WAKEFIELD/INDEPENDENCE BLVD TRAFFIC SIGNAL PROPOSAL- RESPONSE

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WAKEFIELD/INDEPENDENCE TRAFFIC SIGNAL PROPOSAL- RESPONSE

PURPOSE:

The following report is intended to provide factual data related to the recent proposal for the installation of a traffic signal at Wakefield Dr/Paul Revere Rd, minor entry streets to Independence Blvd based on a prior traffic engineering study (April 2021) with data collection and engineering analyses performed sometime prior to April 2021. (Note: this report is now beyond-outside the 3 year look-back range specified within the MUTCD 11th edition 2023 federal traffic control manual with which all state/city engineering and public works departments must be compliant)

The use/implementation of any traffic control management device or systems are guided by the **2023 11th Edition Federal Manual For Uniform Traffic Control Devices (MUTCD)** and in this case specifically in reference to Traffic Signals – **Sec 4B-01. pp 649-665**

This manual specifically enumerates the methods to evaluate collected data and describes all means of consideration in the process of examining the need for a traffic signal and the steps for evaluating alternatives to be **used prior** given the issues associated with traffic signals. The manual provides very clear guidance reference what should be considered in the process of an evaluation performed by engineering departments. The manual provides the warranting criterions under 9 standards (Warrants). **ADVISORY:** The manual also states-warns that *"The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal*"

This is sound practice and good for preventing emotive/reactional responses to what is "needed" based on random fears or personal desires and bases decisions on trends/defined patterns that have been determined to be industry standard practice according to federal regulatory guidelines.

BRIEF HISTORY OF 9TH DISTRICT REP

In this specific case, contrary to what Mr. Schulman, 9TH District has presented as facts to the public in recent social media Facebook posts and various public meetings that he initiated last summer of 2023, the traffic signal is not warranted. Based on his understanding of an engineering report, the installation of a traffic signal that Schulman has requested and given approval for design/install at the minor entry street of Wakefield Dr/Paul revere and Independence Blvd, **does not meet ANY of the warrants** described in the federal 2023 11th Edition MUTCD traffic manual. Mr. Schulman recently announced that this project has been approved, is justified and is going forward no matter what residents want because it's a city approved process and it never should have been rejected by prior city officials and the residents 3 years ago.

This report will provide detailed explanation based on the 2023 11th Edition MUTCD manual as to why the warrants have not been met AND how no prior alternative mitigation methods have been employed (a requirement). The manual demands this process must be evaluated in stepwise fashion by the city's traffic engineering division.

The city has not performed any type of traffic management mitigation/safety control measures that we are aware of in the last 5+ years in the area/corridor from Pleasure House to Haygood Rd to address high speed

volume traffic affecting vehicle spacing, safe minor road entry and current peak rush hour backups/stoppage beginning at the Haygood intersection signal and moving backwards North to points beyond Ewell Rd. We have asked Mr. Schulman to suspend this proposal given that it is 1) not a single source solution that he appears to believe will solve traffic safety problems in the corridor and that 2) he appears to believe is warranted by city engineering study data. **It is not either** and now seems to simply be a personal obsession without consideration of the impact to a major arterial corridor of traffic, the 38K people thru per day and the 1000's of residents surrounding. Mr. Schulman is well aware of the hardened opposition to this by citizens and their civic leagues.

We have made direct suggestions to him that are simple first steps including requesting an updated study that extends to the entire corridor affecting all neighborhoods on both sides with all side minor streets (especially Copperfield and Five Forks suffering the same issues as Wakefield) as well as stated that the 1st step mitigation should have been a retiming and sequencing of the existing signals at Ewell and Haygood Rd. This would immediately slow and control approaching heavy traffic at Ewell where large "herds" (30-50+ vehicles) would be stopped/gated, and then released in timed intervals to create large safe gap spaces for side street traffic to safely enter.

This timing would also allow the traffic in front to fully clear thru Haygood's light. Ewell's Green phase for Southbound traffic currently runs **2 min and 40sec** (excessive length) during peak with short 30 sec Red cycle and permits massive volumes of vehicles to then back up/stack all the way from Haygood's intersection light past Wakefield and beyond. Haygood signal at 5:30 pm is running 2 min Green phase and **2 min 15 sec Red** phase (too long).This has created the issue that Wakefield, Copperfield and other minor roads face during the peak hours with massive backups running down past Wakefield toward Ewell leading to blocked safe entry.

THIS is the Source Problem that another traffic signal at Wakefield or any other street will not resolve but make worse. **SOLUTION**: Re-time and sequence the existing signals and trial/test.

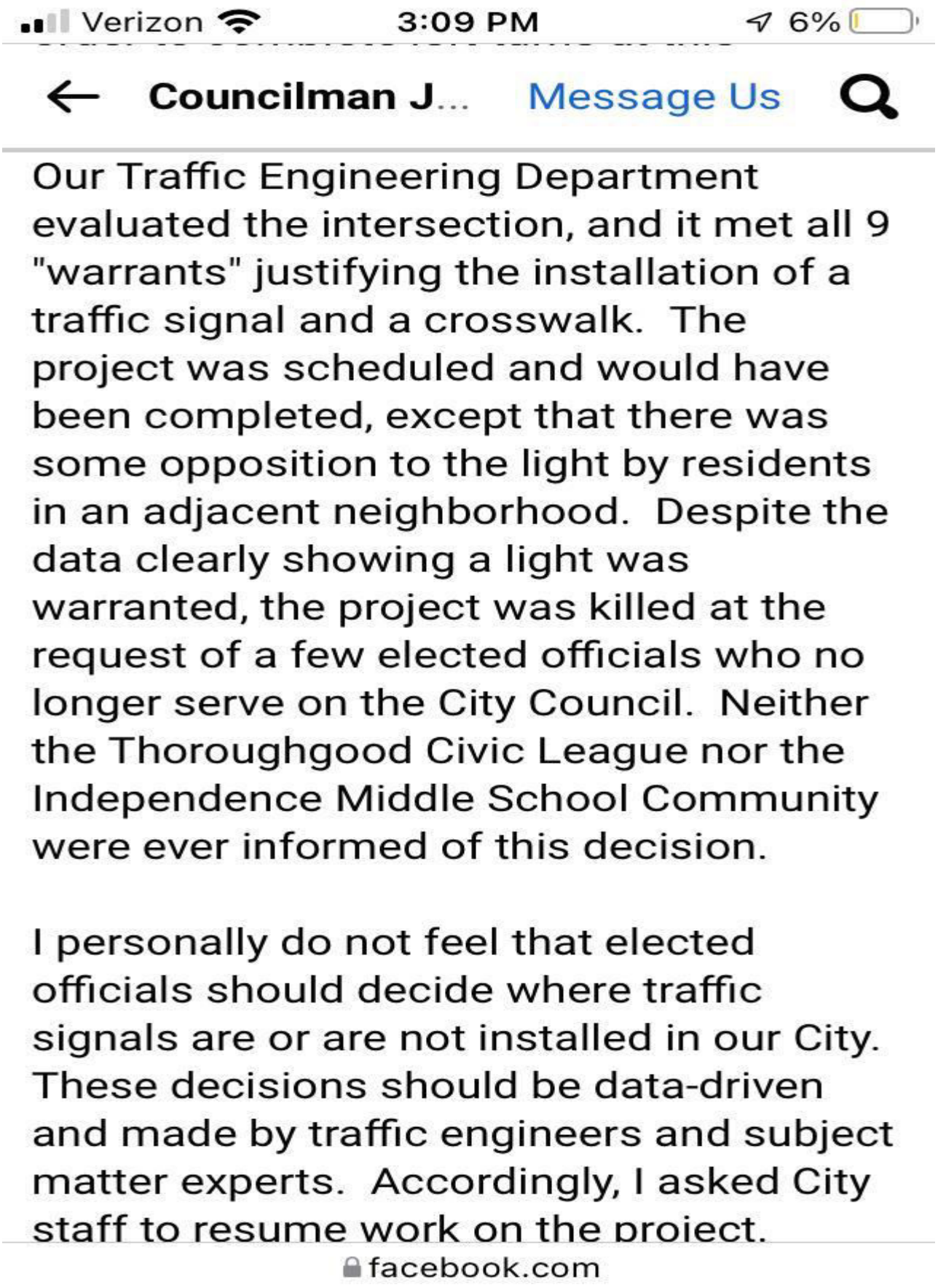
This condition exists at no other time of the day, and is principally seen between 3:30pm- 5:30pm weekdays.

The objective is to keep large volumes of traffic moving at 50+ mph smoothly and clearing while also breaking into groups/herds or "platoons," as the manual describes, to create interval spacing for safe entry. Simple. Adding more traffic signals does not do this especially when existing signals are improperly timed and will create worse effect with rear end collisions, diverted traffic trying to escape the lights, and other as the manual specifically describes as risks. The risk vs benefit appears to be fully in play with such a major change.

We will provide each section and the warranting conditions applicable to a "2 lane Major road (Independence) and a 2 lane minor rd entry (Wakefield) based on the 85th percentile with speeds > 40 mph as the manual states is the present condition for purpose of evaluating each criterion.

Right from the start The April 2021 engineering report presented as the justification is outdated with flawed data and incorrect citations from the manual. The study itself is outside the required strict look-back range of 3 years now from October 2024. (This was requested to have been updated) This is particularly important given the fact that one of the Warrants for Crash Experience (Accidents) Freq specifies **Angle Crashes/Pedestrian** Accidents are counted within the last 3 years and 1 year. The other warrants concerning traffic volume counts (vehicles per hour VPH) specifically of thru/ left hand turns being made from Wakefield entering onto Independence must also be within the last 3 years and must be updated (ideally video obtained on a range of days (8 hr minimum) each day and may be best observed for **the 11 hour range between 7:00 am- 6:00 pm**)

This will be explained further in the following sections against the actual manual language and the commentary featured within the city's April 2021 engineering report.


Verizon
3:09 PM
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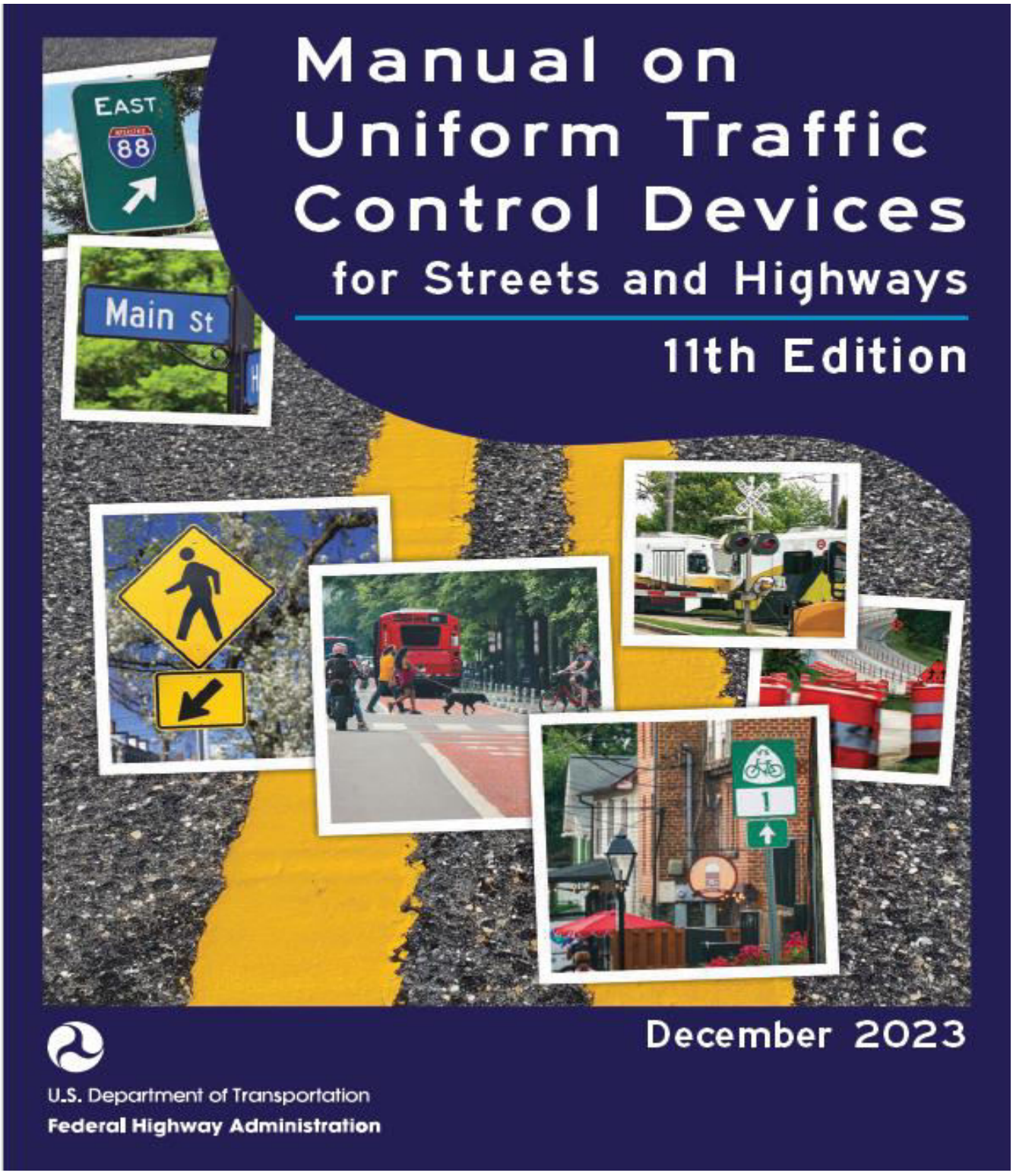
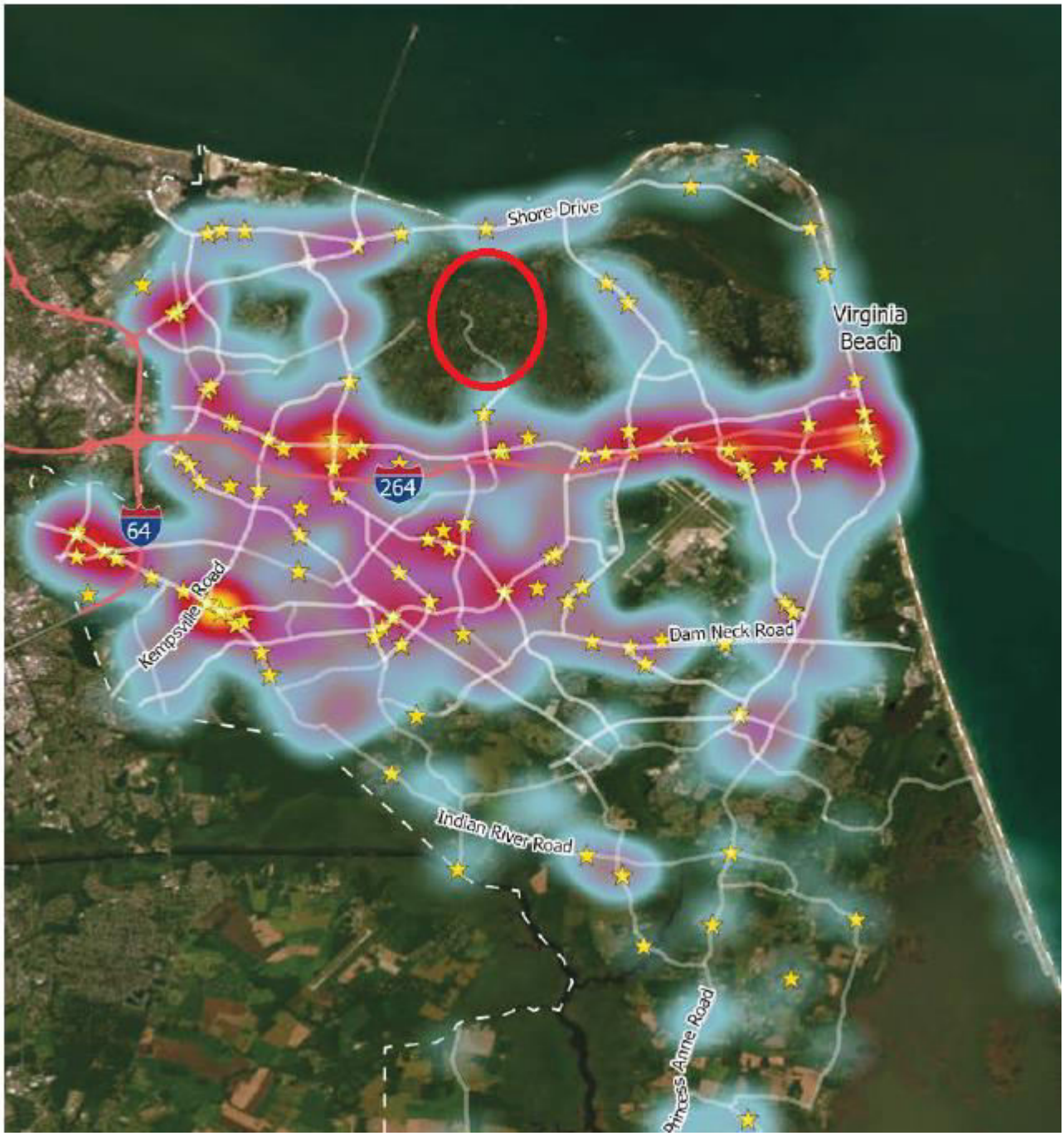
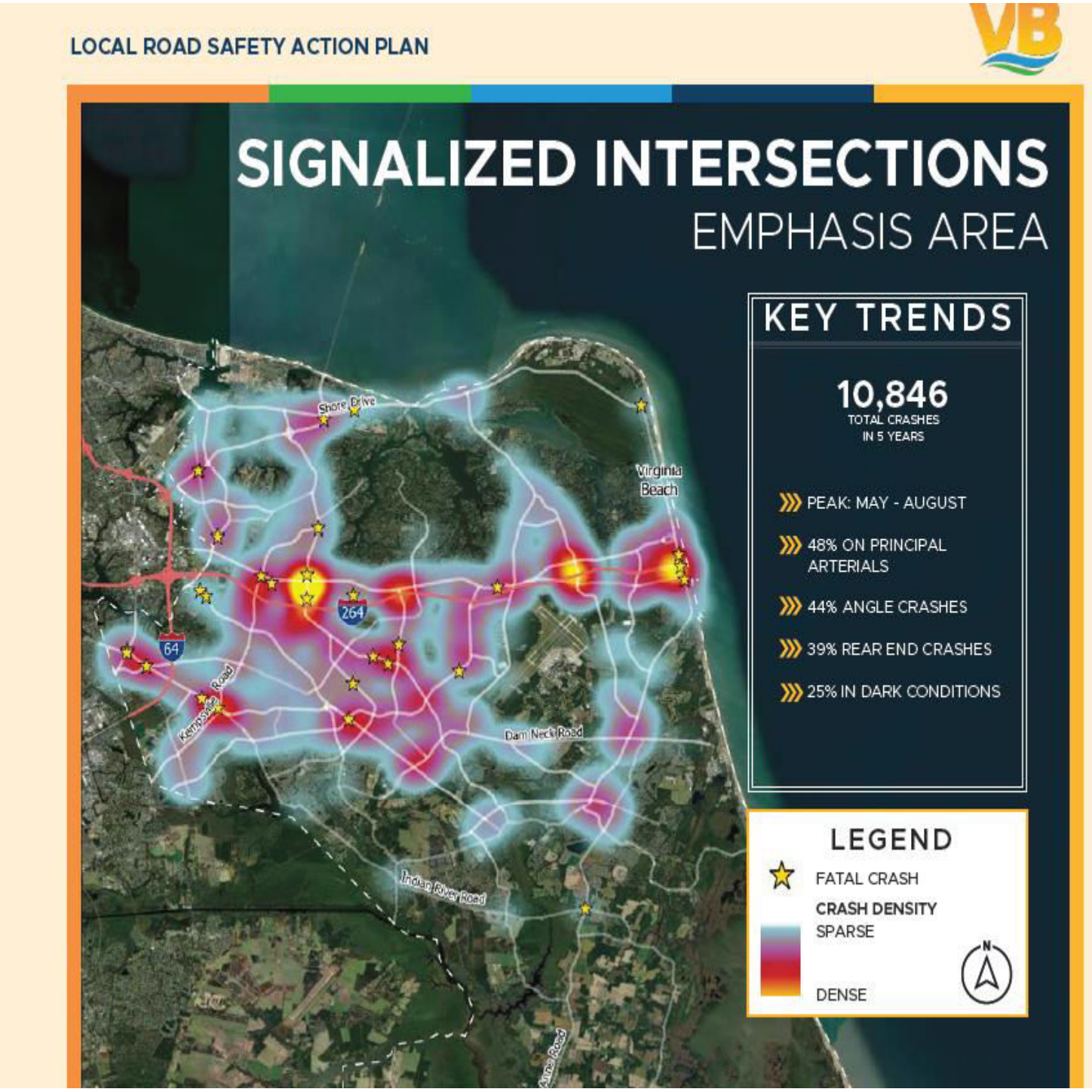
Councilman J...
Message Us
Our Traffic Engineering Department evaluated the intersection, and it met all 9 "warrants" justifying the installation of a traffic signal and a crosswalk. The project was scheduled and would have been completed, except that there was some opposition to the light by residents in an adjacent neighborhood. Despite the data clearly showing a light was warranted, the project was killed at the request of a few elected officials who no longer serve on the City Council. Neither the Thoroughgood Civic League nor the Independence Middle School Community were ever informed of this decision.
I personally do not feel that elected officials should decide where traffic signals are or are not installed in our City. These decisions should be data-driven and made by traffic engineers and subject matter experts. Accordingly, I asked City staff to resume work on the project.
facebook.com


Manual on
Uniform Traffic
Control Devices
for Streets and Highways
11th Edition
EAST
88
Main St
December 2023
U.S. Department of Transportation
Federal Highway Administration

NOTE: The Pleasure House Rd to Haygood Rd Corridor (including **Wakefield** and all minor roads) is within the lowest frequency of vehicle accidents zone within the entire city. This means that this area is not a high risk accident zone by comparison and does not meet warrant criterions for a traffic signal as will be explained.

Citywide Crash Heat Map (2018-2022)




LOCAL ROAD SAFETY ACTION PLAN
SIGNALIZED INTERSECTIONS
EMPHASIS AREA
KEY TRENDS
10,846
TOTAL CRASHES
IN 5 YEARS
PEAK: MAY - AUGUST
48% ON PRINCIPAL ARTERIALS
44% ANGLE CRASHES
39% REAR END CRASHES
25% IN DARK CONDITIONS
LEGEND
FATAL CRASH
CRASH DENSITY
SPARSE
DENSE
N
Shore Drive
Virginia Beach
264
64
Kempsville Road
Dam Neck Road
Indian River Road
Ames Road

CHAPTER 4B. TRAFFIC CONTROL SIGNALS—GENERAL

Section 4B.01 General

Support:

01 Words such as pedestrians and bicyclists are used redundantly in selected Sections of Part 4 to encourage sensitivity to these elements of "traffic."

02 Standards for traffic control signals are important because traffic control signals need to attract the attention of a variety of road users, including those who are older, those with vision disabilities, as well as those who are fatigued or distracted, or who are not expecting to encounter a signal at a particular location.

Section 4B.02 Advantages and Disadvantages of Traffic Control Signals

Support:

01 When properly used, traffic control signals are valuable devices for safety and the control of vehicular and vulnerable road user traffic. They control the various traffic movements by alternating between directing them to stop and permitting them to proceed and thereby profoundly influence traffic flow. This accomplishes the need to safely separate road users in time in order to prevent crashes.

02 Traffic control signals that are properly designed, located, operated, and maintained will have one or more of the following advantages:

A. They reduce the frequency and severity of certain types of crashes, especially right-angle collisions and those involving vulnerable road users.
B. They provide for the orderly movement of traffic.
C. They increase the traffic-handling capacity of the intersection if:
   1. Proper physical layouts and control measures are used, and
   2. The signal operational parameters are reviewed and updated (if needed) on a regular basis (as engineering judgment determines that significant traffic flow and/or land use changes have occurred) to maximize the ability of the traffic control signal to satisfy current traffic demands.
D. They are coordinated to provide for continuous or nearly-continuous movement of traffic at a definite speed along a given route under favorable conditions.
E. They are used to interrupt heavy traffic at intervals to permit other traffic, vehicular or pedestrian, to cross.

*Properly timed and sequenced existing traffic signals are neccesary

03 Traffic control signals are often considered a panacea for all traffic problems at intersections. This belief has led to traffic control signals being installed at many locations where they are not needed, adversely affecting the safety and efficiency of motor vehicle, bicycle, and pedestrian traffic.

04 Traffic control signals, even when justified by traffic and roadway conditions, can be ill-designed, ineffectively placed, improperly operated, or poorly maintained. Improper or unjustified traffic control signals can result in one or more of the following disadvantages:

A. Excessive delay,
B. Excessive disobedience of the signal indications,
C. Increased use of less-adequate routes as road users attempt to avoid the traffic control signals, and
D. Significant increases in the frequency of collisions (especially rear-end collisions).

TRAFFIC SIGNAL WARRANTS----- ONLY 4 OF THE WARRANTS APPLY IN THIS SETTING.

CHAPTER 4C. TRAFFIC CONTROL SIGNAL NEEDS STUDIES

Section 4C.01 Studies and Factors for Justifying Traffic Control Signals

Standard:

01 Except for a temporary traffic control signal (see Section 4D.11) installed in a temporary traffic control zone, before a traffic control signal is installed at a particular location, an engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of the location shall be performed to determine whether installation of a traffic control signal is justified at that location.

02 The investigation of the need for a traffic control signal shall include an analysis of factors related to the existing operation and safety at the study location and the potential to improve these conditions, and the applicable factors contained in the following traffic signal warrants:

Warrant 1, Eight-Hour Vehicular Volume
Warrant 2, Four-Hour Vehicular Volume
Warrant 3, Peak Hour
Warrant 4, Pedestrian Volume na
Warrant 5, School Crossing na
Warrant 6, Coordinated Signal System na
Warrant 7, Crash Experience
Warrant 8, Roadway Network na
Warrant 9, Intersection Near a Grade Crossing na

03 The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Support:

04 Sections 8D.08 and 8D.14 contain information regarding the use of traffic control signals instead of gates and/or flashing-light signals at grade crossings.

Guidance:

05 *When considering the installation of a traffic control signal, alternatives to traffic control signals, including those listed in Section 4B.03, should also be considered.*

06 *A traffic control signal should not be installed unless one or more of the factors described in this Chapter are met.*

07 *A traffic control signal should not be installed unless an engineering study indicates that installing a traffic control signal will improve the overall safety and/or operation of the intersection.*

08 *The study should consider the effects of the right-turning vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turning traffic is subtracted from the minor-street traffic count when evaluating the count against the signal warrants listed in Paragraph 2 of this Section.*

09 *Engineering judgment should also be used in applying various traffic signal warrants to cases where major-street approaches consist of one lane plus one left-turn or right-turn lane. The site-specific traffic characteristics should dictate whether a major-street approach is considered as one lane or two lanes. For example, for a major-*

Section 4B.04 Basis of Installation of Traffic Control Signals

Support:

01 A careful analysis of traffic operations, pedestrian and bicyclist needs, and other factors at a large number of signalized and unsignalized locations, coupled with engineering judgment, has provided a series of signal warrants, described in Chapter 4C, that define the minimum conditions under which installing traffic control signals might be justified.

Guidance:

02 *The design (including the phasing, operation, and timing) of new traffic control signals should be based on an engineering study of roadway, traffic, and other conditions.*

Section 4B.03 Alternatives to Traffic Control Signals

Guidance:

01 *Since road user delay and the frequency of some types of crashes are sometimes higher under traffic signal control than under STOP sign control, consideration should be given to providing alternatives to traffic control signals even if one or more of the signal warrants (see Chapter 4C) has been satisfied.*

Option:

02 These alternatives may include, but are not limited to, the following:

A. Installing signs along the major street to warn road users approaching the intersection;
B. Installing a roundabout to reduce fatal and serious injury crashes and vehicular conflicts that result in fatal and serious injury crashes (see Section 8A.12 if the location is in close proximity to a grade crossing);
C. Installing a pedestrian hybrid beacon (see Chapter 4J), rectangular rapid flashing beacons (see Chapter 4L), pedestrian-actuated Warning Beacons (see Chapter 4S), or In-Roadway Warning Lights (see Chapter 4U) if pedestrian safety is the major concern;
D. Relocating the stop line(s) and making other changes to improve the sight distance at the intersection;
E. Installing measures designed to reduce speeds on the approaches;
F. Installing a flashing beacon at the intersection to supplement STOP sign control;

****Change/Re-Time Sequence the Existing Signals at Ewell and Haygood Rd to separate traffic herds/platoons to slow and create safe space for entry.**

G. Installing flashing beacons on warning signs in advance of a stop-controlled intersection on the major-street and/or minor-street approaches;
H. Adding one or more lanes on a minor-street approach to reduce the number of vehicles per lane on the approach;
I. Revising the geometrics at the intersection to channelize vehicular movements and reduce the time required for a vehicle to complete a movement, which could also assist pedestrians;
J. Revising the geometrics at the intersection to add pedestrian median refuge islands and/or curb extensions;
K. Installing roadway lighting if a disproportionate number of crashes occur at night;
L. Restricting one or more turning movements, perhaps on a time-of-day basis, if alternate routes are available; **** Restrict Dangerous Left Hand Turns during peak hours AM and PM.**
M. If the warrant is satisfied, installing multi-way stop control;
N. Employing other alternatives, depending on conditions at the intersection.

****Altering median structure to orient drivers entering**

MR SCHULMAN HAS STATED THAT THE APRIL 2021 ENINEERING REPORT PROVIDES FULL JUSTIFCATION FOR A TRAFFIC SIGNAL INSTALLATION AT WAKEFIELD AND THAT IT "MEETS ALL 9 WARRANTS." **THAT IS FALSE**. ZERO OF THE WARRANTS ARE MET AS DEFINED WITHIN THE 2023 11TH Edition MUTCD Federal Traffic Manual where all parameters and requirements per federal regulation are found. This will be fully explained in the following.

WARRANT CRITERION 8HR VPH VOLUMES - **FAILED** (SEE EXPLANATION)

The April 2021 engineering report has defined the intersection as a" **2 lane major and 1 lane minor**" (Wakefield) using a VPH criterion of **53 VPH. (85th percentile > 40 mph condition).** However, per the manual, this intersection should be considered a "**2 lane major" and 2 lane minor** with Wakefield clearly structured as 2 laned (compared to Paul Revere) with a **thru/left turn lane and a right turn unconflicted lane** and the left turn has sufficient space for vehicles waiting. Wakefield also has zero markings that define lane entry areas.

Under such definition, **the VPH 70** criterion would be used, where even with adding the few right hand turns to the count/hr, would fail the warrant criterion for at least **50%** of the non peak hours within an 8h period. Warrant states that **every hour** must meet criterion. In the April 2021 report, **the 70 VPH criterion would fail 60-70%** for the entire range of hours reported but 4 hrs of peak traffic .

We would argue that even were the **53 VPH** criterion applied, that with valid vehicle count numbers for thru/left turns obtained, all non-peak hours would still **FAIL** to meet the criterion.

WHAT DOES THIS MEAN?:
There are not sufficient volumes of traffic especially during off peak hours, to meet either the **53 VPH** or the **70 VPH** criterion for 8, 10 or 12 hours. **HOW SO?** Because we know that during off- peak hours the April 2021 vehicles counts are grossly defected/exaggerated for all hours, especially the non-peak hours where there are by recent observation **fewer than 40 cars** per hour departing Wakefield. .

LASTLY: THE APRIL 2021 REPORT CONTAINS VPH COUNTS THAT ARE WELL PAST THE 3 YEAR LOOK BACK RANGE (OUTDATED) AND WERE REQUESTED TO BE UPDATED LAST YEAR. CITY FAILED TO UPDATE.

SUMMARY: THE 8 HR VPH VOLUME WARRANT IS FAILED BASED ON OUTDATED AND ERROR/DEFECTED REPORTED COUNTS AS RECENTLY OBSERVED.

PER THE APRIL 2021 COUNTS **ACROSS 13 HOURS**, THEY STATE THAT **1.3 CARS PER EVERY MINUTE ARE CONTSTANTLY LEAVING** Wakefield FOR EVERY MINUTE OF EVERY HOUR FOR 13 STRAIGHT HOURS. **THIS IS 1000 CARS** COMING OUT THAT WOULD BE CONSTANTLY LINED UP WAITING TO TURN/THRU. THAT IS IMPOSSIBLE/FALSE AND NOT OCCURING.

03 **The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.**

Support:

04 Sections 8D.08 and 8D.14 contain information regarding the use of traffic control signals instead of gates and/or flashing-light signals at grade crossings.

Guidance:

05 *When considering the installation of a traffic control signal, alternatives to traffic control signals, including those listed in Section 4B.03, should also be considered.*

06 *A traffic control signal should not be installed unless one or more of the factors described in this Chapter are met.*

07 *A traffic control signal should not be installed unless an engineering study indicates that installing a traffic control signal will improve the overall safety and/or operation of the intersection.*

08 *The study should consider the effects of the right-turning vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turning traffic is subtracted from the minor-street traffic count when evaluating the count against the signal warrants listed in Paragraph 2 of this Section.*

09 *Engineering judgment should also be used in applying various traffic signal warrants to cases where major-street approaches consist of one lane plus one left-turn or right-turn lane. The site-specific traffic characteristics should dictate whether a major-street approach is considered as one lane or two lanes. For example, for a major-street approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left-turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The major-street approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turning vehicles.*

10 *Similar engineering judgment and rationale should be applied to a minor-street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turning traffic with traffic on the major street should be considered. Thus, right-turning traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The minor-street approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.*

11 *If a minor-street approach has one combined through/right-turn lane plus a left-turn lane, the approach should either be analyzed as a two-lane approach based on the sum of the traffic volumes using both lanes or as a one-lane approach based on only the traffic volume in the approach lane with the higher volume.*

12 *At a location that is under development or construction or at a location where it is not possible to obtain a traffic count that would represent future traffic conditions, hourly volumes should be estimated as part of an engineering study for comparison with traffic signal warrants. Except for locations where the engineering study uses the satisfaction of Warrant 8 to justify a signal, a traffic control signal installed under projected conditions should have an engineering study done within 1 year of putting the signal into steady (stop-and-go) operation to determine if the signal is justified. If not justified, the signal should be taken out of steady (stop-and-go) operation or removed.*

NOTE: THE VEHICLE VOLUMES COUNTED APPEAR EXCESSIVELY HIGH/IMPOSSIBLE BASED ON RECENT COUNT OBSERVATION, ESPECIALLY FOR ALL NON-PEAK HOURS. ADDITIONALLY, ALL DATA USED FOR THE APRIL 2021 REPORT IS NOT CURRENT WITHIN THE 3 YEAR LOOK-BACK RANGE. **(FAILED)**

A. The number of vehicles entering the intersection in each hour from each approach during 12 hours of an average day. It is desirable that the hours selected contain the greatest percentage of the 24-hour traffic volume.

B. Vehicular volumes for each traffic movement from each approach, classified by vehicle type (heavy trucks, passenger cars and light trucks, public-transit vehicles, and, in some locations, bicycles), during each 15-minute period of the 2 hours in the morning and 2 hours in the afternoon during which the total traffic entering the intersection is the greatest.

C. Pedestrian volume counts on each crosswalk during the same periods as the vehicular counts in Item B and during the hours of highest pedestrian volume. Where young, elderly, and/or persons with physical or vision disabilities need special consideration, the pedestrians and their crossing times may be classified by general observation.

D. Information about nearby facilities and activity centers that serve the young, elderly, and/or persons with disabilities, including requests from persons with disabilities for accessible crossing improvements at the location under study. These persons might not be adequately reflected in the pedestrian volume count if the absence of a signal restrains their mobility.

E. The posted or statutory speed limit or the 85th-percentile speed on the uncontrolled approaches to the location.

F. A condition diagram showing details of the physical layout, including such features as intersection geometrics, channelization, grades, sight-distance restrictions, transit stops and routes, parking conditions, pavement markings, roadway lighting, driveways, nearby railroad crossings, distance to the nearest traffic control signals, utility poles and fixtures, and adjacent land use.

G. A collision diagram showing crash experience by type, location, direction of movement, severity, weather, time of day, date, and day of week for at least 1 year.

19 The following data, which are desirable for a more precise understanding of the operation of the intersection, may be obtained during the periods described in Item B of Paragraph 18 of this Section:

**These were not measured

A. Vehicle-hours of stopped-time delay determined separately for each approach.

B. The number and distribution of acceptable gaps in vehicular traffic on the major street for entrance from the minor street.

C. The posted or statutory speed limit or the 85th-percentile speed on controlled approaches at a point near to the intersection but unaffected by the control.

D. Pedestrian delay time for at least two 30-minute peak pedestrian delay periods of an average weekday or like periods of a Saturday or Sunday.

E. Queue length on stop-controlled approaches.

Support:

20 The safe and efficient movement of all road users is the primary consideration in the engineering study to determine whether to install a traffic control signal or to install some other type of control or roadway configuration. Installation of a traffic control signal does not necessarily result in improved safety in every case. In some cases, the installation of a traffic control signal at an inappropriate location could adversely impact safety for one or more types of road users. The purpose of the engineering study is to evaluate all of the factors that are relevant to a specific location. The satisfaction of a warrant (or warrants) is one of the relevant factors in the

engineering study, but it is not intended to be the only factor or even the overriding consideration. Agencies can install a traffic control signal at a location where no warrants are met, but only after conducting an engineering study that documents the rationale for deciding that the installation of a traffic control signal is the best solution for improving the overall safety and/or operation at the location.

Section 4C.02 Warrant 1, Eight-Hour Vehicular Volume

Support:

01 The Minimum Vehicular Volume, Condition A (see Table 4C-1), is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

02 The Interruption of Continuous Traffic, Condition B (see Table 4C-1), is intended for application at locations where Condition A is not satisfied and where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

03 It is intended that Warrant 1 be treated as a single warrant. If Condition A is satisfied, then Warrant 1 is satisfied and analyses of Condition B and the combination of Conditions A and B are not needed. Similarly, if Condition B is satisfied, then Warrant 1 is satisfied and an analysis of the combination of Conditions A and B is not needed.

Guidance:

04 *The need for a traffic control signal should be considered if an engineering study finds that one of the following conditions exist for each of any 8 hours of an average day:*

A. *The vehicles per hour given in both of the 100 percent columns of Condition A in Table 4C-1 exist on the major street and the more critical minor-street approach, respectively, to the intersection; or*
B. *The vehicles per hour given in both of the 100 percent columns of Condition B in Table 4C-1 exist on the major street and the more critical minor-street approach, respectively, to the intersection.*

Standard:

05 **These major-street and minor-street volumes shall be for the same 8 hours for each condition; however, the 8 hours that are selected for the Condition A analysis shall not be required to be the same 8 hours that are selected for the Condition B analysis.**

ACTUAL OBSERVED COUNTS MADE RECENTLY SHOWED WAKEFIELD AT PEAK:
AVG **72 VPH/HOUR** FOR PEAK PERIOD 4:00 – 5:00 PM ------ 1.2 CARS PER MINUTE
AVG **47 VPH/HOUR** FOR PEAK PERIOD 5:00 – 6:00 PM ------ 0.78 CARS PER MINUTE
AVG **54 VPH/HOUR** FOR PEAK PERIOD 7:00- 8:00AM ------ 1.0 CARS PER MINUTE

ALL OTHER HOURS DURING THE 8 HR PERIOD WOULD BE FAR LESS **AT 5-10** CARS PER 15 MINS (**20-40 VPH**) MAX. FOR SOME HOURS THERE WERE LESS THAN 15 VEHICLES LEAVING WAKEFIELD. **DATA HAS NEVER BEEN UPDATED AND APPEARS EXCESSIVE/INCORRECT.**

This means across all 8 hrs -- criterion would not be met (Even at Min 53VPH for each of 8 hours)
FAILED WARRANT CRITERION

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on more critical minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on more critical minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

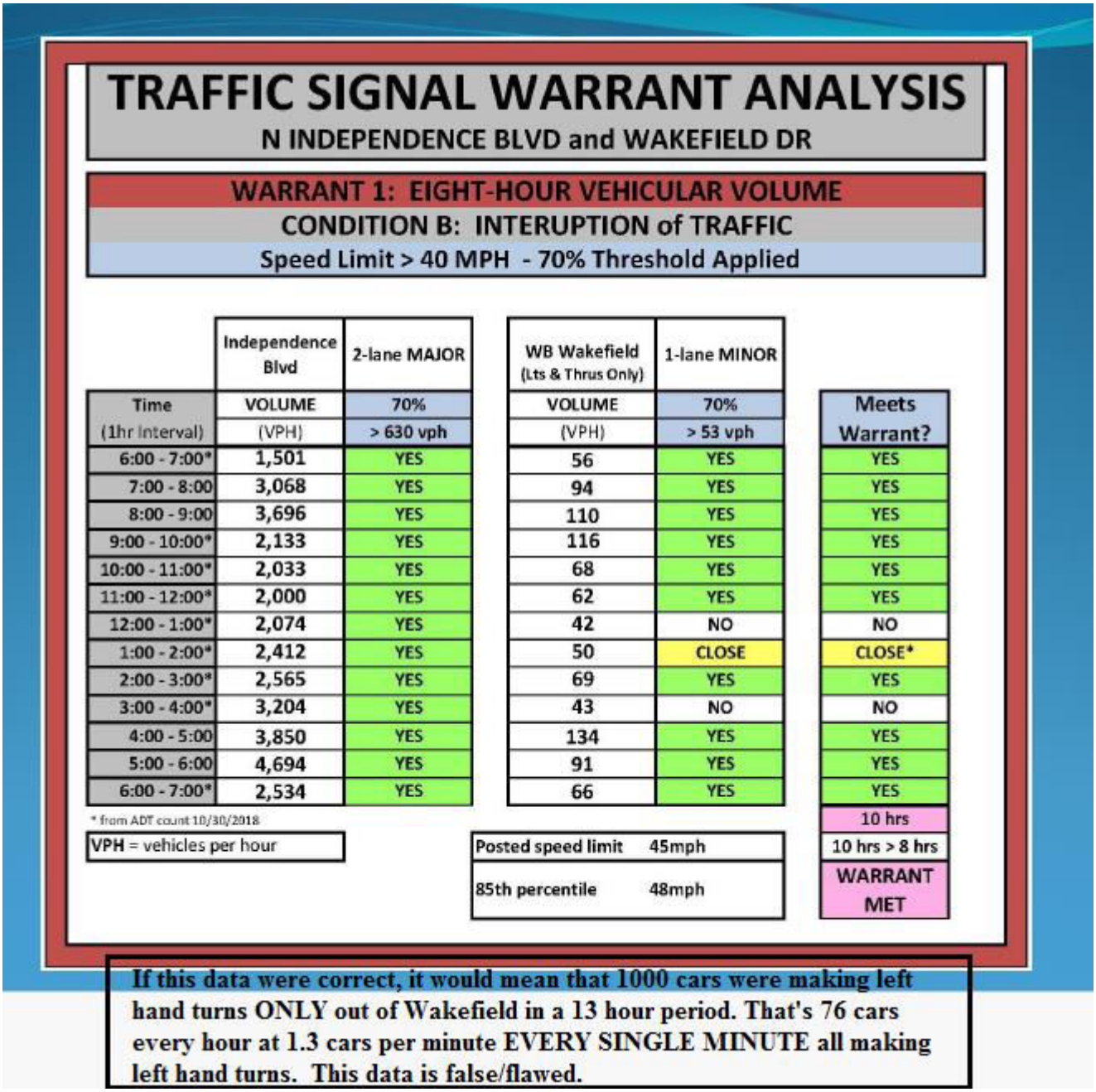
*Left hand turns only counted

[a] Basic minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

[d] May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000



TRAFFIC SIGNAL WARRANT ANALYSIS

N INDEPENDENCE BLVD and WAKEFIELD DR

WARRANT 1: EIGHT-HOUR VEHICULAR VOLUME

CONDITION B: INTERUPTION of TRAFFIC

Speed Limit > 40 MPH - 70% Threshold Applied

	Independence Blvd	2-lane MAJOR	WB Wakefield (Lts & Thrus Only)	1-lane MINOR	
Time (1hr Interval)	VOLUME (VPH)	70% > 630 vph	VOLUME (VPH)	70% > 53 vph	Meets Warrant?
6:00 - 7:00*	1,501	YES	56	YES	YES
7:00 - 8:00	3,068	YES	94	YES	YES
8:00 - 9:00	3,696	YES	110	YES	YES
9:00 - 10:00*	2,133	YES	116	YES	YES
10:00 - 11:00*	2,033	YES	68	YES	YES
11:00 - 12:00*	2,000	YES	62	YES	YES
12:00 - 1:00*	2,074	YES	42	NO	NO
1:00 - 2:00*	2,412	YES	50	CLOSE	CLOSE*
2:00 - 3:00*	2,565	YES	69	YES	YES
3:00 - 4:00*	3,204	YES	43	NO	NO
4:00 - 5:00	3,850	YES	134	YES	YES
5:00 - 6:00	4,694	YES	91	YES	YES
6:00 - 7:00*	2,534	YES	66	YES	YES
					10 hrs
					10 hrs > 8 hrs
					WARRANT MET

* from ADT count 10/30/2018

VPH = vehicles per hour

Posted speed limit	45mph
85th percentile	48mph

If this data were correct, it would mean that 1000 cars were making left hand turns ONLY out of Wakefield in a 13 hour period. That's 76 cars every hour at 1.3 cars per minute EVERY SINGLE MINUTE all making left hand turns. This data is false/flawed.

NOTE: THE **MAJORITY** OF THE DAY DURING HOURS THAT ARE **OFF- PEAK** AS PRIOR EXPLAINED >>>TRAFFIC VPH NUMBERS RECENTLY OBSERVED ARE BETWEEN **20- 40 VEHICLES MAX PER HOUR.** THAT'S **5- 10 VEHICLES EVERY 15 MINUTES.**

DURING OFF PEAK HOURS (4+ HRS) THERE IS LITTLE DIFFICULTY FOR ANY DRIVERS COMING OUT OF MINOR SIDE ROADS LIKE WAKEFIELD OR COPPERFIELD TO ENTER INDEPENDENCE AND CROSSING TO MAKE THRU/LEFT TURNS AT WAIT TIMES LESS THAN 10-20" SECS.

TRAFFIC SIGNAL WARRANT ANALYSIS

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on more critical minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

Time (1hr Interval)	VOLUME (VPH)	70% > 630 vph
6:00 - 7:00*	1,501	YES
7:00 - 8:00	3,068	YES
8:00 - 9:00	3,696	YES
9:00 - 10:00*	2,133	YES
10:00 - 11:00*	2,033	YES
11:00 - 12:00*	2,000	YES
12:00 - 1:00*	2,074	YES
1:00 - 2:00*	2,412	YES
2:00 - 3:00*	2,565	YES
3:00 - 4:00*	3,204	YES
4:00 - 5:00	3,850	YES
5:00 - 6:00	4,694	YES
6:00 - 7:00*	2,534	YES

VOLUME (VPH)	70% > 53 vph	Meets Warrant?
56	YES no	YES NO
94	YES	YES
110	YES	YES
116	YES	YES
68	YES no	YES NO
62	YES no	YES NO
42	NO no	NO NO
50	CLOSE no	CLOSE* NO
69	YES no	YES NO
43	NO no	NO NO
134	YES	YES
91	YES	YES
66	YES no	YES NO
		10 hrs
		10 hrs > 8 hrs
		WARRANT MET

60% FAIL

* from ADT count 10/30/2018

VPH = vehicles per hour

Posted speed limit	45mph
85th percentile	48mph

Section 4C.04 Warrant 3, Peak Hour

**Engineering failed to include/measure this warrant given that it would also fail to meet criterion and may have not been considered altthough argument has been made regarding heavy school release traffic.

Support:

01 The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.

Guidance:

02 *This signal warrant should be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.*

03 *The need for a traffic control signal should be considered if an engineering study finds that the criteria in either of the following two categories are met:*

A. *If all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:*
   1. *The total stopped-time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach, and*
   2. *The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes, and*
   3. *The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.*

**Neither of these are met at Wakefield Dr.

B. *The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the more critical minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.*

Option:

04 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-4 may be used in place of Figure 4C-3 to evaluate the criteria in Item B of Paragraph 3 in this Section.

05 If this warrant is the only warrant met and a traffic control signal is justified by an engineering study, the traffic control signal may be operated in the flashing mode during the hours that the volume criteria of this warrant are not met.

Guidance:

06 *If this warrant is the only warrant met and a traffic control signal is justified by an engineering study, the traffic control signal should be traffic-actuated.*

Section 4C.08 Warrant 7, Crash Experience

Support:

01 The Crash Experience signal warrant conditions are intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.

Guidance:

02 *The need for a traffic control signal should be considered if an engineering study finds that all of the following criteria are met:*

A. *Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; and*

B. *At least one of the following conditions applies to the reported crash history (where each reported crash considered is related to the intersection and apparently exceeds the applicable requirements for a reportable crash):*

1. *The number of reported angle crashes and pedestrian crashes within a 1-year period equals or exceeds the threshold number in Table 4C-2 for total angle crashes and pedestrian crashes (all severities); or*
2. *The number of reported fatal-and-injury angle crashes and pedestrian crashes within a 1-year period equals or exceeds the threshold number in Table 4C-2 for total fatal-and-injury angle crashes and pedestrian crashes; or*
3. *The number of reported angle crashes and pedestrian crashes within a 3-year period equals or exceeds the threshold number in Table 4C-3 for total angle crashes and pedestrian crashes (all severities); or*
4. *The number of reported fatal-and-injury angle crashes and pedestrian crashes within a 3-year period equals or exceeds the threshold number in Table 4C-3 for total fatal-and-injury angle crashes and pedestrian crashes; and*

C. *For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80 percent columns of Condition A in Table 4C-1 (see Section 4C.02), or the vph in both of the 80 percent columns of Condition B in Table 4C-1 exists on the major street and the more critical minor-street approach, respectively, to the intersection, or the volume of pedestrian traffic is not less than 80 percent of the requirements specified in the Pedestrian Volume warrant (see Section 4C.05).*

THIS WARRANT WAS FAILED AS WAKEFIELD DID NOT HAVE **MORE THAN > 16 ANGLE** CRASHES IN THE MOST RECENT 3 YEAR LOOK BACK RANGE PER MANUAL OR **MORE THAN >10 ANGLE** CRASHES IN THE LAST 1 YEAR RANGE FOR 85th PERC >40 MPH

JAN 2021- NOV 2024 ACCIDENTS **(3 YEAR** look-back range per Warrant MUTCD 2023 Manual)

WAKEFIELD- **11** (6 accidents beyond 250 feet from intersection- **6 ANGLE** CRASHES **FAIL**
(**15 total but 4** accidents occurred in early 2021 outside 3 year look back range)
COPPERFIELD- **12** (2 accidents beyond 250 ft from intersection) **7 ANGLE** CRASHES **FAIL**
FIVEFORKS – **19** (5 accidents beyond 250 ft from intersection) Unknown How Many Angle
EWELL – **27** (7 accidents beyond 100 ft from intersection) *SIGNAL INTERSECTION
HAYGOOD- **43** (24 accidents beyond 100 ft from intersection) *SIGNAL INTERSECTION

*WAKEFIELD DR. **ANGLE CRASH/PEDESTRIAN** # accident data DOES NOT MEET THE 3 YEAR OR 1 YEAR WARRANT CRITERIA per MUTCD 2023 11TH Edition.

ANGLE CRASHES must be at or above **>16 Angle Crashes per 3 year** and at or above **> 10 per 1 year.**

Table 4C-4. Minimum Number of Reported Crashes in a One-Year Period

Community less than 10,000 population or above 40 mph on major street					
Number of through lanes on each approach		Total of angle and pedestrian crashes (all severities)[a]		Total of fatal-and-injury angle and pedestrian crashes[a]	
Major Street	Minor Street	Four Legs	Three Legs	Four Legs	Three Legs
1	1	4	3	3	3
2 or more	1	10	9	6	6
2 or more	2 or more	10	9	6	6
1	2 or more	4	3	3	3

[a] Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major street and one or more vehicles on the minor street

Table 4C-5. Minimum Number of Reported Crashes in a Three-Year Period

Community less than 10,000 population or above 40 mph on major street					
Number of through lanes on each approach		Total of angle and pedestrian crashes (all severities)[a]		Total of fatal-and-injury angle and pedestrian crashes[a]	
Major Street	Minor Street	Four Legs	Three Legs	Four Legs	Three Legs
1	1	6	5	4	4
2 or more	1	16	13	9	9
2 or more	2 or more	16	13	9	9
1	2 or more	6	5	4	4

[a] Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major street and one or more vehicles on the minor street

WAKEFIELD DR

Traffic Accident Search Results
Reporting Period: 01/01/2016 - 11/08/2024
Street(s): wakefield dr, independence
38 cases found.

Case#	Accident Date	Primary Street
2022036522	06/07/2022 03:00 PM, Tue	1300 INDEPENDENCE
2023035593	06/24/2023 11:12 AM, Sat	INDEPENDENCE BL
2024000445	01/03/2024 02:00 PM, Wed	INDEPENDENCE BL
2024008001	02/12/2024 09:30 AM, Mon	INDEPENDENCE BL
2021007815	03/14/2021 11:48 AM, Sun	INDEPENDENCE BLVD
2022052947	08/13/2022 09:19 PM, Sat	INDEPENDENCE BLVD
2022055082	08/22/2022 01:36 PM, Mon	INDEPENDENCE BLVD
2024048138	09/14/2024 01:54 PM, Sat	INDEPENDENCE BLVD
2024006031	02/02/2024 06:30 AM, Fri	INDEPENDENCE BLVD
2017041585	10/19/2017 07:01 PM, Thu	WAKEFIELD DR
2021014292	05/08/2021 03:39 PM, Sat	WAKEFIELD DR
2017006947	02/24/2017 04:26 PM, Fri	INDEPENDENCE BL
2023029691	05/26/2023 09:00 PM, Fri	1300 INDEPENDENCE BL
2021053043	11/23/2021 05:27 AM, Tue	1301 INDEPENDENCE BL
2016031111	07/28/2016 12:30 PM, Thu	WAKEFIELD DR
2017042325	10/25/2017 07:00 AM, Wed	1300 INDEPENDENCE BL
2016033232	08/11/2016 09:50 AM, Thu	INDEPENDENCE BL
2017041174	10/16/2017 04:10 PM, Mon	INDEPENDENCE BL
2018023595	06/25/2018 08:10 AM, Mon	INDEPENDENCE BL
2018025796	07/09/2018 03:33 PM, Mon	INDEPENDENCE BL
2019004056	02/02/2019 06:11 AM, Sat	INDEPENDENCE BL
2019018934	05/25/2019 02:30 PM, Sat	INDEPENDENCE BL
2019030913	08/14/2019 04:46 PM, Wed	INDEPENDENCE BL
2020000371	01/03/2020 04:55 PM, Fri	INDEPENDENCE BL
2020009443	03/13/2020 06:16 AM, Fri	INDEPENDENCE BL
2020025335	08/02/2020 07:19 PM, Sun	INDEPENDENCE BL
2021010048	04/02/2021 03:10 PM, Fri	INDEPENDENCE BL
2016021993	06/01/2016 05:12 PM, Wed	1298 INDEPENDENCE BL
2016036415	09/01/2016 06:20 AM, Thu	1298 INDEPENDENCE BL
2018039713	10/15/2018 02:54 PM, Mon	1298 INDEPENDENCE BL
2018041949	10/31/2018 01:44 PM, Wed	1298 INDEPENDENCE BL
2021012226	04/22/2021 04:21 AM, Thu	1298 INDEPENDENCE BL
2017050242	12/21/2017 10:38 AM, Thu	1299 INDEPENDENCE BL
2018036768	09/24/2018 07:20 PM, Mon	1300 INDEPENDENCE BL
2019010911	03/28/2019 08:58 PM, Thu	1300 INDEPENDENCE BL
2021014392	05/09/2021 10:45 AM, Sun	1300 INDEPENDENCE BL
2019034862	09/11/2019 04:30 PM, Wed	1300 INDEPENDENCE BL
2018030097	08/07/2018 10:20 PM, Tue	1300 INDEPENDENCE BL

*** END OF FILE ***

COPPERFIELD (SAME CONDITION MINOR ROAD) FOR COMPARISON

Traffic Accident Search Results
Reporting Period: 01/01/2017 - 11/08/2024
Street(s): copperfield, independence
18 cases found.

Case#	Accident Date	Primary Street
2018017591	05/15/2018 05:03 PM, Tue	COPPERFIELD RD
2023019288	04/06/2023 03:00 PM, Thu	COPPERFIELD RD
2023063469	11/08/2023 10:10 AM, Wed	INDEPENDENCE BL
2022007437	02/09/2022 12:32 PM, Wed	1100 INDEPENDENCE BL
2022081298	12/20/2022 02:06 PM, Tue	1200 INDEPENDENCE BL
2024019387	04/12/2024 11:40 PM, Fri	1200 INDEPENDENCE BL
2024041802	08/09/2024 12:33 PM, Fri	1200 INDEPENDENCE BL
2024015922	03/26/2024 03:46 PM, Tue	INDEPENDENCE BLVD
2022055667	08/24/2022 06:57 PM, Wed	1144 INDEPENDENCE BLVD
2017049290	12/14/2017 01:10 PM, Thu	INDEPENDENCE BL
2021006336	03/01/2021 07:08 AM, Mon	INDEPENDENCE BL
2021025143	07/17/2021 02:10 PM, Sat	INDEPENDENCE BL
2023063686	11/07/2023 09:15 AM, Tue	1114 INDEPENDENCE BL
2021004951	02/16/2021 02:23 PM, Tue	1143 INDEPENDENCE BL
2020011493	04/04/2020 09:39 AM, Sat	1144 INDEPENDENCE BL
2024011121	02/27/2024 04:25 PM, Tue	1200 INDEPENDENCE BL
2019035887	09/19/2019 02:54 PM, Thu	1300 INDEPENDENCE BL
2022032162	05/21/2022 02:27 PM, Sat	INDEPENDENCE BL

*** END OF FILE ***

FIVE FORKS RD

Reporting Period: 01/01/2016 - 10/01/2024
Street(s): five forks, independence
51 cases found.

Case#	Accident Date	Primary Street	Cross Street
2023023370	04/26/2023 07:19 PM, Wed	FIVE FORKS RD	INDEPENDENCE BLVD
2023070545	12/13/2023 06:20 AM, Wed	INDEPENDENCE BL	FIVE FORKS RD (200 feet north)
2023019511	04/07/2023 01:50 PM, Fri	INDEPENDENCE BL	FIVE FORKS RD (75 feet south)
2024034308	06/28/2024 09:50 PM, Fri	1400 INDEPENDENCE BL	1400 FIVE FORKS RD
2022033224	05/25/2022 05:50 PM, Wed	1420 INDEPENDENCE BL	FIVE FORKS RD
2021048105	10/31/2021 01:42 PM, Sun	1420 INDEPENDENCE BL	FIVE FORKS RD (300 feet north)
2021016230	05/23/2021 09:55 AM, Sun	INDEPENDENCE BLVD	FIVE FORKS RD
2022010453	02/22/2022 08:38 AM, Tue	INDEPENDENCE BLVD	FIVE FORKS RD
2023054392	09/21/2023 04:22 PM, Thu	INDEPENDENCE BLVD	FIVE FORKS RD
2024028974	05/31/2024 12:20 PM, Fri	INDEPENDENCE BLVD	FIVE FORKS RD
2023065228	11/14/2023 03:20 PM, Tue	1400 INDEPENDENCE BLVD	FIVE FORKS RD
2023065232	11/14/2023 03:25 PM, Tue	1400 INDEPENDENCE BLVD	FIVE FORKS RD
2016014991	04/18/2016 04:33 PM, Mon	1433-1439 INDEPENDENCE BL	FIVE FORKS RD (200 feet north)
2016041991	04/21/2016 12:01 AM, Thu	INDEPENDENCE	FIVE FORKS RD (200 feet north)
2016016683	04/29/2016 11:40 AM, Fri	INDEPENDENCE BL	FIVE FORKS RD
2017009402	03/16/2017 07:43 AM, Thu	INDEPENDENCE BL	FIVE FORKS RD
2016036911	09/04/2016 03:55 PM, Sun	INDEPENDENCE BL	FIVE FORKS RD (200 feet north)
2016002693	01/22/2016 09:26 AM, Fri	1400 INDEPENDENCE BL	1400 FIVE FORKS RD
2023069617	12/07/2023 05:00 PM, Thu	1400 INDEPENDENCE BL	1400 FIVE FORKS RD
2017028245	07/20/2017 04:23 PM, Thu	1400 INDEPENDENCE BL	1400 FIVE FORKS RD (150 feet sout
2016025957	06/26/2016 07:40 AM, Sun	1412 INDEPENDENCE BL	FIVE FORKS RD (200 feet south)
2022010766	02/23/2022 03:10 PM, Wed	1416 INDEPENDENCE BL	1400 FIVE FORKS BL
2021057625	12/15/2021 03:20 PM, Wed	1420 INDEPENDENCE BL	FIVE FORKS RD
2016008138	03/03/2016 09:30 AM, Thu	1427 INDEPENDENCE BL	FIVE FORKS RD
2016013019	04/05/2016 04:15 PM, Tue	1427 INDEPENDENCE BL	FIVE FORKS RD
2017048536	12/08/2017 05:51 PM, Fri	1427 INDEPENDENCE BL	FIVE FORKS RD (100 feet south)
2016037453	09/08/2016 12:20 PM, Thu	1427 INDEPENDENCE BL	FIVE FORKS RD (500 feet south)
2016043282	10/19/2016 07:55 AM, Wed	1429 INDEPENDENCE BL	FIVE FORKS RD (150 feet south)
2017009401	03/16/2017 07:50 AM, Thu	1429 INDEPENDENCE BL	FIVE FORKS RD (200 feet south)
2016046975	11/14/2016 09:00 AM, Mon	1430 INDEPENDENCE BL	FIVE FORKS RD
2021003336	02/01/2021 01:55 PM, Mon	INDEPENDENCE BL	FIVE FORKS RD
2020032939	10/05/2020 03:32 PM, Mon	INDEPENDENCE BL	FIVE FORKS RD (100 feet south)
2019046752	12/10/2019 05:17 PM, Tue	INDEPENDENCE BL	FIVE FORKS RD (150 feet north)
2019024644	07/03/2019 02:35 PM, Wed	INDEPENDENCE BL	FIVE FORKS RD (200 feet south)
2021039989	09/22/2021 04:26 PM, Wed	INDEPENDENCE BL	FIVE FORKS RD (200 feet south)
2019037968	10/04/2019 01:30 PM, Fri	1100 INDEPENDENCE BL	FIVE FORKS RD (00.25 miles north)
2019044777	11/25/2019 10:53 AM, Mon	1400 INDEPENDENCE BL	1400 FIVE FORKS RD
2020033058	10/06/2020 03:47 PM, Tue	1400 INDEPENDENCE BL	1400 FIVE FORKS RD (999 feet sout
2017038493	09/27/2017 05:18 PM, Wed	1400 INDEPENDENCE BL	FIVE FORKS RD
2018025984	07/10/2018 05:10 PM, Tue	1400 INDEPENDENCE BL	FIVE FORKS RD
2021028779	08/02/2021 06:50 AM, Mon	1400 INDEPENDENCE BL	FIVE FORKS RD
2020007470	02/27/2020 08:15 AM, Thu	1400 INDEPENDENCE BL	FIVE FORKS RD (100 feet south)
2017033784	08/25/2017 03:20 PM, Fri	1420 INDEPENDENCE BL	FIVE FORKS RD (100 feet south)
2018046394	12/03/2018 05:00 PM, Mon	1426 INDEPENDENCE BL	FIVE FORKS RD
2020035209	10/24/2020 09:40 AM, Sat	1426 INDEPENDENCE BL	FIVE FORKS RD
2018043807	11/13/2018 05:09 PM, Tue	1426 INDEPENDENCE BL	FIVE FORKS RD (200 feet north)
2017017934	05/16/2017 05:25 PM, Tue	1427 INDEPENDENCE BL	1401 FIVE FORKS RD
2018008068	03/03/2018 07:25 PM, Sat	1432 INDEPENDENCE BL	1400 FIVE FORKS RD (500 feet nort
2018014697	04/25/2018 04:25 PM, Wed	1444 INDEPENDENCE BL	FIVE FORKS RD (50 feet south)
2021024313	07/13/2021 04:35 PM, Tue	1445 INDEPENDENCE BL	FIVE FORKS RD
2018004424	02/07/2018 05:55 PM, Wed	1497 INDEPENDENCE BL	FIVE FORKS RD

*** END OF FILE ***

WAKEFIELD DR CRASH POLICE REPORTS ONLINE

Accident_Date	Accident_Time	At_Intersection	CASE_Number	City	Day_of_W
8/8/2024, 8:00 PM	1,233	Yes	2024041802	VIRGINIA BEACH	FRI
2/26/2024, 7:00 PM	1,625	Yes	2024011121	VIRGINIA BEACH	TUE
2/26/2024, 7:00 PM	1,623	Yes	2024011118	VIRGINIA BEACH	TUE
11/7/2023, 7:00 PM	1,010	250 Feet From	2023063469	VIRGINIA BEACH	WED
11/6/2023, 7:00 PM	915	Yes	2023063686	VIRGINIA BEACH	TUE
1/17/2023, 7:00 PM	1,305	Yes	2023003580	VIRGINIA BEACH	WED
8/23/2022, 8:00 PM	1,857	Yes	2022055667	VIRGINIA BEACH	WED
5/20/2022, 8:00 PM	1,427		2022032162	VIRGINIA BEACH	SAT
7/16/2021, 8:00 PM	1,410	Yes	2021025143	VIRGINIA BEACH	SAT
2/15/2021, 7:00 PM	1,423	200 Feet From	2021004951	VIRGINIA BEACH	TUE
2/28/2021, 7:00 PM	708	Yes	2021006336	VIRGINIA BEACH	MON

Traffic_Control_Type	Type_of_Collision	Weather_Condition
STOP SIGN	ANGLE	NO ADVERSE CONDITION (...
TRAFFIC LANES MARKED	ANGLE	
TRAFFIC LANES MARKED	SIDESWIPE-SAME DIRECTION	RAIN
TRAFFIC LANES MARKED	ANGLE	NO ADVERSE CONDITION (...
TRAFFIC LANES MARKED	ANGLE	NO ADVERSE CONDITION (...
STOP SIGN	ANGLE	NO ADVERSE CONDITION (...
TRAFFIC LANES MARKED	NON-COLLISION	NO ADVERSE CONDITION (...
TRAFFIC LANES MARKED	REAR END	NO ADVERSE CONDITION (...
TRAFFIC LANES MARKED	ANGLE	NO ADVERSE CONDITION (...
NO TRAFFIC CONTROL	REAR END	NO ADVERSE CONDITION (...
TRAFFIC LANES MARKED	SIDESWIPE-SAME DIRECTION	NO ADVERSE CONDITION (...

Section 4C.07 Warrant 6, Coordinated Signal System

Support:

01 Progressive movement in a coordinated signal system sometimes necessitates installing traffic control signals at intersections where they would not otherwise be needed in order to maintain proper platooning of vehicles.

Guidance: *Signals already exist that can control this with proper timing and sequencing

02 *The need for a traffic control signal should be considered if an engineering study finds that one of the following criteria is met:*

A. *On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning.*

B. *On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation.*

03 *The Coordinated Signal System signal warrant should not be applied where the resultant spacing of traffic control signals would be less than 1,000 feet.* *0.2 miles Wakefield is 0.3 miles from Haygood Rd signal

Section 4C.08 Warrant 7, Crash Experience

Support:

01 The Crash Experience signal warrant conditions are intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.

Guidance:

02 *The need for a traffic control signal should be considered if an engineering study finds that all of the following criteria are met:*

A. *Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; and*

B. *At least one of the following conditions applies to the reported crash history (where each reported crash considered is related to the intersection and apparently exceeds the applicable requirements for a reportable crash):*

1. *The number of reported angle crashes and pedestrian crashes within a 1-year period equals or exceeds the threshold number in Table 4C-2 for total angle crashes and pedestrian crashes (all severities); or*
2. *The number of reported fatal-and-injury angle crashes and pedestrian crashes within a 1-year period equals or exceeds the threshold number in Table 4C-2 for total fatal-and-injury angle crashes and pedestrian crashes; or*
3. *The number of reported angle crashes and pedestrian crashes within a 3-year period equals or exceeds the threshold number in Table 4C-3 for total angle crashes and pedestrian crashes (all severities); or*
4. *The number of reported fatal-and-injury angle crashes and pedestrian crashes within a 3-year period equals or exceeds the threshold number in Table 4C-3 for total fatal-and-injury angle crashes and pedestrian crashes; and*

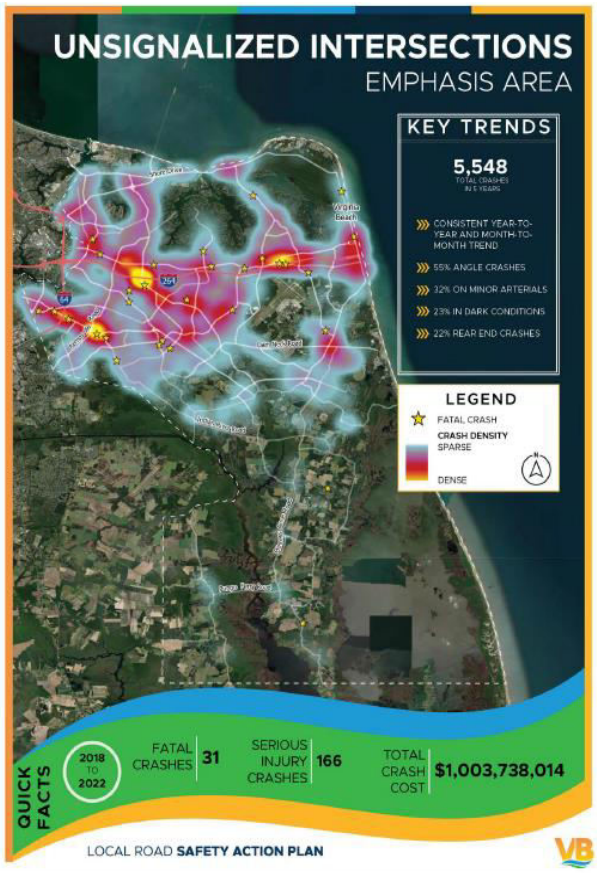
DURING PEAK: THE SIGNALS AT EWELL AND HAYGOOD RD NEED TO BE RE-TIMED AND SEQUENCED. **HAYGOOD GREEN** PHASE INCREASED TO **2 MIN 30" SEC**. MIN TO ALLOW FULL CLEARANCE OF ALL TRAFFIC "HERDS" (PLATOONS) BACKING UP PAST WAKEFIELD. REDUCE RED PHASE. **EWELL GREEN** PHASE REDUCED FROM **2 MIN 40** SEC DURING PEAK TO **1 MIN 30** HOLD/GATE GROUPS. SEQUENCE TO STAGGER THE RELEASE FROM EWELL AND OPENING HAYGOOD RD. (20 SEC AFTER RELEASE FROM HAYGOOD TO SPACE GROUPS)

FROM VB CITY TRAFFIC SAFETY REPORT-- OCT 2024

ACCIDENTS AT SIGNALIZED INTERSECTIONS: **10,846**
ACCIDENTS AT UN-SIGNALIZED (NO TRAFFIC SIGNAL) INTERSECTIONS: **5,548**

THAT'S A 100% INCREASE. HENCE THE REASON WHY THE MANUAL DESCRIBES TRAFFIC SIGNALS HAVE THEIR OWN PROBLEMS AND ALL ALTERNATIVES ARE TO BE 1ST ATTEMPTED**.**

ZERO ALTERNATIVES HAVE BEEN ATTEMPTED IN THE LAST 5+ YEARS OR MORE TO ADDRESS ANY MINOR ROAD SAFETY ISSUES OR WITHIN THE ENTIRE CORRIDOR FROM PLEASURE HOUSE TO HAYGOOD RD.



The VB City's Comprehensive report on traffic confirms that traffic light signal intersections increase accidents by 100% (approx 10K versus approx 5K at unsingalized intersections/stop signs)

OPINION: The less interruption to flow appears to create less accidents and better safety for all traveling a roadway with controlled "platoons" herds of vehicles safely separated by existing traffic signals to allow entry/cross at medians. Per the Manual traffic signals are used to slow and stop traffic flow to allow safe changes in vehicle direction and crossing/entry. The less needed, the better to avoid drivers having to anticipate slowing stopping to avoid accidents.

REMARKS TO THE ORGINAL SLIDESHOW FROM APRIL 2021

*****From 2023 11th Edition MUTCD Traffic Manual - p. 651 Sec 4c.01:**
"The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal."

MUTCD TRAFFIC SIGNAL WARRANTS:

- Warrant 1 - Eight-Hour Vehicular Volume **WARRANT FAILED**
- Warrant 2 - Four-Hour Vehicular Volume **NOT ADDRESSED FAILED**
- Warrant 3 - Peak Hour Volume **WARRANT FAILED**
- Warrant 4 - Pedestrian Volume **NON APPLICABLE UNMEASUREABLE**
- Warrant 5 - School Crossing **NON APPLICABLE**
- Warrant 6 - Coordinated Signal System **NOT ADDRESSED-- EXISTING SIGNALS NEED TIMING**
- Warrant 7 - Crash Experience **WARRANT FAILED**
- Warrant 8 - Roadway Network **NON APPLICABLE**
- Warrant 9 - Intersection Near a (railroad)Grade Crossing **NON APPLICABLE**

****FAILED 4 WARRANTS**
5 WARRANTS NON APPLICABLE

SUMMARY:

- Wakefield Dr (east side) has a concentration of over 100 homes within 500 ft of Independence Blvd.
- Traffic signal warrants meet on one side of the intersection, in this case the east side (Wakefield Dr) meets the warrants due to the higher number of residences near the intersection.

**** Theres NO warrant in manual that requires resident density number as a criterion.**

- Wakefield Dr exceeds traffic signal warrants for 10 hours which is greater than the required 8 hours:

This is false as the VPH from Wakefield making left turns fail 60% to meet the 70 VPH criterion. Data not updated since 2021

  - indicates substantial and consistent utilization throughout the day.

VPH counts obtained appear inflated after recent observation for all hours of the day.

- The warrants were met considering only the left turns and through movements:

Right turns are not to be measured under the warrant criterion.

  - provides a conservative result since right turns were not even considered.
- Spacing between other signalized intersections is acceptable (>¼ mile*):
  - greater than 1,320 feet either direction to the nearest other traffic signal

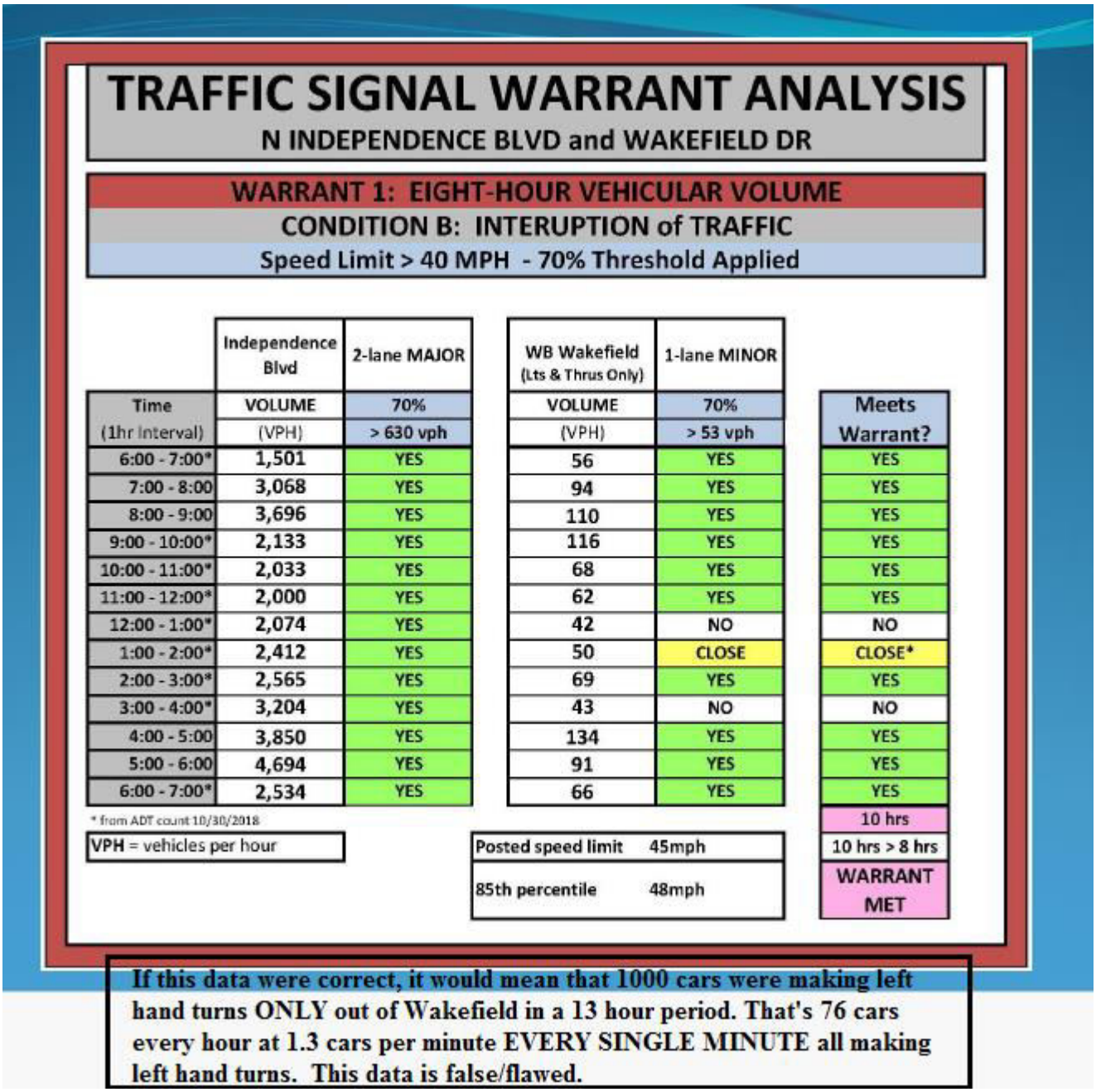
*1/4 mile spacing allows for good signal coordination

REASONING:

- Intersection meets traffic signal warrant. **FALSE. Zero met**
- Doesn't restrict access to the neighborhood on the east side of Independence Blvd. **May well divert SB drivers into Lake Smith onto Miles Standish, other**
- Does not increase diverted traffic in Thoroughgood Estates, in fact, decreases existing diversions.
- Provides better access to Independence Middle School
- Provides pedestrian accommodation across Independence Blvd including HRT transit users. **There are near zero pedestrians in this area**
- Does not impact emergency vehicle access.

** Engineering did not even include "Pedestrians" count to evaluate that warrant because there is virtually no pedestrain traffic to count.

8 HR WARRANT FAILED--- DEFECTED/FLAWED DATA THAT IS OUTSIDE THE 3 YEAR LOOK BACK RANGE



TRAFFIC SIGNAL WARRANT ANALYSIS

N INDEPENDENCE BLVD and WAKEFIELD DR

WARRANT 1: EIGHT-HOUR VEHICULAR VOLUME

CONDITION B: INTERUPTION of TRAFFIC

Speed Limit > 40 MPH - 70% Threshold Applied

	Independence Blvd	2-lane MAJOR	WB Wakefield (Lts & Thrus Only)	1-lane MINOR	
Time (1hr Interval)	VOLUME (VPH)	70% > 630 vph	VOLUME (VPH)	70% > 53 vph	Meets Warrant?
6:00 - 7:00*	1,501	YES	56	YES	YES
7:00 - 8:00	3,068	YES	94	YES	YES
8:00 - 9:00	3,696	YES	110	YES	YES
9:00 - 10:00*	2,133	YES	116	YES	YES
10:00 - 11:00*	2,033	YES	68	YES	YES
11:00 - 12:00*	2,000	YES	62	YES	YES
12:00 - 1:00*	2,074	YES	42	NO	NO
1:00 - 2:00*	2,412	YES	50	CLOSE	CLOSE*
2:00 - 3:00*	2,565	YES	69	YES	YES
3:00 - 4:00*	3,204	YES	43	NO	NO
4:00 - 5:00	3,850	YES	134	YES	YES
5:00 - 6:00	4,694	YES	91	YES	YES
6:00 - 7:00*	2,534	YES	66	YES	YES
					10 hrs
					10 hrs > 8 hrs
					WARRANT MET

* from ADT count 10/30/2018

VPH = vehicles per hour

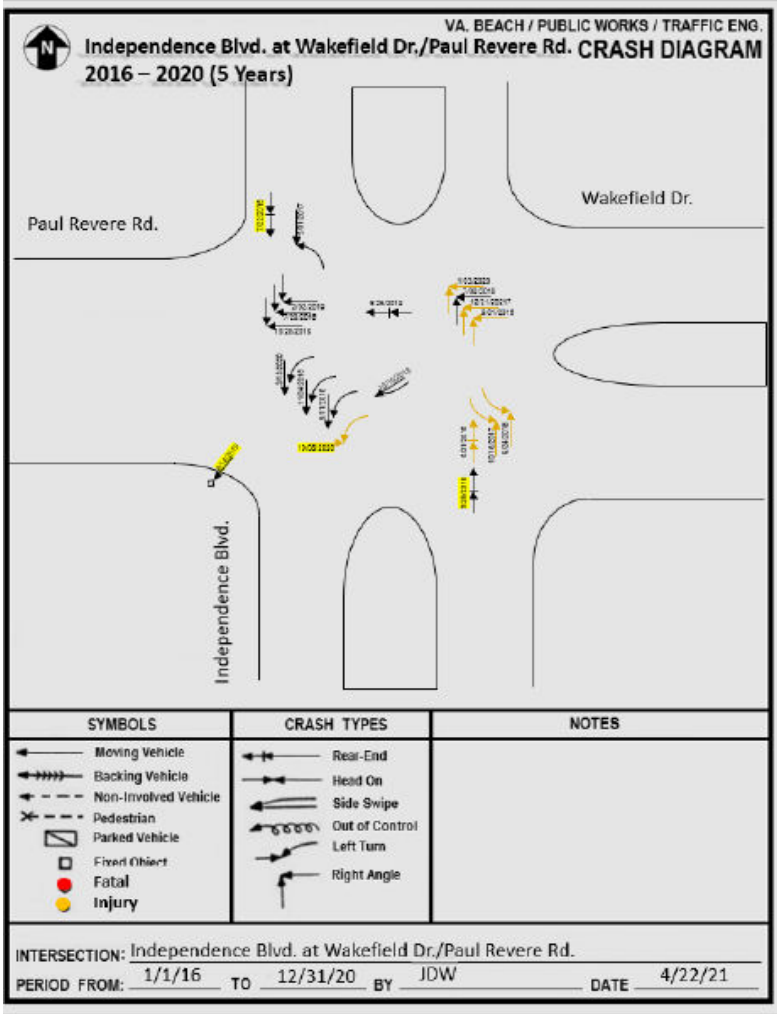
Posted speed limit	45mph
85th percentile	48mph

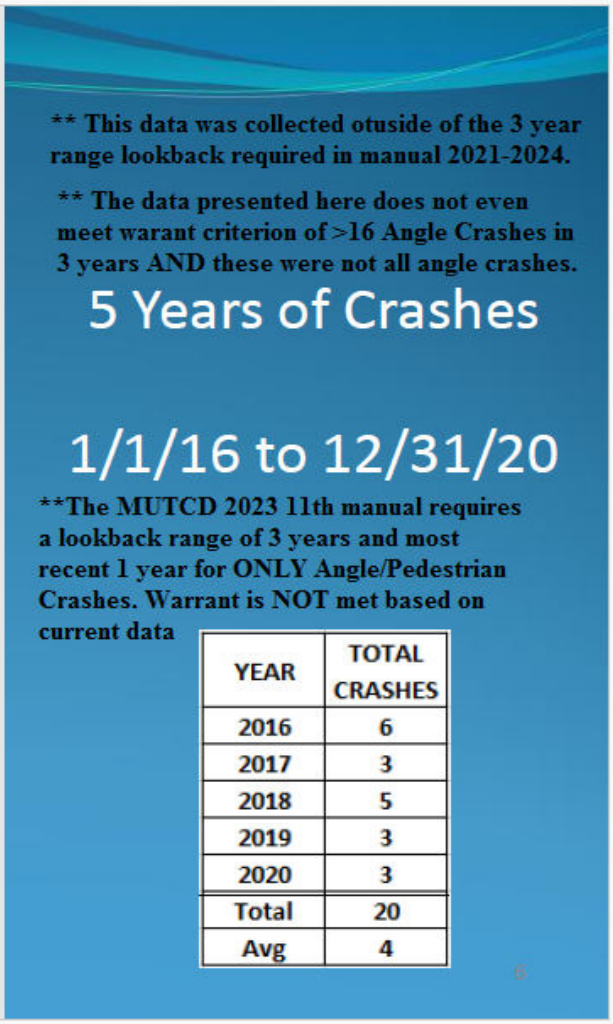
If this data were correct, it would mean that 1000 cars were making left hand turns ONLY out of Wakefield in a 13 hour period. That's 76 cars every hour at 1.3 cars per minute EVERY SINGLE MINUTE all making left hand turns. This data is false/flawed.

NOTE: THE MAJORITY OF THE DAY DURING HOURS THAT ARE **OFF- PEAK** AS PRIOR EXPLAINED >>>TRAFFIC VPH NUMBERS RECENTLY OBSERVED ARE BETWEEN **20- 40 VEHICLES MAX PER HOUR.** THAT'S **5- 10 VEHICLES EVERY 15 MINUTES.**

DURING OFF PEAK HOURS (4 HR) THERE IS LITTLE DIFFICULTY FOR ANY DRIVERS COMING OUT OF MINOR SIDE ROADS LIKE WAKEFIELD OR COPPERFIELD TO ENTER INDEPENDENCE AND CROSSING TO MAKE LEFT TURNS.

CRASH EXPERIENCE DATA WARRANT – FAILED. DATA OUTSIDE THE 3 YEAR RANGE AND DOESN'T MEET **ANGLE CRASH** ONLY CRITERION **>16** IN 3 YEAR RANGE LOOKBACK OR 1 YEAR **>10**





SYMBOLS	CRASH TYPES	NOTES
Moving Vehicle	Rear-End	Crashes
Backing Vehicle	Head On	**Fail to meet Crash Experience Warrant >16 and 1 year >10
Non-Involved Vehicle	Side Swipe	2019 – 3
Pedestrian	Out of Control	2020 – 3
Parked Vehicle	Left Turn	2021 – 1
Fixed Object	Right Angle	2022 – 4
Injury Crash		2023 – 4
Fatal Crash		2024 – 3
		(Thru July 31st, 2024)
		Total – 18

INTERSECTION: Wakefield Dr./Paul Revere Rd. AND Independence Blvd.

PERIOD FROM: 01/01/19 TO 07/31/24 BY Jamarr Waples DATE 10/29/24

APPLICABLE MUTCD TRAFFIC SIGNAL WARRANTS:

****There have been ZERO trial alternative mitigations performed and measured in the last 5+ years**

Warrant 7 - Crash Experience

- Adequate trial of alternatives has failed to reduce crash frequency;
- If 5 or more correctable by a traffic signal crashes per year, then allows for an additional **20% reduction on Warrant 1**

****WHERE is this in the manual under the Crash Warrant?**

Crashes Correctable by a Traffic Signal

INDEPENDENCE BLVD & WAKEFIELD DR/PAUL REVERE RD

Year	TOTAL	Angle crashes	Rear End crashes	Correctable w a Traf Sig
2016	6	2	2	5
2017	3	1	0	3
2018	5	2	1	4
2019	3	1	1	2
2020	3	1	0	2
	20	7	4	16

# years	Average Crashes/yr	Correctable Crashes/yr
5.0	**4.0**	3.2 < 5/yr

no reduction in warrant

****This is pure unsubstantiated assumption based on what facts?**

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DO NOTHING

**MUTCD Manual explicitly states that the meeting of any one or more wrarrants does NOT compel the installation of a traffic signal esp if other requirements have not been 1st met (i.e alternatives tried). Wakefield met zero warrants as explained prior with zero alterantives employed/ FAIL.

ADVANTAGES

- Flow on Independence Blvd is not interrupted.

**FALSE. There is zero way that massive volumes (38K+ daily) of high speed avg 50+ mph traffic would not be interrupted

DISADVANTAGES

- Residents of Thoroughgood Colony/Reedtown/Lower Thoroughgood Estates continue to access Independence Blvd without the benefit of a traffic signal. **Ewell Rd Signal**
- Significant volumes of left & thrus movements on Wakefield Dr at Independence Blvd already, enough to warrant a traffic signal. **FALSE**
- Potential liability situation for the City since a traffic signal was determined to be warranted. **FALSE FACT**

**What are the liabilites for installing an "unwarranted signal" per federal guidelines as far as contributory negligence were accident victims to discover a traffic signal may have increased risk.


ALTERNATIVES
WRONG. The city has attempted zero alternatives in the last 5+ years and measured for effect and thats exactly what is needed for the next year 2025
ALTERNATIVES:
1) Retime/Sequence the existing signals at Ewell and Haygood to slow/control stop traffic to create safe spacing intervals allowing minor street entry.
A. Do Nothing
B. Close Median
C. Construct restricted access median
(no lefts/thrus from side street)
D. Signalization
ALTERNATIVES: 1) Restrict Left Turns during peak hours and require traffic to drive 0.5 to Ewell Signal for safe entry. 2) Restructure/mark medians to give orientation to drivers entering and eliminate "gauntlet" crowding. 3) Install another signal and run risk of futher congesting with backups, accidents.

What is the purpose of a traffic signal?

A traffic signal assigns the right of way to approaching vehicles at intersections where it has been determined, using specific technical indicators, that it would be advantageous to do so.

The signal is placed to ensure a safe and orderly traffic flow, to protect pedestrians and vehicles crossing the intersection, and to help lessen the severity and frequency of crashes.

How does VDOT decide if a traffic signal should be installed?

The department follows federal guidelines that establish the minimum conditions that should exist before installing a signal. These guidelines help identify potential signal locations, but each intersection is reviewed before a traffic light is placed there.

Traffic engineers evaluate:

- the number of vehicles and pedestrians that use an intersection
- the intersection's physical makeup
- nearby development
- traffic delays during peak hours
- average vehicle speeds
- future construction plans
- the crashes that have occurred there

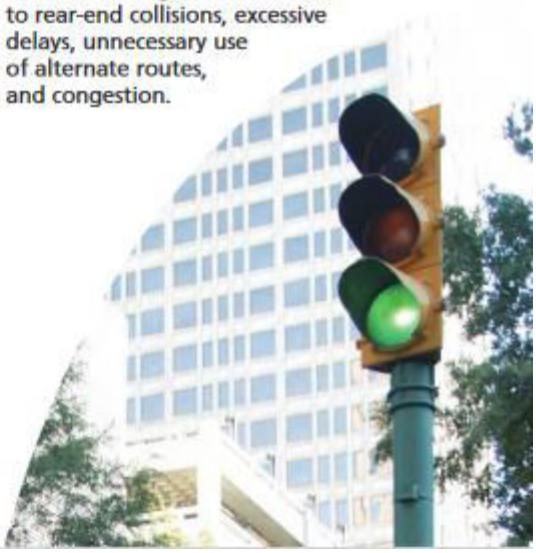
Are traffic signals a cure for crashes?

Not in all cases. Some types of crashes can be reduced by installing a signal. But other types might not be affected. VDOT engineers generally recommend a traffic signal be installed at intersections when the number of crashes is abnormally high between vehicles approaching from different directions.

But, they make sure the signal will help alleviate the problem, and it is installed only if other remedies are unsatisfactory. Traffic signals don't eliminate rear-end collisions.

Can signals contribute to crashes and congestion?

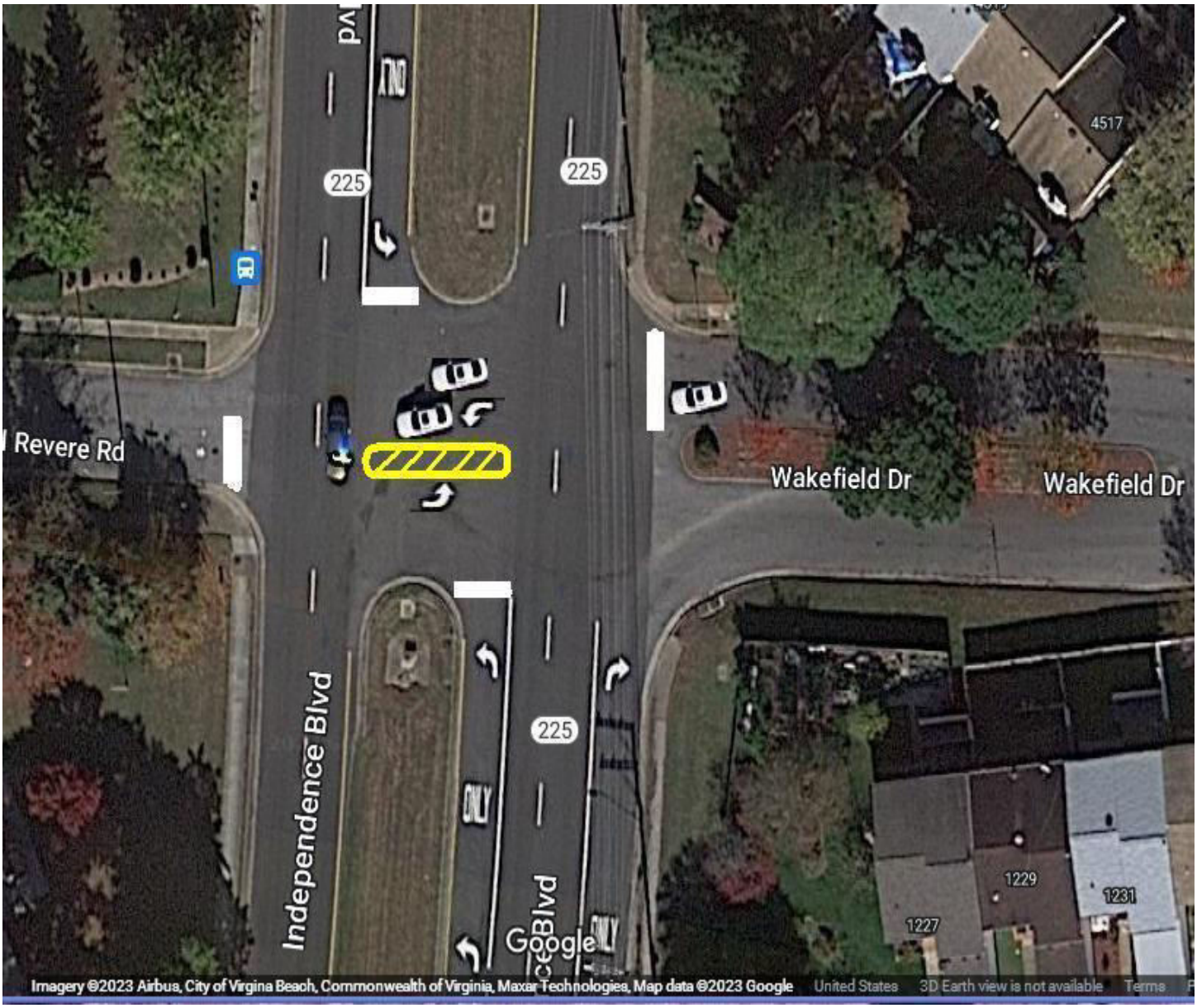
Definitely. Traffic signals are valuable tools, but they're not a cure-all. Sometimes a signal can contribute to rear-end collisions, excessive delays, unnecessary use of alternate routes, and congestion.



****EXAMPLES OF ALTERNATIVE MEDIAN MARKING/RESTRUCTURE (EXPANDING) TO REDUCE OVERSIZED UNCONTROLLED MEDIAN SPACES THAT CREATE UNSAFE DRIVER DISORIENTATION AND VEHICLE JAMMING 4-5 AT A TIME INTO CROSS SPACE.

CURRENTLY

MARKED


225
225
ONLY
4517
Revere Rd
Wakefield Dr
Wakefield Dr
Independence Blvd
225
ONLY
Blvd
ONLY
1229
1231
1227
Imagery ©2023 Airbus, City of Virginia Beach, Commonwealth of Virginia, Maxar Technologies, Map data ©2023 Google
United States
3D Earth view is not available
Terms

EXPANDED MEDIANS TO REDUCE UNSAFE ENTRY/CROWDING SPACE. FORCES CARS TO WAIT IN THE MINOR STREET UNTIL CLEAR.

EXAMPLE OF A 2 STOP LIGHT CONFIGURATION @ 0.1 MILE
SEPARATION WITH SAME LEVEL CRASH ACCIDENT FREQUENCIES #17

Traffic Accident Search Results
Reporting Period: 01/01/2016 - 11/14/2024
Street(s): jeanne st, independence blvd
17 cases found.

Case#	Accident Date	Primary Street
2021028418	07/31/2021 05:54 PM, Sat	INDEPENDENCE BLVD
2021050719	11/12/2021 07:06 PM, Fri	INDEPENDENCE BLVD
2022023896	04/18/2022 08:20 PM, Mon	INDEPENDENCE BLVD
2024002426	01/13/2024 07:59 PM, Sat	INDEPENDENCE BLVD
2024020813	04/20/2024 12:44 PM, Sat	INDEPENDENCE BLVD
2024044516	08/26/2024 03:19 PM, Mon	INDEPENDENCE BLVD
2024050830	09/30/2024 07:13 AM, Mon	INDEPENDENCE BLVD
2023020518	04/13/2023 02:18 PM, Thu	INDEPENDENCE BLVD
2023061931	10/30/2023 09:30 AM, Mon	300 INDEPENDENCE BLVD
2024045863	09/02/2024 01:38 PM, Mon	300 INDEPENDENCE BLVD
2019044891	11/26/2019 06:59 AM, Tue	JEANNE ST
2020032873	10/05/2020 06:00 AM, Mon	JEANNE ST
2020036658	11/05/2020 04:36 PM, Thu	JEANNE ST
2021048731	11/03/2021 04:29 PM, Wed	JEANNE ST
2022019363	03/31/2022 12:58 PM, Thu	JEANNE ST
2023048530	08/22/2023 08:50 PM, Tue	400 INDEPENDENCE BLVD
2019026551	07/16/2019 10:52 AM, Tue	INDEPENDENCE BLVD

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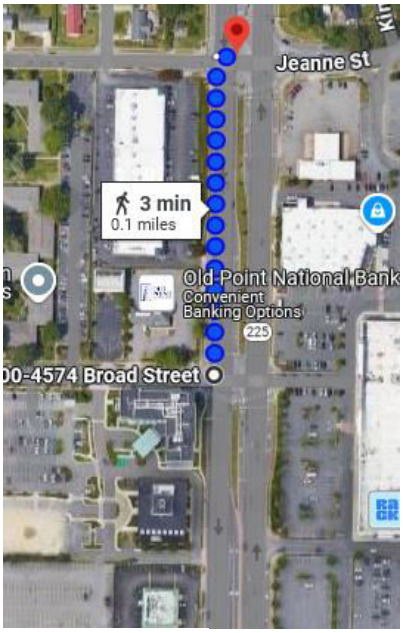

Traffic Accident Search Results
Reporting Period: 01/01/2016 - 11/14/2024
Street(s): BROAD , independence blvd
14 cases found.

Case#	Accident Date	Primary Street
2020031837	09/26/2020 08:21 PM, Sat	BROAD ST
2023053277	09/15/2023 02:42 PM, Fri	4500 BROAD ST
2020025997	08/08/2020 03:13 PM, Sat	INDEPENDENCE BLVD
2021019722	06/18/2021 11:02 AM, Fri	INDEPENDENCE BLVD
2021059810	12/27/2021 01:14 PM, Mon	INDEPENDENCE BLVD
2022005396	01/31/2022 01:55 PM, Mon	INDEPENDENCE BLVD
2022050608	08/04/2022 09:52 AM, Thu	INDEPENDENCE BLVD
2022065397	10/06/2022 03:52 PM, Thu	INDEPENDENCE BLVD
2024045342	08/30/2024 01:44 PM, Fri	INDEPENDENCE BLVD
2024012118	03/04/2024 04:04 PM, Mon	300 INDEPENDENCE BLVD
2020024969	07/30/2020 11:52 PM, Thu	300 INDEPENDENCE BLVD
2020024950	07/30/2020 09:01 PM, Thu	350 INDEPENDENCE BLVD
2016033001	08/09/2016 05:13 PM, Tue	300 INDEPENDENCE BLVD
2020030502	09/15/2020 09:00 AM, Tue	300 INDEPENDENCE BLVD

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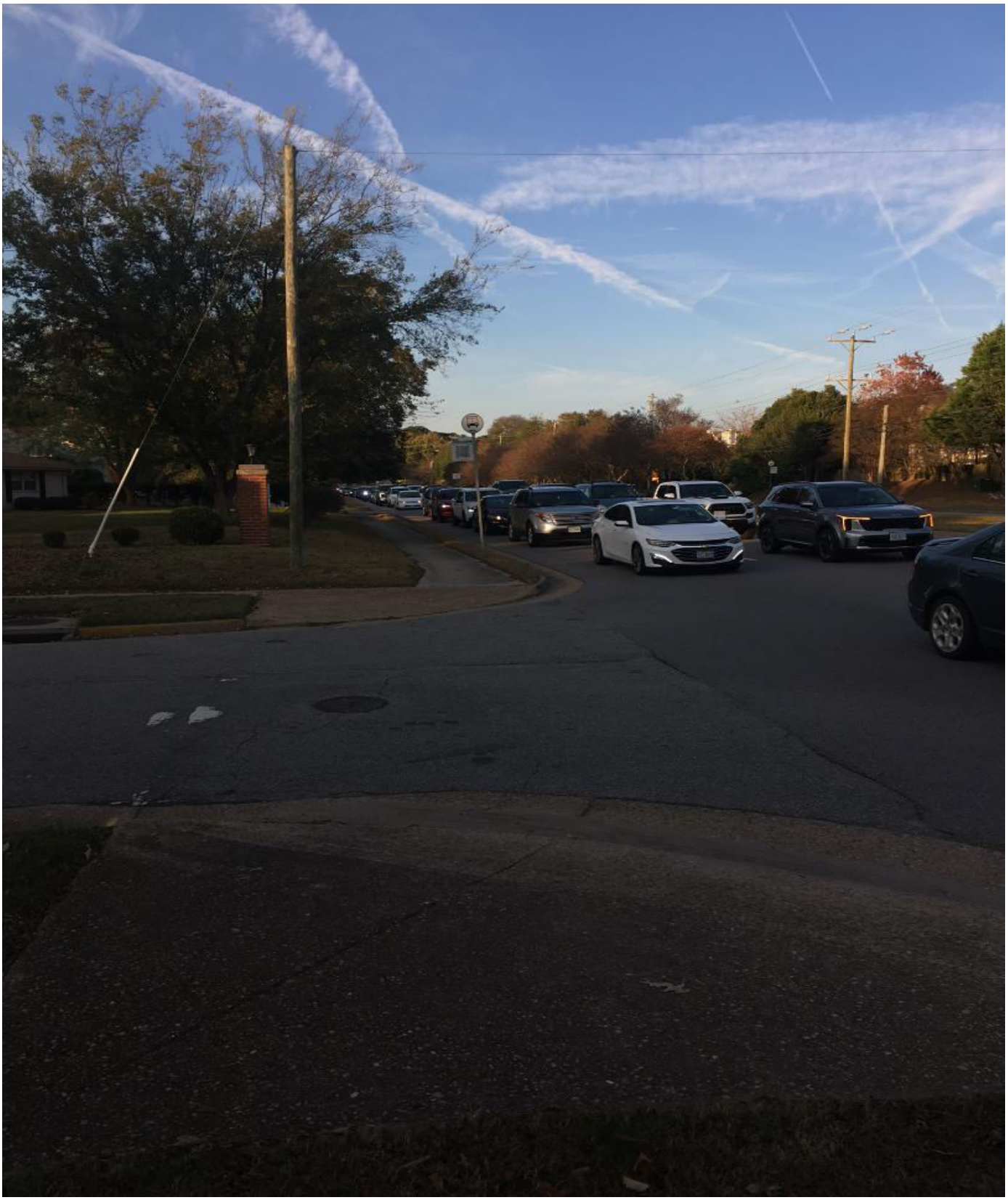
WAKEFIELD/INDEPENDENCE AT 4:10 PM



City of Virginia Beach

Traffic Count (TCDS)

Loc On Alias	
From Road	Pleasure House Rd.
To Road	Haygood Rd.

More Detail ▶

STATION DATA

Directions: 2-WAY | NB 1 2 | SB 1 2

ADT

	Year	ADT	DHV-30	K %	D %	PA	BC	Src
	2024	38,751						
	2023	39,298						
	2022	36,144						
	2020	33,381						
	2018	39,027				0 (0%)	39,027 (100%)	

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Travel Demand Model

	Model Year	Model AADT	AM PHV	AM PPV	MD PHV	MD PPV	PM PHV	PM PPV	NT PHV	NT PPV

VOLUME COUNT

	Date	Int	Total
	Sun 9/22/2024	15	26,797
	Sat 9/21/2024	15	34,531
	Fri 9/20/2024	15	42,433
	Thu 9/19/2024	15	40,053
	Wed 9/18/2024	15	39,831
	Tue 9/17/2024	15	36,370
	Sat 4/29/2023	15	35,252
	Fri 4/28/2023	15	38,924
	Thu 4/27/2023	15	39,921
	Wed 4/26/2023	15	39,884

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mm / dd / yyyy To Date

VOLUME TREND

Year	Annual Growth
2024	-1%
2023	9%
2022	4%
2020	-8%
2018	0%
2017	-9%
2016	2%
2015	3%
2014	-4%
2013	1%

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SOUTHBOUND INDEPENDENCE

City of Virginia Beach

Traffic Count (TCDS)

Located On	Independence Blvd.
Loc On Alias	
From Road	Pleasure House Rd.
To Road	Haygood Rd.
More Detail ▶	

STATION DATA

Directions: 2-WAY | NB 1 2 | SB 1 2

ADT

	Year	ADT	DHV-30	K %	D %	PA	BC	Src
	2024	20,299						
	2023	20,770						
	2022	19,776						
	2020	15,565						
	2018	21,604				0 (0%)	21,604 (100%)	

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Travel Demand Model

	Model Year	Model AADT	AM PHV	AM PPV	MD PHV	MD PPV	PM PHV	PM PPV	NT PHV	NT PPV

VOLUME COUNT

	Date	Int	Total
👁	Sun 9/22/2024	15	14,185
👁	Sat 9/21/2024	15	17,900
👁	Fri 9/20/2024	15	22,709
👁	Thu 9/19/2024	15	20,828
👁	Wed 9/18/2024	15	20,979
👁	Tue 9/17/2024	15	19,090
👁	Sat 4/29/2023	15	18,199
👁	Fri 4/28/2023	15	20,533
👁	Thu 4/27/2023	15	21,008
👁	Wed 4/26/2023	15	21,186

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mm / dd / yyyy To Date

VOLUME TREND

Year	Annual Growth
2024	-2%
2023	5%
2022	13%
2020	-15%
2018	12%
2017	-6%
2016	-1%
2015	1%
2014	-5%
2013	1%

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