Traffic Impact Study

"The Learning Experience" Day Care Center

Vernon, Connecticut

January 2022

Town of Vernon Planning and Zoning Commission
Land Use Applications

FUSS & O'NEILL

146 Hartford Road
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FUSS & O'NEILL

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Appendices **End of Report**

1 Executive Summary

Vernon Development, LLC proposes to construct a 10,000 square foot day care center at 501 Talcottville Road (Route 83) in Vernon, Connecticut. The development site is located between Route 83 (Talcottville Road) and Worcester Road, just south of Walgreens, with access provided on Dart Hill Road directly across from the western Walgreens Drive.

Expected trip generation for the weekday morning and afternoon peak hours was calculated using the ITE land use code 565 "Day Care Center." For a day care center approximately 10,000 square feet in size, a total of 110 vehicle trips (58 entering, 52 exiting) is anticipated during the morning peak hour and during the afternoon peak hour, a total of 111 vehicle trips (52 entering, 59 exiting) is expected.

The capacity analysis revealed that neither of the study intersection approaches will experience any noticeable increase in delay as a result of the proposed development traffic and neither of the intersections, with the exception of the Walgreens site driveway approach, sustain a decrease in level of service or a significant increase in the volume to capacity ratio. Following optimization of the signalized intersection of Route 83 at Dart Hill Road and Regan Road to reduce overall intersection delays, the queues for the eastbound through/right turn lane will increase by up to five vehicle lengths, the westbound left turn lane queue will increase by up to three vehicle lengths, the northbound left turn lane queue will increase by up to two vehicle lengths, and the northbound and southbound through lanes will decrease by up to seven vehicle lengths. Ample queue storage exists to accommodate these minor queue changes.

Review of the most recent three years of available crash data provided by the University of Connecticut Crash Data Repository indicated that the type and frequency of crashes reported at the study area intersections was not abnormal for the traffic volumes and geometric characteristics of the study area intersections. The proposed CTDOT full traffic signal equipment replacement project at the intersection of Route 83 at Dart Hill Road and Regan Road will improve the safety and efficiency of traffic operations at this intersection in the future.

Upon grading and the removal of vegetation along the site frontage, the sight distance triangle from the proposed site driveway location, in both directions, is not obstructed and does not encroach upon abutting landowner property. The sight distances exceed CTDOT criteria to allow for safe egress of passenger cars from the site.

Based on the results of the foregoing analysis it is the professional opinion of Fuss & O'Neill, Inc. that the proposed development will not have a significant impact to the traffic operations in the vicinity of the site.

2 Development Characteristics

As an aid to reviewers, this Summary Sheet has been included to outline the various study parameters utilized in this report. Although a full explanation of the study methodologies is included in the text of the report, this summary can serve as a useful reference for reviewers.

Applicant:
Vernon Development, LLC

Site Location:
501 Talcottville Road (Route 83)

Site Acreage:
4.6

Development Size/Type:
10,000 SF proposed day care center

Parking:
57 total parking spaces

Applications:
Town of Vernon Planning and Zoning Commission

Build/Design Year:
2023

Background Traffic Growth Factor:
0.6%

Traffic Counts:
Fuss & O'Neill – December 2021 (Turning Movement Counts)

Peak Hours Analyzed:
Weekday Morning Peak Hour – 7:00 a.m. - 8:00 a.m.
Weekday Afternoon Peak Hour – 4:30 p.m. - 5:30 p.m.

Expected Trip Generation:
Weekday Morning Peak Hour – 110 Trips (58 entering, 52 exiting)
Weekday Afternoon Peak Hour – 111 Trips (52 entering, 59 exiting)

3 Introduction

Vernon Development, LLC proposes to construct a 10,000 square foot day care center at 501 Talcottville Road (Route 83) in Vernon, Connecticut. The development site is located between Route 83 (Talcottville Road) and Worcester Road, just south of Walgreens, with access provided on Dart Hill Road directly across from the western Walgreens Drive. The development site is shown on the site location map, *Figure No. 1* of *Appendix B*. A total of 57 parking spaces will be provided. The development is expected to open in 2023.

Fuss & O'Neill has been retained to study the impact of the proposed development on traffic conditions throughout the adjacent roadway network. This report has been prepared to document the findings of the study and is being submitted to the Town of Vernon Planning and Zoning Commission in support of the project's land use applications.

4 Existing Condition

4.1 Site of Development

The existing site is identified as 501 Talcottville Road by the Town of Vernon and is located in the C (Commercial) zone. 501 Talcottville Road consists of approximately 4.6 acres. The existing site is currently vacant. The site is bounded by Walgreens to the north, commercial land use to the south, Route 83 (Talcottville Road) and a restaurant to the east, and residential land use to the west.

4.2 Adjacent Roadway Network

The adjacent roadway network consists of the following roadways:

- Dart Hill Road
- Route 83 (Talcottville Road)
- Regan Road

Dart Hill Road runs primarily east/west under town jurisdiction and extends approximately 2.2 miles from its intersection with Ellington Road and Miller Road in Vernon to its terminus at the intersection with Route 83 and Regan Road just east of the site. The roadway provides access to primarily residential land uses, commercial uses, and the Hockanum River Park Trail. In the vicinity of the site, Dart Hill Road is classified by the CTDOT as an urban collector that provides one 11-foot travel lane and a 1 to 4-foot shoulder in each direction. The roadway widens in the eastbound direction to provide two lanes along the site frontage on its approach to the traffic signal at Route 83. The posted speed limit is 30 miles per hour. A sidewalk is located on the northern side of Dart Hill Road.

Route 83 runs primarily north/south under state jurisdiction in the Town of Vernon and is designated as Talcottville Road for approximately 3.1 miles between its intersection with Route 74 (Windsorville Avenue) to the north and its intersection with Route 30 (Hartford Turnpike) to the south. The roadway provides access to the Town of Manchester to the southwest and the Town of Ellington to the north. In

the vicinity of the site, Route 83 (Talcottville Road) is classified by CTDOT as an urban principal arterial that provides four 10–12-foot lanes of travel, two in each direction, and 2–3-foot shoulders. The roadway widens for left turn lanes at the intersection with Dart Hill Road and Regan Road. The posted speed limit is 40 miles per hour. Sidewalks are available on both sides of Route 83 (Talcottville Road) north of Dart Hill Road and Regan Road and primarily on the east side of the road only south of Dart Hill Road and Regan Road.

Regan Road runs primarily east/west under town jurisdiction and extends approximately 1 mile from its intersection with Route 83 (Talcottville Road) and Dart Hill Road and continues east to its terminus at West Street. The roadway provides access to primarily residential and commercial land uses. In the vicinity of the site, Regan Road is classified by CTDOT as an urban collector that provides two 10.5-foot travel lanes, one in each direction, along with two one-foot shoulders. The posted speed limit is 25 miles per hour. Sidewalks are provided on both sides of the road between Talcottville Road and Center Road and then only on the south side of Regan Road to the east of Center Road.

4.3 Study Area Intersections

The following study area intersections were reviewed:

- Dart Hill Road at the Western Walgreens Driveway (opposite the future site driveway location)
- Route 83 (Talcottville Road) at Dart Hill Road and Regan Road

Dart Hill Road at the Western Walgreens Driveway is a stop-controlled t-intersection. The intersection provides eastbound and westbound approaches on Dart Hill Road and a southbound approach from the Western Walgreens Driveway. In the vicinity of the site, Dart Hill Road is free flowing and carries three lanes of travel, one on the westbound approach and is in the process of widening from one to two lanes on the eastbound approach. The full access Walgreens driveway provides a combined left/right turn lane on the stop controlled southbound approach. Sidewalks are provided on the north side of Dart Hill Road; however, crosswalks and bicycle facilities are not provided at this intersection.

Route 83 (Talcottville Road) at Dart Hill Road and Regan Road is a four-way signalized intersection. The intersection is part of a coordinated signal system along Route 83. The intersection provides northbound and southbound approaches on Route 83, an eastbound approach on Dart Hill Road, and a westbound approach on Regan Road. Route 83 provides a dedicated left turn lane, a through lane, and a combined through/right turn lane on both the northbound and southbound approaches. The eastbound approach on Dart Hill Road provides a dedicated left turn lane and a combined through/right turn lane. The westbound approach on Regan Road provides a dedicated left turn lane and a combined through/right turn lane. Sidewalks and crosswalks are provided on every corner of the intersection and crossing is permitted during an exclusive pedestrian signal phase. Bicycle facilities are not provided at this intersection.

4.4 Traffic Volumes, Speeds and Counts

The greatest potential for traffic impact on the roadway network by the proposed development will occur during the morning and afternoon peak hours, the periods when commuter related trips are at their highest levels.

In order to determine the impact on adjacent street traffic, Fuss & O'Neill conducted Turning Movement Counts (TMCs) at each of the two study intersections during the weekday morning and weekday afternoon peak hours on December 7, 2021. The traffic count data collected indicates that the weekday morning peak hour of traffic is 7:00 am to 8:00 a.m. and the weekday afternoon peak hour is 4:30 p.m. to 5:30 p.m. These peak hours were subsequently analyzed for impacts. The existing traffic volumes counted for these peak hours are shown in *Figure No. 2* of *Appendix B*. Copies of the TMC traffic data have been included in Appendix F of this report.

5 Background Traffic Conditions

5.1 Volume Adjustments

Upon consultation with the Connecticut Department of Transportation (CTDOT) the 2021 existing traffic volumes were projected to the 2023 design year using a 0.6 percent annual peak hour growth factor to account for normal traffic growth in the study area. These Background traffic volumes are illustrated in *Figure No. 3* of *Appendix B*.

5.2 Background Developments

Fuss & O'Neill contacted the Office of the State Traffic Administration (OSTA) and the Town of Vernon Planning and Development office to identify any other pending or approved developments having site related traffic in the study area. Neither OSTA nor the Town of Vernon identified any other development plans that would affect traffic volume or behavior in the vicinity of the study area.

5.3 Planned Roadway Improvement Projects

Fuss & O'Neill contacted the Connecticut Department of Transportation and the Town of Vernon Engineering office and Public Works office to identify any roadway improvements scheduled within the study area.

The Connecticut Department of Transportation announced that the intersection of Route 83 (Talcottville Road) at Dart Hill Road and Regan Road will receive a full traffic signal equipment replacement to meet current standards under Project No. 0171-0471. The project is currently under the design phase and construction is expected to begin in the Summer of 2025. Upon completion, the project will improve the safety and efficiency of vehicular and pedestrian traffic at this intersection.

The Town of Vernon announced the Safe Routes to School initiative under State Project No. 0146-0197. Under this initiative, the existing asphalt sidewalks along both sides of Route 83 from Dart Hill Road and Regan Road to Loveland Hill Road and the east side of Loveland Hill Road to the southern entrance to Rockville High School have been replaced with new concrete sidewalks. According to the Department of Transportation, the Safe Routes to School initiative is aimed at encouraging students to increase their physical activity while also improving the safety of their commute to school.

The Bridge on Dart Hill Road and Thrall Road is scheduled for replacement. The proposed improvement includes replacing the existing bridge with a precast deck unit, upgrading the bridge rail and approach guiderail, realignment of roadway, utility relocations, and installation of storm drainage. The project is currently under the bidding process and all bids are currently under review as of December 14, 2021.

6 Proposed Conditions

6.1 Development

Vernon Development, LLC proposes to construct a 10,000 square foot day care center at 501 Talcottville Road (Route 83) in Vernon, Connecticut as shown on the location map, *Figure No. 1* of *Appendix B*. A total of 57 supporting parking spaces will be provided for the day care center. The development is expected to open in 2023.

6.2 Site Access and Circulation

Access to the proposed site will be provided via one new full access driveway. The driveway will be constructed on Dart Hill Road, directly across from the existing Walgreens full access drive and approximately 500 feet west of Route 83. The driveway will provide one unrestricted lane of travel in each direction and is proposed to be stop-controlled.

6.3 Trip Generation

The expected site generated traffic for the morning and afternoon peak hours was calculated using existing empirical data from the Institute of Transportation Engineers (ITE) publication *Trip Generation*, 11th edition, 2021. This publication is an industry-accepted resource for determining trip generation.

Trip generation for the weekday morning and afternoon peak hours were calculated using the ITE land use code 565 "Day Care Center." For a day care center with approximately 10,000 square feet of space, a total of 110 vehicle trips (58 entering, 52 exiting) is anticipated during the morning peak hour and during the afternoon peak hour, a total of 111 vehicle trips (52 entering, 59 exiting) is expected. A summary of the peak hour trip generation information for the proposed development is provided in *Table 1* of *Appendix A*.

6.4 Trip Distribution

The distribution of traffic entering and exiting the proposed site was applied to the road network based on the existing regional traffic distributions and the layout of the adjacent roadway network. During the peak hours, the following arrival distributions of traffic are anticipated:

- 15 percent from Dart Hill Road west of the site
- 40 percent from Route 83 (Talcottville Road) north of the site
- 30 percent from Route 83 (Talcottville Road) south of the site
- 15 percent from Regan Road east of the site

A regional arrival/departure distribution for the new site generated traffic traveling to and from the project site is shown in *Figure No. 4* of *Appendix B*.

6.5 Combined Volumes

The site generated traffic was distributed to the roadway system based on the arrival/departure distributions with the results shown in *Figure No. 5* of *Appendix B*. These volumes were then added to the background volumes in *Figure No. 3* of *Appendix B* to yield the year 2023 peak hour Combined traffic volumes shown in *Figure No. 6* of *Appendix B*.

7 Analyses

7.1 Crash Data Review

Crash data was gathered from CTDOT and the University of Connecticut Crash Repository for the following intersections:

- Dart Hill Road at the Western Walgreens Drive
- Route 83 (Talcottville Road) at Dart Hill Road and Regan Road

The records were gathered for the most recent three years of available data, 2018 through 2020. A summary of the crash data per intersection is provided in *Table 2* of *Appendix A*. Copies of the crash data records have been provided in *Appendix* G.

The intersection of Dart Hill Road and the Western Walgreens Drive experienced two crashes during the study period, averaging 0.67 crashes per year. The intersection experienced one front to rear crash and one front to front crash. Of the two crashes, one resulted in property damage only and the other resulted in non-fatal injuries. There were no crashes involving a vehicle turning into or out of the Walgreens Drive.

The intersection of Route 83 at Dart Hill Road and Regan Road experienced an average of 25 crashes per year. The majority of these crashes (38) were front to rear collisions. Additionally, the intersection experienced 24 angle crashes, seven same directions sideswipes, two non-applicable crashes, one front to

front crash, one unidentified crash, one rear to rear crash, and one rear to side crash. Of the total crashes reported, 14 resulted in non-fatal injuries while the remainder were property damage only collisions. The pattern of rear end crashes and angled crashes is not uncommon on arterial signalized intersections. CTDOT's pending complete replacement of the traffic signal at this intersection should improve the safety and efficiency of operations at this intersection.

The proposed development traffic is not expected to exacerbate existing crash patterns or negatively impact overall traffic safety within the study area.

7.2 Sight Distance Analysis

Intersection sight distances were calculated at the proposed site driveway location in accordance with criteria set forth in the 2003 CTDOT *Highway Design Manual*. Intersection sight distance is measured from a point 15 feet back from the edge of travel-way at a height of 3.5 feet, the standard height of a driver's eye.

Dart Hill Road has a posted speed limit of 30 miles per hour in both directions in the vicinity of the proposed site. A design speed of 35 miles per hour, 5 miles per hour above the posted speed limit, was utilized for analysis.

In an effort to be conservative, it was assumed that passenger cars turning left (west) out of the site driveway will cross two full lanes of traffic travelling eastbound. In accordance with criteria set forth in the 2003 CTDOT *Highway Design Manual*, 415 feet of intersection sight distance is required for a passenger car turning left (west) and 390 feet of intersection sight distance is required for a passenger car turning right (east) from the proposed site driveway.

At the unsignalized intersection of Dart Hill Road, the western Walgreens Drive, and the proposed site driveway, over 1,000 feet of intersection sight distance looking right (east) and approximately 750 feet of intersection sight distance is provided looking left (west). Sufficient sight distance exists to allow for safe egress of passenger cars attempting to turn right or left from the proposed site driveway onto Dart Hill Road.

Upon grading and the removal of vegetation as part of the site construction at the proposed driveway location, the sight distance triangle, in both directions, will not be obstructed and will not encroach upon abutting landowner property. The sight distances in both directions exceed CTDOT criteria for safe egress from the site.

7.3 Intersection Capacity Analysis

Capacity analyses for both signalized and unsignalized intersections were conducted using Synchro Professional Software, version 10.0.

In discussing intersection capacity analyses results, two terms are used to describe the operating condition of the road or intersection. These two terms are volume to capacity ratio (v/c) and level of service (LOS).

The v/c ratio is a ratio of the volume of traffic using an intersection to the total capacity of the intersection (the maximum number of vehicles that can utilize the intersection during an hour). The v/c ratio can be used to describe the percentage of capacity utilized by a single intersection movement, a combination of movements, an entire intersection approach, or the intersection as a whole.

LOS is a measure of the delay experienced by stopped vehicles at an intersection. LOS is rated on a scale from A to F, with A describing a condition of very low delay (less than 10 seconds per vehicle), and F describing a condition where delays will exceed 50 seconds per vehicle for unsignalized intersections and 80 seconds per vehicle for signalized intersections. Delay is described as a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Therefore, intersections with longer delay times are less acceptable to most drivers.

LOS is generally used to describe the operation (based on delay time) of both signalized and unsignalized intersections, while v/c ratio is applied to signalized intersections only. These definitions for v/c ratio and LOS, as well as the methodology for conducting signalized and unsignalized intersection capacity analyses, are taken from the "2000 Highway Capacity Manual" and the "6th Edition Highway Capacity Manual" published by the Transportation Research Board.

In discussing two way stop controlled unsignalized intersection capacity analyses, LOS is used to provide a description of the delay and operational characteristics of the turns from the minor street (stop sign controlled) to the major street, and turns from the major street to the minor street. Through vehicles are not delayed by the minor street and do not experience delay, therefore they are not rated with a level of service.

Using the above referenced methodologies, weekday morning and weekday afternoon peak hour capacity analyses were conducted at the following signalized intersection:

- Route 83 (Talcottville Road) at Dart Hill Road and Regan Road

Weekday morning and weekday afternoon peak hour capacity analyses were also conducted at the following unsignalized intersection:

- Dart Hill Road at the Western Walgreens Drive and future site driveway location

Tables No. 3 and *4* of *Appendix A* present summaries of the levels of service at the unsignalized and signalized intersections for both the background and combined condition traffic volumes. Copies of the analysis worksheets can be found in *Appendices D and E*, for the morning and afternoon peak hours, respectively.

The determination of the traffic impact from the proposed development is made through a comparison of the background condition LOS (without the proposed development) versus the combined condition LOS (with the proposed development).

The capacity analysis at Route 83 and Dart Hill Road/ Regan Road revealed that the signalized intersection operates acceptably at an overall LOS C in the background and combined conditions of the

weekday morning peak hour and operates with more significant delay at LOS F in the background and combined conditions of the weekday afternoon peak hour. The traffic from the proposed development will have little impact to the overall intersection delay and volume to capacity ratio at the intersection. Upon optimization of signal timings at this intersection, the LOS can be improved to LOS E operations during the afternoon peak hour.

The capacity analysis at Dart Hill Road and the Walgreens driveway and the proposed site driveway revealed that the stop-controlled Walgreens southbound approach will drop from LOS B to LOS C but continue to operate acceptably after the addition of the site driveway during the weekday morning and afternoon peak hours. The site driveway northbound approach will operate efficiently at LOS B in the morning and afternoon peak hour of traffic in the combined condition. Left turns from Dart Hill Road into both driveways will operate efficiently at LOS A during the Combined condition peak hours.

7.4 Queue Analysis

Background and Combined Condition 95th percentile (design) queue lengths were reviewed at each intersection in the study area. The 95th percentile (design) vehicle queue lengths represent the maximum queue lengths that can be expected at each of the critical approach lanes of the study area intersections. The queue lengths are provided in the Synchro capacity analysis worksheets, which are located in *Appendices D and E. Tables No. 5 and No. 6 of Appendix A* provide a summary of the queue lengths for the critical lanes at each intersection.

At the unsignalized intersection of Dart Hill Road and the Walgreens driveway, the 95th percentile queue length for each approach will have a negligible increase (one vehicle length or less) on all four of the intersection approach lanes during both peak hours.

At the signalized intersection of Route 83 at Dart Hill Road and Regan Road, the 95th percentile length for each approach will have negligible increases (one vehicle length or less) on all the intersection approach lanes with the exception of the eastbound through/right lane which will experience a queue increase of two vehicle lengths during both peak hours of the combined condition. Ample queue storage exists to accommodate these minor queue increases.

Upon optimization of signal timings at the intersection of Route 83 at Dart Hill Road and Regan Road to reduce overall intersection delays, the queues for the eastbound through/right turn lane will increase by up to five vehicle lengths, the westbound left turn lane queue will increase by up to three vehicle lengths, the northbound left turn lane queue will increase by up to two vehicle lengths, and the northbound and southbound through lanes will decrease by up to seven vehicle lengths during the afternoon peak hour. Sufficient storage exists on the eastbound through/right lane, the westbound through/right lane, and the northbound left turn lane to accommodate the queue increases in these lanes.

8 Conclusions

The purpose of preparing this Traffic Impact Study is to identify the impact of the proposed development's site generated traffic. The study efforts have indicated that the proposed day care center will generate a total of 110 new trips (58 entering, 52 exiting) during the weekday morning peak hour and a total of 111 new trips (52 entering, 59 exiting) during the afternoon peak hour.

The capacity analysis revealed that neither of the study intersection approaches will experience any noticeable increase in delay as a result of the proposed development traffic and with the exception of the Walgreens driveway approach, neither of the intersections sustain a decrease in level of service nor a significant increase in the volume to capacity ratio. Upon optimization of signal timings at the intersection of Route 83 (Talcottville Road) at Dart Hill Road and Regan Road, the LOS can be improved from LOS F to LOS E operation during the afternoon peak hour.

Upon review of the queue analysis, it has been determined that no queue length in the study area is expected to increase by more than one vehicle length, with the exception of the eastbound through/right turn lane at the intersection of Route 83 at Dart Hill Road and Regan Road, which will experience a queue length increase of up to two vehicle lengths during both peak hours of the combined condition. Additionally, the queue on the site driveway is expected to be approximately one vehicle length or less for both the morning and afternoon peak hour combined conditions.

The proposed optimization of signal timings at the intersection of Route 83 at Dart Hill Road and Regan Road will increase the overall efficiency of the intersection and reduce the northbound and southbound through vehicle queues on Route 83 by up to seven vehicle lengths during the afternoon peak hour. Following optimization, queue lengths for the eastbound through/right turn lane will increase by up to five vehicle lengths, the westbound left turn lane queue will increase by up to three vehicle lengths, and the northbound left turn lane queue will increase by up to two vehicle lengths. Sufficient storage exists on the eastbound through/right lane, the westbound left turn lane, and the northbound left turn lane to accommodate the minor queue increases in these lanes.

Review of the most recent three years of available crash data provided by the University of Connecticut Crash Data Repository indicated that the type and frequency of crashes reported at the study area intersections was not abnormal for the traffic volumes and geometric characteristics of the study area intersections. The proposed CTDOT full traffic signal equipment replacement project at the intersection of Route 83 at Dart Hill Road and Regan Road will improve the safety and efficiency of traffic operations at this intersection in the future.

Upon grading and the removal of vegetation along the site frontage, the sight distance triangle from the proposed site driveway location, in both directions, is not obstructed and does not encroach upon abutting landowner property. The sight distances exceed CTDOT criteria to allow for safe egress of passenger cars from the site.

Based on the results of the foregoing analysis, it is the professional opinion of Fuss & O'Neill, Inc. that the proposed development will not have a significant impact to traffic operations within the study area.

Appendix A

Tables

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Table 1

Peak Hour Site Generated Traffic Volumes
"The Learning Experience" Daycare Center
Vernon, Connecticut

Land Use	Total Trips	Trips Entering	Trips Exiting
Weekday Morning Peak Hour			
10,000 SF of Day Care Center	110	58	52
Weekday Afternoon Peak Hour			
10,000 SF of Day Care Center	111	52	59

Note: Trip generation based on Rate per Land use Code 565 (Day Care Center), as published in *Trip Generation,* 11th Edition, 2021.

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Table 2

Intersection Crash Data Summary
"The Learning Experience" Daycare Center
Vernon, Connecticut

Intersections/Road Segments	Crashes Per Year			
	2018	2019	2020	Average/Year
Dart Hill Road at Walgreens Driveway	1*	1	0	0.67
Route 83 at Dart Hill Road and Regan Road	25	29	21	25

*Values indicated are number of crashes within 200 feet of each intersection during time period shown.
Data provided by the Connecticut Department of Transportation via the UConn Crash Repository.

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Table 3

Unsignalized Intersection Level of Service Summary
"The Learning Experience" Daycare Center
Vernon, Connecticut

Unsignalized Intersections (Critical Movements)	2023 Weekday Morning Peak Hour		2023 Weekday Afternoon Peak Hour	
	Background	Combined	Background	Combined
Dart Hill Road at Walgreens Drive and Site Driveway (TWSC)				
Dart Hill Road Eastbound Left Turns	LOS A	LOS A	LOS A	LOS A
Dart Hill Road Westbound Left Turns	N/A	LOS A	N/A	LOS A
Site Driveway Northbound Approach	N/A	LOS B	N/A	LOS B
Walgreens Southbound Approach	LOS B	LOS C	LOS B	LOS C

*Values indicated are critical movement Level of Service (LOS)

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Table 4

Signalized Intersection Level of Service Summary
"The Learning Experience" Daycare Center
Vernon, Connecticut

Signalized Intersections	2023 Weekday Morning Peak Hour		2023 Weekday Afternoon Peak Hour		
	Background	Combined	Background	Combined	Improved**
Route 83 (Talcottville Road) at Dart Hill Road and Regan Road	0.64/LOS C*	0.66/LOS C	1.02/LOS F	1.08/LOS F	1.08/LOS E

*Values Indicated are v/c Ratios/Intersection LOS
** Indicates v/c ratio and LOS with proposed signal timing optimization

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Table 5

Weekday Morning Peak Hour Queue Length Summary
"The Learning Experience" Daycare Center
Vernon, Connecticut

Intersection	Approach Lane	2023 Background Queue (ft)	2023 Combined Queue (ft)	Available Storage (ft)
Dart Hill Road at Walgreens Drive	EB Left/Through/Right Turn	0 Feet	0 Feet	190 Feet
	WB Left/Through/Right Turn	N/A	5 Feet	365 Feet
	NB Left/Through/Right Turn	N/A	10 Feet	30 Feet
	SB Left/Through/ Right Turn	5 Feet	5 Feet	230 Feet
Route 83 (Talcottville Road) at Dart Hill Road and Regan Road	EB Left Turn	30 Feet	45 Feet	320 Feet
	EB Through/Right Turn	215 Feet	270 Feet	635 Feet
	WB Left Turn	120 Feet	105 Feet	260 Feet
	WB Through/Right Turn	140 Feet	150 Feet	260 Feet
	NB Left Turn	40 Feet	55 Feet	185 Feet
	NB Through/Right Turn	145 Feet	145 Feet	>1,000 Feet
	SB Left Turn	100 Feet	100 Feet	195 Feet
	SB Through/Right Turn	260 Feet	280 Feet	985 Feet

NOTE: Values indicated represent 95th percentile (design) vehicle queue lengths. Values are rounded to the nearest 5 feet.

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Table 6

Weekday Afternoon Peak Hour Queue Length Summary
"The Learning Experience" Daycare Center
Vernon, Connecticut

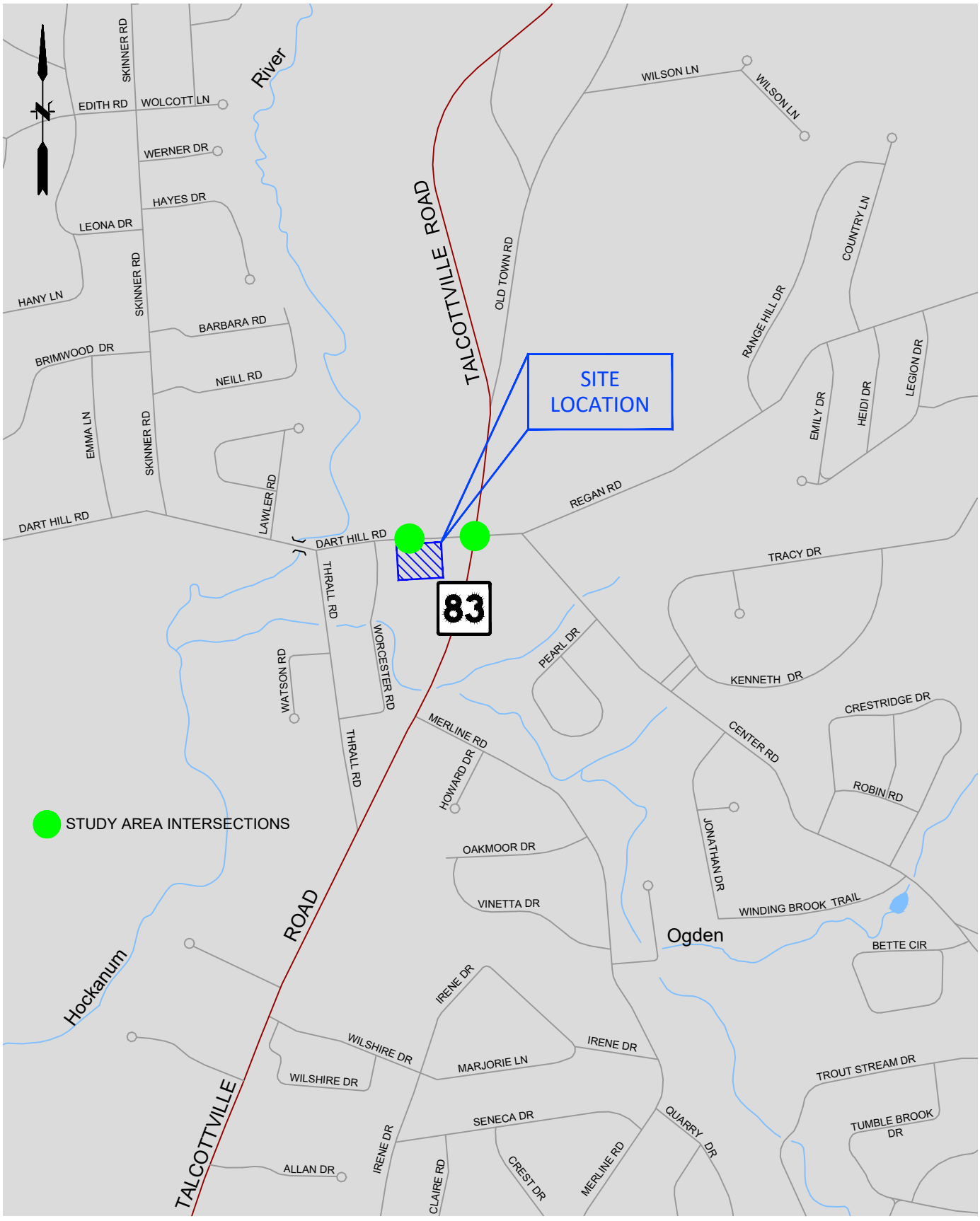
Intersection	Approach Lane	2023 Background Queue (ft)	2023 Combined Queue (ft)	2023 Improved** Queue (ft)	Available Storage (ft)
Dart Hill Road at Walgreens Drive	EB Left/Through/Right Turn	0 Feet	0 Feet	N/A	190 Feet
	WB Left/Through/Right Turn	N/A	5 Feet	N/A	365 Feet
	NB Left/Through/Right Turn	N/A	10 Feet	N/A	30 Feet
	SB Left/Through/ Right Turn	15 Feet	25 Feet	N/A	230 Feet
Route 83 (Talcottville Road) at Dart Hill Road and Regan Road	EB Left Turn	5 Feet	25 Feet	30 Feet	320 Feet
	EB Through/Right Turn	135 Feet	170 Feet	245 Feet	635 Feet
	WB Left Turn	75 Feet	75 Feet	135 Feet	260 Feet
	WB Through/Right Turn	140 Feet	150 Feet	170 Feet	260 Feet
	NB Left Turn	170 Feet	200 Feet	210 Feet	185 Feet
	NB Through/Right Turn	490 Feet	490 Feet	325 Feet	>1,000 Feet
	SB Left Turn	110 Feet	110 Feet	140 Feet	195 Feet
	SB Through/Right Turn	585 Feet	600 Feet	425 Feet	985 Feet

NOTE: Values indicated represent 95th percentile (design) vehicle queue lengths. Values are rounded to the nearest 5 feet.

** Values indicate 95th percentile queues with proposed signal timing improvements

Appendix B

Figures



SCALE:
HORZ.: 1" = 1000'
VERT.:
DATUM:
HORZ.:
VERT.:
0 500 1000
GRAPHIC SCALE

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146 HARTFORD ROAD
MANCHESTER, CONNECTICUT 06040
860.646.2469
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VERNON DEVELOPMENT, LLC

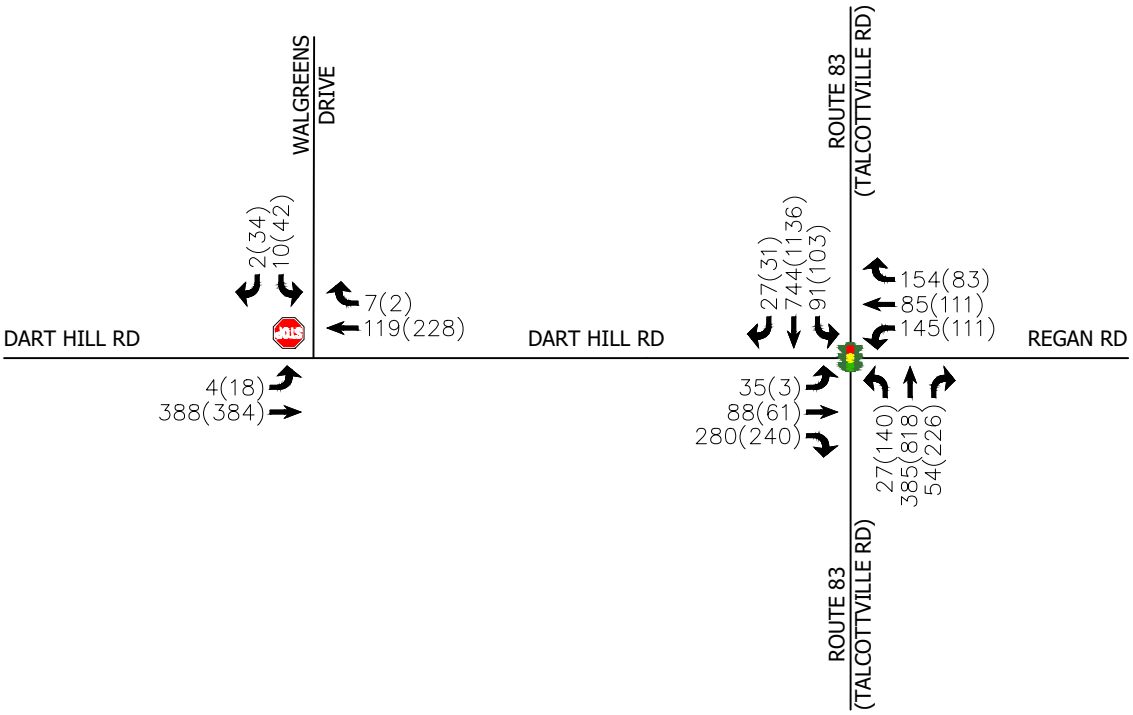
LOCATION FIGURE

501 TALCOTTVILLE ROAD

VERNON CONNECTICUT

PROJ. No.: 20211031.A10
DATE: JANUARY 2022

LOC-01



XX(XX) = WEEKDAY MORNING PEAK HOUR (WEEKDAY AFTERNOON PEAK HOUR)

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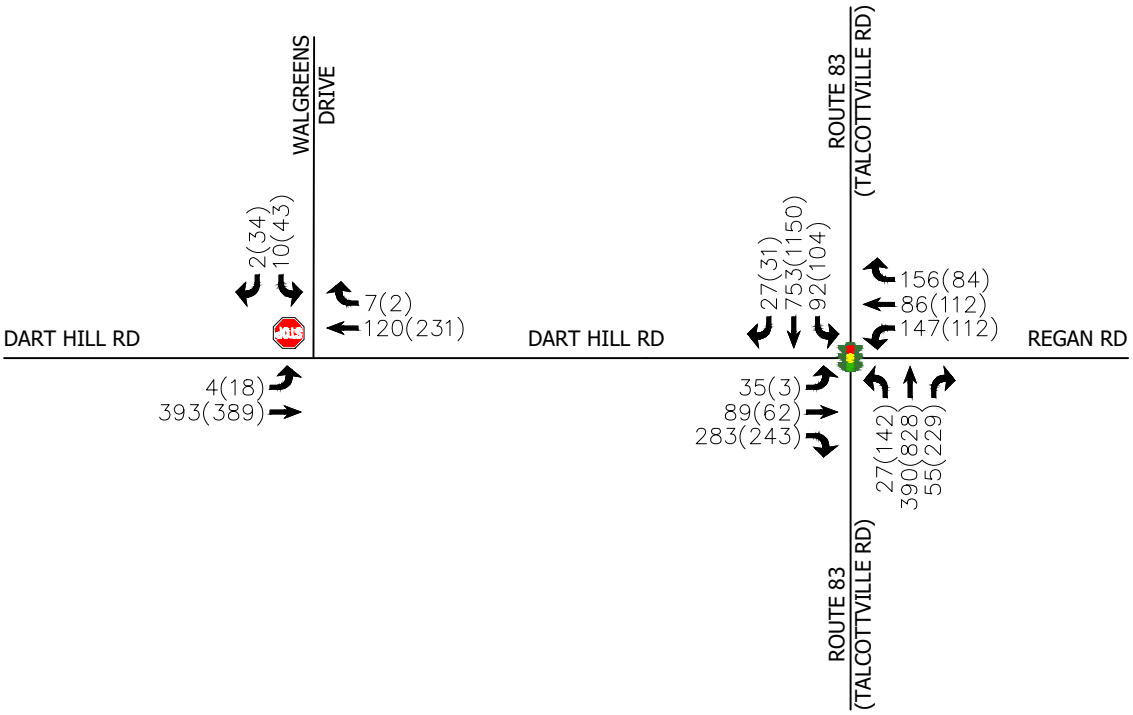
FIGURE 2: 2021 EXISTING CONDITIONS

PROJ. NO: 20211031.A10 "THE LEARNING EXPERIENCE" DAY CARE CENTER JANUARY 2022



XX(XX) = WEEKDAY MORNING PEAK HOUR (WEEKDAY AFTERNOON PEAK HOUR)

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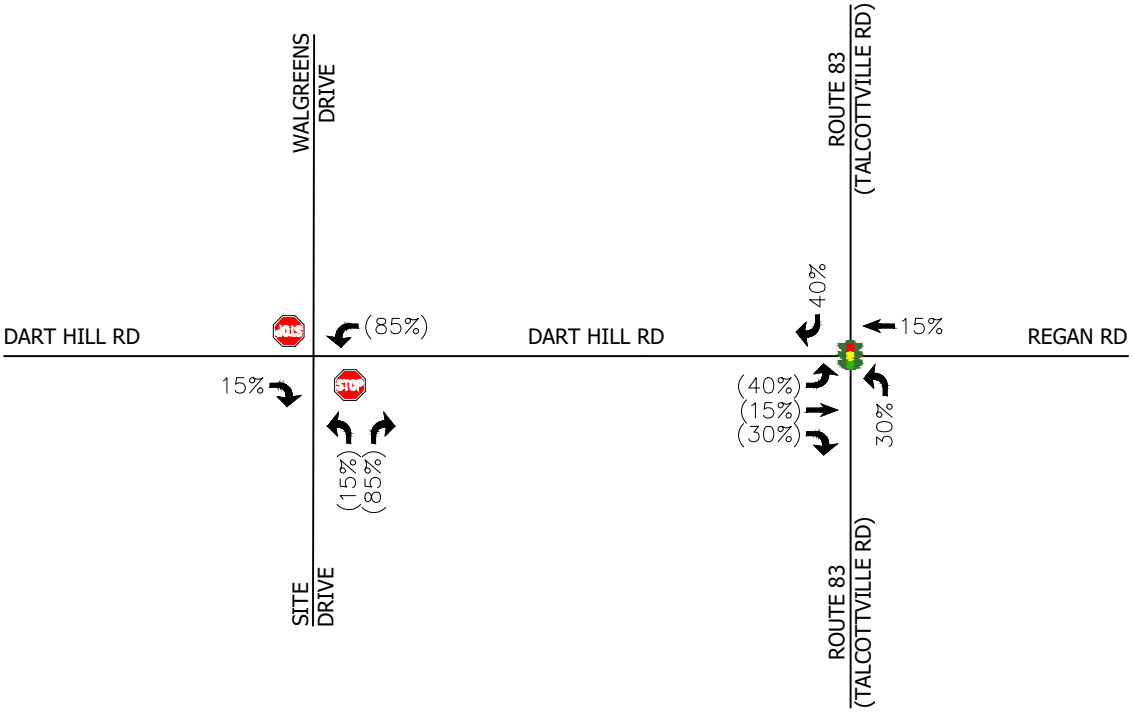
FIGURE 3: 2023 BACKGROUND CONDITIONS

PROJ. NO: 20211031.A10 "THE LEARNING EXPERIENCE" DAY CARE CENTER JANUARY 2022



XX(XX) = ENTERING TRAFFIC (EXITING TRAFFIC)

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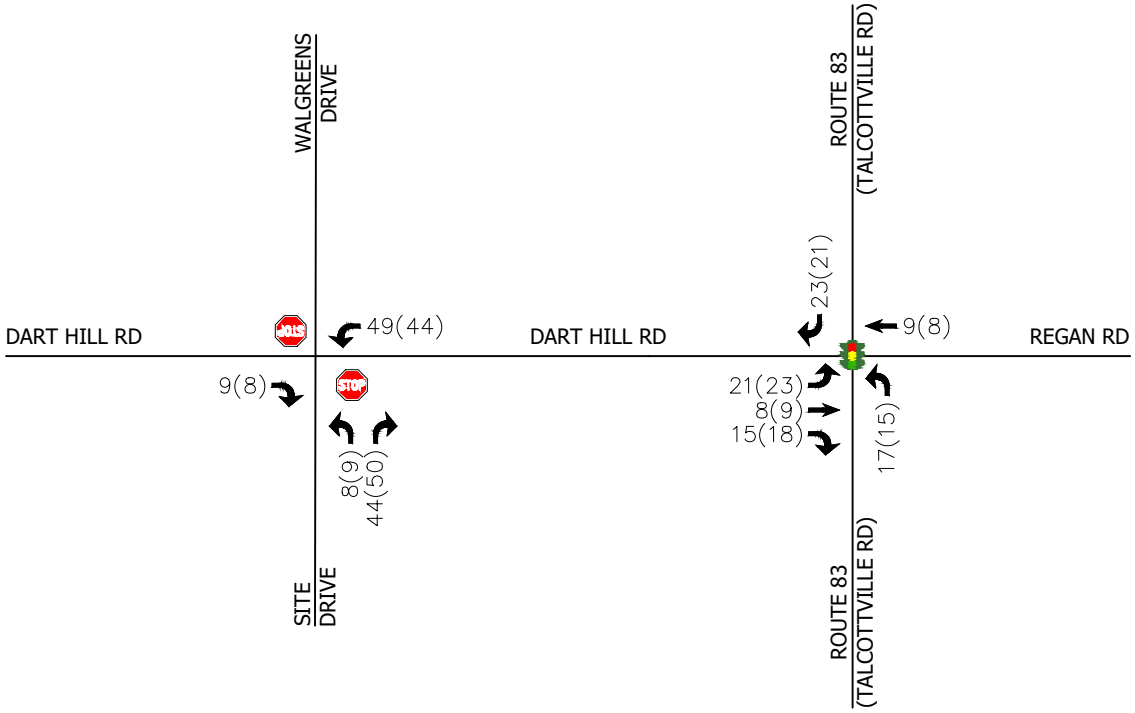
FIGURE 4: TRIP DISTRIBUTION

PROJ. NO: 20211031.A10 "THE LEARNING EXPERIENCE" DAY CARE CENTER JANUARY 2022

SITE GENERATED TRAFFIC VOLUMES			
	ENTER	EXIT	TOTAL
MORNING	58	52	110
AFTERNOON	52	59	111



XX(XX) = WEEKDAY MORNING PEAK HOUR (WEEKDAY AFTERNOON PEAK HOUR)

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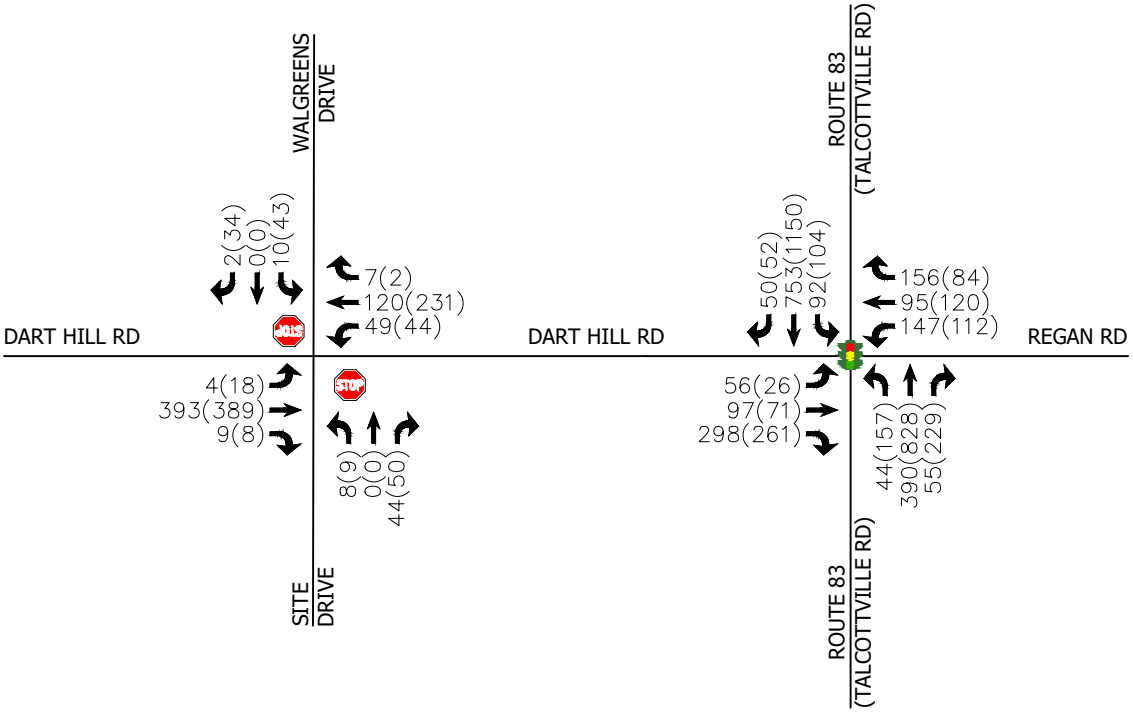
FIGURE 5: SITE GENERATED TRIPS

PROJ. NO: 20211031.A10 "THE LEARNING EXPERIENCE" DAY CARE CENTER JANUARY 2022



XX(XX) = WEEKDAY MORNING PEAK HOUR (WEEKDAY AFTERNOON PEAK HOUR)

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FIGURE 6: 2023 COMBINED CONDITIONS

PROJ. NO: 20211031.A10 "THE LEARNING EXPERIENCE" DAY CARE CENTER JANUARY 2022

Appendix C

ITE Trip Generation Rates

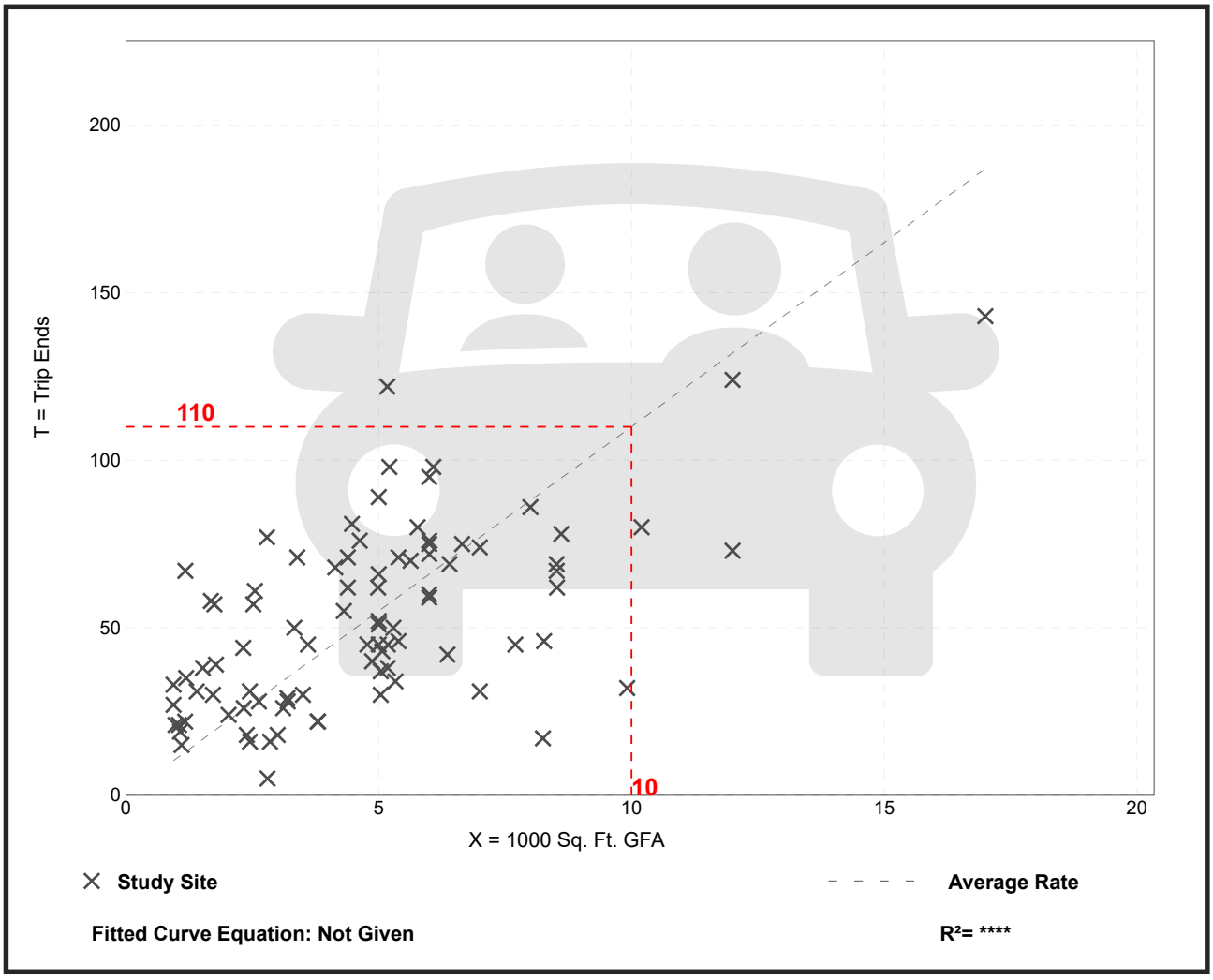
Day Care Center
(565)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 89
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 53% entering, 47% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
11.00	1.79 - 57.02	6.08

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

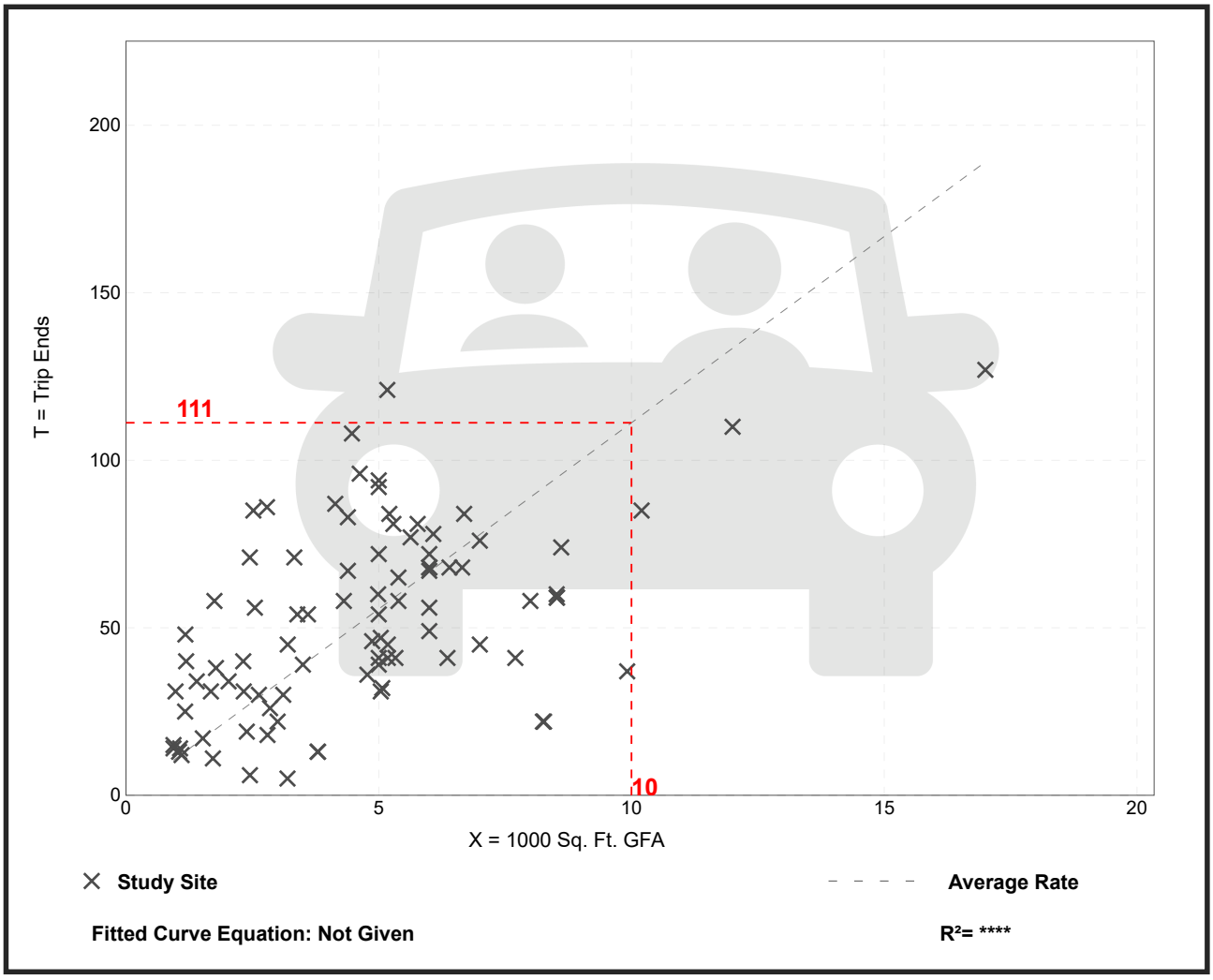
Day Care Center
(565)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 90
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 47% entering, 53% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
11.12	1.56 - 40.85	6.28

Data Plot and Equation



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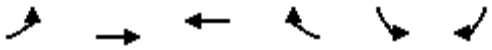
Appendix D

Intersection Capacity Analysis Worksheets
2023 Background Traffic Volumes
Morning Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	393	120	7	10	2
Future Volume (vph)	4	393	120	7	10	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.992		0.979	
Flt Protected					0.959	
Satd. Flow (prot)	0	1863	1848	0	1749	0
Flt Permitted					0.959	
Satd. Flow (perm)	0	1863	1848	0	1749	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		227	485		104	
Travel Time (s)		5.2	11.0		2.4	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	4	442	135	8	11	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	446	143	0	13	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.9%		ICU Level of Service A	
Analysis Period (min) 15			

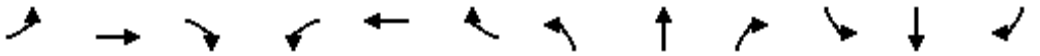
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	393	120	7	10	2
Future Vol, veh/h	4	393	120	7	10	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	442	135	8	11	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	143	0	-	0	589	139
Stage 1	-	-	-	-	139	-
Stage 2	-	-	-	-	450	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1440	-	-	-	471	909
Stage 1	-	-	-	-	888	-
Stage 2	-	-	-	-	642	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1440	-	-	-	469	909
Mov Cap-2 Maneuver	-	-	-	-	469	-
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	642	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1440	-	-	-	510
HCM Lane V/C Ratio	0.003	-	-	-	0.026
HCM Control Delay (s)	7.5	0	-	-	12.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1



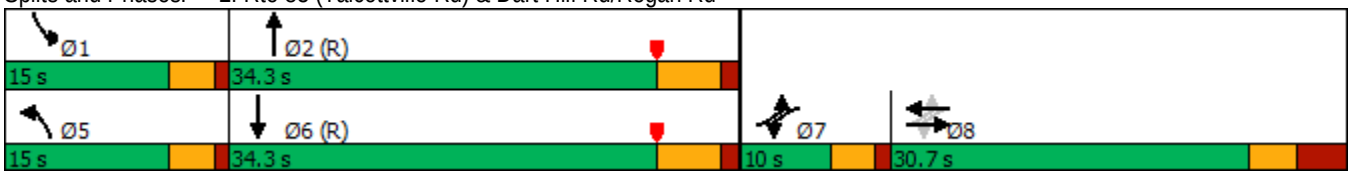
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	89	283	147	86	156	27	390	55	92	753	27
Future Volume (vph)	35	89	283	147	86	156	27	390	55	92	753	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	10	13	12	11	12	12	12	12	12
Storage Length (ft)	320		0	0		0	185		0	195		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	210			25			95			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.886			0.903			0.981			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1540	0	1652	1738	0	1711	3472	0	1770	3522	0
Flt Permitted	0.449			0.214			0.950			0.950		
Satd. Flow (perm)	781	1540	0	372	1738	0	1711	3472	0	1770	3522	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		173			99			18			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		485			290			331			352	
Travel Time (s)		11.0			6.6			7.5			8.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	36	92	292	152	89	161	28	402	57	95	776	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	384	0	152	250	0	28	459	0	95	804	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	8		7	8		5	2		1	6	
Permitted Phases	8			8								
Detector Phase	7	8		7	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	7.0		3.0	7.0		7.0	15.0		7.0	15.0	
Minimum Split (s)	7.0	13.7		7.0	13.7		11.0	20.7		11.0	20.7	
Total Split (s)	10.0	30.7		10.0	30.7		15.0	34.3		15.0	34.3	
Total Split (%)	11.1%	34.1%		11.1%	34.1%		16.7%	38.1%		16.7%	38.1%	
Maximum Green (s)	6.0	24.0		6.0	24.0		11.0	28.6		11.0	28.6	
Yellow Time (s)	3.0	3.2		3.0	3.2		3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	3.5		1.0	3.5		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7		4.0	5.7		4.0	5.7	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	4.0		2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	27.4	18.7		27.4	18.7		7.2	38.0		9.1	44.3	
Actuated g/C Ratio	0.30	0.21		0.30	0.21		0.08	0.42		0.10	0.49	
v/c Ratio	0.12	0.84		0.77	0.57		0.20	0.31		0.53	0.46	
Control Delay	18.1	34.7		46.8	23.0		42.3	19.9		49.1	18.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.1	34.7		46.8	23.0		42.3	19.9		49.1	18.6	
LOS	B	C		D	C		D	B		D	B	
Approach Delay		33.3			32.0			21.2			21.8	

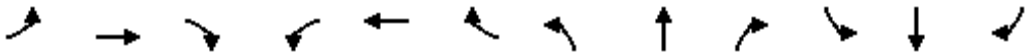
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	13	114		59	73		15	93		52	141	
Queue Length 95th (ft)	31	215		#118	140		41	146		99	262	
Internal Link Dist (ft)		405			210			251			272	
Turn Bay Length (ft)	320						185			195		
Base Capacity (vph)	295	537		198	536		209	1474		216	1734	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.72		0.77	0.47		0.13	0.31		0.44	0.46	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 84 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 25.7 Intersection LOS: C
Intersection Capacity Utilization 74.8% 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: 2: Rte 83 (Talcottville Rd) & Dart Hill Rd/Regan Rd



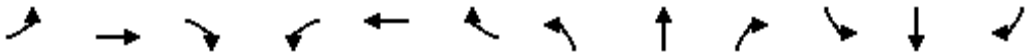


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	89	283	147	86	156	27	390	55	92	753	27
Future Volume (vph)	35	89	283	147	86	156	27	390	55	92	753	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	10	13	12	11	12	12	12	12	12
Total Lost time (s)	4.0	6.7		4.0	6.7		4.0	5.7		4.0	5.7	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.89		1.00	0.90		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1652	1540		1652	1739		1711	3473		1770	3521	
Flt Permitted	0.45	1.00		0.21	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	781	1540		372	1739		1711	3473		1770	3521	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	36	92	292	152	89	161	28	402	57	95	776	28
RTOR Reduction (vph)	0	137	0	0	78	0	0	11	0	0	2	0
Lane Group Flow (vph)	36	247	0	152	172	0	28	448	0	95	802	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	8		7	8		5	2		1	6	
Permitted Phases	8			8								
Actuated Green, G (s)	24.7	18.7		24.7	18.7		3.0	37.2		7.7	41.9	
Effective Green, g (s)	24.7	18.7		24.7	18.7		3.0	37.2		7.7	41.9	
Actuated g/C Ratio	0.27	0.21		0.27	0.21		0.03	0.41		0.09	0.47	
Clearance Time (s)	4.0	6.7		4.0	6.7		4.0	5.7		4.0	5.7	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)	272	319		187	361		57	1435		151	1639	
v/s Ratio Prot	0.01	0.16		c0.05	0.10		0.02	0.13		c0.05	c0.23	
v/s Ratio Perm	0.03			c0.17								
v/c Ratio	0.13	0.77		0.81	0.48		0.49	0.31		0.63	0.49	
Uniform Delay, d1	24.3	33.7		28.1	31.3		42.8	17.8		39.8	16.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	11.1		21.8	1.0		2.4	0.6		5.8	1.0	
Delay (s)	24.4	44.8		50.0	32.3		45.2	18.4		45.6	17.7	
Level of Service	C	D		D	C		D	B		D	B	
Approach Delay (s)		43.0			39.0			19.9			20.6	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.4
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Appendix D

Intersection Capacity Analysis Worksheets
2023 Combined Traffic Volumes
Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	393	9	49	120	7	8	0	44	10	0	2
Future Volume (vph)	4	393	9	49	120	7	8	0	44	10	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.997			0.995			0.886			0.979	
Flt Protected					0.986			0.992			0.959	
Satd. Flow (prot)	0	1857	0	0	1827	0	0	1637	0	0	1749	0
Flt Permitted					0.986			0.992			0.959	
Satd. Flow (perm)	0	1857	0	0	1827	0	0	1637	0	0	1749	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		227			485			184			104	
Travel Time (s)		5.2			11.0			4.2			2.4	
Confl. Peds. (#/hr)							3					
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	4	442	10	55	135	8	9	0	49	11	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	456	0	0	198	0	0	58	0	0	13	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.2%		ICU Level of Service A	
Analysis Period (min) 15			

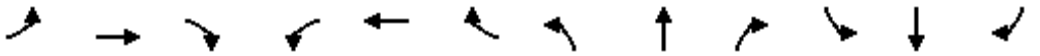
Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	4	393	9	49	120	7	8	0	44	10	0	2
Future Vol, veh/h	4	393	9	49	120	7	8	0	44	10	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	442	10	55	135	8	9	0	49	11	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	143	0	0	452	0	0	708	708	447	729	709	142
Stage 1	-	-	-	-	-	-	455	455	-	249	249	-
Stage 2	-	-	-	-	-	-	253	253	-	480	460	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1440	-	-	1109	-	-	350	360	612	338	359	906
Stage 1	-	-	-	-	-	-	585	569	-	755	701	-
Stage 2	-	-	-	-	-	-	751	698	-	567	566	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1440	-	-	1109	-	-	333	339	612	297	338	903
Mov Cap-2 Maneuver	-	-	-	-	-	-	333	339	-	297	338	-
Stage 1	-	-	-	-	-	-	583	567	-	752	663	-
Stage 2	-	-	-	-	-	-	707	660	-	519	564	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	2.3	12.4	16.2
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	542	1440	-	-	1109	-	-	334
HCM Lane V/C Ratio	0.108	0.003	-	-	0.05	-	-	0.04
HCM Control Delay (s)	12.4	7.5	0	-	8.4	0	-	16.2
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0.2	-	-	0.1



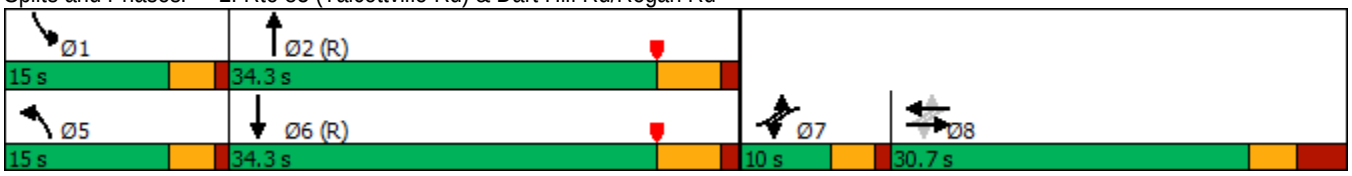
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	97	298	147	95	156	44	390	55	92	753	50
Future Volume (vph)	56	97	298	147	95	156	44	390	55	92	753	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	10	13	12	11	12	12	12	12	12
Storage Length (ft)	320		0	0		0	185		0	195		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	210			25			95			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.887			0.907			0.981			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1542	0	1652	1746	0	1711	3472	0	1770	3507	0
Flt Permitted	0.489			0.249			0.950			0.950		
Satd. Flow (perm)	850	1542	0	433	1746	0	1711	3472	0	1770	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		167			90			18			8	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		485			290			331			352	
Travel Time (s)		11.0			6.6			7.5			8.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	58	100	307	152	98	161	45	402	57	95	776	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	407	0	152	259	0	45	459	0	95	828	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	8		7	8		5	2		1	6	
Permitted Phases	8			8								
Detector Phase	7	8		7	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	7.0		3.0	7.0		7.0	15.0		7.0	15.0	
Minimum Split (s)	7.0	13.7		7.0	13.7		11.0	20.7		11.0	20.7	
Total Split (s)	10.0	30.7		10.0	30.7		15.0	34.3		15.0	34.3	
Total Split (%)	11.1%	34.1%		11.1%	34.1%		16.7%	38.1%		16.7%	38.1%	
Maximum Green (s)	6.0	24.0		6.0	24.0		11.0	28.6		11.0	28.6	
Yellow Time (s)	3.0	3.2		3.0	3.2		3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	3.5		1.0	3.5		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7		4.0	5.7		4.0	5.7	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	4.0		2.0	4.0	
Recall Mode	None	Max		None	Max		None	C-Max		None	C-Max	
Act Effct Green (s)	32.7	24.0		32.7	24.0		7.7	32.7		9.1	36.3	
Actuated g/C Ratio	0.36	0.27		0.36	0.27		0.09	0.36		0.10	0.40	
v/c Ratio	0.16	0.76		0.64	0.49		0.31	0.36		0.53	0.58	
Control Delay	17.7	28.5		32.4	21.4		44.1	22.3		49.1	24.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	17.7	28.5		32.4	21.4		44.1	22.3		49.1	24.1	
LOS	B	C		C	C		D	C		D	C	
Approach Delay		27.1			25.5			24.2			26.6	

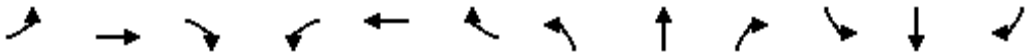
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	20	127		55	79		25	98		52	201	
Queue Length 95th (ft)	44	#268		#107	152		57	146		99	278	
Internal Link Dist (ft)		405			210			251			272	
Turn Bay Length (ft)	320						185			195		
Base Capacity (vph)	362	533		238	531		209	1272		216	1420	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.76		0.64	0.49		0.22	0.36		0.44	0.58	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 84 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 26.0 Intersection LOS: C
Intersection Capacity Utilization 76.8% 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: 2: Rte 83 (Talcottville Rd) & Dart Hill Rd/Regan Rd



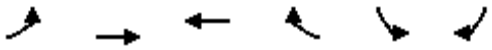


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	97	298	147	95	156	44	390	55	92	753	50
Future Volume (vph)	56	97	298	147	95	156	44	390	55	92	753	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	10	13	12	11	12	12	12	12	12
Total Lost time (s)	4.0	6.7		4.0	6.7		4.0	5.7		4.0	5.7	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.89		1.00	0.91		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1652	1542		1652	1745		1711	3473		1770	3506	
Flt Permitted	0.49	1.00		0.25	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	851	1542		433	1745		1711	3473		1770	3506	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	58	100	307	152	98	161	45	402	57	95	776	52
RTOR Reduction (vph)	0	122	0	0	66	0	0	12	0	0	5	0
Lane Group Flow (vph)	58	285	0	152	193	0	45	447	0	95	823	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	8		7	8		5	2		1	6	
Permitted Phases	8			8								
Actuated Green, G (s)	30.0	24.0		30.0	24.0		4.9	31.9		7.7	34.7	
Effective Green, g (s)	30.0	24.0		30.0	24.0		4.9	31.9		7.7	34.7	
Actuated g/C Ratio	0.33	0.27		0.33	0.27		0.05	0.35		0.09	0.39	
Clearance Time (s)	4.0	6.7		4.0	6.7		4.0	5.7		4.0	5.7	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)	337	411		225	465		93	1230		151	1351	
v/s Ratio Prot	0.01	c0.18		c0.04	0.11		0.03	0.13		c0.05	c0.23	
v/s Ratio Perm	0.05			0.18								
v/c Ratio	0.17	0.69		0.68	0.42		0.48	0.36		0.63	0.61	
Uniform Delay, d1	20.8	29.7		23.2	27.2		41.3	21.5		39.8	22.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	9.2		6.2	2.7		1.4	0.8		5.8	2.1	
Delay (s)	20.9	38.9		29.4	29.9		42.8	22.4		45.6	24.3	
Level of Service	C	D		C	C		D	C		D	C	
Approach Delay (s)		36.7			29.7			24.2			26.5	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.4
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Appendix E

Intersection Capacity Analysis Worksheets
2023 Background Traffic Volumes
Afternoon Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	18	389	231	2	43	34
Future Volume (vph)	18	389	231	2	43	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.940	
Flt Protected		0.998			0.973	
Satd. Flow (prot)	0	1859	1861	0	1704	0
Flt Permitted		0.998			0.973	
Satd. Flow (perm)	0	1859	1861	0	1704	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		227	485		104	
Travel Time (s)		5.2	11.0		2.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	19	418	248	2	46	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	437	250	0	83	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.2%		ICU Level of Service A	
Analysis Period (min) 15			

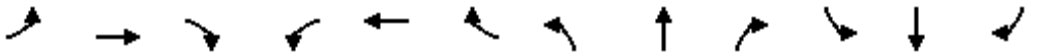
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	389	231	2	43	34
Future Vol, veh/h	18	389	231	2	43	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	418	248	2	46	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	250	0	-	0	705	249
Stage 1	-	-	-	-	249	-
Stage 2	-	-	-	-	456	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1316	-	-	-	403	790
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	638	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1316	-	-	-	395	790
Mov Cap-2 Maneuver	-	-	-	-	395	-
Stage 1	-	-	-	-	777	-
Stage 2	-	-	-	-	638	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1316	-	-	-	507
HCM Lane V/C Ratio	0.015	-	-	-	0.163
HCM Control Delay (s)	7.8	0	-	-	13.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.6



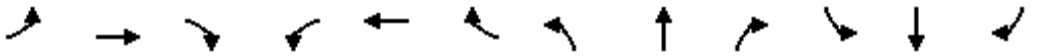
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	62	243	112	112	84	142	828	229	104	1150	31
Future Volume (vph)	3	62	243	112	112	84	142	828	229	104	1150	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	10	13	12	11	12	12	12	12	12
Storage Length (ft)	320		0	0		0	185		0	195		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	210			25			95			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.881			0.936			0.967			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1532	0	1652	1802	0	1711	3422	0	1770	3525	0
Flt Permitted	0.415			0.211			0.950			0.950		
Satd. Flow (perm)	722	1532	0	367	1802	0	1711	3422	0	1770	3525	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		214			41			41			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		485			290			331			352	
Travel Time (s)		11.0			6.6			7.5			8.0	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Adj. Flow (vph)	4	85	333	153	153	115	195	1134	314	142	1575	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	418	0	153	268	0	195	1448	0	142	1617	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	8		7	8		5	2		1	6	
Permitted Phases	8			8								
Detector Phase	7	8		7	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	7.0		3.0	7.0		7.0	15.0		7.0	15.0	
Minimum Split (s)	7.0	13.7		7.0	13.7		11.0	20.7		11.0	20.7	
Total Split (s)	10.0	30.7		10.0	30.7		15.0	34.3		15.0	34.3	
Total Split (%)	11.1%	34.1%		11.1%	34.1%		16.7%	38.1%		16.7%	38.1%	
Maximum Green (s)	6.0	24.0		6.0	24.0		11.0	28.6		11.0	28.6	
Yellow Time (s)	3.0	3.2		3.0	3.2		3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	3.5		1.0	3.5		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7		4.0	5.7		4.0	5.7	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	4.0		2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	27.7	19.0		27.7	19.0		12.6	34.5		10.1	32.0	
Actuated g/C Ratio	0.31	0.21		0.31	0.21		0.14	0.38		0.11	0.36	
v/c Ratio	0.01	0.85		0.77	0.65		0.82	1.08		0.71	1.29	
Control Delay	16.3	32.7		47.5	34.1		66.0	79.7		58.9	163.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.3	32.7		47.5	34.1		66.0	79.7		58.9	163.6	
LOS	B	C		D	C		E	E		E	F	
Approach Delay		32.5			39.0			78.1			155.2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			D			E			F	
Queue Length 50th (ft)	1	111		59	115		107	~528		77	~670	
Queue Length 95th (ft)	6	135		77	139		#171	#490		111	#586	
Internal Link Dist (ft)		405			210			251			272	
Turn Bay Length (ft)	320						185			195		
Base Capacity (vph)	284	565		198	510		239	1337		219	1256	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.01	0.74		0.77	0.53		0.82	1.08		0.65	1.29	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 84 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.29			
Intersection Signal Delay: 101.6		Intersection LOS: F	
Intersection Capacity Utilization 82.1%		ICU Level of Service E	
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: 2: Rte 83 (Talcottville Rd) & Dart Hill Rd/Regan Rd

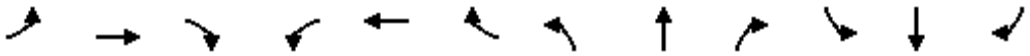


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	62	243	112	112	84	142	828	229	104	1150	31
Future Volume (vph)	3	62	243	112	112	84	142	828	229	104	1150	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	10	13	12	11	12	12	12	12	12
Total Lost time (s)	4.0	6.7		4.0	6.7		4.0	5.7		4.0	5.7	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.88		1.00	0.94		1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1652	1531		1652	1801		1711	3424		1770	3525	
Flt Permitted	0.42	1.00		0.21	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	722	1531		366	1801		1711	3424		1770	3525	
Peak-hour factor, PHF	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Adj. Flow (vph)	4	85	333	153	153	115	195	1134	314	142	1575	42
RTOR Reduction (vph)	0	169	0	0	32	0	0	25	0	0	2	0
Lane Group Flow (vph)	4	249	0	153	236	0	195	1423	0	142	1615	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	8		7	8		5	2		1	6	
Permitted Phases	8			8								
Actuated Green, G (s)	25.0	19.0		25.0	19.0		12.6	34.5		10.1	32.0	
Effective Green, g (s)	25.0	19.0		25.0	19.0		12.6	34.5		10.1	32.0	
Actuated g/C Ratio	0.28	0.21		0.28	0.21		0.14	0.38		0.11	0.36	
Clearance Time (s)	4.0	6.7		4.0	6.7		4.0	5.7		4.0	5.7	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)	262	323		187	380		239	1312		198	1253	
v/s Ratio Prot	0.00	0.16		c0.05	0.13		c0.11	0.42		0.08	c0.46	
v/s Ratio Perm	0.00			c0.17								
v/c Ratio	0.02	0.77		0.82	0.62		0.82	1.08		0.72	1.29	
Uniform Delay, d1	23.7	33.5		28.3	32.2		37.6	27.8		38.6	29.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	10.9		22.4	3.1		18.0	51.1		9.8	136.2	
Delay (s)	23.7	44.3		50.7	35.4		55.6	78.8		48.4	165.2	
Level of Service	C	D		D	D		E	E		D	F	
Approach Delay (s)		44.1			40.9			76.1			155.7	
Approach LOS		D			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	102.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.4
Intersection Capacity Utilization	82.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Appendix E

Intersection Capacity Analysis Worksheets
2023 Combined Traffic Volumes
Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	389	8	44	231	2	9	0	50	43	0	34
Future Volume (vph)	18	389	8	44	231	2	9	0	50	43	0	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.999			0.886			0.940	
Flt Protected		0.998			0.992			0.992			0.973	
Satd. Flow (prot)	0	1853	0	0	1846	0	0	1637	0	0	1704	0
Flt Permitted		0.998			0.992			0.992			0.973	
Satd. Flow (perm)	0	1853	0	0	1846	0	0	1637	0	0	1704	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		227			485			204			104	
Travel Time (s)		5.2			11.0			4.6			2.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	19	418	9	47	248	2	10	0	54	46	0	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	446	0	0	297	0	0	64	0	0	83	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.8%		ICU Level of Service A	
Analysis Period (min) 15			

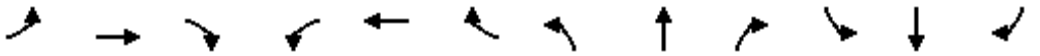
Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	18	389	8	44	231	2	9	0	50	43	0	34
Future Vol, veh/h	18	389	8	44	231	2	9	0	50	43	0	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	418	9	47	248	2	10	0	54	46	0	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	250	0	0	427	0	0	823	805	423	831	808	249
Stage 1	-	-	-	-	-	-	461	461	-	343	343	-
Stage 2	-	-	-	-	-	-	362	344	-	488	465	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1316	-	-	1132	-	-	292	316	631	289	315	790
Stage 1	-	-	-	-	-	-	581	565	-	672	637	-
Stage 2	-	-	-	-	-	-	657	637	-	561	563	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1316	-	-	1132	-	-	265	295	631	251	294	790
Mov Cap-2 Maneuver	-	-	-	-	-	-	265	295	-	251	294	-
Stage 1	-	-	-	-	-	-	570	554	-	659	606	-
Stage 2	-	-	-	-	-	-	597	606	-	503	552	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1.3	12.9	18
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	521	1316	-	-	1132	-	-	359
HCM Lane V/C Ratio	0.122	0.015	-	-	0.042	-	-	0.231
HCM Control Delay (s)	12.9	7.8	0	-	8.3	0	-	18
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0.9



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	71	261	112	120	84	157	828	229	104	1150	52
Future Volume (vph)	26	71	261	112	120	84	157	828	229	104	1150	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	10	13	12	11	12	12	12	12	12
Storage Length (ft)	320		0	0		0	185		0	195		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	210			25			95			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.882			0.938			0.967			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1533	0	1652	1805	0	1711	3422	0	1770	3518	0
Flt Permitted	0.417			0.193			0.950			0.950		
Satd. Flow (perm)	725	1533	0	336	1805	0	1711	3422	0	1770	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		201			38			41			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		485			290			331			352	
Travel Time (s)		11.0			6.6			7.5			8.0	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Adj. Flow (vph)	36	97	358	153	164	115	215	1134	314	142	1575	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	455	0	153	279	0	215	1448	0	142	1646	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	8		7	8		5	2		1	6	
Permitted Phases	8			8								
Detector Phase	7	8		7	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	7.0		3.0	7.0		7.0	15.0		7.0	15.0	
Minimum Split (s)	7.0	13.7		7.0	13.7		11.0	20.7		11.0	20.7	
Total Split (s)	10.0	30.7		10.0	30.7		15.0	34.3		15.0	34.3	
Total Split (%)	11.1%	34.1%		11.1%	34.1%		16.7%	38.1%		16.7%	38.1%	
Maximum Green (s)	6.0	24.0		6.0	24.0		11.0	28.6		11.0	28.6	
Yellow Time (s)	3.0	3.2		3.0	3.2		3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	3.5		1.0	3.5		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7		4.0	5.7		4.0	5.7	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	4.0		2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	29.4	20.7		29.4	20.7		13.1	32.9		10.0	29.8	
Actuated g/C Ratio	0.33	0.23		0.33	0.23		0.15	0.37		0.11	0.33	
v/c Ratio	0.12	0.90		0.78	0.63		0.87	1.13		0.73	1.41	
Control Delay	17.5	40.0		47.6	32.7		72.6	99.5		60.2	216.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	17.5	40.0		47.6	32.7		72.6	99.5		60.2	216.4	
LOS	B	D		D	C		E	F		E	F	
Approach Delay		38.3			38.0			96.0			204.0	

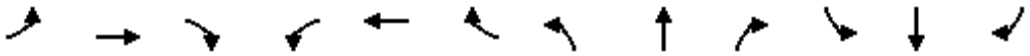
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			D			F			F	
Queue Length 50th (ft)	12	139		55	117		~132	~555		78	~688	
Queue Length 95th (ft)	25	168		77	148		#197	#490		111	#601	
Internal Link Dist (ft)		405			210			251			272	
Turn Bay Length (ft)	320						185			195		
Base Capacity (vph)	298	556		197	509		248	1277		216	1169	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.82		0.78	0.55		0.87	1.13		0.66	1.41	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 84 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.41	
Intersection Signal Delay: 128.0	Intersection LOS: F
Intersection Capacity Utilization 85.2%	ICU Level of Service E
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: 2: Rte 83 (Talcottville Rd) & Dart Hill Rd/Regan Rd

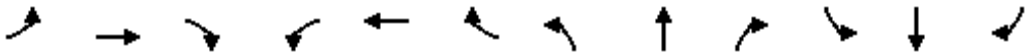


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	71	261	112	120	84	157	828	229	104	1150	52
Future Volume (vph)	26	71	261	112	120	84	157	828	229	104	1150	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	10	13	12	11	12	12	12	12	12
Total Lost time (s)	4.0	6.7		4.0	6.7		4.0	5.7		4.0	5.7	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.88		1.00	0.94		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1652	1533		1652	1806		1711	3424		1770	3516	
Flt Permitted	0.42	1.00		0.19	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	726	1533		336	1806		1711	3424		1770	3516	
Peak-hour factor, PHF	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Adj. Flow (vph)	36	97	358	153	164	115	215	1134	314	142	1575	71
RTOR Reduction (vph)	0	155	0	0	29	0	0	26	0	0	3	0
Lane Group Flow (vph)	36	300	0	153	250	0	215	1422	0	142	1643	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	8		7	8		5	2		1	6	
Permitted Phases	8			8								
Actuated Green, G (s)	26.7	20.7		26.7	20.7		13.1	32.9		10.0	29.8	
Effective Green, g (s)	26.7	20.7		26.7	20.7		13.1	32.9		10.0	29.8	
Actuated g/C Ratio	0.30	0.23		0.30	0.23		0.15	0.37		0.11	0.33	
Clearance Time (s)	4.0	6.7		4.0	6.7		4.0	5.7		4.0	5.7	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)	277	352		187	415		249	1251		196	1164	
v/s Ratio Prot	0.01	c0.20		c0.05	0.14		c0.13	c0.42		0.08	c0.47	
v/s Ratio Perm	0.03			0.19								
v/c Ratio	0.13	0.85		0.82	0.60		0.86	1.14		0.72	1.41	
Uniform Delay, d1	23.0	33.2		27.2	31.0		37.6	28.6		38.7	30.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	17.8		22.4	2.5		24.5	71.8		10.7	190.2	
Delay (s)	23.0	51.0		49.5	33.4		62.0	100.3		49.3	220.3	
Level of Service	C	D		D	C		E	F		D	F	
Approach Delay (s)		48.9			39.1			95.4			206.7	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	130.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.4
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Appendix E

Intersection Capacity Analysis Worksheets
2023 Combined Traffic Volumes with Signal Timing Improvements
Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	389	8	44	231	2	9	0	50	43	0	34
Future Volume (vph)	18	389	8	44	231	2	9	0	50	43	0	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.999			0.886			0.940	
Flt Protected		0.998			0.992			0.992			0.973	
Satd. Flow (prot)	0	1853	0	0	1846	0	0	1637	0	0	1704	0
Flt Permitted		0.998			0.992			0.992			0.973	
Satd. Flow (perm)	0	1853	0	0	1846	0	0	1637	0	0	1704	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		227			485			204			104	
Travel Time (s)		5.2			11.0			4.6			2.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	19	418	9	47	248	2	10	0	54	46	0	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	446	0	0	297	0	0	64	0	0	83	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.8%		ICU Level of Service A	
Analysis Period (min) 15			

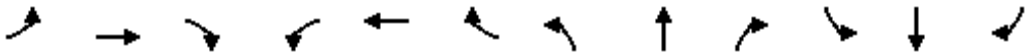
Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	18	389	8	44	231	2	9	0	50	43	0	34
Future Vol, veh/h	18	389	8	44	231	2	9	0	50	43	0	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	418	9	47	248	2	10	0	54	46	0	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	250	0	0	427	0	0	823	805	423	831	808	249
Stage 1	-	-	-	-	-	-	461	461	-	343	343	-
Stage 2	-	-	-	-	-	-	362	344	-	488	465	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1316	-	-	1132	-	-	292	316	631	289	315	790
Stage 1	-	-	-	-	-	-	581	565	-	672	637	-
Stage 2	-	-	-	-	-	-	657	637	-	561	563	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1316	-	-	1132	-	-	265	295	631	251	294	790
Mov Cap-2 Maneuver	-	-	-	-	-	-	265	295	-	251	294	-
Stage 1	-	-	-	-	-	-	570	554	-	659	606	-
Stage 2	-	-	-	-	-	-	597	606	-	503	552	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1.3	12.9	18
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	521	1316	-	-	1132	-	-	359
HCM Lane V/C Ratio	0.122	0.015	-	-	0.042	-	-	0.231
HCM Control Delay (s)	12.9	7.8	0	-	8.3	0	-	18
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0.9



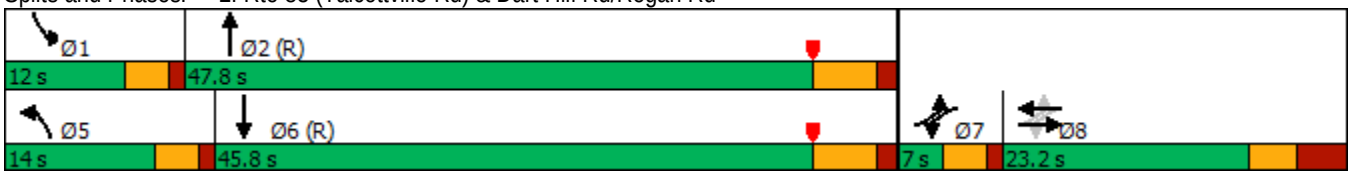
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	71	261	112	120	84	157	828	229	104	1150	52
Future Volume (vph)	26	71	261	112	120	84	157	828	229	104	1150	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	10	13	12	11	12	12	12	12	12
Storage Length (ft)	320		0	0		0	185		0	195		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	210			25			95			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.882			0.938			0.967			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1533	0	1652	1805	0	1711	3422	0	1770	3518	0
Flt Permitted	0.346			0.242			0.950			0.950		
Satd. Flow (perm)	602	1533	0	421	1805	0	1711	3422	0	1770	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		181			34			53			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		485			290			331			352	
Travel Time (s)		11.0			6.6			7.5			8.0	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Adj. Flow (vph)	36	97	358	153	164	115	215	1134	314	142	1575	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	455	0	153	279	0	215	1448	0	142	1646	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	8		7	8		5	2		1	6	
Permitted Phases	8			8								
Detector Phase	7	8		7	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	7.0		3.0	7.0		7.0	15.0		7.0	15.0	
Minimum Split (s)	7.0	13.7		7.0	13.7		11.0	20.7		11.0	20.7	
Total Split (s)	7.0	23.2		7.0	23.2		14.0	47.8		12.0	45.8	
Total Split (%)	7.8%	25.8%		7.8%	25.8%		15.6%	53.1%		13.3%	50.9%	
Maximum Green (s)	3.0	16.5		3.0	16.5		10.0	42.1		8.0	40.1	
Yellow Time (s)	3.0	3.2		3.0	3.2		3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	3.5		1.0	3.5		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.7		4.0	6.7		4.0	5.7		4.0	5.7	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	4.0		2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	22.2	16.5		22.2	16.5		10.0	42.1		8.0	40.1	
Actuated g/C Ratio	0.25	0.18		0.25	0.18		0.11	0.47		0.09	0.45	
v/c Ratio	0.20	1.06		1.06	0.78		1.13	0.89		0.90	1.05	
Control Delay	26.2	84.9		125.9	47.3		144.2	29.4		93.5	62.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.2	84.9		125.9	47.3		144.2	29.4		93.5	62.5	
LOS	C	F		F	D		F	C		F	E	
Approach Delay		80.6			75.1			44.3			65.0	

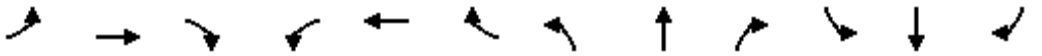
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		F			E			D			E	
Queue Length 50th (ft)	15	~196		~73	134		~143	368		82	~541	
Queue Length 95th (ft)	30	#244		#134	169		#208	324		#138	423	
Internal Link Dist (ft)		405			210			251			272	
Turn Bay Length (ft)	320						185			195		
Base Capacity (vph)	183	428		144	358		190	1628		157	1570	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.20	1.06		1.06	0.78		1.13	0.89		0.90	1.05	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 84 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.13			
Intersection Signal Delay: 59.9		Intersection LOS: E	
Intersection Capacity Utilization 85.2%		ICU Level of Service E	
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: 2: Rte 83 (Talcottville Rd) & Dart Hill Rd/Regan Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	71	261	112	120	84	157	828	229	104	1150	52
Future Volume (vph)	26	71	261	112	120	84	157	828	229	104	1150	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	10	13	12	11	12	12	12	12	12
Total Lost time (s)	4.0	6.7		4.0	6.7		4.0	5.7		4.0	5.7	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.88		1.00	0.94		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1652	1533		1652	1806		1711	3424		1770	3516	
Flt Permitted	0.35	1.00		0.24	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	602	1533		421	1806		1711	3424		1770	3516	
Peak-hour factor, PHF	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Adj. Flow (vph)	36	97	358	153	164	115	215	1134	314	142	1575	71
RTOR Reduction (vph)	0	148	0	0	28	0	0	28	0	0	3	0
Lane Group Flow (vph)	36	307	0	153	251	0	215	1420	0	142	1643	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	8		7	8		5	2		1	6	
Permitted Phases	8			8								
Actuated Green, G (s)	19.5	16.5		19.5	16.5		10.0	42.1		8.0	40.1	
Effective Green, g (s)	19.5	16.5		19.5	16.5		10.0	42.1		8.0	40.1	
Actuated g/C Ratio	0.22	0.18		0.22	0.18		0.11	0.47		0.09	0.45	
Clearance Time (s)	4.0	6.7		4.0	6.7		4.0	5.7		4.0	5.7	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)	165	281		132	331		190	1601		157	1566	
v/s Ratio Prot	0.01	0.20		c0.04	0.14		c0.13	0.41		0.08	c0.47	
v/s Ratio Perm	0.04			c0.21								
v/c Ratio	0.22	1.09		1.16	0.76		1.13	0.89		0.90	1.05	
Uniform Delay, d1	28.5	36.8		36.3	34.9		40.0	21.8		40.6	24.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	80.9		127.4	9.6		105.1	7.7		44.0	36.8	
Delay (s)	28.7	117.6		163.7	44.5		145.1	29.4		84.6	61.7	
Level of Service	C	F		F	D		F	C		F	E	
Approach Delay (s)		111.1			86.7			44.4			63.5	
Approach LOS		F			F			D			E	

Intersection Summary			
HCM 2000 Control Delay	63.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.4
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Appendix F

Turning Movement Count (TMC) Data

Connecticut Counts LLC
Kensington, Connecticut 06037
(860) 828-1693

Dart Hill Rd at Walgreen West Dr
Vernon, Connecticut

File Name : 22425
Site Code : 22425
Start Date : 12/7/2021
Page No : 1

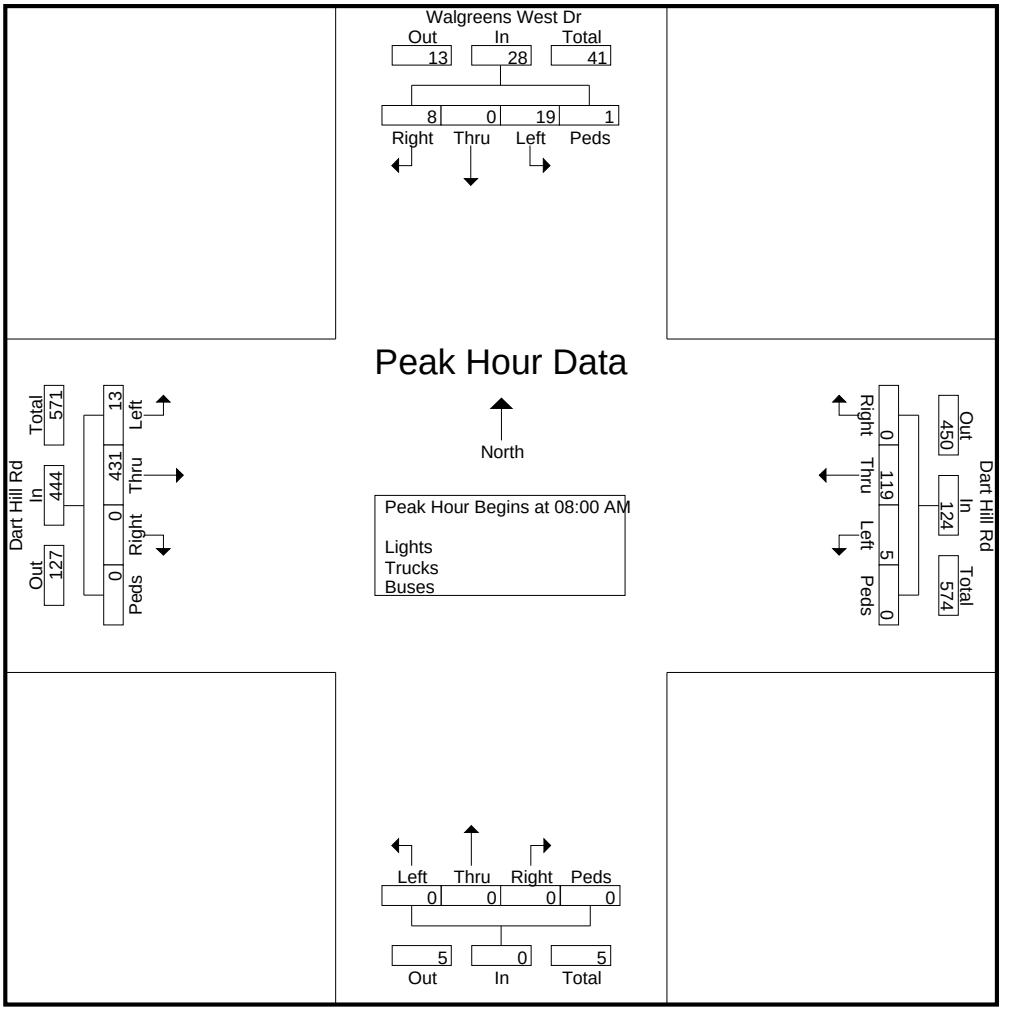
Groups Printed- Lights - Trucks - Buses

	Walgreens West Dr From North					Dart Hill Rd From East					From South					Dart Hill Rd From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	1	0	0	0	1	1	26	0	0	27	0	0	0	0	0	0	91	0	0	91	119
07:15 AM	0	0	3	0	3	0	19	0	0	19	0	0	0	0	0	0	100	2	0	102	124
07:30 AM	0	0	3	0	3	4	37	0	0	41	0	0	0	0	0	0	103	2	0	105	149
07:45 AM	1	0	4	0	5	2	37	0	0	39	0	0	0	0	0	0	94	0	0	94	138
Total	2	0	10	0	12	7	119	0	0	126	0	0	0	0	0	0	388	4	0	392	530
08:00 AM	0	0	3	0	3	0	36	0	0	36	0	0	0	0	0	0	103	1	0	104	143
08:15 AM	2	0	4	0	6	0	36	0	0	36	0	0	0	0	0	0	85	4	0	89	131
08:30 AM	6	0	5	1	12	0	26	0	0	26	0	0	0	0	0	0	123	5	0	128	166
08:45 AM	0	0	7	0	7	0	21	5	0	26	0	0	0	0	0	0	120	3	0	123	156
Total	8	0	19	1	28	0	119	5	0	124	0	0	0	0	0	0	431	13	0	444	596
Grand Total	10	0	29	1	40	7	238	5	0	250	0	0	0	0	0	0	819	17	0	836	1126
Apprch %	25	0	72.5	2.5		2.8	95.2	2	0		0	0	0	0		0	98	2	0		
Total %	0.9	0	2.6	0.1	3.6	0.6	21.1	0.4	0	22.2	0	0	0	0	0	0	72.7	1.5	0	74.2	
Lights	10	0	28	1	39	7	227	5	0	239	0	0	0	0	0	0	805	17	0	822	1100
% Lights	100	0	96.6	100	97.5	100	95.4	100	0	95.6	0	0	0	0	0	0	98.3	100	0	98.3	97.7
Trucks	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	6	0	0	6	11
% Trucks	0	0	0	0	0	0	2.1	0	0	2	0	0	0	0	0	0	0.7	0	0	0.7	1
Buses	0	0	1	0	1	0	6	0	0	6	0	0	0	0	0	0	8	0	0	8	15
% Buses	0	0	3.4	0	2.5	0	2.5	0	0	2.4	0	0	0	0	0	0	1	0	0	1	1.3

Connecticut Counts LLC
Kensington, Connecticut 06037
(860) 828-1693

File Name : 22425
Site Code : 22425
Start Date : 12/7/2021
Page No : 2

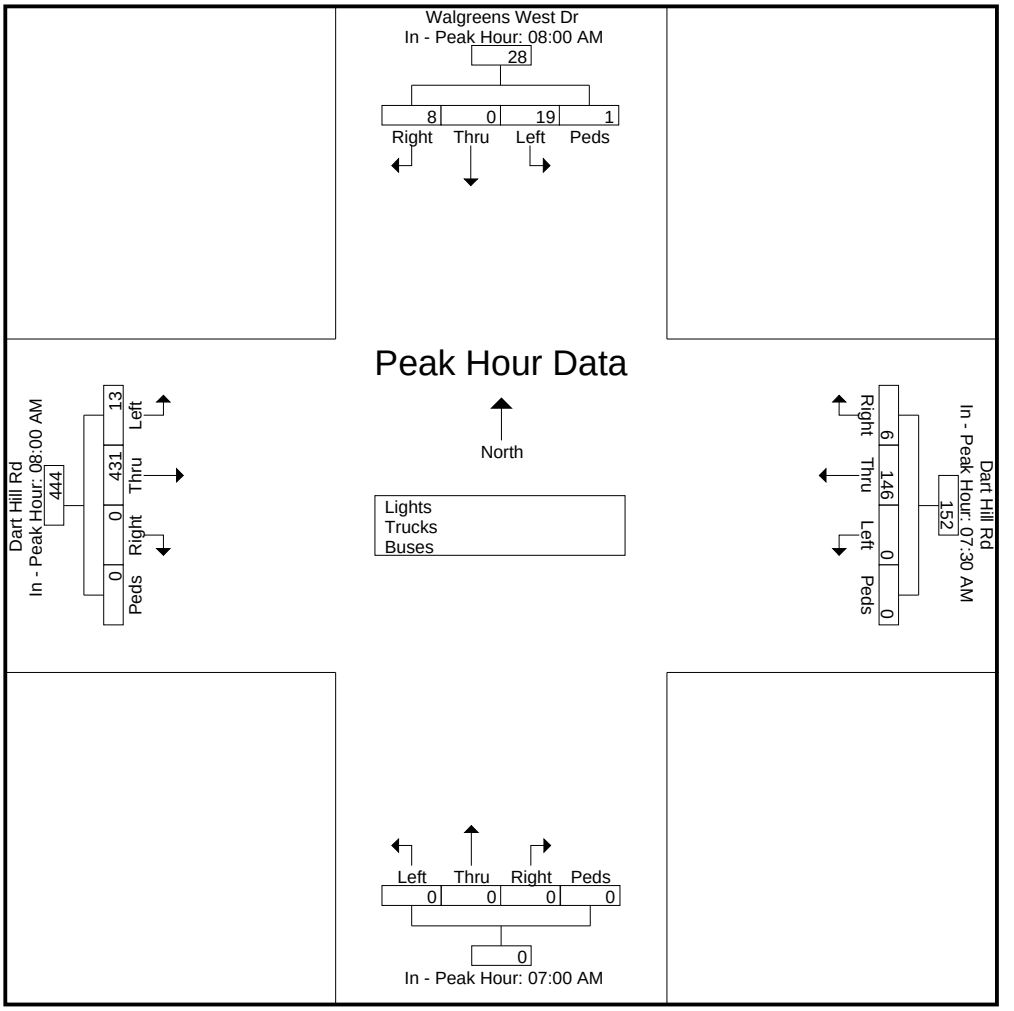
	Walgreens West Dr From North					Dart Hill Rd From East					From South					Dart Hill Rd From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	3	0	3	0	36	0	0	36	0	0	0	0	0	0	103	1	0	104	143
08:15 AM	2	0	4	0	6	0	36	0	0	36	0	0	0	0	0	0	85	4	0	89	131
08:30 AM	6	0	5	1	12	0	26	0	0	26	0	0	0	0	0	0	123	5	0	128	166
08:45 AM	0	0	7	0	7	0	21	5	0	26	0	0	0	0	0	0	120	3	0	123	156
Total Volume	8	0	19	1	28	0	119	5	0	124	0	0	0	0	0	0	431	13	0	444	596
% App. Total	28.6	0	67.9	3.6		0	96	4	0		0	0	0	0		0	97.1	2.9	0		
PHF	.333	.000	.679	.250	.583	.000	.826	.250	.000	.861	.000	.000	.000	.000	.000	.000	.876	.650	.000	.867	.898



Connecticut Counts LLC
Kensington, Connecticut 06037
(860) 828-1693

File Name : 22425
Site Code : 22425
Start Date : 12/7/2021
Page No : 3

Start Time	Walgreens West Dr From North					Dart Hill Rd From East					From South					Dart Hill Rd From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	08:00 AM					07:30 AM					07:00 AM					08:00 AM					
+0 mins.	0	0	3	0	3	4	37	0	0	41	0	0	0	0	0	0	103	1	0	104	
+15 mins.	2	0	4	0	6	2	37	0	0	39	0	0	0	0	0	0	85	4	0	89	
+30 mins.	6	0	5	1	12	0	36	0	0	36	0	0	0	0	0	0	123	5	0	128	
+45 mins.	0	0	7	0	7	0	36	0	0	36	0	0	0	0	0	0	120	3	0	123	
Total Volume	8	0	19	1	28	6	146	0	0	152	0	0	0	0	0	0	431	13	0	444	
% App. Total	28.6	0	67.9	3.6		3.9	96.1	0	0		0	0	0	0		0	97.1	2.9	0		
PHF	.333	.000	.679	.250	.583	.375	.986	.000	.000	.927	.000	.000	.000	.000	.000	.000	.876	.650	.000	.867	



Connecticut Counts LLC
Kensington, Connecticut 06037
(860) 828-1693

Dart Hill Rd at Walgreen West Dr
Vernon, Connecticut

File Name : 22426
Site Code : 22426
Start Date : 12/7/2021
Page No : 1

Groups Printed- Lights - Trucks - Buses

	Walgreens West Dr From North					Dart Hill Rd From East					From South					Dart Hill Rd From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	10	0	13	0	23	0	43	0	0	43	0	0	0	0	0	0	78	7	0	85	151
04:15 PM	8	0	8	0	16	2	45	0	0	47	0	0	0	0	0	0	122	6	0	128	191
04:30 PM	7	0	6	0	13	1	55	0	0	56	0	0	0	0	0	0	96	8	0	104	173
04:45 PM	10	0	11	0	21	0	59	0	0	59	0	0	0	0	0	0	107	4	0	111	191
Total	35	0	38	0	73	3	202	0	0	205	0	0	0	0	0	0	403	25	0	428	706
05:00 PM	8	0	11	0	19	1	57	0	0	58	0	0	0	0	0	0	80	1	0	81	158
05:15 PM	9	0	14	0	23	0	57	0	0	57	0	0	0	0	0	0	101	5	0	106	186
05:30 PM	6	0	11	0	17	0	35	0	0	35	0	0	0	0	0	0	97	2	0	99	151
05:45 PM	5	0	5	0	10	0	41	0	0	41	0	0	0	0	0	0	79	8	0	87	138
Total	28	0	41	0	69	1	190	0	0	191	0	0	0	0	0	0	357	16	0	373	633
Grand Total	63	0	79	0	142	4	392	0	0	396	0	0	0	0	0	0	760	41	0	801	1339
Apprch %	44.4	0	55.6	0		1	99	0	0		0	0	0	0		0	94.9	5.1	0		
Total %	4.7	0	5.9	0	10.6	0.3	29.3	0	0	29.6	0	0	0	0	0	0	56.8	3.1	0	59.8	
Lights	63	0	79	0	142	4	391	0	0	395	0	0	0	0	0	0	759	41	0	800	1337
% Lights	100	0	100	0	100	100	99.7	0	0	99.7	0	0	0	0	0	0	99.9	100	0	99.9	99.9
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
% Buses	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0	0	0	0.1	0	0	0.1	0.1

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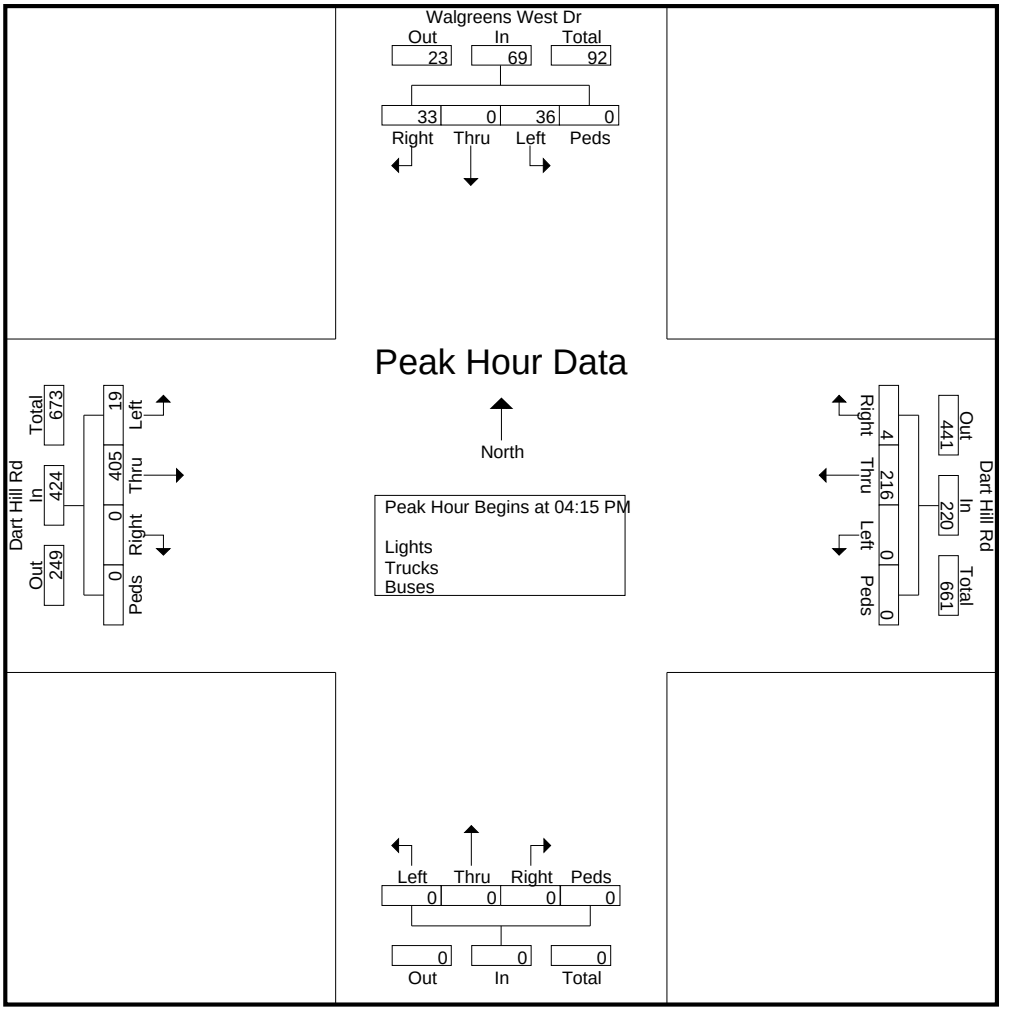
File Name : 22426
Site Code : 22426
Start Date : 12/7/2021
Page No : 2

	Walgreens West Dr From North					Dart Hill Rd From East					From South					Dart Hill Rd From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	8	0	8	0	16	2	45	0	0	47	0	0	0	0	0	0	122	6	0	128	191
04:30 PM	7	0	6	0	13	1	55	0	0	56	0	0	0	0	0	0	96	8	0	104	173
04:45 PM	10	0	11	0	21	0	59	0	0	59	0	0	0	0	0	0	107	4	0	111	191
05:00 PM	8	0	11	0	19	1	57	0	0	58	0	0	0	0	0	0	80	1	0	81	158
Total Volume	33	0	36	0	69	4	216	0	0	220	0	0	0	0	0	0	405	19	0	424	713
% App. Total	47.8	0	52.2	0		1.8	98.2	0	0		0	0	0	0		0	95.5	4.5	0		
PHF	.825	.000	.818	.000	.821	.500	.915	.000	.000	.932	.000	.000	.000	.000	.000	.000	.830	.594	.000	.828	.933



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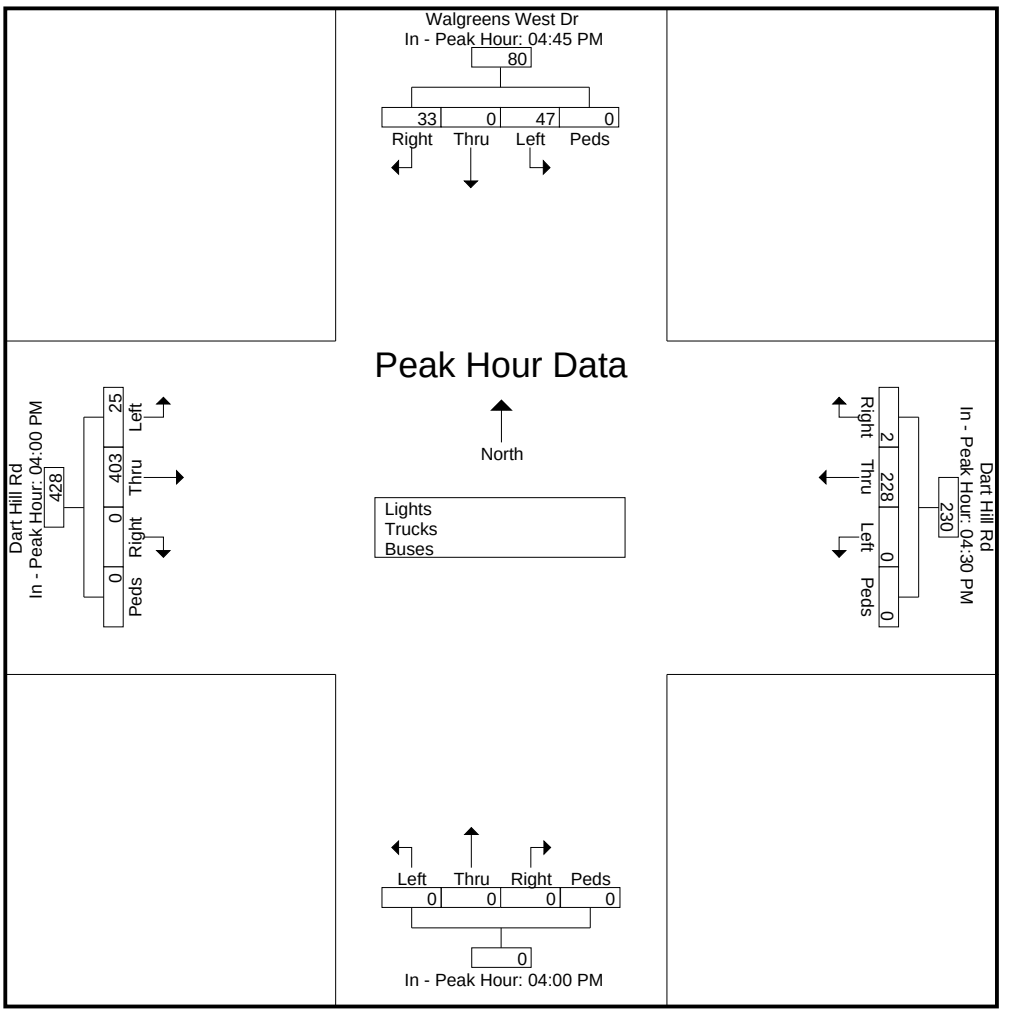
File Name : 22426
Site Code : 22426
Start Date : 12/7/2021
Page No : 3

	Walgreens West Dr From North					Dart Hill Rd From East					From South					Dart Hill Rd From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	04:45 PM					04:30 PM					04:00 PM					04:00 PM					
+0 mins.	10	0	11	0	21	1	55	0	0	56	0	0	0	0	0	0	78	7	0	85	
+15 mins.	8	0	11	0	19	0	59	0	0	59	0	0	0	0	0	0	122	6	0	128	
+30 mins.	9	0	14	0	23	1	57	0	0	58	0	0	0	0	0	0	96	8	0	104	
+45 mins.	6	0	11	0	17	0	57	0	0	57	0	0	0	0	0	0	107	4	0	111	
Total Volume	33	0	47	0	80	2	228	0	0	230	0	0	0	0	0	0	403	25	0	428	
% App. Total	41.2	0	58.8	0		0.9	99.1	0	0		0	0	0	0		0	94.2	5.8	0		
PHF	.825	.000	.839	.000	.870	.500	.966	.000	.000	.975	.000	.000	.000	.000	.000	.000	.826	.781	.000	.836	



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Route 83 at Dart Hill/Regan Rd
Vernon, Connecticut

File Name : 22423
Site Code : 22423
Start Date : 12/7/2021
Page No : 1

Groups Printed- Lights - Trucks - Buses

	Route 83 From North					Regan Road From East					Route 83 From South					Dart Hill Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	6	164	36	0	206	76	16	35	1	128	5	109	7	0	121	53	23	12	0	88	543
07:15 AM	3	198	33	1	235	50	12	32	0	94	13	92	4	0	109	70	25	13	0	108	546
07:30 AM	12	205	12	1	230	15	33	46	0	94	19	89	8	0	116	75	16	6	0	97	537
07:45 AM	6	177	10	1	194	13	24	32	0	69	17	95	8	0	120	82	24	4	0	110	493
Total	27	744	91	3	865	154	85	145	1	385	54	385	27	0	466	280	88	35	0	403	2119
08:00 AM	4	157	18	1	180	20	23	35	0	78	23	109	12	0	144	70	20	11	0	101	503
08:15 AM	9	160	12	1	182	18	20	26	0	64	23	93	8	0	124	51	28	4	1	84	454
08:30 AM	6	146	11	1	164	13	15	32	1	61	10	86	6	1	103	81	24	21	1	127	455
08:45 AM	3	139	10	0	152	14	15	36	0	65	12	94	11	0	117	96	22	13	0	131	465
Total	22	602	51	3	678	65	73	129	1	268	68	382	37	1	488	298	94	49	2	443	1877
Grand Total	49	1346	142	6	1543	219	158	274	2	653	122	767	64	1	954	578	182	84	2	846	3996
Apprch %	3.2	87.2	9.2	0.4		33.5	24.2	42	0.3		12.8	80.4	6.7	0.1		68.3	21.5	9.9	0.2		
Total %	1.2	33.7	3.6	0.2	38.6	5.5	4	6.9	0.1	16.3	3.1	19.2	1.6	0	23.9	14.5	4.6	2.1	0.1	21.2	
Lights	43	1303																			
% Lights	87.8	96.8	93.7	83.3	96.2	95.4	98.7	97.8	100	97.2	93.4	95.2	95.3	100	95	99.1	95.6	98.8	100	98.3	96.5
Trucks	1	25	1	0	27	2	1	1	0	4	2	23	3	0	28	1	4	1	0	6	65
% Trucks	2	1.9	0.7	0	1.7	0.9	0.6	0.4	0	0.6	1.6	3	4.7	0	2.9	0.2	2.2	1.2	0	0.7	1.6
Buses	5	18	8	1	32	8	1	5	0	14	6	14	0	0	20	4	4	0	0	8	74
% Buses	10.2	1.3	5.6	16.7	2.1	3.7	0.6	1.8	0	2.1	4.9	1.8	0	0	2.1	0.7	2.2	0	0	0.9	1.9

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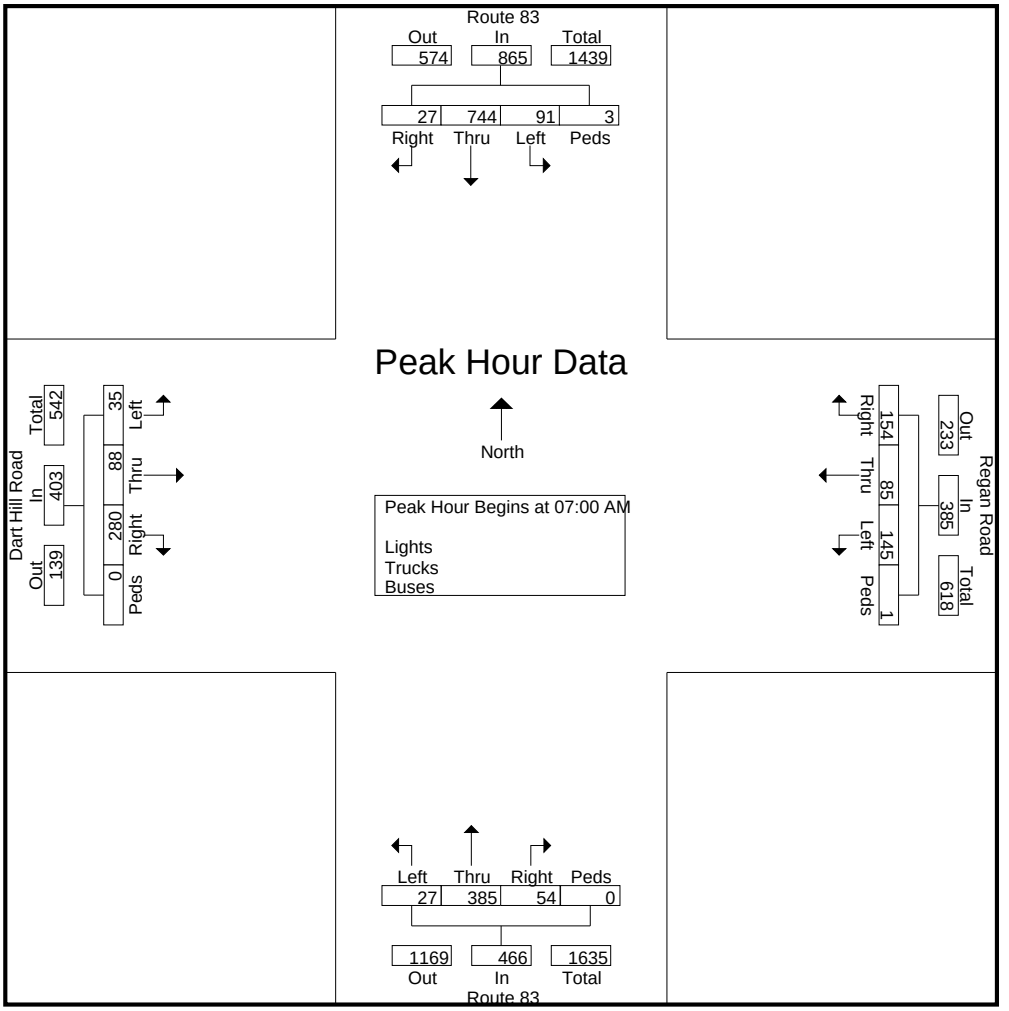
File Name : 22423
Site Code : 22423
Start Date : 12/7/2021
Page No : 2

	Route 83 From North					Regan Road From East					Route 83 From South					Dart Hill Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	6	164	36	0	206	76	16	35	1	128	5	109	7	0	121	53	23	12	0	88	543
07:15 AM	3	198	33	1	235	50	12	32	0	94	13	92	4	0	109	70	25	13	0	108	546
07:30 AM	12	205	12	1	230	15	33	46	0	94	19	89	8	0	116	75	16	6	0	97	537
07:45 AM	6	177	10	1	194	13	24	32	0	69	17	95	8	0	120	82	24	4	0	110	493
Total Volume	27	744	91	3	865	154	85	145	1	385	54	385	27	0	466	280	88	35	0	403	2119
% App. Total	3.1	86	10.5	0.3		40	22.1	37.7	0.3		11.6	82.6	5.8	0		69.5	21.8	8.7	0		
PHF	.563	.907	.632	.750	.920	.507	.644	.788	.250	.752	.711	.883	.844	.000	.963	.854	.880	.673	.000	.916	.970



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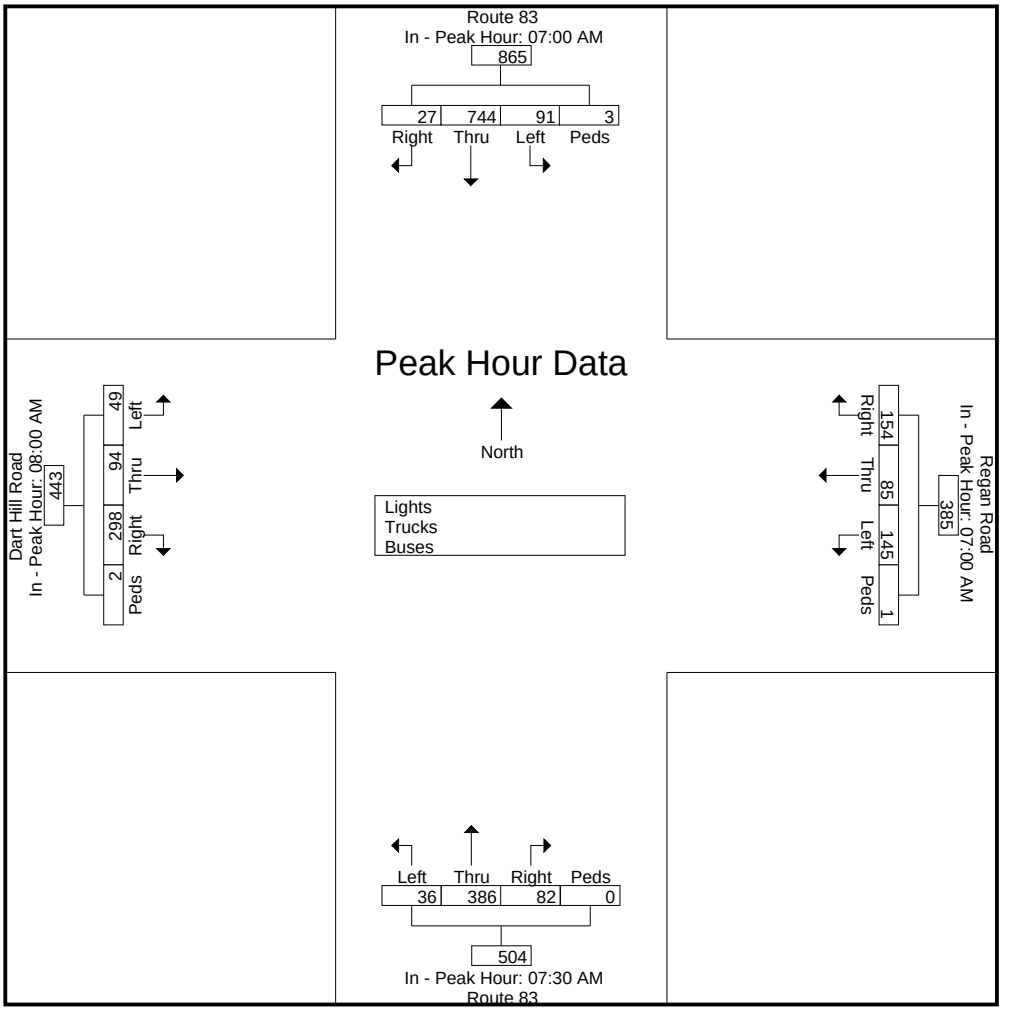
File Name : 22423
Site Code : 22423
Start Date : 12/7/2021
Page No : 3

Start Time	Route 83 From North					Regan Road From East					Route 83 From South					Dart Hill Road From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	07:00 AM					07:00 AM					07:30 AM					08:00 AM					
+0 mins.	6	164	36	0	206	76	16	35	1	128	19	89	8	0	116	70	20	11	0	101	
+15 mins.	3	198	33	1	235	50	12	32	0	94	17	95	8	0	120	51	28	4	1	84	
+30 mins.	12	205	12	1	230	15	33	46	0	94	23	109	12	0	144	81	24	21	1	127	
+45 mins.	6	177	10	1	194	13	24	32	0	69	23	93	8	0	124	96	22	13	0	131	
Total Volume	27	744	91	3	865	154	85	145	1	385	82	386	36	0	504	298	94	49	2	443	
% App. Total	3.1	86	10.5	0.3		40	22.1	37.7	0.3		16.3	76.6	7.1	0		67.3	21.2	11.1	0.5		
PHF	.563	.907	.632	.750	.920	.507	.644	.788	.250	.752	.891	.885	.750	.000	.875	.776	.839	.583	.500	.845	



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Route 83 at Dart Hill/Regan Road
Vernon, Connecticut

File Name : 22424
Site Code : 22424
Start Date : 12/7/2021
Page No : 1

Groups Printed- Lights - Trucks - Buses

	Route 83 From North					Regan Road From East					Route 83 From South					Dart Hill Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	9	207	18	3	237	15	22	35	1	73	38	198	27	0	263	42	21	0	0	63	636
04:15 PM	9	163	28	0	200	31	16	36	0	83	48	206	39	0	293	67	18	0	1	86	662
04:30 PM	5	161	31	0	197	17	25	35	2	79	52	211	40	0	303	61	15	2	0	78	657
04:45 PM	9	556	25	0	590	16	30	28	0	74	55	209	30	0	294	63	26	0	0	89	1047
Total	32	1087	102	3	1224	79	93	134	3	309	193	824	136	0	1153	233	80	2	1	316	3002
05:00 PM	8	218	21	0	247	29	32	32	0	93	67	191	32	7	297	54	5	0	0	59	696
05:15 PM	9	201	26	0	236	21	24	16	1	62	52	207	38	0	297	62	15	1	0	78	673
05:30 PM	3	162	19	0	184	12	23	18	0	53	44	182	20	1	247	52	18	1	0	71	555
05:45 PM	27	121	24	0	172	19	19	31	0	69	47	156	28	0	231	46	11	0	0	57	529
Total	47	702	90	0	839	81	98	97	1	277	210	736	118	8	1072	214	49	2	0	265	2453
Grand Total	79	1789	192	3	2063	160	191	231	4	586	403	1560	254	8	2225	447	129	4	1	581	5455
Apprch %	3.8	86.7	9.3	0.1		27.3	32.6	39.4	0.7		18.1	70.1	11.4	0.4		76.9	22.2	0.7	0.2		
Total %	1.4	32.8	3.5	0.1	37.8	2.9	3.5	4.2	0.1	10.7	7.4	28.6	4.7	0.1	40.8	8.2	2.4	0.1	0	10.7	
Lights	79	1774										1547									
% Lights	100	99.2	99.5	100	99.2	100	99.5	98.7	100	99.3	99	99.2	99.2	100	99.1	100	97.7	50	100	99.1	99.2
Trucks	0	6	0	0	6	0	0	1	0	1	0	9	2	0	11	0	2	2	0	4	22
% Trucks	0	0.3	0	0	0.3	0	0	0.4	0	0.2	0	0.6	0.8	0	0.5	0	1.6	50	0	0.7	0.4
Buses	0	9	1	0	10	0	1	2	0	3	4	4	0	0	8	0	1	0	0	1	22
% Buses	0	0.5	0.5	0	0.5	0	0.5	0.9	0	0.5	1	0.3	0	0	0.4	0	0.8	0	0	0.2	0.4

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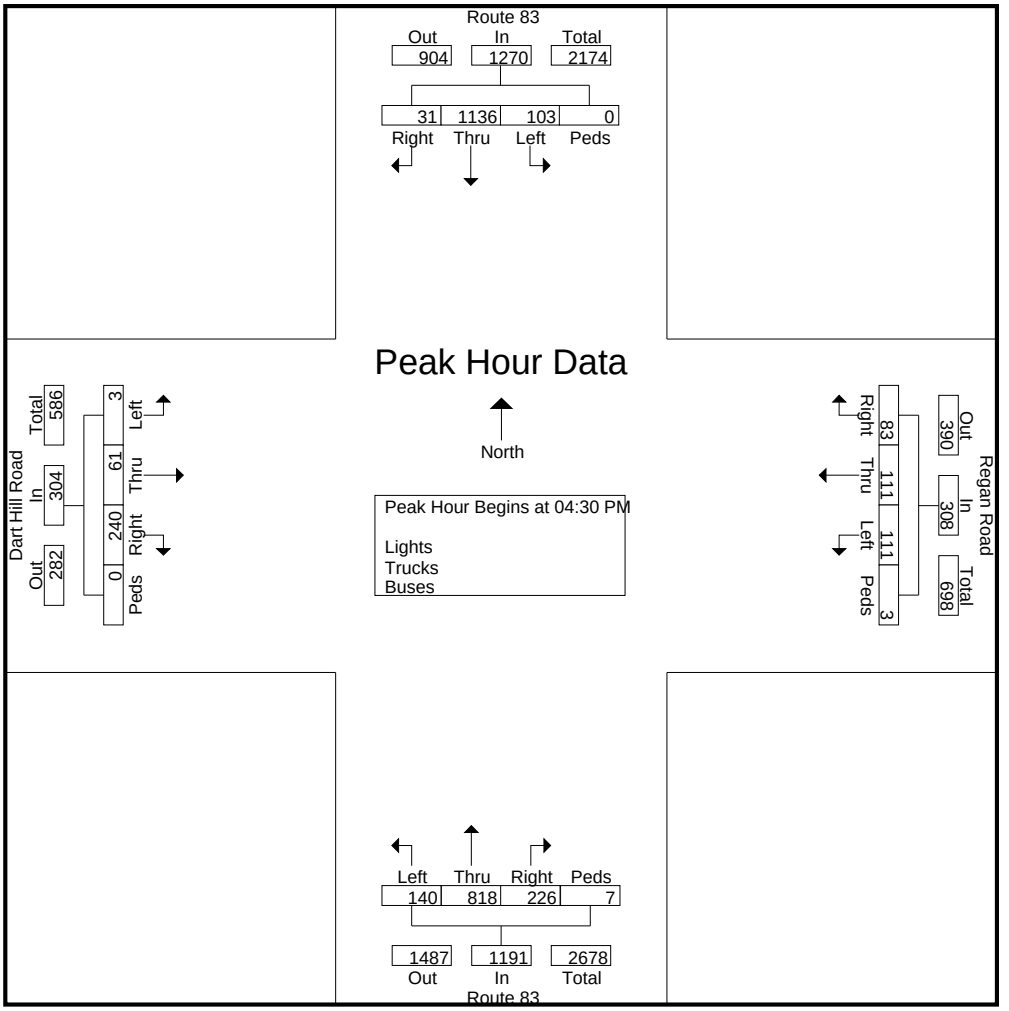
File Name : 22424
Site Code : 22424
Start Date : 12/7/2021
Page No : 2

	Route 83 From North					Regan Road From East					Route 83 From South					Dart Hill Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	5	161	31	0	197	17	25	35	2	79	52	211	40	0	303	61	15	2	0	78	657
04:45 PM	9	556	25	0	590	16	30	28	0	74	55	209	30	0	294	63	26	0	0	89	1047
05:00 PM	8	218	21	0	247	29	32	32	0	93	67	191	32	7	297	54	5	0	0	59	696
05:15 PM	9	201	26	0	236	21	24	16	1	62	52	207	38	0	297	62	15	1	0	78	673
Total Volume	31	1136	103	0	1270	83	111	111	3	308	226	818	140	7	1191	240	61	3	0	304	3073
% App. Total	2.4	89.4	8.1	0		26.9	36	36	1		19	68.7	11.8	0.6		78.9	20.1	1	0		
PHF	.861	.511	.831	.000	.538	.716	.867	.793	.375	.828	.843	.969	.875	.250	.983	.952	.587	.375	.000	.854	.734



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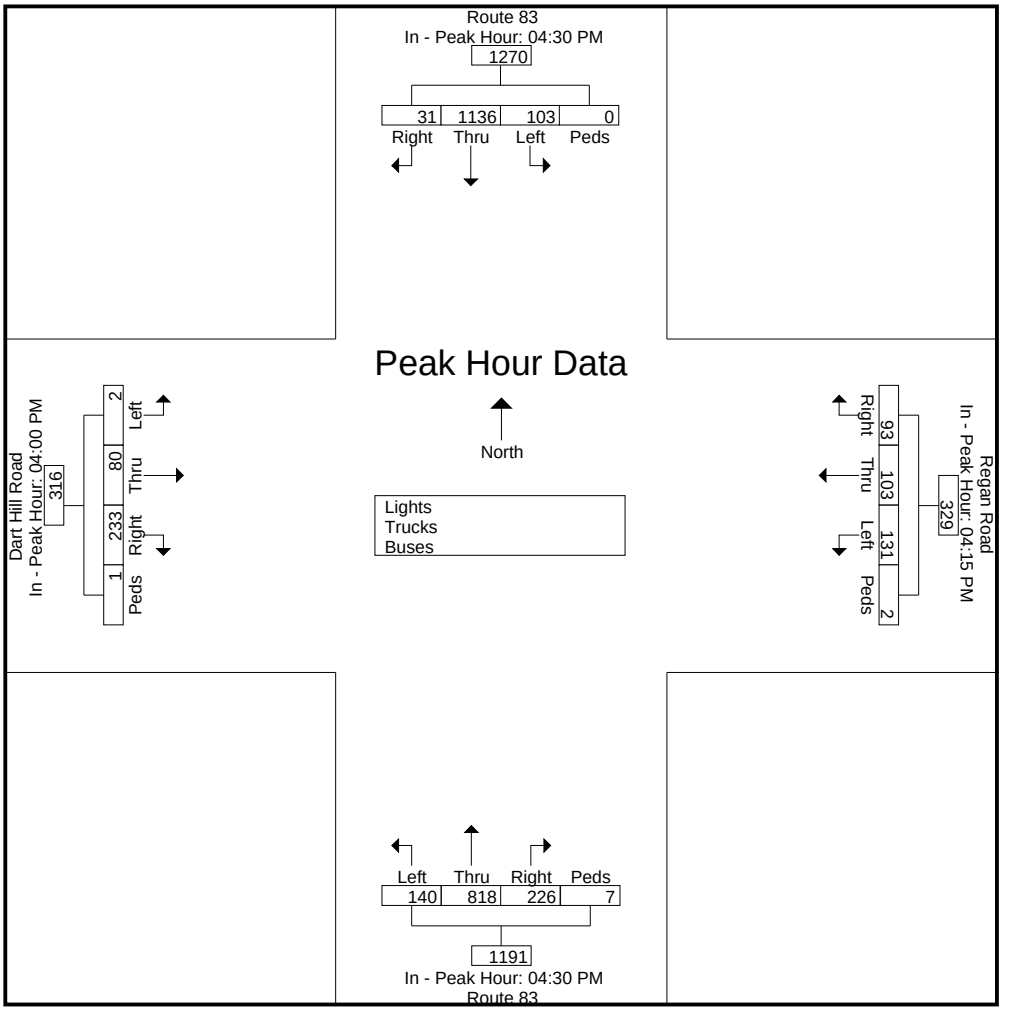
File Name : 22424
Site Code : 22424
Start Date : 12/7/2021
Page No : 3

Start Time	Route 83 From North					Regan Road From East					Route 83 From South					Dart Hill Road From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	04:30 PM					04:15 PM					04:30 PM					04:00 PM					
+0 mins.	5	161	31	0	197	31	16	36	0	83	52	211	40	0	303	42	21	0	0	63	
+15 mins.	9	556	25	0	590	17	25	35	2	79	55	209	30	0	294	67	18	0	1	86	
+30 mins.	8	218	21	0	247	16	30	28	0	74	67	191	32	7	297	61	15	2	0	78	
+45 mins.	9	201	26	0	236	29	32	32	0	93	52	207	38	0	297	63	26	0	0	89	
Total Volume	31	1136	103	0	1270	93	103	131	2	329	226	818	140	7	1191	233	80	2	1	316	
% App. Total	2.4	89.4	8.1	0		28.3	31.3	39.8	0.6		19	68.7	11.8	0.6		73.7	25.3	0.6	0.3		
PHF	.861	.511	.831	.000	.538	.750	.805	.910	.250	.884	.843	.969	.875	.250	.983	.869	.769	.250	.250	.888	



Appendix G

Crash Data Records

Uconn Crash Data

501 Talcottville Road
Vernon, Connecticut
January 1, 2018 - December 31, 2020

Date Of Crash	Time of Crash	Severity PDO = Property Damage Only	No. Of Veh.	No. Of Non-Motorists	Intersecting Roadway Name	Collision Type	Weather	Light Condition	Road Surface Condition	Contributing Circumstances
1) Dart Hill Road at Western Walgreens Drive										
12/21/2018	8:55:00	PDO	2	0	unknown	Front to rear	Rain	Daylight	Wet	None
6/4/2019	16:28:00	Possible Injury	2	0	unknown	Front to front	Clear	Daylight	Dry	None
2) Route 83 (Talcottville Road) at Dart Hill Road and Regan Road										
3/15/2018	17:59:00	PDO	2	0	DART HILL RD	Angle	Clear	Daylight	Dry	None
3/23/2018	10:51:00	Possible Injury	2	0	unknown	Angle	Clear	Daylight	Dry	None
4/1/2018	10:52:00	PDO	2	0	DART HILL RD	Sideswipe, same direction	Clear	Daylight	Dry	None
4/12/2018	17:18:00	PDO	2	0	DART HILL RD	Front to rear	Clear	Daylight	Dry	None
4/13/2018	21:19:00	PDO	2	0	unknown	Front to rear	Clear	Dark-Lighted	Dry	None
4/18/2018	8:28:00	PDO	2	0	unknown	Angle	Clear	Daylight	Dry	None
5/4/2018	9:11:00	PDO	3	0	unknown	Front to rear	Clear	Daylight	Dry	None
5/7/2018	17:06:00	PDO	2	0	unknown	Front to rear	Clear	Daylight	Dry	None
5/8/2018	12:03:00	PDO	2	0	DART HILL RD	Sideswipe, same direction	Clear	Daylight	Dry	None
5/21/2018	22:32:00	PDO	2	0	DART HILL RD	Front to rear	Clear	Dark-Lighted	Dry	None
5/29/2018	17:15:00	PDO	2	0	unknown	Front to rear	Clear	Daylight	Dry	None
6/9/2018	8:43:00	PDO	2	0	unknown	Front to rear	Clear	Daylight	Dry	None
6/29/2018	19:38:00	PDO	2	0	DART HILL RD	Angle	Clear	Daylight	Dry	None
7/3/2018	12:53:00	PDO	2	0	REGAN RD	Front to rear	Clear	Daylight	Dry	None
8/25/2018	15:19:00	PDO	2	0	unknown	Angle	Clear	Daylight	Dry	Visual Obstruction(s)
8/30/2018	17:06:00	PDO	2	0	unknown	Front to rear	Clear	Daylight	Dry	None
9/5/2018	16:07:00	Suspected Minor Injury	2	0	unknown	Angle	Clear	Daylight	Dry	None
9/16/2018	15:19:00	PDO	2	0	unknown	Front to rear	Clear	Daylight	Dry	None
9/19/2018	17:32:00	PDO	2	0	unknown	Front to rear	Clear	Daylight	Dry	None
10/18/2018	18:58:00	PDO	2	0	unknown	Front to rear	Clear	Dark-Lighted	Dry	None
11/8/2018	8:13:00	PDO	2	0	DART HILL RD	Front to rear	Clear	Daylight	Dry	None
12/11/2018	14:18:00	PDO	2	0	DART HILL RD	Front to rear	Clear	Daylight	Dry	None
12/22/2018	9:34:00	PDO	2	0	unknown	Angle	Clear	Daylight	Wet	None
12/27/2018	12:32:00	PDO	2	0	unknown	Angle	Clear	Daylight	Dry	None
12/31/2018	18:19:00	PDO	2	0	unknown	Angle	Rain	Dark-Lighted	Wet	None
1/1/2019	18:33:00	PDO	2	0	DART HILL RD	Angle	Clear	Dark-Lighted	Dry	None
1/3/2019	5:51:00	PDO	2	0	unknown	Front to rear	Clear	Dark-Lighted	Dry	None
1/13/2019	17:20:00	PDO	2	0	DART HILL RD	Angle	Clear	Dark-Lighted	Dry	None
1/19/2019	14:59:00	PDO	2	0	DART HILL RD	Front to rear	Clear	Daylight	Dry	None
1/22/2019	12:49:00	PDO	2	0	DART HILL RD	Front to rear	Clear	Daylight	Wet	None
2/5/2019	13:27:00	PDO	2	0	unknown	Rear to rear	Clear	Daylight	Dry	None
2/7/2019	7:23:00	PDO	2	0	unknown	Front to rear	Clear	Daylight	Dry	None
2/23/2019	18:38:00	PDO	2	0	DART HILL RD	Angle	Clear	Dark-Lighted	Dry	None
4/11/2019	13:34:00	PDO	2	0	unknown	Angle	Clear	Daylight	Dry	None
4/17/2019	21:54:00	Suspected Minor Injury	1	0	unknown	Not Applicable	Clear	Dark-Lighted	Dry	None

Date Of Crash	Time of Crash	Severity PDO = Property Damage Only	No. Of Veh.	No. Of Non-Motorists	Intersecting Roadway Name	Collision Type	Weather	Light Condition	Road Surface Condition	Contributing Circumstances
5/5/2019	17:13:00	PDO	2	0	unknown	Front to rear	Clear	Daylight	Dry	None
5/23/2019	13:42:00	PDO	2	0	DART HILL RD	Front to rear	Clear	Daylight	Dry	None
6/21/2019	15:09:00	PDO	2	0	DART HILL RD	Front to rear	Clear	Daylight	Dry	None
6/27/2019	8:16:00	PDO	2	0	DART HILL RD	Angle	Clear	Daylight	Dry	None
6/27/2019	14:36:00	Possible Injury	2	0	unknown	Front to rear	Clear	Daylight	Dry	None
7/19/2019	17:42:00	PDO	2	0	DART HILL RD	Front to rear	Clear	Daylight	Dry	None
7/29/2019	10:28:00	Possible Injury	3	0	TALCOTVILLE	Sideswipe, same direction	Clear	Daylight	Dry	None
8/16/2019	21:14:00	PDO	2	0	unknown	Rear to side	Clear	Dark-Lighted	Dry	None
9/7/2019	19:32:00	PDO	2	0	DART HILL RD	Angle	Clear	Dark-Lighted	Dry	None
9/16/2019	15:53:00	PDO	2	0	unknown	Front to rear	Clear	Daylight	Dry	None
9/21/2019	12:57:00	PDO	2	0	TALCOTTVILLE	Front to rear	Clear	Daylight	Dry	None
9/21/2019	17:16:00	PDO	2	0	unknown	Front to rear	Clear	Daylight	Dry	None
9/30/2019	15:09:00	PDO	2	0	DART HILL RD	Sideswipe, same direction	Clear	Daylight	Dry	None
10/17/2019	20:19:00	Possible Injury	2	0	DART HILL RD	Front to rear	Clear	Dark-Lighted	Dry	None
10/30/2019	18:50:00	Possible Injury	2	0	DART HILL RD	Angle	Rain	Dark-Lighted	Wet	None
11/7/2019	13:57:00	PDO	5	0	unknown	Front to rear	Rain	Daylight	Wet	Weather Conditions
11/28/2019	12:23:00	PDO	2	0	unknown	Angle	Clear	Daylight	Dry	None
12/22/2019	17:23:00	Suspected Minor Injury	2	0	unknown	Front to front	Clear	Dark-Lighted	Dry	None
12/24/2019	11:58:00	PDO	2	0	unknown	Angle	Clear	Daylight	Dry	None
2/1/2020	10:37:00	PDO	2	0	unknown	Other	Clear	Daylight	Dry	None
2/16/2020	12:00:00	PDO	2	0	DART HILL RD	Front to rear	Cloudy	Daylight	Dry	None
3/2/2020	7:42:00	PDO	2	0	unknown	Angle	Clear	Daylight	Dry	Visual Obstruction(s)
3/2/2020	18:20:00	PDO	2	0	DART HILL RD	Sideswipe, same direction	Clear	Dark-Lighted	Dry	None
3/11/2020	7:53:00	PDO	2	0	unknown	Front to rear	Clear	Daylight	Dry	None
4/11/2020	23:24:00	Possible Injury	2	0	DART HILL RD	Front to rear	Clear	Dark-Lighted	Dry	None
5/13/2020	8:27:00	PDO	2	0	DART HILL RD	Angle	Clear	Daylight	Dry	None
5/13/2020	17:44:00	Suspected Minor Injury	2	0	DART HILL RD	Angle	Clear	Daylight	Dry	None
6/12/2020	19:48:00	PDO	2	0	DART HILL RD	Sideswipe, same direction	Clear	Daylight	Dry	None
6/23/2020	9:28:00	Possible Injury	2	0	TALCOTTVILLE RD	Front to rear	Clear	Daylight	Dry	None
7/17/2020	11:49:00	PDO	1	0	unknown	Not Applicable	Clear	Daylight	Dry	None
9/13/2019	9:23:00	PDO	2	0	unknown	Sideswipe, same direction	Clear	Daylight	Dry	None
8/13/2020	16:05:00	PDO	2	0	DART HILL RD	Front to rear	Clear	Daylight	Dry	None
9/1/2020	8:21:00	PDO	2	0	83-N	Front to rear	Clear	Daylight	Dry	None
9/5/2020	12:10:00	PDO	2	0	Regan Rd	Angle	Clear	Daylight	Dry	None
9/8/2020	9:58:00	PDO	2	0	unknown	Front to rear	Clear	Daylight	Dry	None
10/24/2020	14:53:00	Possible Injury	3	0	unknown	Front to rear	Clear	Daylight	Dry	None
11/9/2020	13:14:00	PDO	2	0	DART HILL RD	Front to rear	Clear	Daylight	Dry	None
11/21/2020	12:53:00	Possible Injury	2	0	unknown	Angle	Clear	Daylight	Dry	None
12/12/2020	11:51:00	PDO	2	0	unknown	Angle	Clear	Daylight	Dry	None
12/30/2020	18:22:00	Possible Injury	2	0	DART HILL RD	Front to rear	Clear	Dark-Lighted	Dry	None