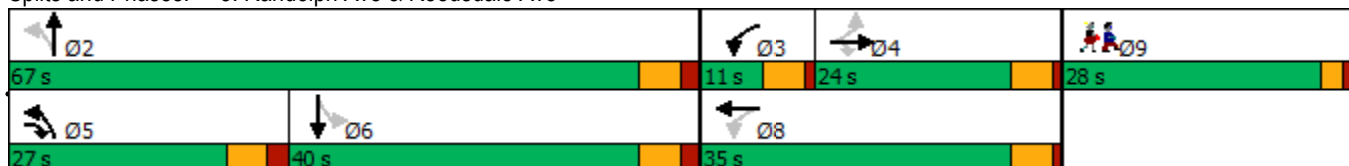


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕↔		↖	↕↔			↕↔	
Traffic Volume (vph)	15	300	315	160	270	25	790	520	10	20	250	20
Future Volume (vph)	15	300	315	160	270	25	790	520	10	20	250	20
Satd. Flow (prot)	0	1859	1583	0	3451	0	1681	1743	0	0	1840	0
Flt Permitted		0.962			0.572		0.375	0.622			0.915	
Satd. Flow (perm)	0	1792	1583	0	2008	0	664	1098	0	0	1689	0
Satd. Flow (RTOR)			348		4			1			3	
Lane Group Flow (vph)	0	349	348	0	503	0	672	787	0	0	320	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	24.0	24.0	27.0	11.0	35.0		27.0	67.0		40.0	40.0	
Total Lost Time (s)		5.0	6.0		5.0		6.0	6.0			6.0	
Act Effct Green (s)		28.5	53.7		28.5		61.5	61.5			34.3	
Actuated g/C Ratio		0.27	0.51		0.27		0.59	0.59			0.33	
v/c Ratio		0.72	0.35		1.21dl		1.13	1.02			0.58	
Control Delay		44.8	2.3		60.1		97.3	57.3			35.7	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		44.8	2.3		60.1		97.3	57.3			35.7	
LOS		D	A		E		F	E			D	
Approach Delay		23.6			60.1			75.7			35.7	
Approach LOS		C			E			E			D	
Queue Length 50th (ft)		199	0		160		~356	367			168	
Queue Length 95th (ft)		#406	34		#337		#977	#1061			331	
Internal Link Dist (ft)		689			555			881			816	
Turn Bay Length (ft)												
Base Capacity (vph)		488	981		583		595	775			555	
Starvation Cap Reductn		0	0		0		0	0			0	
Spillback Cap Reductn		0	0		0		0	0			0	
Storage Cap Reductn		0	0		0		0	0			0	
Reduced v/c Ratio		0.72	0.35		0.86		1.13	1.02			0.58	

Intersection Summary

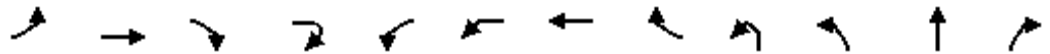
Cycle Length: 130  
 Actuated Cycle Length: 104.6  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.13  
 Intersection Signal Delay: 56.6  
 Intersection LOS: E  
 Intersection Capacity Utilization 103.2%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Randolph Ave & Reedsdale Ave



Reedsdale Road: Concepts 1 and 2  
5: Central Ave & Reedsdale Ave & Brook Rd

PM Peak-Hour  
05/31/2021

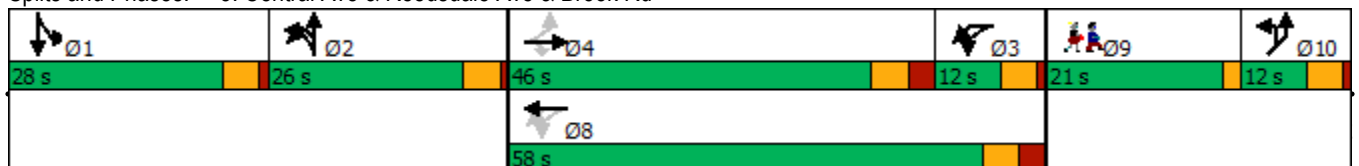


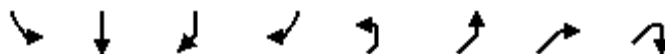
Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations		↕	↕			↕	↕				↕	↕
Traffic Volume (vph)	40	400	450	20	30	150	350	50	20	350	100	20
Future Volume (vph)	40	400	450	20	30	150	350	50	20	350	100	20
Satd. Flow (prot)	0	1853	1583	0	0	1770	3472	0	0	0	3391	0
Flt Permitted		0.860				0.153					0.964	
Satd. Flow (perm)	0	1602	1583	0	0	285	3472	0	0	0	3391	0
Satd. Flow (RTOR)			158				12				2	
Lane Group Flow (vph)	0	486	519	0	0	199	442	0	0	0	542	0
Turn Type	Perm	NA	Perm		pm+pt	pm+pt	NA		Split	Split	NA	
Protected Phases		4			3	3	8		2	2	2	
Permitted Phases	4		4		8	8						
Total Split (s)	46.0	46.0	46.0		12.0	12.0	58.0		26.0	26.0	26.0	
Total Lost Time (s)		7.0	7.0			5.0	7.0				5.0	
Act Effct Green (s)		39.0	39.0			53.0	51.0				21.0	
Actuated g/C Ratio		0.27	0.27			0.37	0.36				0.15	
v/c Ratio		1.12	0.95			1.12	0.36				1.57dl	
Control Delay		125.9	63.9			151.7	34.2				121.6	
Queue Delay		0.0	0.0			0.0	0.0				0.0	
Total Delay		125.9	63.9			151.7	34.2				121.6	
LOS		F	E			F	C				F	
Approach Delay		93.9					70.6				121.6	
Approach LOS		F					E				F	
Queue Length 50th (ft)		~523	360			~155	156				~300	
Queue Length 95th (ft)		#745	#593			#319	204				#423	
Internal Link Dist (ft)		394					311				325	
Turn Bay Length (ft)						150						
Base Capacity (vph)		435	545			178	1243				498	
Starvation Cap Reductn		0	0			0	0				0	
Spillback Cap Reductn		0	0			0	0				0	
Storage Cap Reductn		0	0			0	0				0	
Reduced v/c Ratio		1.12	0.95			1.12	0.36				1.09	

Intersection Summary

Cycle Length: 145  
 Actuated Cycle Length: 143.3  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.12  
 Intersection Signal Delay: 89.7  
 Intersection LOS: F  
 Intersection Capacity Utilization 107.1%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 5: Central Ave & Reedsdale Ave & Brook Rd





Lane Group	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2	Ø9
Lane Configurations									
Traffic Volume (vph)	50	250	100	20	20	90	100	10	
Future Volume (vph)	50	250	100	20	20	90	100	10	
Satd. Flow (prot)	0	3367	0	0	0	1694	0	0	
Flt Permitted		0.994				0.976			
Satd. Flow (perm)	0	3367	0	0	0	1694	0	0	
Satd. Flow (RTOR)		3				173			
Lane Group Flow (vph)	0	464	0	0	0	243	0	0	
Turn Type	Split	NA			Prot	Prot			
Protected Phases	1	1			10	10			9
Permitted Phases									
Total Split (s)	28.0	28.0			12.0	12.0			21.0
Total Lost Time (s)		5.0				5.0			
Act Effct Green (s)		22.3				7.0			
Actuated g/C Ratio		0.16				0.05			
v/c Ratio		0.88				0.99			
Control Delay		77.8				74.3			
Queue Delay		0.0				0.0			
Total Delay		77.8				74.3			
LOS		E				E			
Approach Delay		77.8				74.3			
Approach LOS		E				E			
Queue Length 50th (ft)		224				66			
Queue Length 95th (ft)		#313				#247			
Internal Link Dist (ft)		517				676			
Turn Bay Length (ft)									
Base Capacity (vph)		543				246			
Starvation Cap Reductn		0				0			
Spillback Cap Reductn		0				0			
Storage Cap Reductn		0				0			
Reduced v/c Ratio		0.85				0.99			
<b>Intersection Summary</b>									

Reedsdale Road: Concepts 1 and 2  
6: Canton Ave & Reedsdale Ave & Center St

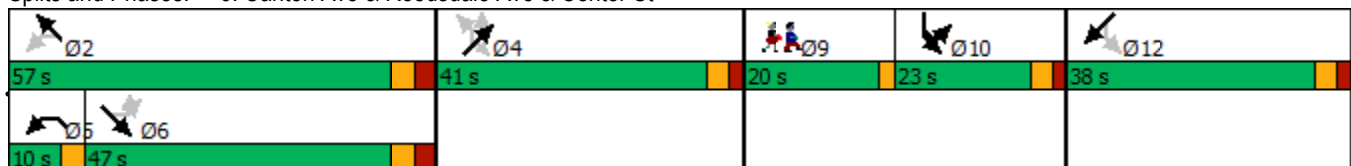
PM Peak-Hour  
05/31/2021

Lane Group	SBL2	SBL	SBR	SBR2	SEL2	SEL	SET	SER	NWL	NWT	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	5	120	75	15	5	20	670	75	150	420	30	50
Future Volume (vph)	5	120	75	15	5	20	670	75	150	420	30	50
Satd. Flow (prot)	0	1709	0	0	0	0	3479	0	0	3437	0	0
Flt Permitted		0.972					0.759			*0.800		
Satd. Flow (perm)	0	1709	0	0	0	0	2646	0	0	2780	0	0
Satd. Flow (RTOR)							6					
Lane Group Flow (vph)	0	239	0	0	0	0	852	0	0	718	0	0
Turn Type	Prot	Prot			Perm	Perm	NA		pm+pt	NA		
Protected Phases	10	10					6		5	2		
Permitted Phases					6	6			2			
Total Split (s)	23.0	23.0			47.0	47.0	47.0		10.0	57.0		
Total Lost Time (s)		5.0					6.0			6.0		
Act Effct Green (s)		18.1					46.7			46.7		
Actuated g/C Ratio		0.11					0.29			0.29		
v/c Ratio		1.26					1.12			0.90		
Control Delay		207.1					121.1			71.6		
Queue Delay		0.0					0.0			0.0		
Total Delay		207.1					121.1			71.6		
LOS		F					F			E		
Approach Delay		207.1					121.1			71.6		
Approach LOS		F					F			E		
Queue Length 50th (ft)		~295					~492			361		
Queue Length 95th (ft)		#564					#743			#547		
Internal Link Dist (ft)		638					268			319		
Turn Bay Length (ft)												
Base Capacity (vph)		190					763			877		
Starvation Cap Reductn		0					0			0		
Spillback Cap Reductn		0					0			0		
Storage Cap Reductn		0					0			0		
Reduced v/c Ratio		1.26					1.12			0.82		

Intersection Summary

Cycle Length: 179  
 Actuated Cycle Length: 162.7  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.35  
 Intersection Signal Delay: 137.1  
 Intersection LOS: F  
 Intersection Capacity Utilization 122.9%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Canton Ave & Reedsdale Ave & Center St







Lane Group	NEL2	NEL	NET	NER	SWL	SWT	SWR	SWR2	Ø9
Lane Configurations									
Traffic Volume (vph)	40	90	300	150	50	300	20	5	
Future Volume (vph)	40	90	300	150	50	300	20	5	
Satd. Flow (prot)	0	0	1835	1583	0	1833	0	0	
Flt Permitted			*0.850			0.868			
Satd. Flow (perm)	0	0	1583	1583	0	1602	0	0	
Satd. Flow (RTOR)				110					
Lane Group Flow (vph)	0	0	475	166	0	415	0	0	
Turn Type	Perm	Perm	NA	Perm	Perm	NA			
Protected Phases			4			12			9
Permitted Phases	4	4		4	12				
Total Split (s)	41.0	41.0	41.0	41.0	38.0	38.0			20.0
Total Lost Time (s)			5.0	5.0		5.0			
Act Effct Green (s)			36.3	36.3		33.2			
Actuated g/C Ratio			0.22	0.22		0.20			
v/c Ratio			1.35	0.38		1.27			
Control Delay			220.5	23.3		193.0			
Queue Delay			0.0	0.0		0.0			
Total Delay			220.5	23.3		193.0			
LOS			F	C		F			
Approach Delay			169.4			193.0			
Approach LOS			F			F			
Queue Length 50th (ft)			~613	46		~515			
Queue Length 95th (ft)			#1004	134		#879			
Internal Link Dist (ft)			500			457			
Turn Bay Length (ft)				200					
Base Capacity (vph)			352	438		327			
Starvation Cap Reductn			0	0		0			
Spillback Cap Reductn			0	0		0			
Storage Cap Reductn			0	0		0			
Reduced v/c Ratio			1.35	0.38		1.27			
<b>Intersection Summary</b>									

Reedsdale Road: Concepts 1 and 2  
8: Randolph Ave & Reedsdale Ave

PM Peak-Hour  
05/31/2021

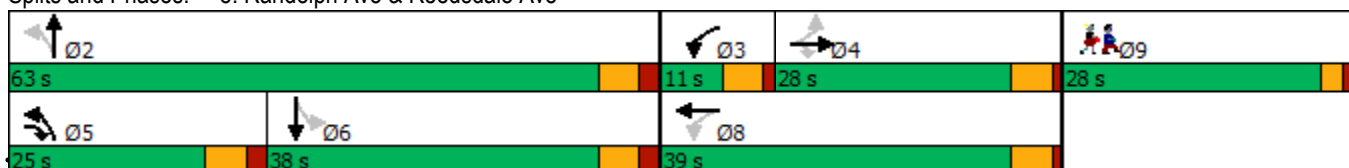


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖↗		↖	↗			↖↗	
Traffic Volume (vph)	20	300	750	350	200	20	400	350	20	15	400	20
Future Volume (vph)	20	300	750	350	200	20	400	350	20	15	400	20
Satd. Flow (prot)	0	1857	1583	0	3416	0	1681	1743	0	0	1848	0
Flt Permitted		0.940			0.557		0.219	0.697			0.972	
Satd. Flow (perm)	0	1751	1583	0	1961	0	388	1225	0	0	1800	0
Satd. Flow (RTOR)			489		3			2			2	
Lane Group Flow (vph)	0	354	829	0	630	0	367	484	0	0	481	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	28.0	28.0	25.0	11.0	39.0		25.0	63.0		38.0	38.0	
Total Lost Time (s)		5.0	6.0		5.0		6.0	6.0			6.0	
Act Effct Green (s)		34.1	57.2		34.1		57.3	57.3			32.2	
Actuated g/C Ratio		0.32	0.54		0.32		0.54	0.54			0.30	
v/c Ratio		0.63	0.77		1.91dl		0.83	0.64			0.88	
Control Delay		37.9	12.4		72.2		34.9	22.0			54.6	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		37.9	12.4		72.2		34.9	22.0			54.6	
LOS		D	B		E		C	C			D	
Approach Delay		20.0			72.2			27.5			54.6	
Approach LOS		C			E			C			D	
Queue Length 50th (ft)		191	146		209		133	190			290	
Queue Length 95th (ft)		369	#380		#433		#405	412			#619	
Internal Link Dist (ft)		716			555			820			816	
Turn Bay Length (ft)												
Base Capacity (vph)		562	1078		633		442	755			547	
Starvation Cap Reductn		0	0		0		0	0			0	
Spillback Cap Reductn		0	0		0		0	0			0	
Storage Cap Reductn		0	0		0		0	0			0	
Reduced v/c Ratio		0.63	0.77		1.00		0.83	0.64			0.88	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 106.1  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.00  
 Intersection Signal Delay: 37.8  
 Intersection LOS: D  
 Intersection Capacity Utilization 107.5%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

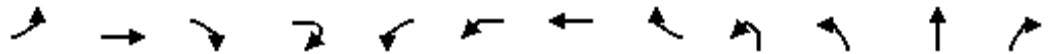
Splits and Phases: 8: Randolph Ave & Reedsdale Ave



# Part 7: Reedsdale Road: Concept 3

Reedsdale Road: Concept 3  
5: Central Ave & Reedsdale Ave & Brook Rd

AM Peak-Hour  
05/31/2021

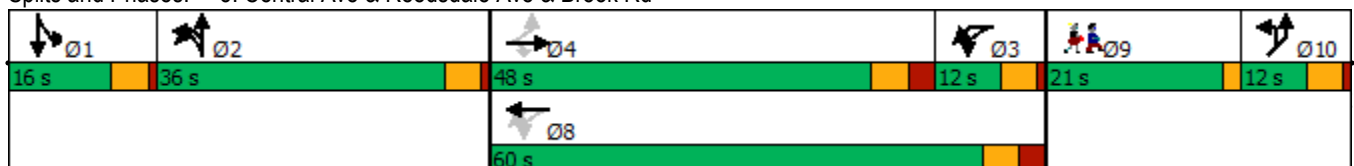


Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations		↕	↕			↕	↕				↕	↕
Traffic Volume (vph)	50	350	290	50	20	150	300	75	10	540	150	20
Future Volume (vph)	50	350	290	50	20	150	300	75	10	540	150	20
Satd. Flow (prot)	0	1790	1531	0	0	1711	3319	0	0	0	3281	0
Flt Permitted		*0.800				*0.800					0.963	
Satd. Flow (perm)	0	1441	1531	0	0	1441	3319	0	0	0	3281	0
Satd. Flow (RTOR)											2	
Lane Group Flow (vph)	0	442	376	0	0	188	415	0	0	0	796	0
Turn Type	Perm	NA	Perm		pm+pt	pm+pt	NA		Split	Split	NA	
Protected Phases		4			3	3	8		2	2	2	
Permitted Phases	4		4		8	8						
Total Split (s)	48.0	48.0	48.0		12.0	12.0	60.0		36.0	36.0	36.0	
Total Lost Time (s)		7.0	7.0			5.0	7.0				5.0	
Act Effct Green (s)		41.0	41.0			55.0	53.0				31.0	
Actuated g/C Ratio		0.28	0.28			0.38	0.37				0.22	
v/c Ratio		1.08	0.86			0.33	0.34				1.65dl	
Control Delay		114.9	69.2			33.8	33.9				124.2	
Queue Delay		0.0	0.0			0.0	0.0				0.0	
Total Delay		114.9	69.2			33.8	33.9				124.2	
LOS		F	E			C	C				F	
Approach Delay		93.9					33.8				124.2	
Approach LOS		F					C				F	
Queue Length 50th (ft)		~461	336			122	147				~453	
Queue Length 95th (ft)		#679	#514			186	193				#586	
Internal Link Dist (ft)		481					240				294	
Turn Bay Length (ft)						150						
Base Capacity (vph)		410	435			563	1221				707	
Starvation Cap Reductn		0	0			0	0				0	
Spillback Cap Reductn		0	0			0	0				0	
Storage Cap Reductn		0	0			0	0				0	
Reduced v/c Ratio		1.08	0.86			0.33	0.34				1.13	

Intersection Summary

Cycle Length: 145  
 Actuated Cycle Length: 144  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.15  
 Intersection Signal Delay: 97.7  
 Intersection LOS: F  
 Intersection Capacity Utilization 107.2%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 5: Central Ave & Reedsdale Ave & Brook Rd





Reedsdale Road: Concept 3  
 5: Central Ave & Reedsdale Ave & Brook Rd

AM Peak-Hour  
 05/31/2021



Lane Group	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2	Ø9
Lane Configurations		↕↕				↗			
Traffic Volume (vph)	50	150	50	10	10	50	100	5	
Future Volume (vph)	50	150	50	10	10	50	100	5	
Satd. Flow (prot)	0	3275	0	0	0	1616	0	0	
Flt Permitted		0.991				0.982			
Satd. Flow (perm)	0	3275	0	0	0	1616	0	0	
Satd. Flow (RTOR)						*100			
Lane Group Flow (vph)	0	287	0	0	0	183	0	0	
Turn Type	Split	NA			Prot	Prot			
Protected Phases	1	1			10	10			9
Permitted Phases									
Total Split (s)	16.0	16.0			12.0	12.0			21.0
Total Lost Time (s)		5.0				5.0			
Act Effct Green (s)		11.0				7.0			
Actuated g/C Ratio		0.08				0.05			
v/c Ratio		1.15				1.06			
Control Delay		159.5				112.8			
Queue Delay		0.0				0.0			
Total Delay		159.5				112.8			
LOS		F				F			
Approach Delay		159.5				112.8			
Approach LOS		F				F			
Queue Length 50th (ft)		~165				~92			
Queue Length 95th (ft)		#264				#254			
Internal Link Dist (ft)		330				737			
Turn Bay Length (ft)									
Base Capacity (vph)		250				173			
Starvation Cap Reductn		0				0			
Spillback Cap Reductn		0				0			
Storage Cap Reductn		0				0			
Reduced v/c Ratio		1.15				1.06			
Intersection Summary									





Lane Group	NEL	NET	NER	SWL	SWT	SWR	SWR2	Ø9
Lane Configurations								
Traffic Volume (vph)	75	300	150	70	300	20	5	
Future Volume (vph)	75	300	150	70	300	20	5	
Satd. Flow (prot)	0	1779	1711	0	1768	0	0	
Flt Permitted		*0.840			0.991			
Satd. Flow (perm)	0	1513	1711	0	1768	0	0	
Satd. Flow (RTOR)			110					
Lane Group Flow (vph)	0	443	166	0	437	0	0	
Turn Type	Split	NA	Perm	Split	NA			
Protected Phases	4	4		12	12			9
Permitted Phases			4					
Total Split (s)	41.0	41.0	41.0	40.0	40.0			20.0
Total Lost Time (s)		5.0	5.0		5.0			
Act Effct Green (s)		36.1	36.1		35.1			
Actuated g/C Ratio		0.22	0.22		0.21			
v/c Ratio		1.15	0.36		1.18			
Control Delay		150.1	23.1		158.7			
Queue Delay		0.0	0.0		0.0			
Total Delay		150.1	23.1		158.7			
LOS		F	C		F			
Approach Delay		115.5			158.7			
Approach LOS		F			F			
Queue Length 50th (ft)		~520	47		~522			
Queue Length 95th (ft)		#873	133		#873			
Internal Link Dist (ft)		357			225			
Turn Bay Length (ft)			200					
Base Capacity (vph)		384	456		371			
Starvation Cap Reductn		0	0		0			
Spillback Cap Reductn		0	0		0			
Storage Cap Reductn		0	0		0			
Reduced v/c Ratio		1.15	0.36		1.18			
<b>Intersection Summary</b>								

Reedsdale Road: Concept 3  
8: Randolph Ave & Reedsdale Ave

AM Peak-Hour  
05/31/2021

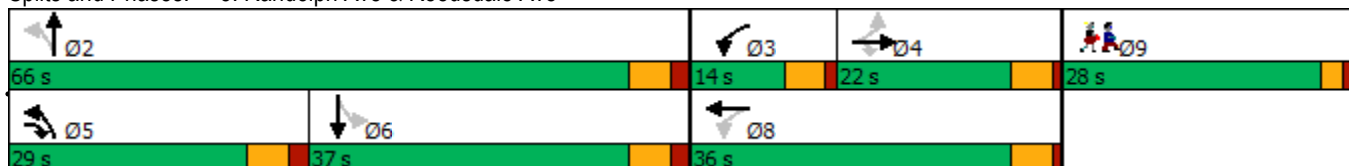


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕			↕	
Traffic Volume (vph)	15	300	315	160	270	25	790	520	10	20	250	20
Future Volume (vph)	15	300	315	160	270	25	790	520	10	20	250	20
Satd. Flow (prot)	0	1797	1531	0	3336	0	1625	1685	0	0	1779	0
Flt Permitted		0.962			0.575		0.351	0.598			0.913	
Satd. Flow (perm)	0	1732	1531	0	1951	0	600	1021	0	0	1629	0
Satd. Flow (RTOR)			348		4			1			3	
Lane Group Flow (vph)	0	349	348	0	503	0	672	787	0	0	320	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	22.0	22.0	29.0	14.0	36.0		29.0	66.0		37.0	37.0	
Total Lost Time (s)		5.0	6.0		5.0		6.0	6.0			6.0	
Act Effct Green (s)		28.6	55.8		28.6		60.5	60.5			31.3	
Actuated g/C Ratio		0.28	0.54		0.28		0.58	0.58			0.30	
v/c Ratio		0.73	0.35		1.21dl		1.16	1.06			0.65	
Control Delay		45.3	2.2		62.6		109.7	70.8			40.4	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		45.3	2.2		62.6		109.7	70.8			40.4	
LOS		D	A		E		F	E			D	
Approach Delay		23.8			62.6			88.7			40.4	
Approach LOS		C			E			F			D	
Queue Length 50th (ft)		197	0		160		~385	~438			178	
Queue Length 95th (ft)		#406	32		#336		#841	#1090			#370	
Internal Link Dist (ft)		722			555			1094			767	
Turn Bay Length (ft)												
Base Capacity (vph)		476	984		590		579	744			493	
Starvation Cap Reductn		0	0		0		0	0			0	
Spillback Cap Reductn		0	0		0		0	0			0	
Storage Cap Reductn		0	0		0		0	0			0	
Reduced v/c Ratio		0.73	0.35		0.85		1.16	1.06			0.65	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 103.7  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.16  
 Intersection Signal Delay: 63.9  
 Intersection LOS: E  
 Intersection Capacity Utilization 103.2%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

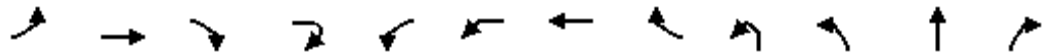
Splits and Phases: 8: Randolph Ave & Reedsdale Ave





Reedsdale Road: Concept 3  
5: Central Ave & Reedsdale Ave & Brook Rd

PM Peak-Hour  
05/31/2021

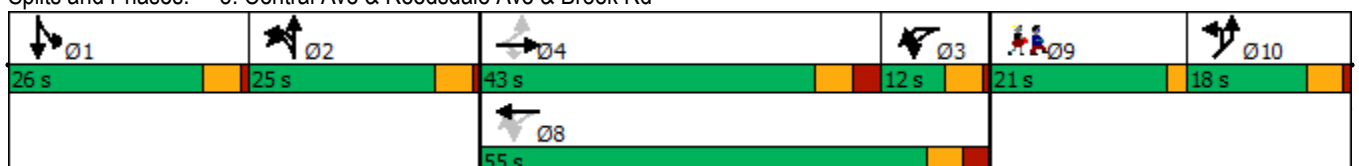


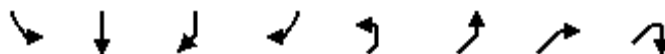
Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations		↖	↗			↖	↗				↖	↗
Traffic Volume (vph)	40	400	450	20	30	150	350	50	20	350	100	20
Future Volume (vph)	40	400	450	20	30	150	350	50	20	350	100	20
Satd. Flow (prot)	0	1792	1531	0	0	1711	3356	0	0	0	3278	0
Flt Permitted		*0.800				*0.800					0.964	
Satd. Flow (perm)	0	1441	1531	0	0	1441	3356	0	0	0	3278	0
Satd. Flow (RTOR)			158									
Lane Group Flow (vph)	0	486	519	0	0	199	442	0	0	0	542	0
Turn Type	Perm	NA	Perm		pm+pt	pm+pt	NA		Split	Split	NA	
Protected Phases		4			3	3	8		2	2	2	
Permitted Phases	4		4		8	8						
Total Split (s)	43.0	43.0	43.0		12.0	12.0	55.0		25.0	25.0	25.0	
Total Lost Time (s)		7.0	7.0			5.0	7.0				5.0	
Act Effct Green (s)		36.0	36.0			50.0	48.0				20.0	
Actuated g/C Ratio		0.25	0.25			0.35	0.33				0.14	
v/c Ratio		1.35	1.04			0.39	0.40				1.73dl	
Control Delay		216.0	85.9			38.4	38.2				157.6	
Queue Delay		0.0	0.0			0.0	0.0				0.0	
Total Delay		216.0	85.9			38.4	38.2				157.6	
LOS		F	F			D	D				F	
Approach Delay		148.8					38.2				157.6	
Approach LOS		F					D				F	
Queue Length 50th (ft)		~595	~404			138	167				~322	
Queue Length 95th (ft)		#817	#633			208	218				#442	
Internal Link Dist (ft)		458					227				291	
Turn Bay Length (ft)						150						
Base Capacity (vph)		360	501			513	1118				455	
Starvation Cap Reductn		0	0			0	0				0	
Spillback Cap Reductn		0	0			0	0				0	
Storage Cap Reductn		0	0			0	0				0	
Reduced v/c Ratio		1.35	1.04			0.39	0.40				1.19	

Intersection Summary

Cycle Length: 145  
 Actuated Cycle Length: 144  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.35  
 Intersection Signal Delay: 124.2  
 Intersection LOS: F  
 Intersection Capacity Utilization 107.1%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 5: Central Ave & Reedsdale Ave & Brook Rd





Lane Group	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2	Ø9
Lane Configurations		↕↕				↗			
Traffic Volume (vph)	50	250	100	20	20	90	100	10	
Future Volume (vph)	50	250	100	20	20	90	100	10	
Satd. Flow (prot)	0	3274	0	0	0	1757	0	0	
Flt Permitted						0.976			
Satd. Flow (perm)	0	3274	0	0	0	1757	0	0	
Satd. Flow (RTOR)						*25			
Lane Group Flow (vph)	0	464	0	0	0	243	0	0	
Turn Type	Split	NA			Prot	Prot			
Protected Phases	1	1			10	10			9
Permitted Phases									
Total Split (s)	26.0	26.0			18.0	18.0			21.0
Total Lost Time (s)		5.0				5.0			
Act Effct Green (s)		21.0				13.0			
Actuated g/C Ratio		0.15				0.09			
v/c Ratio		0.97				1.34			
Control Delay		95.6				228.8			
Queue Delay		0.0				0.0			
Total Delay		95.6				228.8			
LOS		F				F			
Approach Delay		95.6				228.8			
Approach LOS		F				F			
Queue Length 50th (ft)		231				~275			
Queue Length 95th (ft)		#346				#455			
Internal Link Dist (ft)		619				393			
Turn Bay Length (ft)									
Base Capacity (vph)		477				181			
Starvation Cap Reductn		0				0			
Spillback Cap Reductn		0				0			
Storage Cap Reductn		0				0			
Reduced v/c Ratio		0.97				1.34			
Intersection Summary									





Lane Group	NEL2	NEL	NET	NER	SWL	SWT	SWR	SWR2	Ø9
Lane Configurations									
Traffic Volume (vph)	40	50	300	150	50	300	20	5	
Future Volume (vph)	40	50	300	150	50	300	20	5	
Satd. Flow (prot)	0	0	1781	1531	0	1772	0	0	
Flt Permitted			*0.800			0.993			
Satd. Flow (perm)	0	0	1441	1531	0	1772	0	0	
Satd. Flow (RTOR)				*1					
Lane Group Flow (vph)	0	0	431	166	0	415	0	0	
Turn Type	Split	Split	NA	Perm	Split	NA			
Protected Phases	4	4	4		12	12			9
Permitted Phases				4					
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0			20.0
Total Lost Time (s)			5.0	5.0		5.0			
Act Effct Green (s)			32.2	32.2		32.2			
Actuated g/C Ratio			0.20	0.20		0.20			
v/c Ratio			1.21	0.54		1.18			
Control Delay			172.0	67.9		158.9			
Queue Delay			0.0	0.0		0.0			
Total Delay			172.0	67.9		158.9			
LOS			F	E		F			
Approach Delay			143.0			158.9			
Approach LOS			F			F			
Queue Length 50th (ft)			~505	147		~474			
Queue Length 95th (ft)			#892	271		#852			
Internal Link Dist (ft)			307			271			
Turn Bay Length (ft)				200					
Base Capacity (vph)			355	305		353			
Starvation Cap Reductn			0	0		0			
Spillback Cap Reductn			0	0		0			
Storage Cap Reductn			0	0		0			
Reduced v/c Ratio			1.21	0.54		1.18			
<b>Intersection Summary</b>									



Reedsdale Road: Concept 3  
8: Randolph Ave & Reedsdale Ave

PM Peak-Hour  
05/31/2021

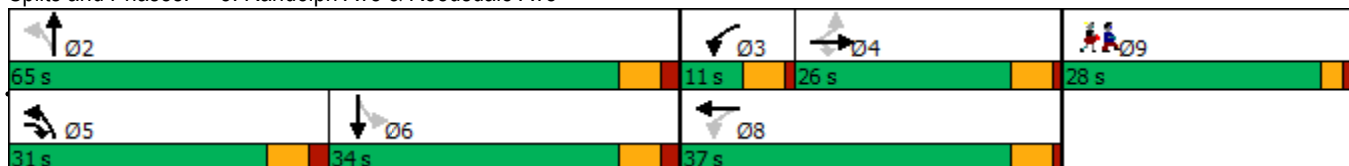


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗			↕	
Traffic Volume (vph)	20	300	750	350	200	20	400	350	20	15	400	20
Future Volume (vph)	20	300	750	350	200	20	400	350	20	15	400	20
Satd. Flow (prot)	0	1795	1531	0	3302	0	1625	1685	0	0	1786	0
Flt Permitted		0.920			0.550		0.167	0.665			0.971	
Satd. Flow (perm)	0	1657	1531	0	1872	0	286	1130	0	0	1738	0
Satd. Flow (RTOR)			500		3			2			2	
Lane Group Flow (vph)	0	354	829	0	630	0	367	484	0	0	481	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	26.0	26.0	31.0	11.0	37.0		31.0	65.0		34.0	34.0	
Total Lost Time (s)		5.0	6.0		5.0		6.0	6.0			6.0	
Act Effct Green (s)		32.2	61.3		32.2		59.3	59.3			28.2	
Actuated g/C Ratio		0.30	0.58		0.30		0.56	0.56			0.27	
v/c Ratio		0.71	0.76		2.24dl		0.77	0.63			1.04	
Control Delay		43.0	11.0		106.3		33.1	20.6			92.2	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		43.0	11.0		106.3		33.1	20.6			92.2	
LOS		D	B		F		C	C			F	
Approach Delay		20.5			106.3			26.0			92.2	
Approach LOS		C			F			C			F	
Queue Length 50th (ft)		200	125		~240		154	183			~315	
Queue Length 95th (ft)		#419	#273		#458		#415	406			#681	
Internal Link Dist (ft)		707			556			1090			816	
Turn Bay Length (ft)												
Base Capacity (vph)		501	1095		569		476	763			462	
Starvation Cap Reductn		0	0		0		0	0			0	
Spillback Cap Reductn		0	0		0		0	0			0	
Storage Cap Reductn		0	0		0		0	0			0	
Reduced v/c Ratio		0.71	0.76		1.11		0.77	0.63			1.04	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 106.2  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.11  
 Intersection Signal Delay: 50.1  
 Intersection LOS: D  
 Intersection Capacity Utilization 107.5%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Randolph Ave & Reedsdale Ave



## **Part 8: Reedsdale Road and Randolph Avenue: Roundabout Retrofit**

Intersection									
Intersection Delay, s/veh	19.6								
Intersection LOS	C								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	697		503		1459		320		
Demand Flow Rate, veh/h	711		514		1487		326		
Vehicles Circulating, veh/h	485		1493		378		1375		
Vehicles Exiting, veh/h	1216		372		818		632		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	8.7		38.4		19.0		16.6		
Approach LOS	A		E		C		C		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	R	L	LTR	L	LTR	LT	TR	
Assumed Moves	LT	R	L	TR	L	LTR	LT	TR	
RT Channelized									
Lane Util	0.501	0.499	0.352	0.648	0.530	0.470	0.469	0.531	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	356	355	181	333	788	699	153	173	
Cap Entry Lane, veh/h	864	940	342	399	953	1030	381	441	
Entry HV Adj Factor	0.981	0.980	0.978	0.979	0.981	0.981	0.984	0.982	
Flow Entry, veh/h	349	348	177	326	773	685	151	170	
Cap Entry, veh/h	848	922	334	391	935	1010	375	433	
V/C Ratio	0.412	0.378	0.529	0.834	0.827	0.679	0.402	0.392	
Control Delay, s/veh	9.2	8.1	24.9	45.7	23.3	14.1	17.9	15.5	
LOS	A	A	C	E	C	B	C	C	
95th %tile Queue, veh	2	2	3	8	10	6	2	2	

Intersection									
Intersection Delay, s/veh	25.0								
Intersection LOS	D								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	1183		630		851		481		
Demand Flow Rate, veh/h	1207		642		868		490		
Vehicles Circulating, veh/h	863		868		378		1071		
Vehicles Exiting, veh/h	698		378		1692		439		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	46.6		14.2		8.9		14.7		
Approach LOS	E		B		A		B		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LTR	R	L	LTR	L	LTR	LT	TR	
Assumed Moves	LTR	R	L	LTR	L	LTR	LT	TR	
RT Channelized									
Lane Util	0.470	0.530	0.530	0.470	0.530	0.470	0.469	0.531	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	567	640	340	302	460	408	230	260	
Cap Entry Lane, veh/h	610	682	607	679	953	1030	504	571	
Entry HV Adj Factor	0.981	0.980	0.981	0.980	0.981	0.981	0.983	0.981	
Flow Entry, veh/h	556	627	334	296	451	400	226	255	
Cap Entry, veh/h	599	668	596	665	935	1010	496	560	
V/C Ratio	0.929	0.939	0.560	0.445	0.482	0.396	0.456	0.455	
Control Delay, s/veh	47.3	45.9	16.2	11.9	9.8	7.9	15.5	14.0	
LOS	E	E	C	B	A	A	C	B	
95th %tile Queue, veh	12	13	3	2	3	2	2	2	



**Part 9: Randolph Avenue: Concept 1**

Randolph Ave: Concept 1  
8: Randolph Ave & Reedsdale Ave

AM Peak-Hour  
05/31/2021

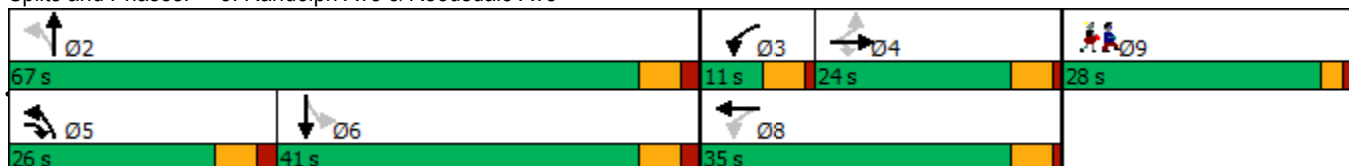


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖↗		↖	↗			↖↗	
Traffic Volume (vph)	15	300	315	160	270	25	790	520	10	20	250	20
Future Volume (vph)	15	300	315	160	270	25	790	520	10	20	250	20
Satd. Flow (prot)	0	1797	1531	0	3336	0	1625	1685	0	0	1779	0
Flt Permitted		0.963			0.576		0.381	0.628			0.915	
Satd. Flow (perm)	0	1734	1531	0	1955	0	652	1072	0	0	1633	0
Satd. Flow (RTOR)			348		4			1			3	
Lane Group Flow (vph)	0	349	348	0	503	0	672	787	0	0	320	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	24.0	24.0	26.0	11.0	35.0		26.0	67.0		41.0	41.0	
Total Lost Time (s)		5.0	6.0		5.0		6.0	6.0			6.0	
Act Effct Green (s)		29.4	53.5		29.4		61.4	61.4			35.2	
Actuated g/C Ratio		0.28	0.51		0.28		0.58	0.58			0.33	
v/c Ratio		0.72	0.37		1.20dl		1.19	1.06			0.59	
Control Delay		45.2	2.5		60.9		122.2	72.4			35.6	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		45.2	2.5		60.9		122.2	72.4			35.6	
LOS		D	A		E		F	E			D	
Approach Delay		23.9			60.9			95.4			35.6	
Approach LOS		C			E			F			D	
Queue Length 50th (ft)		200	0		162		~392	~412			167	
Queue Length 95th (ft)		#418	35		#343		#995	#1082			331	
Internal Link Dist (ft)		722			555			1094			767	
Turn Bay Length (ft)												
Base Capacity (vph)		483	948		562		565	741			547	
Starvation Cap Reductn		0	0		0		0	0			0	
Spillback Cap Reductn		0	0		0		0	0			0	
Storage Cap Reductn		0	0		0		0	0			0	
Reduced v/c Ratio		0.72	0.37		0.90		1.19	1.06			0.59	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 105.5  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.19  
 Intersection Signal Delay: 66.4  
 Intersection LOS: E  
 Intersection Capacity Utilization 103.2%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Randolph Ave & Reedsdale Ave





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	25	5	5	1725	700	0	
Future Volume (vph)	25	5	5	1725	700	0	
Satd. Flow (prot)	1687	0	0	3421	3421	0	
Flt Permitted	0.960			0.953			
Satd. Flow (perm)	1687	0	0	3260	3421	0	
Satd. Flow (RTOR)	6						
Lane Group Flow (vph)	34	0	0	1913	774	0	
Turn Type	Perm		Perm	NA	NA		
Protected Phases				2	6		9
Permitted Phases	4		2				
Total Split (s)	14.0		69.0	69.0	69.0		27.0
Total Lost Time (s)	5.0			6.0	6.0		
Act Effct Green (s)	9.1			63.8	63.8		
Actuated g/C Ratio	0.10			0.72	0.72		
v/c Ratio	0.19			0.81	0.31		
Control Delay	37.4			14.4	6.2		
Queue Delay	0.0			0.0	0.0		
Total Delay	37.4			14.4	6.2		
LOS	D			B	A		
Approach Delay	37.4			14.4	6.2		
Approach LOS	D			B	A		
Queue Length 50th (ft)	13			237	51		
Queue Length 95th (ft)	51			#898	192		
Internal Link Dist (ft)	354			1436	861		
Turn Bay Length (ft)							
Base Capacity (vph)	179			2353	2469		
Starvation Cap Reductn	0			0	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.19			0.81	0.31		

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 88.4  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 12.4  
 Intersection LOS: B  
 Intersection Capacity Utilization 69.6%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 9: Randolph Ave & Reed St



Randolph Ave: Concept 1  
 10: Randolph Ave & Hallen Ave

AM Peak-Hour  
 05/31/2021

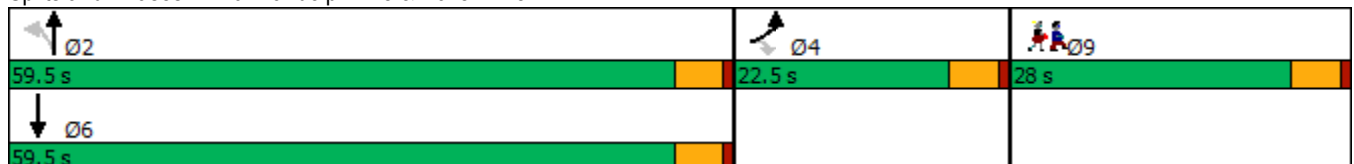


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	5	50	30	1730	700	10	
Future Volume (vph)	5	50	30	1730	700	10	
Satd. Flow (prot)	1711	1531	0	3418	3414	0	
Flt Permitted	0.950			0.932			
Satd. Flow (perm)	1711	1531	0	3189	3414	0	
Satd. Flow (RTOR)		55			2		
Lane Group Flow (vph)	6	55	0	1945	785	0	
Turn Type	Prot	Perm	Perm	NA	NA		
Protected Phases	4			2	6		9
Permitted Phases		4	2				
Total Split (s)	22.5	22.5	59.5	59.5	59.5		28.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		
Act Effct Green (s)	6.2	6.2		57.1	57.1		
Actuated g/C Ratio	0.09	0.09		0.86	0.86		
v/c Ratio	0.04	0.28		0.71	0.27		
Control Delay	29.8	13.7		5.8	2.1		
Queue Delay	0.0	0.0		0.0	0.0		
Total Delay	29.8	13.7		5.8	2.1		
LOS	C	B		A	A		
Approach Delay	15.3			5.8	2.1		
Approach LOS	B			A	A		
Queue Length 50th (ft)	2	0		177	36		
Queue Length 95th (ft)	13	31		316	61		
Internal Link Dist (ft)	413			945	1436		
Turn Bay Length (ft)	150						
Base Capacity (vph)	453	446		2739	2933		
Starvation Cap Reductn	0	0		0	0		
Spillback Cap Reductn	0	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.01	0.12		0.71	0.27		

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 66.5  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 5.0  
 Intersection LOS: A  
 Intersection Capacity Utilization 85.1%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 10: Randolph Ave & Hallen Ave





Randolph Ave: Concept 1  
 11: Randolph Ave & Hillside St/Driveway

AM Peak-Hour  
 05/31/2021

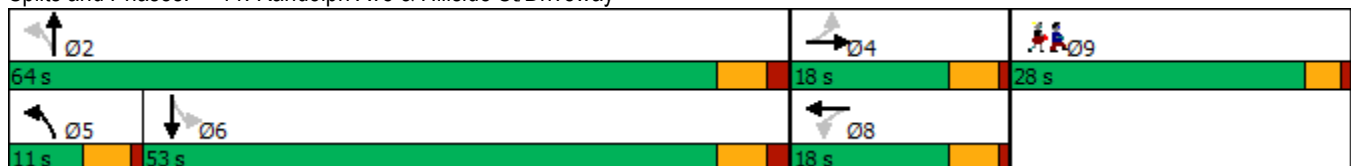


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	80	2	20	2	1	2	20	1680	10	5	715	30
Future Volume (vph)	80	2	20	2	1	2	20	1680	10	5	715	30
Satd. Flow (prot)	0	1685	0	0	1669	0	0	3414	0	0	3401	0
Flt Permitted		0.769			0.900			0.939			0.937	
Satd. Flow (perm)	0	1347	0	0	1533	0	0	3209	0	0	3186	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	112	0	0	5	0	0	1890	0	0	829	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	18.0	18.0		18.0	18.0		11.0	64.0		53.0	53.0	
Total Lost Time (s)		5.0			5.0			6.0			6.0	
Act Effct Green (s)		11.5			11.5			58.9			58.9	
Actuated g/C Ratio		0.13			0.13			0.68			0.68	
v/c Ratio		0.63			0.02			0.86			0.38	
Control Delay		53.7			37.0			18.3			8.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		53.7			37.0			18.3			8.3	
LOS		D			D			B			A	
Approach Delay		53.7			37.0			18.3			8.3	
Approach LOS		D			D			B			A	
Queue Length 50th (ft)		53			2			296			72	
Queue Length 95th (ft)		#164			15			#947			241	
Internal Link Dist (ft)		678			256			2390			1722	
Turn Bay Length (ft)												
Base Capacity (vph)		206			235			2199			2183	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.54			0.02			0.86			0.38	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 86  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 16.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 84.1%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 11: Randolph Ave & Hillside St/Driveway



Randolph Ave. Lane Diet Concept 1  
8: Randolph Ave & Reedsdale Ave

PM Peak-Hour  
05/31/2021

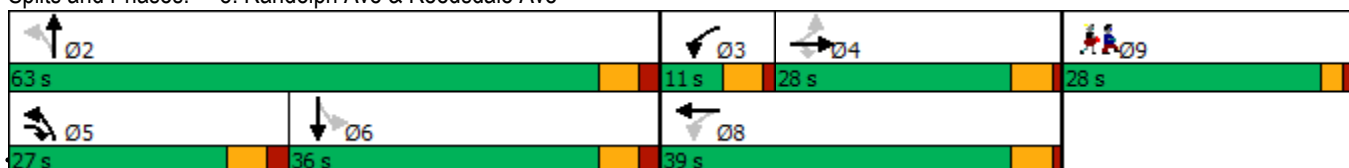


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗			↔	
Traffic Volume (vph)	20	300	750	350	200	20	400	350	20	15	400	20
Future Volume (vph)	20	300	750	350	200	20	400	350	20	15	400	20
Satd. Flow (prot)	0	1795	1531	0	3302	0	1625	1685	0	0	1786	0
Flt Permitted		0.940			0.557		0.195	0.676			0.972	
Satd. Flow (perm)	0	1693	1531	0	1896	0	334	1148	0	0	1740	0
Satd. Flow (RTOR)			494		3			2			2	
Lane Group Flow (vph)	0	354	829	0	630	0	367	484	0	0	481	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	28.0	28.0	27.0	11.0	39.0		27.0	63.0		36.0	36.0	
Total Lost Time (s)		5.0	6.0		5.0		6.0	6.0			6.0	
Act Effct Green (s)		34.2	59.3		34.2		57.3	57.3			30.2	
Actuated g/C Ratio		0.32	0.56		0.32		0.54	0.54			0.28	
v/c Ratio		0.65	0.77		1.96dl		0.84	0.67			0.97	
Control Delay		38.8	12.1		80.3		38.1	23.0			72.7	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		38.8	12.1		80.3		38.1	23.0			72.7	
LOS		D	B		F		D	C			E	
Approach Delay		20.1			80.3			29.5			72.7	
Approach LOS		C			F			C			E	
Queue Length 50th (ft)		193	138		212		146	192			303	
Queue Length 95th (ft)		#375	#371		#442		#429	420			#657	
Internal Link Dist (ft)		707			556			1090			816	
Turn Bay Length (ft)												
Base Capacity (vph)		545	1073		612		437	726			495	
Starvation Cap Reductn		0	0		0		0	0			0	
Spillback Cap Reductn		0	0		0		0	0			0	
Storage Cap Reductn		0	0		0		0	0			0	
Reduced v/c Ratio		0.65	0.77		1.03		0.84	0.67			0.97	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 106.2  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.03  
 Intersection Signal Delay: 42.7  
 Intersection LOS: D  
 Intersection Capacity Utilization 107.5%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Randolph Ave & Reedsdale Ave



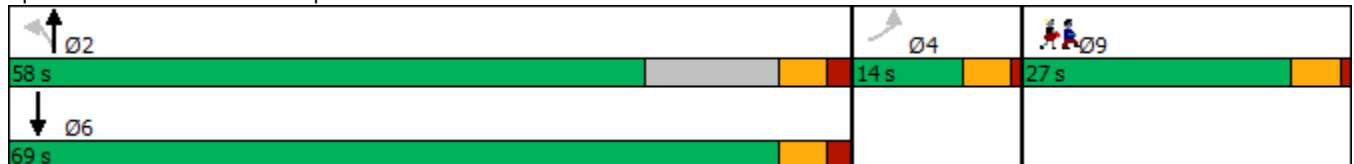


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	10	50	10	1050	1500	10	
Future Volume (vph)	10	50	10	1050	1500	10	
Satd. Flow (prot)	1584	0	0	3421	3418	0	
Flt Permitted	0.992			0.930			
Satd. Flow (perm)	1584	0	0	3182	3418	0	
Satd. Flow (RTOR)					1		
Lane Group Flow (vph)	66	0	0	1172	1669	0	
Turn Type	Perm		Perm	NA	NA		
Protected Phases				2	6		9
Permitted Phases	4		2				
Total Split (s)	14.0		58.0	58.0	69.0		27.0
Total Lost Time (s)	5.0			6.0	6.0		
Act Effct Green (s)	9.8			41.6	41.6		
Actuated g/C Ratio	0.15			0.62	0.62		
v/c Ratio	0.28			0.59	0.78		
Control Delay	36.8			9.9	13.7		
Queue Delay	0.0			0.0	0.0		
Total Delay	36.8			9.9	13.7		
LOS	D			A	B		
Approach Delay	36.8			9.9	13.7		
Approach LOS	D			A	B		
Queue Length 50th (ft)	21			95	166		
Queue Length 95th (ft)	92			350	602		
Internal Link Dist (ft)	354			1436	865		
Turn Bay Length (ft)							
Base Capacity (vph)	232			2896	3111		
Starvation Cap Reductn	0			0	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.28			0.40	0.54		

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 66.7  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 12.7  
 Intersection LOS: B  
 Intersection Capacity Utilization 59.7%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 9: Randolph Ave & Reed St



Randolph Ave. Lane Diet Concept 1  
 10: Randolph Ave & Hallen Ave

PM Peak-Hour  
 05/31/2021

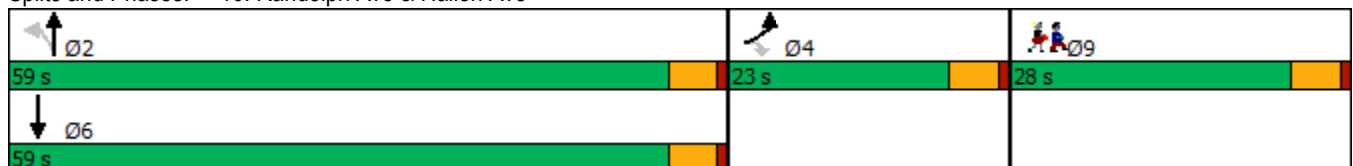


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	5	100	75	1000	1550	25	
Future Volume (vph)	5	100	75	1000	1550	25	
Satd. Flow (prot)	1711	1531	0	3411	3414	0	
Flt Permitted	0.950			0.643			
Satd. Flow (perm)	1695	1498	0	2200	3414	0	
Satd. Flow (RTOR)		111			2		
Lane Group Flow (vph)	6	111	0	1188	1741	0	
Turn Type	Prot	Perm	Perm	NA	NA		
Protected Phases	4			2	6		9
Permitted Phases		4	2				
Total Split (s)	23.0	23.0	59.0	59.0	59.0		28.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		
Act Effct Green (s)	6.8	6.8		57.1	57.1		
Actuated g/C Ratio	0.09	0.09		0.77	0.77		
v/c Ratio	0.04	0.47		0.70	0.66		
Control Delay	36.5	15.2		12.9	10.6		
Queue Delay	0.0	0.0		0.0	0.0		
Total Delay	36.5	15.2		12.9	10.6		
LOS	D	B		B	B		
Approach Delay	16.3			12.9	10.6		
Approach LOS	B			B	B		
Queue Length 50th (ft)	2	0		92	126		
Queue Length 95th (ft)	16	51		#575	#752		
Internal Link Dist (ft)	413			2760	1436		
Turn Bay Length (ft)	150						
Base Capacity (vph)	428	458		1688	2620		
Starvation Cap Reductn	0	0		0	0		
Spillback Cap Reductn	0	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.01	0.24		0.70	0.66		

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 74.4  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.70  
 Intersection Signal Delay: 11.7  
 Intersection LOS: B  
 Intersection Capacity Utilization 93.8%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 10: Randolph Ave & Hallen Ave





Randolph Ave. Lane Diet Concept 1  
 11: Randolph Ave & Hillside Street/Driveway

PM Peak-Hour  
 05/31/2021

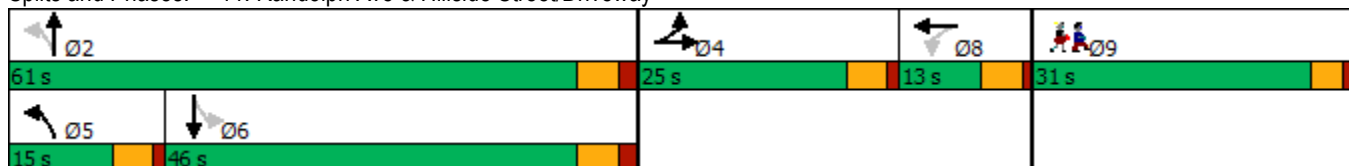


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	100	5	20	2	1	2	50	950	5	5	1575	100
Future Volume (vph)	100	5	20	2	1	2	50	950	5	5	1575	100
Satd. Flow (prot)	0	1696	0	0	1669	0	0	3411	0	0	3390	0
Flt Permitted		0.962						0.630			0.951	
Satd. Flow (perm)	0	1696	0	0	1703	0	0	2153	0	0	3224	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	139	0	0	5	0	0	1111	0	0	1858	0
Turn Type	Split	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	4	4			8		5	2			6	
Permitted Phases				8			2			6		
Total Split (s)	25.0	25.0		13.0	13.0		15.0	61.0		46.0	46.0	
Total Lost Time (s)		5.0			5.0			6.0			6.0	
Act Effct Green (s)		12.3			6.1			56.8			56.8	
Actuated g/C Ratio		0.14			0.07			0.67			0.67	
v/c Ratio		0.57			0.04			0.78			0.87	
Control Delay		45.5			45.2			18.8			20.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		45.5			45.2			18.8			20.2	
LOS		D			D			B			C	
Approach Delay		45.5			45.2			18.8			20.2	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)		63			2			139			266	
Queue Length 95th (ft)		166			17			#660			#1088	
Internal Link Dist (ft)		670			257			2385			2760	
Turn Bay Length (ft)												
Base Capacity (vph)		410			165			1433			2146	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.34			0.03			0.78			0.87	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 85.4  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 20.9  
 Intersection LOS: C  
 Intersection Capacity Utilization 89.5%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 11: Randolph Ave & Hillside Street/Driveway



# Part 10: Randolph Avenue: Concept 2

Randolph Avenue: Concept 2  
8: Randolph Ave & Reedsdale Ave

AM Peak-Hour  
05/31/2021

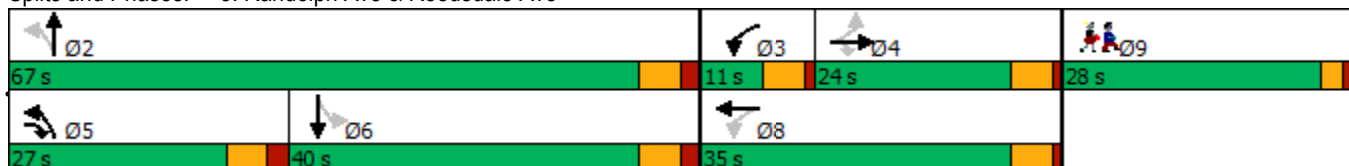


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖↗		↖	↗			↖↗	
Traffic Volume (vph)	15	300	315	160	270	25	790	520	10	20	250	20
Future Volume (vph)	15	300	315	160	270	25	790	520	10	20	250	20
Satd. Flow (prot)	0	1797	1531	0	3336	0	1625	1685	0	0	1779	0
Flt Permitted		0.963			0.576		0.373	0.620			0.915	
Satd. Flow (perm)	0	1734	1531	0	1955	0	638	1058	0	0	1633	0
Satd. Flow (RTOR)			348		4			1			3	
Lane Group Flow (vph)	0	349	348	0	503	0	672	787	0	0	320	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	24.0	24.0	27.0	11.0	35.0		27.0	67.0		40.0	40.0	
Total Lost Time (s)		5.0	6.0		5.0		6.0	6.0			6.0	
Act Effct Green (s)		29.4	54.6		29.4		61.4	61.4			34.2	
Actuated g/C Ratio		0.28	0.52		0.28		0.58	0.58			0.32	
v/c Ratio		0.72	0.36		1.20dl		1.18	1.06			0.60	
Control Delay		45.2	2.4		60.9		118.8	72.0			36.9	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		45.2	2.4		60.9		118.8	72.0			36.9	
LOS		D	A		E		F	E			D	
Approach Delay		23.9			60.9			93.5			36.9	
Approach LOS		C			E			F			D	
Queue Length 50th (ft)		200	0		162		~388	~412			170	
Queue Length 95th (ft)		#418	35		#343		#992	#1082			335	
Internal Link Dist (ft)		689			555			881			816	
Turn Bay Length (ft)												
Base Capacity (vph)		483	959		562		568	742			531	
Starvation Cap Reductn		0	0		0		0	0			0	
Spillback Cap Reductn		0	0		0		0	0			0	
Storage Cap Reductn		0	0		0		0	0			0	
Reduced v/c Ratio		0.72	0.36		0.90		1.18	1.06			0.60	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 105.5  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.18  
 Intersection Signal Delay: 65.6  
 Intersection LOS: E  
 Intersection Capacity Utilization 103.2%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Randolph Ave & Reedsdale Ave



Randolph Avenue: Concept 2  
 9: Randolph Ave & Reed St

AM Peak-Hour  
 05/31/2021

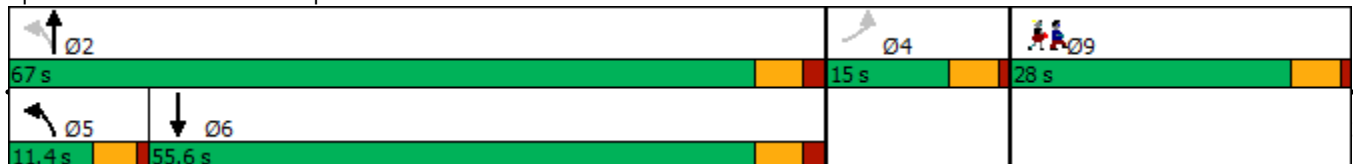


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	25	5	5	1725	700	0	
Future Volume (vph)	25	5	5	1725	700	0	
Satd. Flow (prot)	1687	0	1711	1801	3421	0	
Flt Permitted	0.960		*0.950				
Satd. Flow (perm)	1687	0	1711	1801	3421	0	
Satd. Flow (RTOR)	6						
Lane Group Flow (vph)	34	0	6	1907	774	0	
Turn Type	Perm		pm+pt	NA	NA		
Protected Phases			5	2	6		9
Permitted Phases	4		2				
Total Split (s)	15.0		11.4	67.0	55.6		28.0
Total Lost Time (s)	5.0		4.5	6.0	6.0		
Act Effct Green (s)	8.6		67.9	67.4	65.9		
Actuated g/C Ratio	0.11		0.87	0.86	0.84		
v/c Ratio	0.18		0.00	1.22	0.27		
Control Delay	35.0		6.0	120.8	6.6		
Queue Delay	0.0		0.0	0.0	0.0		
Total Delay	35.0		6.0	120.8	6.6		
LOS	C		A	F	A		
Approach Delay	35.0			120.5	6.6		
Approach LOS	C			F	A		
Queue Length 50th (ft)	10		0	-93	0		
Queue Length 95th (ft)	50		7	#2308	246		
Internal Link Dist (ft)	354			1436	868		
Turn Bay Length (ft)			200				
Base Capacity (vph)	229		1490	1557	2891		
Starvation Cap Reductn	0		0	0	0		
Spillback Cap Reductn	0		0	0	0		
Storage Cap Reductn	0		0	0	0		
Reduced v/c Ratio	0.15		0.00	1.22	0.27		

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 78  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.22  
 Intersection Signal Delay: 87.0  
 Intersection LOS: F  
 Intersection Capacity Utilization 111.2%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 9: Randolph Ave & Reed St





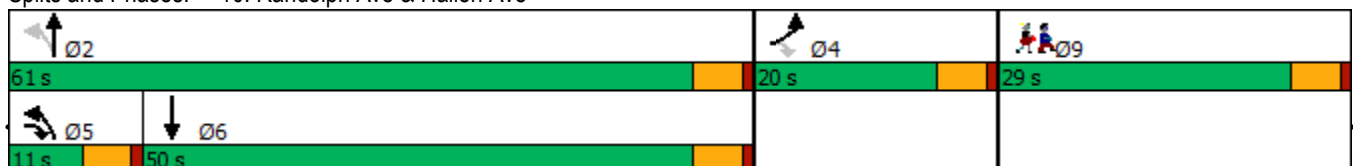


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations	↖	↗	↖	↑	↑↓		
Traffic Volume (vph)	5	50	30	1730	700	10	
Future Volume (vph)	5	50	30	1730	700	10	
Satd. Flow (prot)	1711	1531	1711	1801	3414	0	
Flt Permitted	0.950		0.299				
Satd. Flow (perm)	1711	1531	538	1801	3414	0	
Satd. Flow (RTOR)		55			2		
Lane Group Flow (vph)	6	55	33	1912	785	0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA		
Protected Phases	4	5	5	2	6		9
Permitted Phases		4	2				
Total Split (s)	20.0	11.0	11.0	61.0	50.0		29.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		
Act Effct Green (s)	6.0	6.8	58.3	62.9	50.7		
Actuated g/C Ratio	0.09	0.10	0.84	0.91	0.73		
v/c Ratio	0.04	0.27	0.06	1.17	0.31		
Control Delay	35.8	10.4	4.9	92.4	7.6		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	35.8	10.4	4.9	92.4	7.6		
LOS	D	B	A	F	A		
Approach Delay	12.9			90.9	7.6		
Approach LOS	B			F	A		
Queue Length 50th (ft)	2	0	1	~88	35		
Queue Length 95th (ft)	17	21	23	#2163	240		
Internal Link Dist (ft)	413			2770	1436		
Turn Bay Length (ft)	100		200				
Base Capacity (vph)	387	208	561	1641	2510		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.02	0.26	0.06	1.17	0.31		

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 69  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.17  
 Intersection Signal Delay: 65.8  
 Intersection LOS: E  
 Intersection Capacity Utilization 108.1%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 10: Randolph Ave & Hallen Ave



Randolph Avenue: Concept 2  
11: Randolph Ave & Hillside St/Driveway

AM Peak-Hour  
05/31/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	80	2	20	2	1	2	20	1680	10	5	715	30
Future Volume (vph)	80	2	20	2	1	2	20	1680	10	5	715	30
Satd. Flow (prot)	0	1685	0	0	1669	0	1711	1799	0	1711	3401	0
Flt Permitted		*0.900					*0.900			*0.900		
Satd. Flow (perm)	0	1577	0	0	1703	0	1621	1799	0	1621	3401	0
Satd. Flow (RTOR)		6			2						4	
Lane Group Flow (vph)	0	112	0	0	5	0	22	1868	0	6	823	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	14.0	14.0		10.0	10.0		11.0	86.5		9.5	85.0	
Total Lost Time (s)		5.0			5.0		5.0	6.0		4.5	6.0	
Act Effct Green (s)		9.2			5.1		84.2	82.3		83.0	79.6	
Actuated g/C Ratio		0.08			0.05		0.77	0.75		0.76	0.73	
v/c Ratio		0.76			0.06		0.02	1.38		0.00	0.33	
Control Delay		79.1			50.2		5.6	195.4		6.2	8.4	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		79.1			50.2		5.6	195.4		6.2	8.4	
LOS		E			D		A	F		A	A	
Approach Delay		79.1			50.2			193.2			8.4	
Approach LOS		E			D			F			A	
Queue Length 50th (ft)		67			2		2	~1539		1	55	
Queue Length 95th (ft)		#239			18		19	#2940		8	288	
Internal Link Dist (ft)		670			257			1702			2770	
Turn Bay Length (ft)							200			200		
Base Capacity (vph)		147			79		1251	1352		1234	2540	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.76			0.06		0.02	1.38		0.00	0.32	

Intersection Summary

Cycle Length: 145  
 Actuated Cycle Length: 109.4  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.38  
 Intersection Signal Delay: 134.4  
 Intersection LOS: F  
 Intersection Capacity Utilization 113.7%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 11: Randolph Ave & Hillside St/Driveway

01	02	04	08	09
9.5 s	86.5 s	14 s	10 s	25 s
05	06			
11 s	85 s			

Randolph Ave: Concept 2  
8: Randolph Ave & Reedsdale Ave

PM Peak-Hour  
05/31/2021

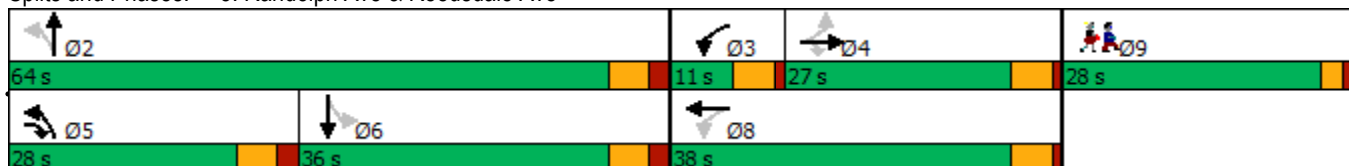


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖↗		↖	↗			↖↗	
Traffic Volume (vph)	20	300	750	350	200	20	400	350	20	15	400	20
Future Volume (vph)	20	300	750	350	200	20	400	350	20	15	400	20
Satd. Flow (prot)	0	1795	1531	0	3302	0	1711	1786	0	0	1786	0
Flt Permitted		0.939			0.553		0.195				0.976	
Satd. Flow (perm)	0	1691	1531	0	1882	0	351	1786	0	0	1747	0
Satd. Flow (RTOR)			494		3			3			2	
Lane Group Flow (vph)	0	354	829	0	630	0	442	409	0	0	481	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	27.0	27.0	28.0	11.0	38.0		28.0	64.0		36.0	36.0	
Total Lost Time (s)		5.0	6.0		5.0		6.0	6.0			6.0	
Act Effct Green (s)		33.2	59.3		33.2		58.3	58.3			30.2	
Actuated g/C Ratio		0.31	0.56		0.31		0.55	0.55			0.28	
v/c Ratio		0.67	0.77		2.08dl		0.93	0.42			0.97	
Control Delay		40.4	12.1		92.9		49.8	16.7			71.7	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		40.4	12.1		92.9		49.8	16.7			71.7	
LOS		D	B		F		D	B			E	
Approach Delay		20.6			92.9			33.9			71.7	
Approach LOS		C			F			C			E	
Queue Length 50th (ft)		196	138		~232		188	139			303	
Queue Length 95th (ft)		#400	#361		#450		#515	307			#655	
Internal Link Dist (ft)		716			555			820			816	
Turn Bay Length (ft)												
Base Capacity (vph)		528	1073		589		475	981			497	
Starvation Cap Reductn		0	0		0		0	0			0	
Spillback Cap Reductn		0	0		0		0	0			0	
Storage Cap Reductn		0	0		0		0	0			0	
Reduced v/c Ratio		0.67	0.77		1.07		0.93	0.42			0.97	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 106.2  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.07  
 Intersection Signal Delay: 46.5  
 Intersection LOS: D  
 Intersection Capacity Utilization 107.5%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Randolph Ave & Reedsdale Ave









Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	5	100	75	1000	1500	25	
Future Volume (vph)	5	100	75	1000	1500	25	
Satd. Flow (prot)	1711	1531	1711	1801	3414	0	
Flt Permitted	0.950		0.094				
Satd. Flow (perm)	1680	1499	169	1801	3414	0	
Satd. Flow (RTOR)		111			2		
Lane Group Flow (vph)	6	111	83	1105	1686	0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA		
Protected Phases	4	5	5	2	6		9
Permitted Phases		4	2				
Total Split (s)	23.0	10.0	10.0	79.0	69.0		28.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		
Act Effct Green (s)	6.0	6.2	64.6	69.0	54.4		
Actuated g/C Ratio	0.08	0.09	0.90	0.96	0.76		
v/c Ratio	0.04	0.48	0.32	0.64	0.65		
Control Delay	32.8	13.8	3.9	3.4	6.1		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	32.8	13.8	3.9	3.4	6.1		
LOS	C	B	A	A	A		
Approach Delay	14.8			3.4	6.1		
Approach LOS	B			A	A		
Queue Length 50th (ft)	2	0	0	0	110		
Queue Length 95th (ft)	15	44	13	351	324		
Internal Link Dist (ft)	413			2771	1436		
Turn Bay Length (ft)	150		200				
Base Capacity (vph)	440	233	262	1737	3027		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.01	0.48	0.32	0.64	0.56		

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 71.6  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.65  
 Intersection Signal Delay: 5.4  
 Intersection LOS: A  
 Intersection Capacity Utilization 67.8%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 10: Randolph Ave & Hallen Ave



Randolph Ave: Concept 2  
 11: Randolph Ave & Hillside Street/Driveway

PM Peak-Hour  
 05/31/2021

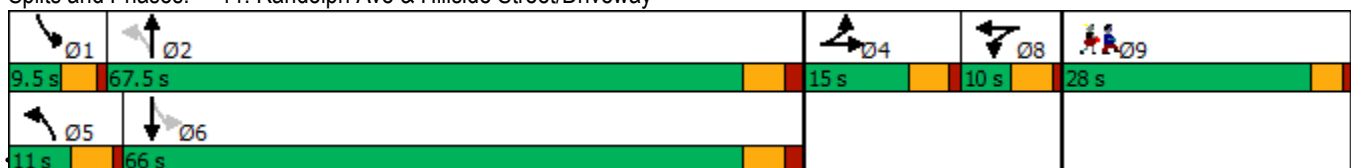


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	100	5	20	2	1	2	50	950	5	5	1575	100
Future Volume (vph)	100	5	20	2	1	2	50	950	5	5	1575	100
Satd. Flow (prot)	0	1696	0	0	1669	0	1711	1799	0	1711	3390	0
Flt Permitted		*0.900			0.980		*0.800			*0.800		
Satd. Flow (perm)	0	1587	0	0	1669	0	1441	1799	0	1441	3390	0
Satd. Flow (RTOR)		6			2						7	
Lane Group Flow (vph)	0	139	0	0	5	0	55	1056	0	6	1852	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	15.0	15.0		10.0	10.0		11.0	67.5		9.5	66.0	
Total Lost Time (s)		5.0			5.0		5.0	6.0		4.5	6.0	
Act Effct Green (s)		10.2			5.1		71.0	69.0		67.3	61.8	
Actuated g/C Ratio		0.10			0.05		0.73	0.71		0.69	0.63	
v/c Ratio		0.76			0.06		0.05	0.83		0.01	0.86	
Control Delay		69.5			45.2		6.8	21.2		8.0	22.8	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		69.5			45.2		6.8	21.2		8.0	22.8	
LOS		E			D		A	C		A	C	
Approach Delay		69.5			45.2			20.5			22.7	
Approach LOS		E			D			C			C	
Queue Length 50th (ft)		76			2		6	267		1	386	
Queue Length 95th (ft)		#258			17		41	#1361		9	#1127	
Internal Link Dist (ft)		670			257			1820			2771	
Turn Bay Length (ft)							200			200		
Base Capacity (vph)		183			89		1063	1271		1006	2147	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.76			0.06		0.05	0.83		0.01	0.86	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 97.7  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 24.0  
 Intersection LOS: C  
 Intersection Capacity Utilization 75.6%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 \* User Entered Value  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 11: Randolph Ave & Hillside Street/Driveway



**Part 11: Randolph Avenue: Concept 3**

Randolph Avenue Road Diet, Concept 3  
8: Randolph Ave & Reedsdale Ave

AM Peak-Hour  
05/31/2021

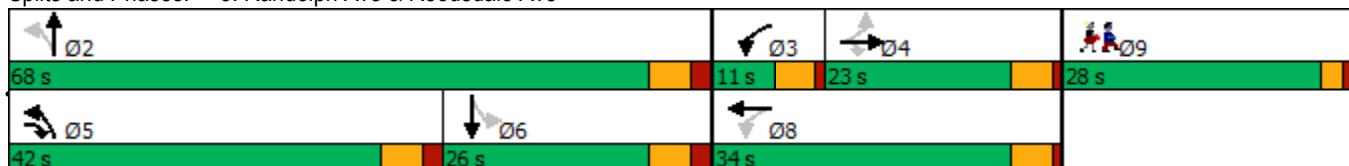


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗			↕	
Traffic Volume (vph)	15	300	315	160	270	25	790	520	10	20	250	20
Future Volume (vph)	15	300	315	160	270	25	790	520	10	20	250	20
Satd. Flow (prot)	0	1859	1583	0	3451	0	1770	1857	0	0	1840	0
Flt Permitted		0.962			0.569		0.193				0.927	
Satd. Flow (perm)	0	1792	1583	0	1998	0	360	1857	0	0	1711	0
Satd. Flow (RTOR)			348		4			1			2	
Lane Group Flow (vph)	0	349	348	0	503	0	873	586	0	0	320	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	23.0	23.0	42.0	11.0	34.0		42.0	68.0		26.0	26.0	
Total Lost Time (s)		5.0	6.0		5.0		6.0	6.0			6.0	
Act Effct Green (s)		28.3	68.6		28.3		62.4	62.4			20.1	
Actuated g/C Ratio		0.27	0.65		0.27		0.59	0.59			0.19	
v/c Ratio		0.73	0.30		1.26dl		1.25	0.53			0.98	
Control Delay		45.9	1.4		63.7		150.8	16.5			87.7	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		45.9	1.4		63.7		150.8	16.5			87.7	
LOS		D	A		E		F	B			F	
Approach Delay		23.7			63.7			96.9			87.7	
Approach LOS		C			E			F			F	
Queue Length 50th (ft)		202	0		163		~640	202			206	
Queue Length 95th (ft)		#418	22		#345		#1145	450			#484	
Internal Link Dist (ft)		689			555			881			816	
Turn Bay Length (ft)												
Base Capacity (vph)		481	1151		555		697	1099			328	
Starvation Cap Reductn		0	0		0		0	0			0	
Spillback Cap Reductn		0	0		0		0	0			0	
Storage Cap Reductn		0	0		0		0	0			0	
Reduced v/c Ratio		0.73	0.30		0.91		1.25	0.53			0.98	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 105.4  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.25  
 Intersection Signal Delay: 73.2  
 Intersection LOS: E  
 Intersection Capacity Utilization 111.5%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Randolph Ave & Reedsdale Ave





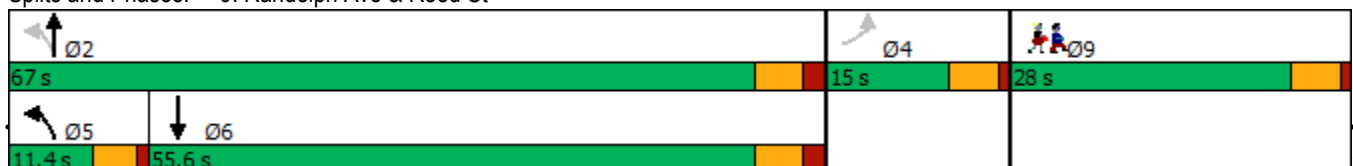


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	25	5	5	1725	700	0	
Future Volume (vph)	25	5	5	1725	700	0	
Satd. Flow (prot)	1745	0	1770	1863	1863	0	
Flt Permitted	0.960		0.264				
Satd. Flow (perm)	1745	0	492	1863	1863	0	
Satd. Flow (RTOR)	6						
Lane Group Flow (vph)	34	0	6	1907	774	0	
Turn Type	Perm		pm+pt	NA	NA		
Protected Phases			5	2	6		9
Permitted Phases	4		2				
Total Split (s)	15.0		11.4	67.0	55.6		28.0
Total Lost Time (s)	5.0		4.5	6.0	6.0		
Act Effct Green (s)	8.6		64.8	67.4	65.9		
Actuated g/C Ratio	0.11		0.83	0.86	0.84		
v/c Ratio	0.17		0.01	1.18	0.49		
Control Delay	34.8		6.0	103.0	10.5		
Queue Delay	0.0		0.0	0.0	0.0		
Total Delay	34.8		6.0	103.0	10.5		
LOS	C		A	F	B		
Approach Delay	34.8			102.6	10.5		
Approach LOS	C			F	B		
Queue Length 50th (ft)	10		0	~39	0		
Queue Length 95th (ft)	50		7	#2280	#730		
Internal Link Dist (ft)	354			1436	868		
Turn Bay Length (ft)			200				
Base Capacity (vph)	237		525	1611	1574		
Starvation Cap Reductn	0		0	0	0		
Spillback Cap Reductn	0		0	0	0		
Storage Cap Reductn	0		0	0	0		
Reduced v/c Ratio	0.14		0.01	1.18	0.49		

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 78  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.18  
 Intersection Signal Delay: 75.6  
 Intersection LOS: E  
 Intersection Capacity Utilization 111.2%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 9: Randolph Ave & Reed St



Randolph Avenue Road Diet, Concept 3  
 10: Randolph Ave & Hallen Ave

AM Peak-Hour  
 05/31/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	50	30	1730	700	10
Future Volume (vph)	5	50	30	1730	700	10
Satd. Flow (prot)	1770	1583	1770	1863	1859	0
Flt Permitted	0.950		0.305			
Satd. Flow (perm)	1770	1583	568	1863	1859	0
Satd. Flow (RTOR)		55			1	
Lane Group Flow (vph)	6	55	33	1912	785	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Total Split (s)	22.5	22.5	9.6	97.0	87.4	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	6.6	6.6	99.7	100.6	94.8	
Actuated g/C Ratio	0.06	0.06	0.88	0.89	0.84	
v/c Ratio	0.06	0.38	0.06	1.16	0.50	
Control Delay	49.2	20.9	1.5	90.5	5.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	49.2	20.9	1.5	90.5	5.4	
LOS	D	C	A	F	A	
Approach Delay	23.6			89.0	5.4	
Approach LOS	C			F	A	
Queue Length 50th (ft)	4	0	2	~1704	174	
Queue Length 95th (ft)	18	40	7	#1942	288	
Internal Link Dist (ft)	413			2770	1436	
Turn Bay Length (ft)	100		200			
Base Capacity (vph)	281	298	554	1654	1555	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.02	0.18	0.06	1.16	0.50	

Intersection Summary

Cycle Length: 119.5  
 Actuated Cycle Length: 113.3  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.16  
 Intersection Signal Delay: 64.1  
 Intersection LOS: E  
 Intersection Capacity Utilization 107.3%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 10: Randolph Ave & Hallen Ave



Randolph Avenue Road Diet, Concept 3  
 11: Randolph Ave & Hillside St/Driveway

AM Peak-Hour  
 05/31/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	80	2	20	2	1	2	20	1680	10	5	715	30
Future Volume (vph)	80	2	20	2	1	2	20	1680	10	5	715	30
Satd. Flow (prot)	0	1744	0	0	1727	0	1770	1861	0	1770	1852	0
Flt Permitted		0.769			0.920		0.233			0.051		
Satd. Flow (perm)	0	1394	0	0	1621	0	434	1861	0	95	1852	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	112	0	0	5	0	22	1868	0	6	823	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	14.0	14.0		14.0	14.0		11.0	88.0		77.0	77.0	
Total Lost Time (s)		5.0			5.0		5.0	6.0		6.0	6.0	
Act Effct Green (s)		9.1			9.1		83.8	82.8		78.6	78.6	
Actuated g/C Ratio		0.08			0.08		0.78	0.77		0.73	0.73	
v/c Ratio		0.95			0.04		0.05	1.31		0.09	0.61	
Control Delay		122.1			50.8		5.1	160.3		14.0	13.2	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		122.1			50.8		5.1	160.3		14.0	13.2	
LOS		F			D		A	F		B	B	
Approach Delay		122.1			50.8			158.5			13.2	
Approach LOS		F			D			F			B	
Queue Length 50th (ft)		74			3		2	~1525		1	144	
Queue Length 95th (ft)		#238			18		17	#2505		12	740	
Internal Link Dist (ft)		670			257			1702			2770	
Turn Bay Length (ft)							200			200		
Base Capacity (vph)		118			137		412	1431		69	1353	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.95			0.04		0.05	1.31		0.09	0.61	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 107.6  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.31  
 Intersection Signal Delay: 114.4  
 Intersection LOS: F  
 Intersection Capacity Utilization 113.7%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 11: Randolph Ave & Hillside St/Driveway



Randolph Avenue: Concept 3  
8: Randolph Ave & Reedsdale Ave

PM Peak-Hour  
05/31/2021

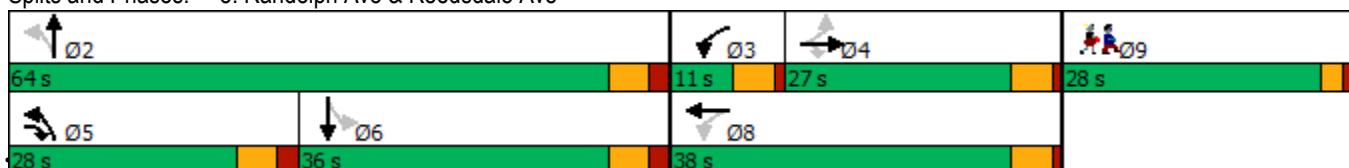


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖↗		↖	↗			↕	
Traffic Volume (vph)	20	300	750	350	200	20	400	350	20	15	400	20
Future Volume (vph)	20	300	750	350	200	20	400	350	20	15	400	20
Satd. Flow (prot)	0	1857	1583	0	3416	0	1770	1848	0	0	1848	0
Flt Permitted		0.939			0.553		0.195				0.976	
Satd. Flow (perm)	0	1749	1583	0	1947	0	363	1848	0	0	1807	0
Satd. Flow (RTOR)			494		3			3			2	
Lane Group Flow (vph)	0	354	829	0	630	0	442	409	0	0	481	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	27.0	27.0	28.0	11.0	38.0		28.0	64.0		36.0	36.0	
Total Lost Time (s)		5.0	6.0		5.0		6.0	6.0			6.0	
Act Effct Green (s)		33.2	59.3		33.2		58.3	58.3			30.2	
Actuated g/C Ratio		0.31	0.56		0.31		0.55	0.55			0.28	
v/c Ratio		0.65	0.75		2.02dl		0.90	0.40			0.94	
Control Delay		39.4	11.1		82.1		43.8	16.4			64.9	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		39.4	11.1		82.1		43.8	16.4			64.9	
LOS		D	B		F		D	B			E	
Approach Delay		19.6			82.1			30.7			64.9	
Approach LOS		B			F			C			E	
Queue Length 50th (ft)		194	133		213		182	138			299	
Queue Length 95th (ft)		374	#268		#442		#500	303			#643	
Internal Link Dist (ft)		716			555			820			816	
Turn Bay Length (ft)												
Base Capacity (vph)		546	1102		610		492	1016			514	
Starvation Cap Reductn		0	0		0		0	0			0	
Spillback Cap Reductn		0	0		0		0	0			0	
Storage Cap Reductn		0	0		0		0	0			0	
Reduced v/c Ratio		0.65	0.75		1.03		0.90	0.40			0.94	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 106.2  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.03  
 Intersection Signal Delay: 42.0  
 Intersection LOS: D  
 Intersection Capacity Utilization 107.5%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Randolph Ave & Reedsdale Ave







Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	10	5	10	1050	1500	10	
Future Volume (vph)	10	5	10	1050	1500	10	
Satd. Flow (prot)	1718	0	1770	1863	1861	0	
Flt Permitted	0.969		0.051				
Satd. Flow (perm)	1718	0	95	1863	1861	0	
Satd. Flow (RTOR)	6						
Lane Group Flow (vph)	17	0	11	1161	1669	0	
Turn Type	Perm		pm+pt	NA	NA		
Protected Phases			5	2	6		9
Permitted Phases	4		2				
Total Split (s)	14.0		10.0	89.0	79.0		27.0
Total Lost Time (s)	5.0		4.5	6.0	6.0		
Act Effct Green (s)	9.2		77.4	75.9	74.3		
Actuated g/C Ratio	0.09		0.77	0.76	0.74		
v/c Ratio	0.10		0.07	0.83	1.21		
Control Delay	38.7		5.7	16.7	119.8		
Queue Delay	0.0		0.0	0.0	0.0		
Total Delay	38.7		5.7	16.7	119.8		
LOS	D		A	B	F		
Approach Delay	38.7			16.6	119.8		
Approach LOS	D			B	F		
Queue Length 50th (ft)	6		1	300	~1161		
Queue Length 95th (ft)	34		10	#1252	#2273		
Internal Link Dist (ft)	354			1436	868		
Turn Bay Length (ft)			200				
Base Capacity (vph)	162		166	1567	1377		
Starvation Cap Reductn	0		0	0	0		
Spillback Cap Reductn	0		0	0	0		
Storage Cap Reductn	0		0	0	0		
Reduced v/c Ratio	0.10		0.07	0.74	1.21		

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 100.4  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.21  
 Intersection Signal Delay: 77.0  
 Intersection LOS: E  
 Intersection Capacity Utilization 99.4%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 9: Randolph Ave & Reed St





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↓	↘
Traffic Volume (vph)	5	100	75	1000	1500	25
Future Volume (vph)	5	100	75	1000	1500	25
Satd. Flow (prot)	1770	1583	1770	1863	1859	0
Flt Permitted	0.950		0.040			
Satd. Flow (perm)	1738	1524	75	1863	1859	0
Satd. Flow (RTOR)		102			2	
Lane Group Flow (vph)	6	111	83	1105	1686	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Total Split (s)	22.5	22.5	9.5	107.5	98.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	7.6	7.6	104.0	104.0	94.5	
Actuated g/C Ratio	0.06	0.06	0.86	0.86	0.78	
v/c Ratio	0.05	0.58	0.61	0.69	1.16	
Control Delay	52.7	24.8	36.3	5.9	95.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	52.7	24.8	36.3	5.9	95.9	
LOS	D	C	D	A	F	
Approach Delay	26.3			8.0	95.9	
Approach LOS	C			A	F	
Queue Length 50th (ft)	4	7	11	175	~1514	
Queue Length 95th (ft)	19	64	#88	414	#1927	
Internal Link Dist (ft)	413			2771	1436	
Turn Bay Length (ft)	150		200			
Base Capacity (vph)	264	314	135	1606	1456	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.02	0.35	0.61	0.69	1.16	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 120.6  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.16  
 Intersection Signal Delay: 58.3  
 Intersection LOS: E  
 Intersection Capacity Utilization 100.2%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 10: Randolph Ave & Hallen Ave



Randolph Avenue: Concept 3  
11: Randolph Ave & Hillside Street/Driveway

PM Peak-Hour  
05/31/2021

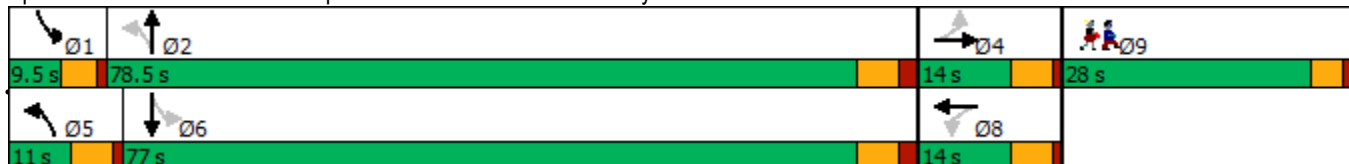


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	100	5	20	2	1	2	50	950	5	5	1575	100
Future Volume (vph)	100	5	20	2	1	2	50	950	5	5	1575	100
Satd. Flow (prot)	0	1754	0	0	1727	0	1770	1861	0	1770	1846	0
Flt Permitted		*0.900			0.936		*0.800			*0.800		
Satd. Flow (perm)	0	1641	0	0	1649	0	1490	1861	0	1490	1846	0
Satd. Flow (RTOR)		6			2						4	
Lane Group Flow (vph)	0	139	0	0	5	0	55	1056	0	6	1852	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Total Split (s)	14.0	14.0		14.0	14.0		11.0	78.5		9.5	77.0	
Total Lost Time (s)		5.0			5.0		5.0	6.0		4.5	6.0	
Act Effct Green (s)		9.1			9.1		81.0	79.0		77.4	72.0	
Actuated g/C Ratio		0.09			0.09		0.77	0.75		0.73	0.68	
v/c Ratio		0.95			0.03		0.05	0.76		0.01	1.47	
Control Delay		109.1			43.0		4.7	15.7		5.5	235.4	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		109.1			43.0		4.7	15.7		5.5	235.4	
LOS		F			D		A	B		A	F	
Approach Delay		109.1			43.0			15.1			234.6	
Approach LOS		F			D			B			F	
Queue Length 50th (ft)		88			2		5	238		1	~1661	
Queue Length 95th (ft)		#273			16		32	#1198		7	#2648	
Internal Link Dist (ft)		670			257			1820			2771	
Turn Bay Length (ft)							200			200		
Base Capacity (vph)		147			144		1161	1401		1107	1262	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.95			0.03		0.05	0.75		0.01	1.47	

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 105.4  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.47  
 Intersection Signal Delay: 150.4  
 Intersection LOS: F  
 Intersection Capacity Utilization 116.2%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 11: Randolph Ave & Hillside Street/Driveway



**Appendix F:  
Pedestrian and Bicycle Levels of Service**



**Existing Conditions DYXYghf]Ub'abX**

**6 ]WnWY'F Ydcfh'7 UfX'5 ggYgga Ybhg**



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**Ryan Hicks, Congestion Management Process Manager:**  
[www.ctps.org/cmp](http://www.ctps.org/cmp) | 857.702.3661 | [rhicks@ctps.org](mailto:rhicks@ctps.org)

**Casey Claude, Bicycle and Pedestrian Program Manager:**  
[www.ctps.org/bicycle-pedestrian-activities](http://www.ctps.org/bicycle-pedestrian-activities) | 857.702.3707 | [cclaude@ctps.org](mailto:cclaude@ctps.org)

# Pedestrian Report Card Assessment (PRCA): Roadway Segment

## Roadway Segment Location

Route 28 in Milton (Brook Rd and Reesdale Rd)

Grading Categories <sup>[1]</sup>	Score	Rating
Safety	1.8	Fair
System Preservation	2.0	Fair
Capacity Management and Mobility	2.3	Good
Economic Vitality	2.0	Fair

## Transportation Equity<sup>[2]</sup>

High Priority Area	
Moderate Priority Area	√
Low Priority Area	

[1] **Poor** = 0 to 1.7; **Fair** = 1.8 to 2.2; **Good** = 2.3 to 3.0

[2] **Low** = 0 or 1 Factor; **Moderate** = 2 or 3 Factors; **High** = 4 or 5 Factors

# Grading Categories: Scoring Breakdown Roadway Segment

Capacity Management and Mobility			
Performance Measure <sup>[1]</sup>	Percentage	Score (out of 3.0)	Rating
Sidewalk Presence	50%	3	Good
Crosswalk Presence	33%	1	Poor
Walkway Width	17%	3	Good
<b>GRADING CATEGORY TOTAL<sup>[2]</sup></b> (Sidewalk Presence Score * 0.5) + (Crosswalk Presence Score * 0.33) + (Walkway Width Score * 0.17)	<b>100%</b>	<b>2.3</b>	<b>Good</b>

Economic Vitality			
Performance Measure <sup>[1]</sup>	Percentage	Score (out of 3.0)	Rating
Pedestrian Volumes	50%	2	Fair
Adjacent Bicycle Accommodations	50%	2	Fair
<b>GRADING CATEGORY TOTAL<sup>[2]</sup></b> (Pedestrian Volumes Score * 0.5) + (Adjacent Bicycle Accommodations Score * 0.5)	<b>100%</b>	<b>2</b>	<b>Fair</b>

Safety			
Performance Measure <sup>[1]</sup>	Percentage	Score (out of 3.0)	Rating
Pedestrian Crashes	60%	2	Fair
Pedestrian-Vehicle Buffer	20%	2	Fair
Vehicle Travel Speed	20%	1	Poor
<b>GRADING CATEGORY TOTAL<sup>[2]</sup></b> (Pedestrian Crashes Score * 0.6) + (Pedestrian-Vehicle Buffer Score * 0.2) + (Vehicle Travel Speed Score * 0.2)	<b>100%</b>	<b>1.8</b>	<b>Fair</b>

System Preservation			
Performance Measure <sup>[1]</sup>	Percentage	Score (out of 3.0)	Rating
Sidewalk Condition	100%	2	Fair

Transportation Equity Factors <sup>[3]</sup>	
Area Condition	Yes/No
Low-Income Population ≥ 32.32%	
Minority Population ≥ 28.19%	√
More than 6.69% of Population > 75 Years of Age	√
More than 16.15% of Households w/o Vehicle	
Within ¼ Mile of School/College	√

[1] Poor = 1.0; Fair = 2.0; Good = 3.0

[2] Poor = 0 to 1.7; Fair = 1.8 to 2.2; Good = 2.3 to 3.0

[3] Use these factors to determine Transportation Equity priority level (front)

# Roadway Segment Notes

## Detailed Performance Measure Information

Grading Category	Performance Measure	Features of Analyzed Locations
<b>Capacity Management and Mobility</b>	Sidewalk Presence	Standard sidewalks on either side of the road
	Crosswalk Presence	7 crosswalks in 1.6 miles (4 crosswalks per mile)
	Walkway Width	Standard width (5.5 feet)
<b>Economic Vitality</b>	Pedestrian Volumes	5-60 pedestrians per hour
	Adjacent Bicycle Accommodations	Sharrows for the most part
<b>Safety</b>	Pedestrian Crashes	2 pedestrian and 2 bicycle crashes
	Pedestrian-Vehicle Buffer	7 feet (3 feet grass buffer and 4 feet shoulder)
	Vehicle Travel Speed	30 mph and 45 mph
<b>System Preservation</b>	Sidewalk Condition	Fair





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# Pedestrian Report Card Assessment (PRCA): Roadway Segment

## Roadway Segment Location

Route 28 in Milton (Randolph Ave)

Grading Categories <sup>[1]</sup>	Score	Rating
Safety	1.6	Poor
System Preservation	2.0	Fair
Capacity Management and Mobility	2.3	Good
Economic Vitality	1.5	Poor

## Transportation Equity<sup>[2]</sup>

High Priority Area	
Moderate Priority Area	√
Low Priority Area	

[1] **Poor** = 0 to 1.7; **Fair** = 1.8 to 2.2; **Good** = 2.3 to 3.0

[2] **Low** = 0 or 1 Factor; **Moderate** = 2 or 3 Factors; **High** = 4 or 5 Factors

# Grading Categories: Scoring Breakdown Roadway Segment

Capacity Management and Mobility			
Performance Measure <sup>[1]</sup>	Percentage	Score (out of 3.0)	Rating
Sidewalk Presence	50%	3	Good
Crosswalk Presence	33%	1	Fair
Walkway Width	17%	3	Good
<b>GRADING CATEGORY TOTAL<sup>[2]</sup></b> (Sidewalk Presence Score * 0.5) + (Crosswalk Presence Score * 0.33) + (Walkway Width Score * 0.17)	<b>100%</b>	<b>2.3</b>	<b>Good</b>

Economic Vitality			
Performance Measure <sup>[1]</sup>	Percentage	Score (out of 3.0)	Rating
Pedestrian Volumes	50%	2	Fair
Adjacent Bicycle Accommodations	50%	1	Poor
<b>GRADING CATEGORY TOTAL<sup>[2]</sup></b> (Pedestrian Volumes Score * 0.5) + (Adjacent Bicycle Accommodations Score * 0.5)	<b>100%</b>	<b>1.5</b>	<b>Poor</b>

[1] Poor = 1.0; Fair = 2.0; Good = 3.0

[2] Poor = 0 to 1.7; Fair = 1.8 to 2.2; Good = 2.3 to 3.0

[3] Use these factors to determine Transportation Equity priority level (front)

Safety			
Performance Measure <sup>[1]</sup>	Percentage	Score (out of 3.0)	Rating
Pedestrian Crashes	60%	2	Fair
Pedestrian-Vehicle Buffer	20%	1	Poor
Vehicle Travel Speed	20%	1	Poor
<b>GRADING CATEGORY TOTAL<sup>[2]</sup></b> (Pedestrian Crashes Score * 0.6) + (Pedestrian-Vehicle Buffer Score * 0.2) + (Vehicle Travel Speed Score * 0.2)	<b>100%</b>	<b>1.6</b>	<b>Poor</b>

System Preservation			
Performance Measure <sup>[1]</sup>	Percentage	Score (out of 3.0)	Rating
Sidewalk Condition	100%	2.0	Fair

Transportation Equity Factors <sup>[3]</sup>	
Area Condition	Yes/No
Low-Income Population ≥ 32.32%	
Minority Population ≥ 28.19%	√
More than 6.69% of Population > 75 Years of Age	√
More than 16.15% of Households w/o Vehicle	
Within ¼ Mile of School/College	√

# Roadway Segment Notes

## Detailed Performance Measure Information

Grading Category	Performance Measure	Features of Analyzed Locations
<b>Capacity Management and Mobility</b>	Sidewalk Presence	Standard sidewalks on either side of the road
	Crosswalk Presence	4 crosswalks in 1.7 miles (2 crosswalks per mile)
	Walkway Width	Standard width (5.5 feet)
<b>Economic Vitality</b>	Pedestrian Volumes	5-60 pedestrians per hour
	Adjacent Bicycle Accommodations	None
<b>Safety</b>	Pedestrian Crashes	1 pedestrian and 2 bicycle crashes
	Pedestrian-Vehicle Buffer	None
	Vehicle Travel Speed	45 mph
<b>System Preservation</b>	Sidewalk Condition	Fair



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# Bicycle Report Card

## Roadway Segment Location

Route 28 in Milton (Brook Rd and Reedsdale Rd)

Grading Categories	Score	Grade
Safety	32	F
System Preservation	75	C
Capacity Management and Mobility	60	D
Economic Vitality	50	F

## Transportation Equity

High Priority Area	
Moderate Priority Area	√
Low Priority Area	

### Grading

- A: 90–100 *Excellent*
- B: 80–89 *Satisfactory*
- C: 70–79 *Acceptable*
- D: 60–69 *Needs Improvement*
- F: 59–0 *Not recommended for bicycle travel*

### Transportation Equity Priority

- High:** Four (4) or Five (5) Factors
- Moderate:** Two (2) or Three (3) Factors
- Low:** Zero (0) or One (1) Factor



# Grading Categories: Scoring Breakdown

Capacity Management and Mobility			
Performance Measure	Percentage	Points	Grade
Bicycle Facility Presence	50%	20	F
Proximity to Bike Network	33%	100	A
Proximity to Transit	17%	100	A
<b>Total</b>	<b>100%</b>	<b>60</b>	<b>D</b>

Economic Vitality			
Performance Measure	Percentage	Points	Grade
Bike Rack Presence	50%	0	F
Land Use	50%	100	A
<b>Total</b>	<b>100%</b>	<b>50</b>	<b>F</b>

## Grading

**A:** 90–100 *Excellent*

**B:** 80–89 *Satisfactory*

**C:** 70–79 *Acceptable*

**D:** 60–69 *Needs Improvement*

**F:** 59–0 *Not recommended for bicycle travel*

## Transportation Equity Priority

**High:** Four (4) or Five (5) Factors

**Moderate:** Two (2) or Three (3) Factors

**Low:** Zero (0) or One (1) Factor

Safety			
Performance Measure	Percentage	Points	Grade
Bicycle Facility Presence	33%	20	F
Absence of Bicycle Crashes	33%	40	F
Bicyclist Operating Space	17%	0	F
Number of Travel Lanes	17%	70	C
<b>Total</b>	<b>100%</b>	<b>32</b>	<b>F</b>

System Preservation			
Performance Measure	Percentage	Points	Grade
Bicycle Facility Continuity	50%	100	F
Bicycle Facility Condition	50%	50	F
<b>Total</b>	<b>100%</b>	<b>75</b>	<b>C</b>

Transportation Equity Priority	
Area Condition	Yes/No
Low Income Population => 32.32%	
Minority Population => 28.19%	√
18.2%+ of Population < 16 Years Old	√
16.15%+ of Households w/o Vehicle	
Within ¼ Mile of School/College	√

# Notes

## Detailed Performance Measure Information

Goal	Performance Measure	Features of Analyzed Locations
<b>Capacity Management and Mobility</b>	Bicycle Facility Presence	Sharrows/shared-use lane
	Proximity to Bike Network	Bicycle facility network within ¼ mile
	Proximity to Transit	Has a bus route on it and several stops in the corridor
<b>Economic Vitality</b>	Bike Rack Presence	No bicycle rack in the segment
	Land Use	Mixed use—educational, recreational, residential
<b>Safety</b>	Bicycle Facility Presence	Sharrows/shared-use lane
	Absence of Bicycle Crashes	2 bicycle crashes
	Bicyclist Operating Space	Bicycle operates in mixed traffic
	Number of Travel Lanes	Two travel lanes per direction
<b>System Preservation</b>	Bicycle Facility Continuity	Length of bicycle facility matches length of segment
	Bicycle Facility Condition	Bicycle facility in fair condition



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# Bicycle Report Card

## Roadway Segment Location

Route 28 in Milton (Randolph Ave)

Grading Categories	Score	Grade
Safety	32	F
System Preservation	0	F
Capacity Management and Mobility	50	F
Economic Vitality	50	F

## Transportation Equity

High Priority Area	
Moderate Priority Area	√
Low Priority Area	

### Grading

- A: 90–100 *Excellent*
- B: 80–89 *Satisfactory*
- C: 70–79 *Acceptable*
- D: 60–69 *Needs Improvement*
- F: 59–0 *Not recommended for bicycle travel*

### Transportation Equity Priority

- High:** Four (4) or Five (5) Factors
- Moderate:** Two (2) or Three (3) Factors
- Low:** Zero (0) or One (1) Factor

# Grading Categories: Scoring Breakdown

Capacity Management and Mobility			
Performance Measure	Percentage	Points	Grade
Bicycle Facility Presence	50%	0	F
Proximity to Bike Network	33%	100	A
Proximity to Transit	17%	100	A
<b>Total</b>	<b>100%</b>	<b>50</b>	<b>F</b>

Economic Vitality			
Performance Measure	Percentage	Points	Grade
Bike Rack Presence	50%	0	F
Land Use	50%	100	A
<b>Total</b>	<b>100%</b>	<b>50</b>	<b>F</b>

## Grading

- A: 90–100 *Excellent*
- B: 80–89 *Satisfactory*
- C: 70–79 *Acceptable*
- D: 60–69 *Needs Improvement*
- F: 59–0 *Not recommended for bicycle travel*

## Transportation Equity Priority

- High:** Four (4) or Five (5) Factors
- Moderate:** Two (2) or Three (3) Factors
- Low:** Zero (0) or One (1) Factor

Safety			
Performance Measure	Percentage	Points	Grade
Bicycle Facility Presence	33%	0	F
Absence of Bicycle Crashes	33%	40	F
Bicyclist Operating Space	17%	0	F
Number of Travel Lanes	17%	70	C
<b>Total</b>	<b>100%</b>	<b>32</b>	<b>F</b>

System Preservation			
Performance Measure	Percentage	Points	Grade
Bicycle Facility Continuity	50%	0	F
Bicycle Facility Condition	50%	0	F
<b>Total</b>	<b>100%</b>	<b>0</b>	<b>F</b>

Transportation Equity Priority	
Area Condition	Yes/No
Low Income Population => 32.32%	
Minority Population => 28.19%	√
18.2%+ of Population < 16 Years Old	√
16.15%+ of Households w/o Vehicle	
Within ¼ Mile of School/College	√

# Notes

## Detailed Performance Measure Information

Goal	Performance Measure	Features of Analyzed Locations
<b>Capacity Management and Mobility</b>	Bicycle Facility Presence	Sharrows/shared-use lane
	Proximity to Bike Network	Bicycle facility network within ¼ mile
	Proximity to Transit	Has a bus route on it and several stops in the corridor
<b>Economic Vitality</b>	Bike Rack Presence	No bicycle rack in the segment
	Land Use	Mixed use—educational, recreational, residential
<b>Safety</b>	Bicycle Facility Presence	Sharrows/shared-use lane
	Absence of Bicycle Crashes	2 bicycle crashes
	Bicyclist Operating Space	Bicycle operates in mixed traffic
	Number of Travel Lanes	Two travel lanes per direction
<b>System Preservation</b>	Bicycle Facility Continuity	Length of bicycle facility matches length of segment
	Bicycle Facility Condition	Bicycle facility in fair condition

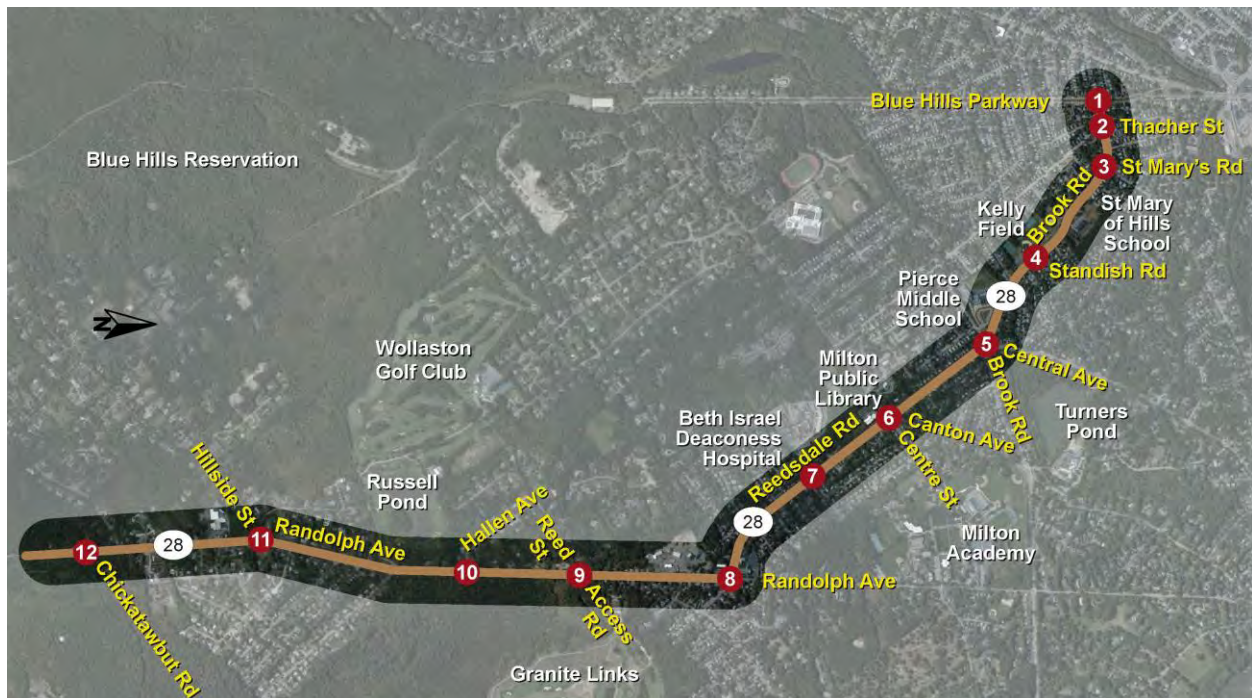


## Appendix G: Survey Comments

## Milton Route 28 (Brook Road, Reedsdale Road, and Randolph Avenue) Survey

The Boston Region Metropolitan Planning Organization (MPO), in conjunction with the Massachusetts Department of Transportation (MassDOT) and the Town of Milton, is conducting a transportation planning study for a segment of Route 28 in Milton. The segment of focus is from Blue Hill Parkway to the Quincy city line, as shown in the map below. The objectives of the study are to collect data, analyze existing roadway conditions, identify problems and needs, and develop short-, mid-, and long-term community-supported solutions to provide safe and comfortable travel for all uses and users of the roadway. This survey will help MPO staff to understand the public's perception of the existing transportation problems and needs, and collect ideas to address them. The MPO staff will consider the survey responses as solutions are developed for safe and efficient accommodations in the corridor. Please take a few minutes to complete this brief survey.

*This study will not reevaluate the Route 28 and Chickatawbut Road intersection due to an ongoing project. However, final recommendations developed for the intersection will be included in the Route 28 Priority Corridor study.*



### Route 28 (Brook Road, Reedsdale Road, and Randolph Avenue) and You

**1. What is your relationship to the Route 28 corridor? (Check all that apply)**

- I live along Route 28
- I work along Route 28
- I commute through Route 28
- I drive to school, hospital, library, or recreational area along Route 28
- Other (please specify)

**2. How do you typically travel on Route 28? (Check all that apply)**

- Drive alone in an automobile
- Drive others or travel as a passenger in an automobile
- Walk
- Bicycle
- Ride on the bus (Massachusetts Bay Transportation Authority or Brockton Area Transit Authority)
- Other (please specify)

**3. Please indicate any transportation problems/issues that you encounter while on Route 28. (Check all that apply)**

**3.1 Safety Issues**

- High speed of vehicles
- Crashes and vehicle conflict points
- Difficulty crossing Route 28
- Poor street lighting
- Other (please specify)

**3.2 Congestion Issues**

- High volumes of traffic
- Congestion and long delays at signalized intersections
- Difficulty turning into or out of side streets
- Cut-through traffic to avoid congestion
- Other (please specify)

**3.3 Pedestrian and Bicycle Issues**

- Sidewalks in poor condition
- Lack of accessible curb/wheelchair ramps
- Lack of accommodation for bicycles (bike lanes, multiuse path, or useable shoulders)
- High volumes of traffic
- High speed of vehicles
- Difficulty crossing Route 28 (location or absence of crosswalks)
- Gaps in sidewalk network
- Insufficient pedestrian crossing times at the signalized intersections
- Poor street lighting
- Unwelcoming streetscape/landscape
- Other (please specify)

**3.4 Bus transit service issues**

- Bus stop amenities (shelters, benches, lighting, or quality of bus stop)
- Frequency of bus service
- Bus stops difficult to reach via sidewalks and bicycle facilities
- Routes and bus stops not close to my destination (work, school, recreational, hospital)

- Other (please specify)

**3.5 Access Management Issues**

- Access to properties and businesses along the corridor
- Access to schools (school traffic issues)
- Other (please specify)

**4. Please use the space below to describe safety and operational problems at specific locations (intersections or roadway segments) that you would like to see addressed.**

Click here to enter text.

**5. Automobile Opportunities: What investments do you believe would improve driving conditions on Route 28? (Check all that apply)**

- Reduce congestion and delay at intersections
- Reduce crashes and vehicle conflict points
- Reduce vehicle speeds
- Reduce turning conflicts
- Reduce cut-through traffic
- Improve sight lines and distances at intersections
- Improve roadway lighting
- Other (please specify)

**6. Bicycle Opportunities: What investments would make it more likely for you to bicycle along Route 28? (Check all that apply)**

- Multiuse lanes (cycle tracks or shared pedestrian and bicycle sidewalks)
- Higher quality bicycle lanes (wider space between bicycle and vehicular travel lanes)
- Continuous and connected bicycle facilities (access to more destinations by bicycling)
- Bicycle parking at my destination (schools, hospital, library, recreation areas)
- Reduce vehicle speed through better roadway design or law enforcement
- Improve roadway lighting
- Other, please specify

**7. Pedestrian Opportunities: What investments would make it more likely for you to walk along Route 28? (Check all that apply)**

- Higher quality sidewalks
- Continuous and connected pedestrian sidewalks (access to more destinations by walking)

- Wider space/landscaping between sidewalk and vehicular travel lanes
- Corridor-wide Americans with Disability Act access for users with a range of abilities
- Reduce vehicle speed
- Improve roadway lighting
- Greener and more welcoming streetscape
- Other, please specify

**8. Transit Opportunities: What transportation investments would make it more likely for you to ride the bus in the Route 28 corridor? (Check all that apply)**

- Bus routes and stops closer to my destination (work, school, recreational, hospital, library)
- Bus stops easier and safer to reach via sidewalks/crosswalks and bicycle facilities
- Bus stop amenities (shelters, benches, lighting, etc.)
- More reliable bus trip times
- More frequent bus service
- Improved roadway lighting
- Other, please specify

**9. Please use the space below to describe specific improvements that you would like to see implemented in the Route 28 corridor.**

Click here to enter text.

**Thank you!**



## Common comments encountered

### **Brook Road at Thacher Street**

- Thacher Street to Highland Street is a cut through road to get to Randolph and thus cars go very fast down Thacher Street.
- Far too many non-local people cutting through on Highland Street, causing extra traffic at the Canton-Highland-Thatcher intersection.

### **Brook Road at St. Mary's Road**

- Asphalt on St. Mary's Road is breaking up due to higher volume of traffic and the fact that it hasn't been repaved in a long time.
- Combination of curve in the road, four lanes of traffic, and cut through nature of St. Mary's Road makes this a dangerous intersection to cross on foot, even when the walk sign is on.
- Pickup and drop-off at St. Mary's School is also very dangerous for kids, parents, grandparents on foot, and vehicles merging into one lane.

### **Brook Road at Standish Road**

- Cars run the light on Brook Road at Standish Road.
- Several crashes have occurred at the intersection of Route 28 and Windsor Road near Kelly Field (seems annual).
- Kelly Field is full of kids and four lanes of traffic is not safe for crossing. Also, overflow parking for Kelly Field onto the Route 28 leads to limited visibility and dangerous situations.

### **Brook Road at Reedsdale Road and Central Avenue**

- The Pierce Middle School intersection also is difficult as it has five roads leading into it. Maybe if the real roundabout works at Chickatawbut, it could be considered at Brook Road and Reedsdale Road and Central Avenue intersection.
- At Brook Road and Reedsdale Road intersection, the light is badly synchronized.
- The intersection at Central Avenue, Brook Road, and Reedsdale Road needs better signage cars regularly enter Brook Road from wrong direction or turn from both lanes on Route 28 to Brook Road.
- Traffic speeds in the vicinity of Pierce Middle School and Saint Mary's School is dangerously high. The high volumes and high speeds create sustained accidents in this area and jeopardizes student safety. It's a big liability to the town and state. There should be better signage at the intersection of Route 28 and Central Street indicating that Route 28 bears left instead of onto Central Avenue.
- Everyday dozens of cars try to beat the light at the intersection and turn into Central Avenue at speeds exceeding speeds at 50 mph. The intersection of Brook Road, Central Avenue and Reedsdale Road has lots of red light runners at high speeds (and right by a school!)
- The Pierce Middle School intersection (5-way intersection at Reedsdale Road/Brook Road) is really out of control. At almost every red light during the school commute hours, one can watch cars drive through red lights. There is virtually no police presence. Speeds are high, as a resident and parent I think it is urgent that the speed limit be reduced to 25 mph.

### **Reedsdale Road at Canton Avenue and Centre Street**

- Due to the signals at the Milton Public Library when crossing Route 28 from Centre Street to Canton Avenue, the traffic can back up quickly as vehicles attempt to enter the Library parking lot.
- Intersection of Centre Street, Canton Avenue, and Reedsdale Road has numerous accidents due to running red lights and speeding cars.
- The intersection of Reedsdale Road with Center and Canton Avenue and Centre Street has an extremely short pedestrian light, which also takes a very long time to come on. It seems as a pedestrian you have to wait for an entire cycle of lights before the walk signal comes on. The only way to cross the whole intersection is to cut diagonally through two or more streets. There's not enough time in the signal to cross one road at a time. This always feels dangerous.
- There is a decent amount of pedestrian traffic at the intersection, people going to the library, for instance—and I think there would be more if the intersection were safer to cross.
- The five leg intersection on Reedsdale Road, Center Street, and Canton Avenue is a mess, people run the red lights every light cycle and speeding is rampant.

- Cars do not follow turn signs, especially during peak commute hours. For example, cars will be in right lane on Brook Road and continue straight onto Brook Road when signs show right lane is for turning right (either Reedsdale Road or Centre Street). Also at the same intersection going the opposite direction, cars from the middle lane will make a soft left onto Centre Street cutting the folks off that are in the left turn lane to go on Centre Street.
- The intersection has issues for pedestrians and drivers. Left turn leaving library not safe. Crosswalks need visual and auditory signals that are must stronger. Many drivers do not realize that 5 way intersection is a dangerous area.

#### **Randolph Avenue at Reedsdale Road**

- Intersection of Randolph Avenue and Reedsdale Road can back traffic up on Randolph Avenue to Centre Street, which creates a traffic queue on Centre Street preventing residents going from Centre Lane and Sias Lane on to Canton Avenue.
- Very long waits for light cycle at Randolph and Reedsdale - both as a pedestrian as well as a motorist (particularly coming from Pleasant Street.)
- During rush hour, the light by Saint Elizabeth Rectory, at the intersection of Reedsdale Road and Randolph Avenue when you are going southbound, the light is not long enough to let enough cars through. As a result, the buildup of traffic is terrible and it often backs up to the light at Milton Academy and sometimes even beyond that.
- Sometimes, unnecessary waits for non-existing cross traffic at Reedsdale Road crossing Randolph Avenue and heading toward Pleasant Street.
- Cars don't stop at intersection of Reedsdale Road and Randolph Avenue, even when there is a walk signal. Kids often cross there after school, tragedy waiting to happen.

#### **Randolph Avenue at Pleasant Street**

- I live on the one way section of Pleasant Street off of Randolph Avenue. To get to my street, I have to cross two lanes of oncoming traffic to take a sharp left in front of Bents. It is difficult to gauge oncoming traffic because one lane is traveling at high speeds and the other lane is slowing down to veer right onto Pleasant Street. I was also rear ended while stopped waiting to take the left. Traffic travels so fast that I need to brake and signal far before my turn, and still people swerve to go around me at high speeds.
- Making left hand turn off 28 South onto Pleasant Street is very difficult.
- Turning left onto Pleasant Street from southbound Route 28 is incredibly dangerous, also no crosswalk for pedestrians here, even though sidewalk across the street ends.
- There needs to be a stop light at the intersections of Route 28 at Pleasant Street and Pleasant Street at Reedsdale Road. There are school bus stops at each intersection and as we speak cars are using that small stretch of street as a cut through.
- There is often a backup on Pleasant Street because of the light at Reedsdale Road and Randolph Avenue. It seems likely that traffic is being directed to Pleasant Street to avoid traffic backup on the Expressway.
- I live at the intersection of Randolph Avenue and Pleasant Street. All day and night people traveling northbound on Route 28 turn onto Pleasant Street at a high rate of speed to cut through to East Milton. This intersection is unprotected and dangerous. There needs to be a traffic light installed at this intersection.

#### **Randolph Avenue at Hallen Avenue and Highland Street**

- I am unable to make a left out of Hallen Avenue most days. It is too dangerous.
- Hallen Avenue constantly have accidents and even deaths.
- Hallen Avenue is where most accidents take place. There needs to be traffic lights at Wollaston Golf Course & Pepsi Plant. In addition, there needs to be a solution for speeding on Randolph Avenue.
- Route 28 at the golf course is always bad or even up at Hallen Avenue.
- I would like to see the traffic flow improved to the point where Highland Street is no longer seen as a better alternative to Route 28.

#### **Randolph Avenue at Hillside Street**

- Drivers do not respect traffic light and block the intersection at Hillside Street all the time.
- There are several crashes a month right outside our house near Hillside Street and Randolph Avenue. People run red light or more commonly speed and weave in and out of traffic. When we

turn left into our driveway we often see cars flying up behind us trying to change lanes at the last minute.

- The conditions of the sidewalks between Hillside Street and Highland Street are horrific. They are uneven and there are a ton of downed wires and tree branches sticking out into the sidewalks. Walking with our baby in a stroller is nearly impossible.
- The intersection at Hillside Street has high number of crashes
  - Difficulty turning left maneuvers
  - Highly congested during peak periods
  - Inadequate intersection traffic capacity
  - Merge from two lanes to one lane
  - Long traffic queues on all approaches, regardless of the light cycle.
- Something needs to be done about the speeding and people running the light at Hillside Street. This is a pure traffic enforcement issue. Presence will help, not a sign that asks people to slow down or a fake police car.
- Half of the crosswalk buttons at 28 and Hillside have been broken for over two years. You have been notified and done nothing.

### **Pedestrian and Bicycle Issues**

- Need to clarify if parking is allowed on street at Kelly Field. New plantings and sidewalk last year helped. But need more parking for Kelly in general.
- It is not safe to walk along the Randolph Avenue and there are no bicycles lanes leaving those of us in the side neighborhoods feeling like we cannot exercise or leave our neighborhoods unless we drive, which is also unsafe.
- No way of crossing from Randolph Avenue to Pleasant Street to the cafe shop because of high speed of vehicles
- The light at Randolph Avenue and Reedsdale Road is not long enough for pedestrians.
- High speed of vehicles are a huge problem as there are lots of kids who live along the route and it is incredibly dangerous. The noise from high speed vehicles is very bothersome.
- Dangerous intersections at Pierce Middle School and at the intersection with Blue Hills Parkway for pedestrians and bicyclists.
- Speed has become a major safety issue along Brook Road (Route 28) where I live. It is very dangerous to cross Brook Road to either walk to school or parks or library. Walking and biking to school is encouraged and residents would love to, but the narrow sidewalks make it very dangerous for kids to bike next to cars driving 60mph. There have been many car accidents due to speeding and kids put in danger from crossing the street. Traffic lights are not respected even in front of schools. Would love to see this section of Route 28 with one lane for cars in each direction, parking and bike path for safety and pollution.
- No crosswalk for pedestrians at the intersection of Randolph Avenue and Pleasant Street, even though sidewalk across the street ends there.
- I ride my bike to work every day, and I cross Route 28 at Standish Road light to avoid a lot of cars. While cars on Standish triggers the traffic light to stop traffic on Route 28, bikes do not. So I have to get off my bike and hit the pedestrian crosswalk button. On a bike, I do not need the 15-20 second pedestrian signal duration, only about 5 seconds that a car would need. So if the Standish traffic light sensor was set for bikes and cars it would solve the problem and improve safety and operations.
- Longer crosswalk times at the intersection of Canton Avenue/Centre Street/Reedsdale Road (very hard to get across with stroller in time!)
- Cars don't stop at intersection of Route 28 and Randolph Avenue, even when there is a walk signal. Kids often cross there after school, tragedy waiting to happen.

**Appendix H:  
MassDOT Highway Division  
Project Development Process**



## Overview of the Project Development Process

Transportation decision-making is complex and can be influenced by legislative mandates, environmental regulations, financial limitations, agency programmatic commitments, and partnering opportunities. Decision-makers and reviewing agencies, when consulted early and often throughout the project development process, can ensure that all participants understand the potential impact these factors can have on project implementation. Project development is the process that takes a transportation improvement from concept through construction.

The MassDOT Highway Division has developed a comprehensive project development process which is contained in Chapter 2 of the *MassDOT Highway Division's Project Development and Design Guide*. The eight-step process covers a range of activities extending from identification of a project need, through completion of a set of finished contract plans, to construction of the project. The sequence of decisions made through the project development process progressively narrows the project focus and, ultimately, leads to a project that addresses the identified needs. The descriptions provided below are focused on the process for a highway project, but the same basic process will need to be followed for non-highway projects as well.

### **1. Needs Identification**

For each of the locations at which an improvement is to be implemented, MassDOT leads an effort to define the problem, establishes project goals and objectives, and defines the scope of the planning needed for implementation. To that end, it has to complete a Project Need Form (PNF), which states in general terms the deficiencies or needs related to the transportation facility or location. The PNF documents the problems and explains why corrective action is needed. For this study, the information defining the need for the project will be drawn primarily, perhaps exclusively, from the present report. Also, at this point in the process, MassDOT meets with potential participants, such as the Metropolitan Planning Organization (MPO) and community members, to allow for an informal review of the project.

The PNF is reviewed by the MassDOT Highway Division district office whose jurisdiction includes the location of the proposed project. MassDOT also sends the PNF to the MPO, for informational purposes. The outcome of this step determines whether the project requires further planning, whether it is already well supported by prior planning studies, and, therefore, whether it is ready to move forward into the design phase, or whether it should be dismissed from further consideration.

### **2. Planning**

This phase will likely not be required for the implementation of the improvements proposed in this planning study, as this planning report should constitute the outcome of this step. However, in general, the purpose of this implementation step is for the project proponent to identify issues, impacts, and approvals that may need to be obtained, so that the subsequent design and permitting processes are understood.

The level of planning needed will vary widely, based on the complexity of the project. Typical tasks include: define the existing context, confirm project need, establish goals and objectives, initiate public outreach, define the project, collect data, develop and analyze alternatives, make recommendations, and provide documentation. Likely outcomes include consensus on the project definition to enable it to move forward into environmental documentation (if needed) and design, or a recommendation to delay the project or dismiss it from further consideration.

### **3. Project Initiation**

At this point in the process, the proponent, MassDOT Highway Division, fills out a Project Initiation Form (PIF) for each improvement, which is reviewed by its Project Review Committee (PRC) and the MPO. The PRC is composed of the Chief Engineer, each District Highway Director, and representatives of the Project Management, Environmental, Planning, Right-of-Way, Traffic, and Bridge departments, and the MassDOT Federal Aid Program Office (FAPO). The PIF documents the project type and description, summarizes the project planning process, identifies likely funding and project management responsibility, and defines a plan for interagency and public participation. First the PRC reviews and evaluates the proposed project based on the MassDOT's statewide priorities and criteria. If the result is positive, MassDOT Highway Division moves the project forward to the design phase, and to programming review by the MPO. The PRC may provide a Project Management Plan to define roles and responsibilities for subsequent steps. The MPO review includes project evaluation based on the MPO's regional priorities and criteria. The MPO may assign project evaluation criteria score, a Transportation Improvement Program (TIP) year, a tentative project category, and a tentative funding category.

### **4. Environmental Permitting, Design, and Right-of-Way Process**

This step has four distinct but closely integrated elements: public outreach, environmental documentation and permitting (if required), design, and right-of-way acquisition (if required). The outcome of this step is a fully designed and permitted project ready for construction. However, a project does not have to be fully designed in order for the MPO to program it in the TIP. The sections below provide more detailed information on the four elements of this step of the project development process.

#### **Public Outreach**

Continued public outreach in the design and environmental process is essential to maintain public support for the project and to seek meaningful input on the design elements. The public outreach is often in the form of required public hearings, but can also include less formal dialogues with those interested in and affected by a proposed project.

#### **Environmental Documentation and Permitting**

The project proponent, in coordination with the Environmental Services section of the MassDOT Highway Division, will be responsible for identifying and complying with all applicable federal, state, and local environmental laws and requirements. This includes determining the appropriate project category for both the Massachusetts Environmental Protection Act (MEPA) and the National Environmental Protection Act (NEPA). Environmental documentation and permitting is often completed in conjunction with the **Preliminary Design** phase described below.

#### **Design**

There are three major phases of design. The first is **Preliminary Design**, which is also referred to as the 25-percent submission. The major components of this phase include full survey of the project area, preparation of base plans, development of basic geometric layout, development of preliminary cost estimates, and submission of a functional design report. Preliminary Design, although not required to, is often completed in conjunction with the Environmental Documentation and Permitting. The next phase is **Final Design**, which is also referred to as the 75-percent and 100-percent submission. The major components of this phase include preparation of a subsurface exploratory plan (if required), coordination of utility relocations, development of traffic management plans through construction zones, development of final cost estimates, and refinement and finalization of the construction plans. Once Final Design is complete, a full set of **Plans, Specifications, and Estimates (PS&E)** is developed for the project.

## Right-of-Way Acquisition

A separate set of Right-of-Way plans are required for any project that requires land acquisition or easements. The plans must identify the existing and proposed layout lines, easements, property lines, names of property owners, and the dimensions and areas of estimated takings and easements.

### **5. Programming (Identification of Funding)**

Programming, which typically begins during the design phase, can actually occur at any time during the process, from planning to design. In this step, which is distinct from project initiation, the proponent requests that the MPO place the project in the region's Transportation Improvement Program (TIP). The proponent requesting the project's listing on the TIP can be the community or it can be one of the MPO member agencies (the Regional Planning Agency, MassDOT, and the Regional Transit Authority). The MPO then considers the project in terms of state and regional needs, evaluation criteria, and compliance with the regional Transportation Plan and decides whether to place it in the draft TIP for public review and then in the final TIP.

### **6. Procurement**

Following project design and programming of a highway project, the MassDOT Highway Division publishes a request for proposals. It then reviews the bids and awards the contract to the qualified bidder with the lowest bid.

### **7. Construction**

After a construction contract is awarded, MassDOT Highway Division and the contractor develop a public participation plan and a management plan for the construction process.

### **8. Project Assessment**

The purpose of this step is to receive constituents' comments on the project development process and the project's design elements. MassDOT Highway Division can apply what is learned in this process to future projects.

## Project Development Schematic Timetable

Description	Schedule Influence	Typical Duration
<p><b>Step I: Problem/Need/Opportunity Identification</b> The proponent completes a Project Need Form (PNF). This form is then reviewed by the MassDOT District office which provides guidance to the proponent on the subsequent steps of the process.</p>	<p>The Project Need Form has been developed so that it can be prepared quickly by the proponent, including any supporting data that is readily available. The District office shall return comments to the proponent within one month of PNF submission.</p>	<p>1 to 3 months</p>
<p><b>Step II: Planning</b> Project planning can range from agreement that the problem should be addressed through a clear solution to a detailed analysis of alternatives and their impacts.</p>	<p>For some projects, no planning beyond preparation of the Project Need Form is required. Some projects require a planning study centered on specific project issues associated with the proposed solution or a narrow family of alternatives. More complex projects will likely require a detailed alternatives analysis.</p>	<p>Project Planning Report: 3 to 24+ months</p>
<p><b>Step III: Project Initiation</b> The proponent prepares and submits a Project Initiation Form (PIF) and a Transportation Evaluation Criteria (TEC) form in this step. The PIF and TEC are informally reviewed by the Metropolitan Planning Organization (MPO) and MassDOT District office, and formally reviewed by the PRC.</p>	<p>The PIF includes refinement of the preliminary information contained in the PNF. Additional information summarizing the results of the planning process, such as the Project Planning Report, are included with the PIF and TEC. The schedule is determined by PRC staff review (dependent on project complexity) and meeting schedule.</p>	<p>1 to 4 months</p>
<p><b>Step IV: Design, Environmental, and Right of Way</b> The proponent completes the project design. Concurrently, the proponent completes necessary environmental permitting analyses and files applications for permits. Any right of way needed for the project is identified and the acquisition process begins.</p>	<p>The schedule for this step is dependent upon the size of the project and the complexity of the design, permitting, and right-of-way issues. Design review by the MassDOT district and appropriate sections is completed in this step.</p>	<p>3 to 48+ months</p>
<p><b>Step V: Programming</b> The MPO considers the project in terms of its regional priorities and determines whether or not to include the project in the draft Regional Transportation Improvement Program (TIP) which is then made available for public comment. The TIP includes a project description and funding source.</p>	<p>The schedule for this step is subject to each MPO's programming cycle and meeting schedule. It is also possible that the MPO will not include a project in its Draft TIP based on its review and approval procedures.</p>	<p>3 to 12+ months</p>
<p><b>Step VI: Procurement</b> The project is advertised for construction and a contract awarded.</p>	<p>Administration of competing projects can influence the advertising schedule.</p>	<p>1 to 12 months</p>
<p><b>Step VII: Construction</b> The construction process is initiated including public notification and any anticipated public involvement. Construction continues to project completion.</p>	<p>The duration for this step is entirely dependent upon project complexity and phasing.</p>	<p>3 to 60+ months</p>
<p><b>Step VIII: Project Assessment</b> The construction period is complete and project elements and processes are evaluated on a voluntary basis.</p>	<p>The duration for this step is dependent upon the proponent's approach to this step and any follow-up required.</p>	<p>1 month</p>

Source: MassDOT Highway Division Project Development and Design Guide