

**James J. Copeland, P.Eng., RSP1**  
GRIFFIN transportation group inc.  
30 Bonny View Drive  
Fall River, NS B2T 1R2

May 22, 2024

**Att:** Julie Gosse  
***Affirmative Ventures***  
Main Street  
Dartmouth, NS

**RE: A Stage 1 Traffic Impact Statement – Proposed Karen Drive Residential Project**

## **1.0 INTRODUCTION**

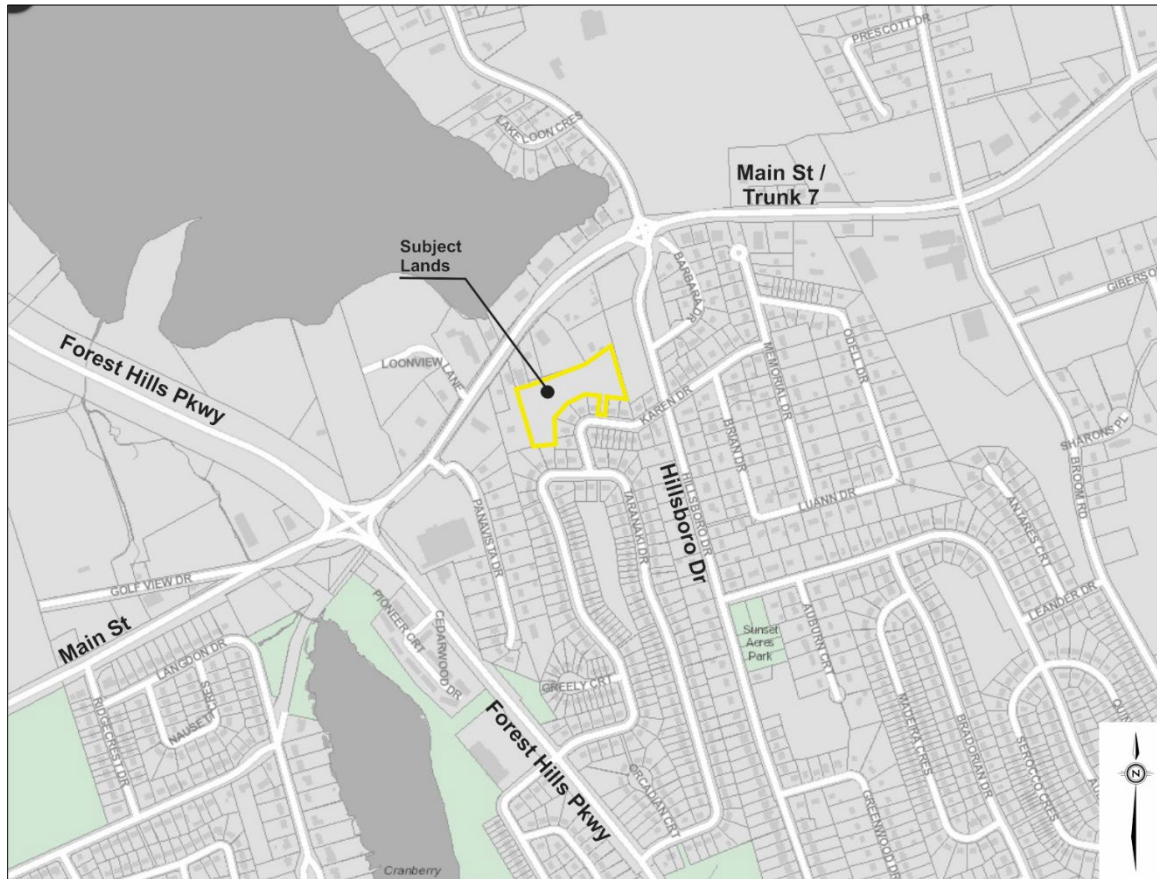
### *1.1 – Overview*

At the request of *Affirmative Ventures (Affirmative)*, the GRIFFIN transportation group inc. (GRIFFIN) has carried out a qualitative Stage 1 Traffic Impact Assessment in support of the planning application process for a proposed medium density residential development on a vacant property located between Main Street and Karen Drive, in the community of Westphal, Halifax Regional Municipality (HRM). The subject lands include PID #40204133 (PARCEL MF9-1, Karen Drive). The total developable area of this parcel is about 3.1 acres and appears to have a Multiple Unit Dwelling (R-4) zone designation, within the *Cole Harbour / Westphal Land Use By-Law* area. The location of the subject property is contained in *Figure 1*.

The proposed residential development will be comprised of up to 30 townhome-style units, plus a small community centre building for exclusive use by residents of this development. It is understood this development is supported by Nova Scotia Housing and will be built and marketed as a low-income development. Research suggests these types of developments typically do not generate the same level of vehicle demand relative to traditional townhome developments due to socio-economic conditions and the high cost of vehicle ownership. However, for this study, GRIFFIN will assume a typical residential vehicle trip rate to remain conservative and present a worst case traffic scenario for analysis purposes.

There are two key vehicle access connection locations including north to Main Street via an easement across civic #690, and a south access via the property frontage connecting to Karen Drive. GRIFFIN has provided a qualitative assessment of three candidate access options in this letter to better understand the implications of the various access options and hopefully add flexibility throughout the planning and design process for this development.

**Figure 1: Location of Subject Lands**



Source: HRM GIS Map

### 1.2 – Terms of Reference

The qualitative Stage 1 traffic impact assessment associated with the proposed development is discussed in the following Sections. Throughout the completion of this assessment GRIFFIN has followed HRM traffic impact study guidelines for a new development located in a suburban area, as well as Institute of Transportation Engineers (ITE), and Transportation Association of Canada (TAC) guiding principles.

## 2.0 STUDY AREA AND SITE CONTEXT

### 2.1 – Street Layout Overview

Main Street is an arterial class roadway which is generally aligned in an east-west direction. It has a five-lane cross-section through the study area comprised of two travel lanes in each direction and a centre two-way left turn lane (TWLTL). This multimodal corridor accommodates vehicles, public transit buses, as well as pedestrians and cyclists on both sides of the street. It has a full

urban cross-section with concrete curb and gutters, concrete sidewalks, and marked/signed bicycle lanes on both sides of the street. The regulatory speed limit is 50 km/h

Karen Drive is a residential street with a local classification under the jurisdiction of HRM. Although it has been classified as a local street it also accommodates pedestrians via a sidewalk along the south side. There is good street connectivity in this neighbourhood and residents can easily gain access to both the Main Street corridor and Forest Hills Parkway corridor via traffic signals. The regulatory speed limit is 50 km/h.

### 2.2 – Existing Traffic Volume Review

GRIFFIN installed an automatic traffic recording (ATR) device on Karen Drive at the existing property frontage between civics #23 and #29. The ATR unit captured weekday two-way traffic volumes and vehicle speeds along the frontage of the proposed development – in the location where a future driveway could be installed. Data was recorded from Tuesday February 27<sup>th</sup> to Thursday February 29<sup>th</sup>, 2024. During this time, schools were open and there were no significant weather events that would have changed travel patterns. Thus, the recorded traffic volume data were considered to be representative of typical weekday conditions. A summary of the recorded weekday peak hour volumes is provided in *Table 1*.

**Table 1: Weekday Peak Hour Traffic Volumes on Karen Drive – February 2024**

| <b>Weekday Peak Hour</b>        | <b>Eastbound</b><br>(toward Hillsboro) | <b>Westbound</b><br>(toward Taranaki) | <b>Two-way Peak Hour Volumes</b> |
|---------------------------------|--|---------------------------------------|----------------------------------|
| <b>AM Peak Hour<sup>A</sup></b> | 13                                     | 66                                    | 79 vph                           |
| <b>PM Peak Hour<sup>A</sup></b> | 31                                     | 54                                    | 85 vph                           |

*vph – vehicles per hour*

The highest two-way volumes occurred during the weekday afternoon peak period and was observed to be 85 vehicles / hour (vph). The measured average daily traffic (ADT) volumes recorded by the ATR unit was determined to be 654 vehicles / day. It should be noted the measured daily volume on Karen Drive is representative of a higher weekday volume but does not consider the lower volumes expected on a weekend day. Therefore, we expect the actual average daily volume to be less than 650 vehicles / day.

GRIFFIN reviewed the Transportation Association of Canada (TAC) Geometric Design Guidelines to help put the observed vehicle demand on Karen Drive into perspective. Although TAC does not provide guidance with respect to the absolute maximum capacity of streets, they provide typical volumes expected for several roadway classification types. The latest TAC guidelines suggest that urban local streets typically accommodate up to 1,000 vpd. Again these are guidelines for typical volumes and the maximum capacity values would be higher.

In conclusion, the comparison of the observed demand of about 650 vpd on Karen Drive is well below the expected capacity of more than 1,000 vpd. This suggests there is a notable amount of residual capacity along Karen Drive corridor to accommodate future traffic growth.

### 2.3 – Vehicle Operating Speeds

GRIFFIN also gathered vehicle speeds using their field equipment. Speed data were recorded in the vicinity of the two candidate driveway locations. A summary of the speed information is provided in *Table 2*.

**Table 2: Study Area Vehicle Operating Speeds**

|  | Karen Drive South Access <sup>A</sup> |           |            | Main Street North Access <sup>B</sup> |           |         |
|--|---------------------------------------|-----------|------------|---------------------------------------|-----------|---------|
|  | Eastbound                             | Westbound | Two-way    | Eastbound                             | Westbound | Two-way |
| <b>Speed Limit</b>                                 | <b>50 km/h</b>                        |           |            | <b>60 km/h</b>                        |           |         |
| <b>Calculated 85<sup>th</sup> Percentile Speed</b> | 33 km/h                               | 35 km/h   | <i>n/a</i> | 68 km/h                               | 74 km/h   | 69 km/h |
| <b>Design Speed for Visibility Review</b>          | 30 km/h                               | 40 km/h   | <i>n/a</i> | 70 km/h                               | 70 km/h   | 70 km/h |

A – Speed data gathered using ATR unit.

B – Speed data collected using hand held radar unit.

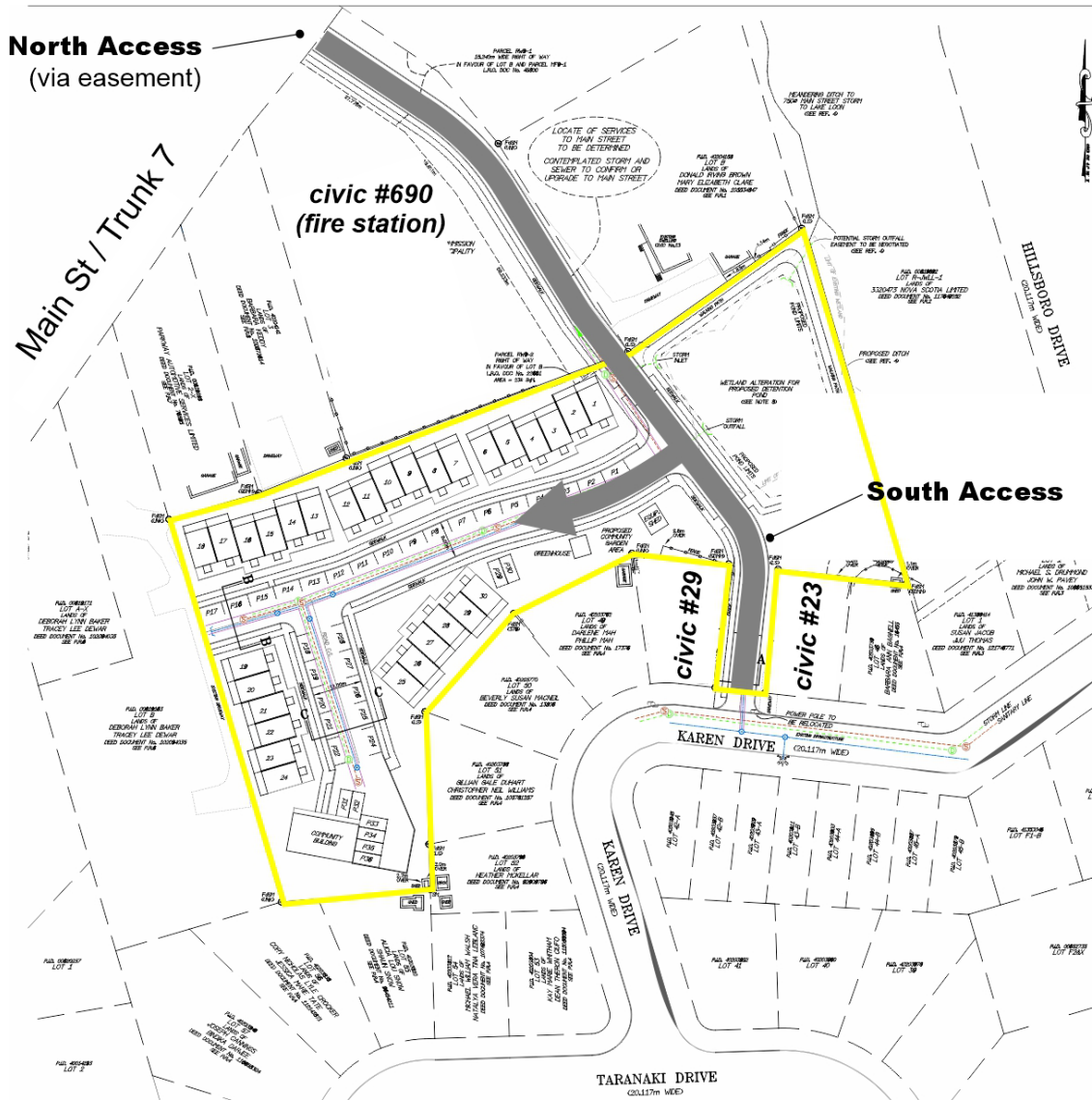
The regulatory speed limit along Karen Drive is 50 km/h; however, driver speed choices appeared to be significantly lower and this is due in part to the influence of the small radii horizontal and vertical geometry along Karen Drive – as well as the confining effect of on-street parking. Thus, the operating speeds along this corridor are well below the 50 km/h regulatory speed limit.

## 3.0 THE PROPOSED DEVELOPMENT

### 3.1 - Overview

The proposed residential development is expected to contain up to 30 townhome-style units plus a small community centre building for occasional use by the residents of this development. The majority of the units are planned to be constructed on the western portion of the property. The vehicle driveway is proposed to be aligned in a north-south direction that links the narrow frontage on Karen Drive with an easement across civic #690 to gain access to Main Street. Civic #690 is occupied by an HRM-owned Fire Station. Therefore, discussions with HRM Emergency Services are recommended to ensure the viability and operational needs of emergency vehicles can be maintained with a shared access via Main Street. A conceptual site layout is provided in *Figure 2*.

Figure 2: Proposed Site Plan and Access Locations



Source: CivTech Engineering & Surveying

### 3.2 – Conforming with HRM Integrated Mobility Plan

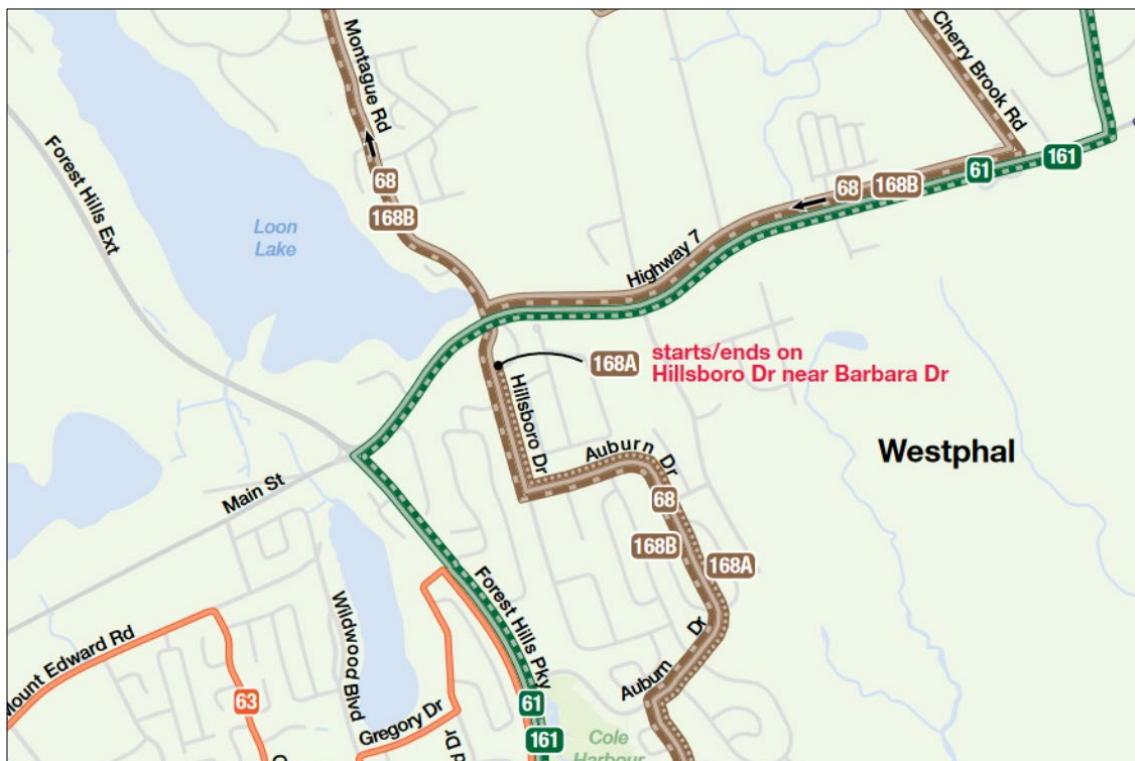
In 2017, HRM Council adopted the Integrated Mobility Plan (IMP) policy providing direction for implementation of more cost-effective mobility options to meet the needs of residents across the region. This includes increased access to alternative modes such as active transportation and public transit to provide convenient and safe travel options for travelers.

We have reviewed alternative mobility options that are available in the immediate vicinity of the proposed development. These include:



- Active Transportation:* HRM has installed pedestrian sidewalks along Main Street (both sides) and Karen Drive (south side only). Therefore, residents walking to/from the proposed development will have a comfortable and convenient travel path to patronize local businesses or access public transit. Bicycle lanes are also provided in both directions along Main Street. They start/end immediately west of the HRM Fire Station and travel eastward. Given the high-speed-high-volume environment along Main Street, these bicycle lanes are narrow and provide no buffer space to the adjacent vehicle lanes. Therefore, the safety risks associated with these bicycle lanes – perceived and real – are expected to limit their use by average cyclists.
- Public Transit:* HRM currently provides public transit bus service in the study area via Bus Routes #68 / #168A / #168B running along Hillsboro Drive, and Routes #61 / #161 running along Main Street. The future residents will have a relatively short walking distance to access these bus routes which are within HRM’s acceptable walking threshold of 500 m. These routes also provide access to the retail shopping area located to the south as well as the Portland Hills Transit Terminal.

**Figure 3: Existing HRM Public Transit Routes**



In summary, HRM currently provides active transportation facilities and public transit service in the study area. Therefore, future residents of the proposed development potentially have multiple travel mode options which could reduce the demand for travel via commuter car. This will be particularly important if this project moves forward with some or all units targeted towards low-income housing.

### 3.3 – Vehicle Trip Generation

To assess the change in traffic volumes on the study area streets under future conditions, there was a need to determine the expected number of new vehicles that would be added to the study area roads and intersections, explicitly associated with the proposed development. This is referred to as the trip generation calculation process. Typically, traffic engineers use trip generation rates published by the Institute of Transportation Engineers (ITE) to forecast site-generated volumes for specific land use types, if considered appropriate.

As noted earlier in this letter, the proponent has plans to build up to 30 townhome-style units. GRIFFIN reviewed the ITE’s latest *Trip Generation Manual, 11<sup>th</sup> Edition (Volume 3)* document to identify the most appropriate suburban trip generation rates to apply to this type of development. Our review of the available rates indicated there was only one appropriate residential land use type - ITE’s *Multifamily Housing (Low-Rise), not close to rail transit – Land Use Code 220*. A summary of the vehicle trip generation calculations is contained in *Table 3*.

**Table 3: Vehicle Trip Generation for the Proposed Development**

|   | Size     | Veh. Trip Rate         | New Vehicle Trips / Hour |           |           |
|---|----------|------------------------|--------------------------|-----------|-----------|
|   |          |                        | In                       | Out       | Total     |
| <b>AM Peak Hour</b>                           |          |                        |                          |           |           |
| Multifamily Housing (Low-Rise) (ITE Code 220) | 30 units | 1.07/unit <sup>A</sup> | 8 (24%)                  | 24 (76%)  | 32        |
| <b>AM Peak Total Trips</b>                    |          |                        | <b>8</b>                 | <b>24</b> | <b>32</b> |
| <b>PM Peak Hour</b>                           |          |                        |                          |           |           |
| Multifamily Housing (Mid-Rise) (ITE Code 221) | 30 units | 1.10/unit <sup>A</sup> | 21 (63%)                 | 12 (37%)  | 33        |
| <b>PM Peak Total Trips</b>                    |          |                        | <b>21</b>                | <b>12</b> | <b>33</b> |

A – ITE’s regression formula was used to calculate total vehicle trip rates.

Based on the results contained in *Table 3*, the proposed development is expected to generate the following new peak hour vehicle trips:

- *Weekday AM Peak Hour*: 32 new vehicle trips/hour (8 inbound and 24 outbound)
- *Weekday PM Peak Hour*: 33 new vehicle trips/hour (21 inbound and 12 outbound)

This generally equates to adding one new vehicle trip to the study area streets and intersections every two minutes. This is a small change in traffic volume whether it’s a suburban arterial corridor like Main Street, or a local residential street like Karen Drive. This rate of change in vehicle demand

is expected to be less than the variation / fluctuation in traffic volumes that is experienced on Main Street from one day to the next. The technical results flowing from our calculations suggest there is not expected to be any measurable change in operations on the study area streets and intersections explicitly associated with the proposed development.

GRIFFIN also considers the vehicle trips quantified in *Table 3* to be higher than expected. As HRM moves toward meeting their goals and mode share targets established in the Integrated Mobility Plan (IMP) the future rate of commuter vehicle use will be diminished. Therefore, the number of new vehicle trips presented in *Table 3* are considered to be worst-case / conservative estimates under a future full build-out scenario.

## **4.0 VEHICLE ACCESS OPTIONS & TRAFFIC DISTRIBUTION**

### *4.1 – Driveway Connection Options*

There are multiple potential vehicle access options available for this property. Through discussions with the proponent, GRIFFIN has qualitatively examined three candidate options, including:

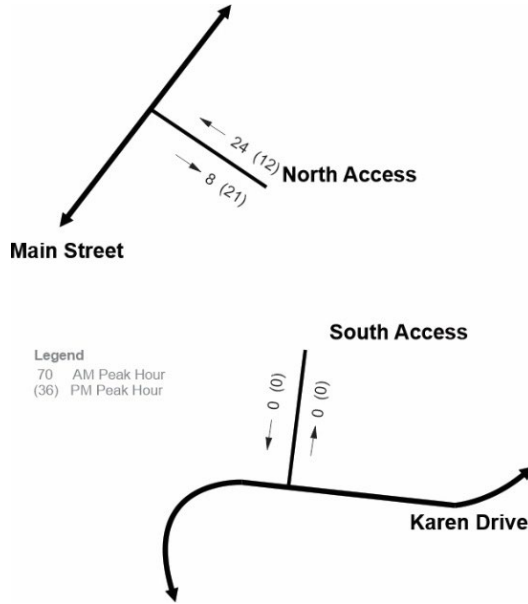
1. **Access Option #1:** All vehicles enter/exit via one new driveway connecting to Main Street. The access will be shared with the existing Fire Station at civic #690.
2. **Access Option #2:** Two access points will be provided with one-way flow. Drivers will only be permitted to enter via the Main Street driveway, and exit via the Karen Drive driveway.
3. **Access Option #3:** All vehicles enter/exit via one new driveway connecting to Karen Drive. This access will be aligned through the narrow property frontage located between civics #23 and #29.

A qualitative assessment of the traffic flow impacts associated with each of these access options is provided in the next Sections.

### *4.2 – Access Option #1 – All Vehicles via Main Street*

All drivers entering and exiting the proposed development will be required to use the Main Street access under this option. Outbound drivers leaving the site – particularly outbound left turns - will need to rely on traffic flow gaps created by the traffic signals up and downstream of the driveway. Inbound turns are better accommodated – particularly inbound left turns – due to the existence of a centre left turn lane on Main Street. This access option is expected to result in higher delay times for residents relative to the other access options. The peak hour site-generated trips moving in and out of the development are illustrated below:





The new site-generated trips are expected to be distributed to Main Street in a similar manner to the commuter peak flows. Therefore, during the weekday morning the majority of trips will be outbound from the site and about 70% are expected to turn left and travel inbound (westbound) on Main Street towards the large employment areas. During the weekday afternoon peak hour the peak flows are expected to be in the opposite direction with most drivers traveling along Main Street in the outbound (eastbound) direction.

GRIFFIN also completed a driver visibility review if a shared driveway were implemented at civic #690. GRIFFIN recorded spot speed measurements of vehicles traveling in both directions on Main Street on February 27, 2024 in the vicinity of the existing civic #690. The calculated 85<sup>th</sup> percentile was determined to be 69 km/h, and a 70 km/h design speed was applied to the visibility review. An assessment of the available stopping sight distance (SSD) was carried out to determine if minimum Transportation Association of Canada guidelines were met.

**Table 4: Summary of Stopping Sight Distance Measurements – Civic #690 Main Street (70 km/h)**

| Measurement Location  | Travel Direction     | Available SSD | TAC Required SSD  |                          | Does Available Exceed Required? |
|---|----------------------|---------------|-------------------|--------------------------|---------------------------------|
|   |                      |               | Base <sup>A</sup> | Slope Adjusted           |                                 |
| <b>North Access</b><br><i>(shared with civic #690 access)</i> | Westbound (inbound)  | 130 m         | 105 m             | 105 m (<2%) <sup>B</sup> | YES                             |
|   | Eastbound (outbound) | 130 m         | 105 m             | 105 m (-2%) <sup>B</sup> | YES                             |

A – 2017 TAC Chapter 2, Table 2.5.2

B – An estimate of the actual slope along Main Street on the approaches to the proposed access.

Since the proposed north access will be shared with an existing driveway serving an HRM Fire Station, it was expected that the minimum driver visibility requirements were previously verified. Our field measured distances did confirm this conclusion and there appears to be sufficient visibility based on an assumed 70 km/h operating speed.

#### 4.3 – Access Option #2 – One-way Inbound at Main Street

Under this candidate access option all residents traveling inbound to the site must do so via the Main Street driveway. Conversely, all residents leaving the property must do so via the Karen Drive

access to the south. Therefore, the main internal driveway system is expected to only accommodate one-way flow in the southbound direction.



This option is expected to result in less driver delays for residents relative to access Option #1 as it eliminates the outbound wait times drivers would experience as they try to turn onto Main Street. Despite this operational benefit, the one-way flow is also expected to offer less convenience and more circuitous routing for residents. Further, there is potential for some residents to ignore the one-way flow operations and short-cut in/out of the site. For example, a resident could save a few minutes by entering the outbound driveway. This issue is not expected to be widespread, but there is some degree of safety risk.

#### 4.4 – Access Option #3 – All Vehicles via Karen Drive

All drivers entering and exiting the proposed development will be required to use the south access via Karen Drive. The peak hour traffic flows that currently move along Karen Drive are expected to be low, have low operating speeds, and have notable time gaps between vehicles.

Under these conditions, there are no operational concerns with adding up to one new vehicle trip every two minutes to the Karen Drive corridor. The weekday peak hour is expected to experience the highest increase in site-generated trips; however the increase is minimal at one new trip every two minutes.



Drivers are expected to distribute evenly in both directions along Karen Drive. Some will travel to the east to utilize Hillsboro Drive and the traffic signals at Main Street. Others will travel southwest along Taranaki Drive to gain access to Forest Hills Parkway. The splitting of traffic in multiple directions will further diminish the operational impacts associated with this development.

GRIFFIN also completed a driver visibility review at the proposed frontage along Karen Drive where the south access could be connected. This location is situated along a tangent section of Karen Drive between civics #23 and #29. As described earlier in this letter, the curvilinear alignment of Karen Drive restricts vehicle operating speeds, and therefore, we applied a 40 km/h design speed in the westbound direction and a 30 km/h design speed in the eastbound direction.

A summary of our stopping sight distance (SSD) review on Karen Drive is provided in *Table 5*. Based on the results contained in *Table 5* it was concluded that there appeared to be sufficient visibility to meet TAC minimum guidelines at this location based on our observed 85<sup>th</sup> percentile operating speeds.

**Table 5: Summary of Stopping Sight Distance Measurements – Karen Drive Frontage**

| Measurement Location  | Travel Direction        | Available SSD | TAC Required SSD              |                         | Does Available Exceed Required? |
|---|-------------------------|---------------|-------------------------------|-------------------------|---------------------------------|
|   |                         |               | Base <sup>A</sup>             | Slope Adjusted          |                                 |
| <b>South Access</b><br><i>(centre of property frontage)</i> | Westbound<br>(inbound)  | 58.5 m        | 50 m<br>(40km/h) <sup>C</sup> | 50 m (<2%) <sup>B</sup> | YES                             |
|   | Eastbound<br>(outbound) | 37.2 m        | 35 m<br>(30km/h) <sup>C</sup> | 35 m (-5%) <sup>B</sup> | YES                             |

A – 2017 TAC Chapter 2, Table 2.5.2

B – An estimate of the actual slope along Karen Drive on the approaches to the proposed access.

C – Operating speeds are expected to be very low due to the varied horizontal curvature and confined cross-section.

**Figure 4: Driver Views Along Karen Drive – Proposed Access Location**



*Looking Left (toward Hillsboro)*



*Looking Right (toward Taranaki)*

**Figure 5: Driver Views Along Main Street – Proposed Access Location**



*Looking Left (toward Forest Hills)*



*Looking Right (toward Hillsboro)*

## **5.0 CONCLUSIONS AND RECOMMENDATIONS**

### *5.1 - Conclusions*

The following conclusions were gleaned from the qualitative traffic impact assessment of the proposed development:

- The proponent has plans to build up to 30 new residential townhome-style units on PID #40204133 (PARCEL MF9-1, Karen Drive). This property is located west of Hillsboro Drive and south of Main Street, in the community of Westphal.
- The vehicle trip generation calculations were completed using the latest ITE trip generation rates contained in their *Trip Generation Manual, 11<sup>th</sup> Edition (Volume 3)*. A development of this scale is expected to generate up to **32 trips/hour** (8 inbound and 24 outbound) during the weekday morning peak period, and **33 trips/hour** (21 inbound and 12 outbound) during the weekday afternoon peak period. This equates to an average increase of only one new vehicle added to the study area roads every two minutes.
- GRIFFIN expects there will only be a minor and acceptable traffic operational impact on the study area streets and intersections associated with the completion of the proposed development. This conclusion is based on the fact there is residual capacity along the adjacent sections of Main Street and Karen Drive, and the proposed development will only generate a small number of new vehicle trips during peak travel periods.
- The available stopping sight distances (SSD) at both candidate site driveway options appear to meet TAC minimum requirements for the measured vehicle operating speeds. Once the final access location has been established the provision of adequate driver

- visibility will need to be confirmed (by others) during the detailed geometric design stage of this project.
- Two potential driveway locations, and three candidate vehicle access options were qualitatively assessed. From a traffic operational perspective, Option #3 (Karen Drive) south access is preferred based on the following:
    - Residual capacity exists along Karen Drive, with signalized access to the Main Street corridor via Hillsboro Drive.
    - Minimal traffic conflicts for new residents as they turn to/from the lower class, lower volume, lower speed street – relative to a north access connecting to Main Street.
    - New residents using public transit can access existing bus service on Main Street and Hillsboro Drive and this site layout should strive to provide active transportation connections to the north (Main Street) and to the south (Karen Drive).
    - Option #3 with access to Karen Drive offers an exclusive driveway access and is not shared with other properties – as is the case with the north access option which would be shared with an HRM Fire Station.

In summary, the traffic generated by the proposed 30-unit residential unit development is expected to have an acceptable level of impact on the traffic operating conditions at the study area intersections and road system.

## 5.2 – Recommendations

Based on the findings of this qualitative review the following steps are recommended:

1. *Access Design and Design Vehicle:* That an engineering review be carried out to ensure the proposed access and internal laneway can accommodate an appropriate design vehicle (i.e. garbage truck or emergency vehicle). The design of the new driveway connection(s) to the adjacent public streets (to be carried out by others) will need to follow the latest HRM and Transportation Association of Canada (TAC) geometric design guidelines. No new auxiliary turn lanes will be required at either driveway location due to the low number of site-generated vehicle trips. If a connection is made to the north via the civic #690 property, it is suggested that a consultation process be carried out with HRM Emergency Services to ensure all operational concerns and limitations are addressed.
2. *By-Law Requirements:* That all municipal By-law/Policy requirements for corner clearance, sight triangles and driver visibility are met to ensure driver sight distances to/from the proposed access is maintained throughout the design, construction, and final opening phases of the project.



3. *Signs and Pavement Markings*: That all new or changed signs and/or pavement markings along the study area roads and intersections should follow the latest guidelines contained in TAC's Manual of Uniform Traffic Control Devices for Canada (MUTCDC) document.
4. *Active Transportation Connectivity*: Ensure that adequate space and facility types are provided for vulnerable road users to conveniently move between their residence and public transit, for example. If no vehicle driveway is installed to the north to connect to Main Street, then it is recommended that some form of active transportation route (i.e. a sidewalk or multiuse path) be installed to improve convenience and connectivity for active modes of travel.

## 6.0 CLOSING

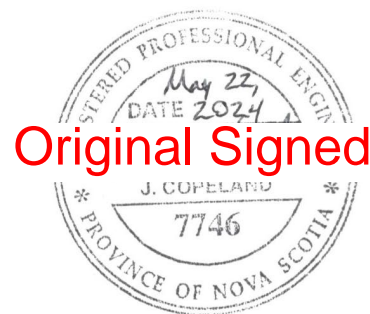
The findings flowing from this qualitative traffic impact statement suggest the new vehicle trips generated by the proposed 30-unit residential development are expected to have an acceptable level of impact on the traffic operational performance of the study area streets and intersections. There are currently two HRM Public Transit Bus Routes serving this area and a well-connected system of pedestrian sidewalks serving the future residents of the proposed development. HRM is encouraged to continue expanding the pedestrian sidewalk system, multiuse paths, and cycling facilities throughout this suburban area to help promote the use of alternative transportation modes and move toward meeting their goals stated in the Integrated Mobility Plan (IMP) policy.

I would be happy to provide you with additional information or clarification regarding these matters and can be reached anytime by phone at (902) 266-9436 or by email at [jcopeland@griffininc.ca](mailto:jcopeland@griffininc.ca).

Sincerely,

# Original Signed

**James J. Copeland, P.Eng., RSP1**  
*Managing Principal – Traffic & Road Safety Engineer*  
GRIFFIN transportation group inc.





**APPENDIX**  
Karen Drive  
Traffic Volumes & Speeds  
February 2024

For Project: Karen Drive 2024  
 Project Notes: Civic 29 Karen Dr  
 Location/Name: Eastbound(in)  
 Report Generated: 2/29/2024 12:02:32 PM  
 Speed Intervals: 1 km/h  
 Time Intervals: Instant  
 Traffic Report From: 2/27/2024 1:00:00 PM through 2/29/2024 11:59:59 AM  
 85th Percentile Speed: 33 km/h  
 85th Percentile Vehicles: 352  
 Max Speed: 46 km/h on 2/28/2024 5:55:55 AM  
 Total Vehicles: 414  
 AADT: 211

## Volumes - weekly counts

| Time               | 5 Day | 7 Day |
|--------------------|-------|-------|
| Average Daily      | 138   | 138   |
| AM Peak<br>9:00 AM | 12    | 12    |
| PM Peak<br>4:00 PM | 26    | 26    |

## Speed

Speed Limit: 50  
 85th Percentile Speed: 33  
 50th Percentile Speed: 29  
 10 km/h Pace Interval: 24.0 km/h to 34.0 km/h  
 Average Speed: 28.78

|                  | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
|------------------|--------|---------|-----------|----------|--------|----------|--------|
| Count over limit | N/A    | 0       | 0         | 0        | N/A    | N/A      | N/A    |
| % over limit     | N/A    | 0.0     | 0.0       | 0.0      | N/A    | N/A      | N/A    |
| Avg Speeder      | N/A    | 0.0     | 0.0       | 0.0      | N/A    | N/A      | N/A    |
| Avg Speed        | N/A    | 28.4    | 29.0      | 29.1     | N/A    | N/A      | N/A    |

## Class Counts

|                     | Number           | %               |
|---------------------|------------------|-----------------|
| VEH_SM              | 2                | 0.5             |
| VEH_MED             | 403              | 97.3            |
| VEH_LG              | 9                | 2.2             |
| [VEH_SM=motorcycle, | VEH_MED = sedan, | VEH_LG = truck] |

Eastbound(in) Weekly Counts  
 Karen Drive 2024  
 Civic 29 Karen Dr

from Tue-Feb-27-2024-01-00-PM to Thu-Feb-29-2024-11-59-AM

|            | 2/26/2024 | to        | 3/3/2024  |           |          |          |          |         |         |              |
|------------|-----------|-----------|-----------|-----------|----------|----------|----------|---------|---------|--------------|
|            | Monday    | Tuesday   | Wednesday | Thursday  | Friday   | Saturday | Sunday   | Week    | Weekend | Week Day 85% |
| Hour       | 2/26/2024 | 2/27/2024 | 2/28/2024 | 2/29/2024 | 3/1/2024 | 3/2/2024 | 3/3/2024 | Day Avg | Avg     | Avg Speed    |
| 0 - 1      | *         | *         | 1         | 0         | *        | *        | *        | 0.5     | 0       | 31           |
| 1 - 2      | *         | *         | 0         | 0         | *        | *        | *        | 0       | 0       | 0            |
| 2 - 3      | *         | *         | 0         | 0         | *        | *        | *        | 0       | 0       | 0            |
| 3 - 4      | *         | *         | 0         | 1         | *        | *        | *        | 0.5     | 0       | 15           |
| 4 - 5      | *         | *         | 2         | 0         | *        | *        | *        | 1       | 0       | 30           |
| 5 - 6      | *         | *         | 4         | 0         | *        | *        | *        | 2       | 0       | 35           |
| 6 - 7      | *         | *         | 4         | 2         | *        | *        | *        | 3       | 0       | 28.5         |
| 7 - 8      | *         | *         | 11        | 9         | *        | *        | *        | 10      | 0       | 30.5         |
| 8 - 9      | *         | *         | 6         | 12        | *        | *        | *        | 9       | 0       | 33.25        |
| 9 - 10     | *         | *         | 13        | 12        | *        | *        | *        | 12.5    | 0       | 31           |
| 10 - 11    | *         | *         | 10        | 6         | *        | *        | *        | 8       | 0       | 31.5         |
| 11 - 12    | *         | *         | 11        | 6         | *        | *        | *        | 8.5     | 0       | 32           |
| 12 - 13    | *         | *         | 7         | *         | *        | *        | *        | 7       | 0       | 31           |
| 13 - 14    | *         | 10        | 13        | *         | *        | *        | *        | 11.5    | 0       | 31           |
| 14 - 15    | *         | 30        | 16        | *         | *        | *        | *        | 23      | 0       | 31           |
| 15 - 16    | *         | 24        | 21        | *         | *        | *        | *        | 22.5    | 0       | 31           |
| 16 - 17    | *         | 31        | 21        | *         | *        | *        | *        | 26      | 0       | 32.65        |
| 17 - 18    | *         | 14        | 20        | *         | *        | *        | *        | 17      | 0       | 32.25        |
| 18 - 19    | *         | 20        | 12        | *         | *        | *        | *        | 16      | 0       | 31           |
| 19 - 20    | *         | 14        | 14        | *         | *        | *        | *        | 14      | 0       | 32.5         |
| 20 - 21    | *         | 8         | 6         | *         | *        | *        | *        | 7       | 0       | 29           |
| 21 - 22    | *         | 7         | 6         | *         | *        | *        | *        | 6.5     | 0       | 30.25        |
| 22 - 23    | *         | 3         | 4         | *         | *        | *        | *        | 3.5     | 0       | 31           |
| 23 - 24    | *         | 2         | 1         | *         | *        | *        | *        | 1.5     | 0       | 28.5         |
| Totals     | 0         | 163       | 203       | 48        | 0        | 0        | 0        |         |         |              |
| % of Total | 0%        | 39.37%    | 49.03%    | 11.59%    | 0%       | 0%       | 0%       |         |         |              |

Eastbound(in) Monthly Counts  
 Karen Drive 2024  
 Civic 29 Karen Dr

from Tue-Feb-27-2024-01-00-PM to Thu-Feb-29-2024-11-59-AM

|            | Feb 2024 |         |           |          |        |          |        |              |             |                        |
|------------|----------|---------|-----------|----------|--------|----------|--------|--------------|-------------|------------------------|
| Hour       | Monday   | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday | Week Day Avg | Weekend Avg | Week Day 85% Avg Speed |
| 0 - 1      | *        | *       | 1         | 0        | *      | *        | *      | 0.5          | 0           | 31                     |
| 1 - 2      | *        | *       | 0         | 0        | *      | *        | *      | 0            | 0           | 0                      |
| 2 - 3      | *        | *       | 0         | 0        | *      | *        | *      | 0            | 0           | 0                      |
| 3 - 4      | *        | *       | 0         | 1        | *      | *        | *      | 0.5          | 0           | 15                     |
| 4 - 5      | *        | *       | 2         | 0        | *      | *        | *      | 1            | 0           | 30                     |
| 5 - 6      | *        | *       | 4         | 0        | *      | *        | *      | 2            | 0           | 35                     |
| 6 - 7      | *        | *       | 4         | 2        | *      | *        | *      | 3            | 0           | 28.5                   |
| 7 - 8      | *        | *       | 11        | 9        | *      | *        | *      | 10           | 0           | 30.5                   |
| 8 - 9      | *        | *       | 6         | 12       | *      | *        | *      | 9            | 0           | 33.25                  |
| 9 - 10     | *        | *       | 13        | 12       | *      | *        | *      | 12.5         | 0           | 31                     |
| 10 - 11    | *        | *       | 10        | 6        | *      | *        | *      | 8            | 0           | 31.5                   |
| 11 - 12    | *        | *       | 11        | 6        | *      | *        | *      | 8.5          | 0           | 32                     |
| 12 - 13    | *        | *       | 7         | *        | *      | *        | *      | 7            | 0           | 31                     |
| 13 - 14    | *        | 10      | 13        | *        | *      | *        | *      | 11.5         | 0           | 31                     |
| 14 - 15    | *        | 30      | 16        | *        | *      | *        | *      | 23           | 0           | 31                     |
| 15 - 16    | *        | 24      | 21        | *        | *      | *        | *      | 22.5         | 0           | 31                     |
| 16 - 17    | *        | 31      | 21        | *        | *      | *        | *      | 26           | 0           | 32.65                  |
| 17 - 18    | *        | 14      | 20        | *        | *      | *        | *      | 17           | 0           | 32.25                  |
| 18 - 19    | *        | 20      | 12        | *        | *      | *        | *      | 16           | 0           | 31                     |
| 19 - 20    | *        | 14      | 14        | *        | *      | *        | *      | 14           | 0           | 32.5                   |
| 20 - 21    | *        | 8       | 6         | *        | *      | *        | *      | 7            | 0           | 29                     |
| 21 - 22    | *        | 7       | 6         | *        | *      | *        | *      | 6.5          | 0           | 30.25                  |
| 22 - 23    | *        | 3       | 4         | *        | *      | *        | *      | 3.5          | 0           | 31                     |
| 23 - 24    | *        | 2       | 1         | *        | *      | *        | *      | 1.5          | 0           | 28.5                   |
| Totals     | 0        | 163     | 203       | 48       | 0      | 0        | 0      |              |             |                        |
| % of Total | 0%       | 39.37%  | 49.03%    | 11.59%   | 0%     | 0%       | 0%     |              |             |                        |

Eastbound(in) Weekly Speeds  
 Karen Drive 2024  
 Civic 29 Karen Dr

from Tue-Feb-27-2024-01-00-PM to Thu-Feb-29-2024-11-59-AM

|            | 2/26/2024 | to        | 3/3/2024  |           |          |          |          |         |         |              |
|------------|-----------|-----------|-----------|-----------|----------|----------|----------|---------|---------|--------------|
|            | Monday    | Tuesday   | Wednesday | Thursday  | Friday   | Saturday | Sunday   | Week    | Weekend | Week Day 85% |
| Hour       | 2/26/2024 | 2/27/2024 | 2/28/2024 | 2/29/2024 | 3/1/2024 | 3/2/2024 | 3/3/2024 | Day Avg | Avg     | Avg Speed    |
| 0 - 1      | *         | *         | 31        | 0         | *        | *        | *        | 31      | *       | 31           |
| 1 - 2      | *         | *         | 0         | 0         | *        | *        | *        | *       | *       | 0            |
| 2 - 3      | *         | *         | 0         | 0         | *        | *        | *        | *       | *       | 0            |
| 3 - 4      | *         | *         | 0         | 15        | *        | *        | *        | 15      | *       | 15           |
| 4 - 5      | *         | *         | 25        | 0         | *        | *        | *        | 25      | *       | 30           |
| 5 - 6      | *         | *         | 36.25     | 0         | *        | *        | *        | 36.25   | *       | 35           |
| 6 - 7      | *         | *         | 26.75     | 28        | *        | *        | *        | 27.17   | *       | 28.5         |
| 7 - 8      | *         | *         | 28.82     | 30        | *        | *        | *        | 29.35   | *       | 30.5         |
| 8 - 9      | *         | *         | 29.17     | 29.75     | *        | *        | *        | 29.56   | *       | 33.25        |
| 9 - 10     | *         | *         | 28.46     | 28.83     | *        | *        | *        | 28.64   | *       | 31           |
| 10 - 11    | *         | *         | 30.3      | 30.5      | *        | *        | *        | 30.37   | *       | 31.5         |
| 11 - 12    | *         | *         | 31        | 28.67     | *        | *        | *        | 30.18   | *       | 32           |
| 12 - 13    | *         | *         | 28.29     | *         | *        | *        | *        | 28.29   | *       | 31           |
| 13 - 14    | *         | 26.2      | 29.85     | *         | *        | *        | *        | 28.26   | *       | 31           |
| 14 - 15    | *         | 27.67     | 28.69     | *         | *        | *        | *        | 28.02   | *       | 31           |
| 15 - 16    | *         | 28.42     | 28.14     | *         | *        | *        | *        | 28.29   | *       | 31           |
| 16 - 17    | *         | 29.19     | 28.76     | *         | *        | *        | *        | 29.02   | *       | 32.65        |
| 17 - 18    | *         | 28.93     | 29.4      | *         | *        | *        | *        | 29.21   | *       | 32.25        |
| 18 - 19    | *         | 27.95     | 28.75     | *         | *        | *        | *        | 28.25   | *       | 31           |
| 19 - 20    | *         | 29.36     | 29.57     | *         | *        | *        | *        | 29.46   | *       | 32.5         |
| 20 - 21    | *         | 29.38     | 26.5      | *         | *        | *        | *        | 28.14   | *       | 29           |
| 21 - 22    | *         | 28.29     | 25.67     | *         | *        | *        | *        | 27.08   | *       | 30.25        |
| 22 - 23    | *         | 31.67     | 27.75     | *         | *        | *        | *        | 29.43   | *       | 31           |
| 23 - 24    | *         | 27.5      | 29        | *         | *        | *        | *        | 28      | *       | 28.5         |
| Totals     | 0         | 28.5      | 29        | 29.2      | 0        | 0        | 0        |         |         |              |
| % of Total | 0%        | 32.87%    | 33.45%    | 33.68%    | 0%       | 0%       | 0%       |         |         |              |

Eastbound(in) Monthly Speeds  
 Karen Drive 2024  
 Civic 29 Karen Dr

from Tue-Feb-27-2024-01-00-PM to Thu-Feb-29-2024-11-59-AM

|            | Feb 2024 |         |           |          |        |          |        | Week    | Weekend | Week Day 85% |
|------------|----------|---------|-----------|----------|--------|----------|--------|---------|---------|--------------|
| Hour       | Monday   | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday | Day Avg | Avg     | Avg Speed    |
| 0 - 1      | *        | *       | 31        | 0        | *      | *        | *      | 31      | *       | 31           |
| 1 - 2      | *        | *       | 0         | 0        | *      | *        | *      | *       | *       | 0            |
| 2 - 3      | *        | *       | 0         | 0        | *      | *        | *      | *       | *       | 0            |
| 3 - 4      | *        | *       | 0         | 15       | *      | *        | *      | 15      | *       | 15           |
| 4 - 5      | *        | *       | 25        | 0        | *      | *        | *      | 25      | *       | 30           |
| 5 - 6      | *        | *       | 36.25     | 0        | *      | *        | *      | 36.25   | *       | 35           |
| 6 - 7      | *        | *       | 26.75     | 28       | *      | *        | *      | 27.17   | *       | 28.5         |
| 7 - 8      | *        | *       | 28.82     | 30       | *      | *        | *      | 29.35   | *       | 30.5         |
| 8 - 9      | *        | *       | 29.17     | 29.75    | *      | *        | *      | 29.56   | *       | 33.25        |
| 9 - 10     | *        | *       | 28.46     | 28.83    | *      | *        | *      | 28.64   | *       | 31           |
| 10 - 11    | *        | *       | 30.3      | 30.5     | *      | *        | *      | 30.37   | *       | 31.5         |
| 11 - 12    | *        | *       | 31        | 28.67    | *      | *        | *      | 30.18   | *       | 32           |
| 12 - 13    | *        | *       | 28.29     | *        | *      | *        | *      | 28.29   | *       | 31           |
| 13 - 14    | *        | 26.2    | 29.85     | *        | *      | *        | *      | 28.26   | *       | 31           |
| 14 - 15    | *        | 27.67   | 28.69     | *        | *      | *        | *      | 28.02   | *       | 31           |
| 15 - 16    | *        | 28.42   | 28.14     | *        | *      | *        | *      | 28.29   | *       | 31           |
| 16 - 17    | *        | 29.19   | 28.76     | *        | *      | *        | *      | 29.02   | *       | 32.65        |
| 17 - 18    | *        | 28.93   | 29.4      | *        | *      | *        | *      | 29.21   | *       | 32.25        |
| 18 - 19    | *        | 27.95   | 28.75     | *        | *      | *        | *      | 28.25   | *       | 31           |
| 19 - 20    | *        | 29.36   | 29.57     | *        | *      | *        | *      | 29.46   | *       | 32.5         |
| 20 - 21    | *        | 29.38   | 26.5      | *        | *      | *        | *      | 28.14   | *       | 29           |
| 21 - 22    | *        | 28.29   | 25.67     | *        | *      | *        | *      | 27.08   | *       | 30.25        |
| 22 - 23    | *        | 31.67   | 27.75     | *        | *      | *        | *      | 29.43   | *       | 31           |
| 23 - 24    | *        | 27.5    | 29        | *        | *      | *        | *      | 28      | *       | 28.5         |
| Totals     | 0        | 28.5    | 29        | 29.2     | 0      | 0        | 0      |         |         |              |
| % of Total | 0%       | 32.87%  | 33.45%    | 33.68%   | 0%     | 0%       | 0%     |         |         |              |



Eastbound(in) Weekly EightyFifthSpeeds  
 Karen Drive 2024  
 Civic 29 Karen Dr

from Tue-Feb-27-2024-01-00-PM to Thu-Feb-29-2024-11-59-AM

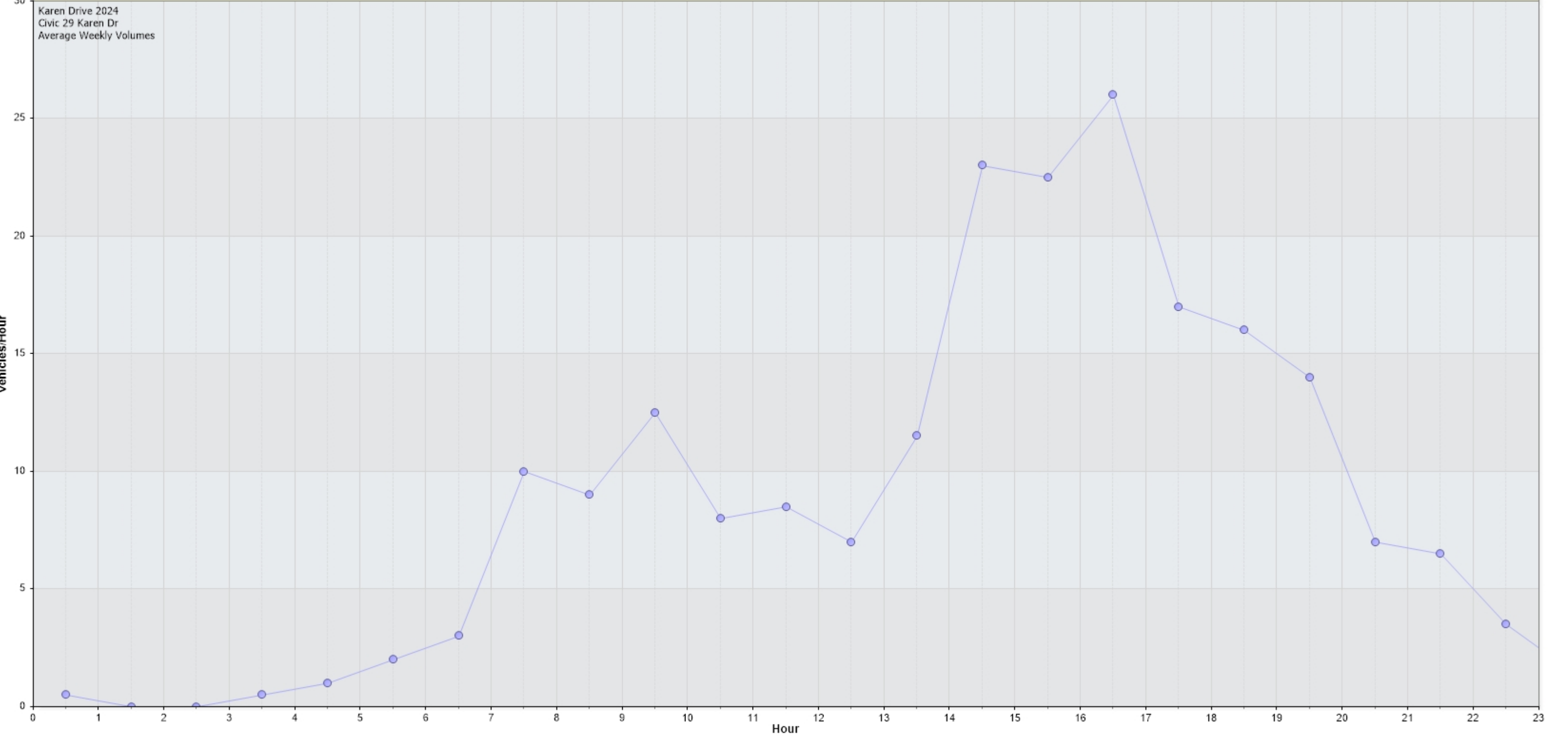
|            | 2/26/2024 | to        | 3/3/2024  |           |          |          |          |         |         |              |
|------------|-----------|-----------|-----------|-----------|----------|----------|----------|---------|---------|--------------|
|            | Monday    | Tuesday   | Wednesday | Thursday  | Friday   | Saturday | Sunday   | Week    | Weekend | Week Day 85% |
| Hour       | 2/26/2024 | 2/27/2024 | 2/28/2024 | 2/29/2024 | 3/1/2024 | 3/2/2024 | 3/3/2024 | Day Avg | Avg     | Avg Speed    |
| 0 - 1      | *         | *         | 31        | 0         | *        | *        | *        | 31      | 0       | 31           |
| 1 - 2      | *         | *         | 0         | 0         | *        | *        | *        | 0       | 0       | 0            |
| 2 - 3      | *         | *         | 0         | 0         | *        | *        | *        | 0       | 0       | 0            |
| 3 - 4      | *         | *         | 0         | 15        | *        | *        | *        | 15      | 0       | 15           |
| 4 - 5      | *         | *         | 30        | 0         | *        | *        | *        | 30      | 0       | 30           |
| 5 - 6      | *         | *         | 35        | 0         | *        | *        | *        | 35      | 0       | 35           |
| 6 - 7      | *         | *         | 26        | 31        | *        | *        | *        | 28.5    | 0       | 28.5         |
| 7 - 8      | *         | *         | 30        | 31        | *        | *        | *        | 30.5    | 0       | 30.5         |
| 8 - 9      | *         | *         | 32        | 34.5      | *        | *        | *        | 33.25   | 0       | 33.25        |
| 9 - 10     | *         | *         | 30.5      | 31.5      | *        | *        | *        | 31      | 0       | 31           |
| 10 - 11    | *         | *         | 31        | 32        | *        | *        | *        | 31.5    | 0       | 31.5         |
| 11 - 12    | *         | *         | 34        | 30        | *        | *        | *        | 32      | 0       | 32           |
| 12 - 13    | *         | *         | 31        | *         | *        | *        | *        | 31      | 0       | 31           |
| 13 - 14    | *         | 30        | 32        | *         | *        | *        | *        | 31      | 0       | 31           |
| 14 - 15    | *         | 31        | 31        | *         | *        | *        | *        | 31      | 0       | 31           |
| 15 - 16    | *         | 30        | 32        | *         | *        | *        | *        | 31      | 0       | 31           |
| 16 - 17    | *         | 32.3      | 33        | *         | *        | *        | *        | 32.65   | 0       | 32.65        |
| 17 - 18    | *         | 32        | 32.5      | *         | *        | *        | *        | 32.25   | 0       | 32.25        |
| 18 - 19    | *         | 32        | 30        | *         | *        | *        | *        | 31      | 0       | 31           |
| 19 - 20    | *         | 32        | 33        | *         | *        | *        | *        | 32.5    | 0       | 32.5         |
| 20 - 21    | *         | 30        | 28        | *         | *        | *        | *        | 29      | 0       | 29           |
| 21 - 22    | *         | 32        | 28.5      | *         | *        | *        | *        | 30.25   | 0       | 30.25        |
| 22 - 23    | *         | 34        | 28        | *         | *        | *        | *        | 31      | 0       | 31           |
| 23 - 24    | *         | 28        | 29        | *         | *        | *        | *        | 28.5    | 0       | 28.5         |
| Totals     | 0         | 343.3     | 647.5     | 205       | 0        | 0        | 0        |         |         |              |
| % of Total | 0%        | 28.71%    | 54.15%    | 17.14%    | 0%       | 0%       | 0%       |         |         |              |

Eastbound(in) Monthly EightyFifthSpeeds  
 Karen Drive 2024  
 Civic 29 Karen Dr

from Tue-Feb-27-2024-01-00-PM to Thu-Feb-29-2024-11-59-AM

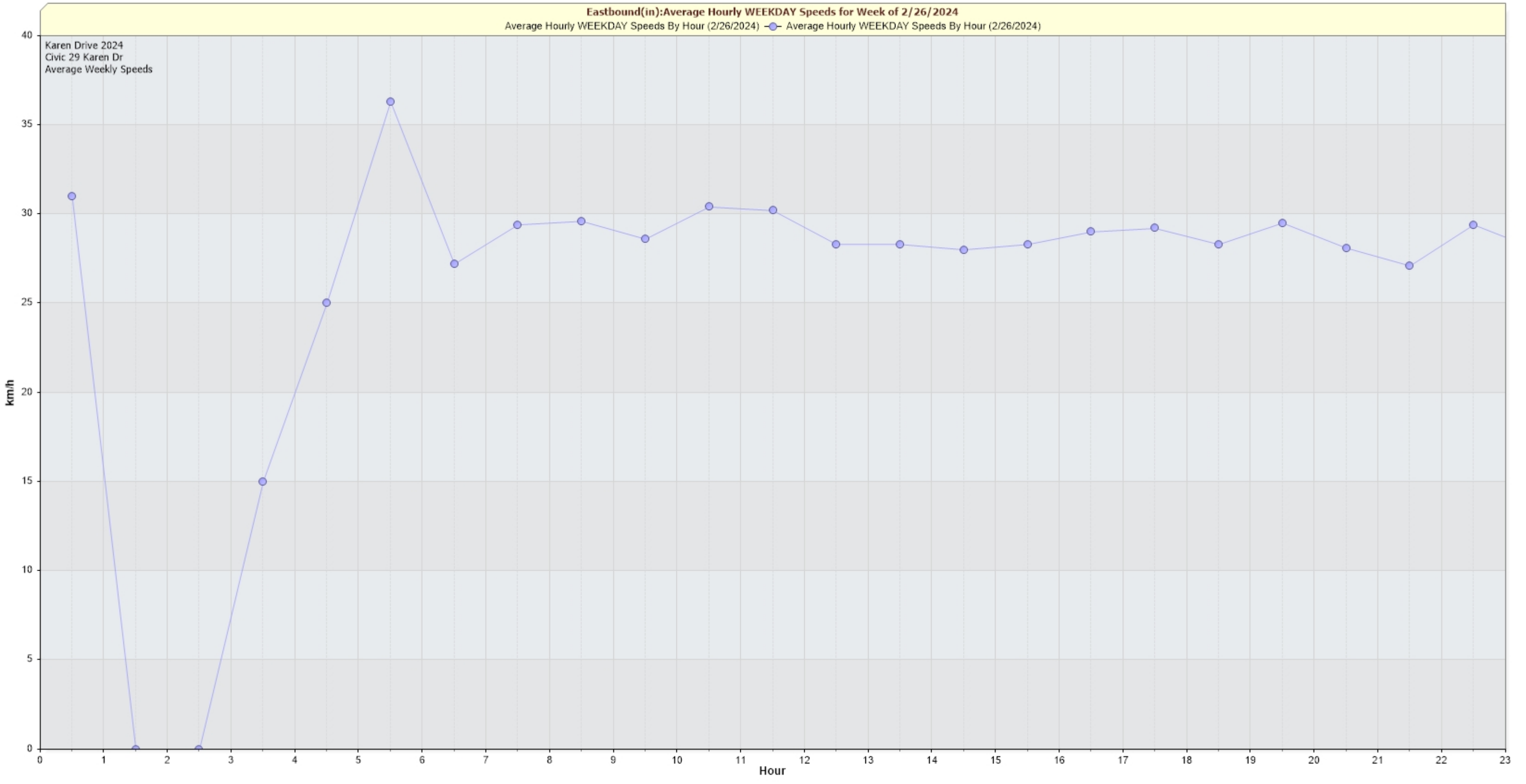
|         | Feb 2024 |         |           |          |        |          |        | Week    | Weekend | Week Day 85% |
|---------|----------|---------|-----------|----------|--------|----------|--------|---------|---------|--------------|
| Hour    | Monday   | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday | Day Avg | Avg     | Avg Speed    |
| 0 - 1   | *        | *       | 31        | 0        | *      | *        | *      | 31      | 0       | 31           |
| 1 - 2   | *        | *       | 0         | 0        | *      | *        | *      | 0       | 0       | 0            |
| 2 - 3   | *        | *       | 0         | 0        | *      | *        | *      | 0       | 0       | 0            |
| 3 - 4   | *        | *       | 0         | 15       | *      | *        | *      | 15      | 0       | 15           |
| 4 - 5   | *        | *       | 30        | 0        | *      | *        | *      | 30      | 0       | 30           |
| 5 - 6   | *        | *       | 35        | 0        | *      | *        | *      | 35      | 0       | 35           |
| 6 - 7   | *        | *       | 26        | 31       | *      | *        | *      | 28.5    | 0       | 28.5         |
| 7 - 8   | *        | *       | 30        | 31       | *      | *        | *      | 30.5    | 0       | 30.5         |
| 8 - 9   | *        | *       | 32        | 34.5     | *      | *        | *      | 33.25   | 0       | 33.25        |
| 9 - 10  | *        | *       | 30.5      | 31.5     | *      | *        | *      | 31      | 0       | 31           |
| 10 - 11 | *        | *       | 31        | 32       | *      | *        | *      | 31.5    | 0       | 31.5         |
| 11 - 12 | *        | *       | 34        | 30       | *      | *        | *      | 32      | 0       | 32           |
| 12 - 13 | *        | *       | 31        | *        | *      | *        | *      | 31      | 0       | 31           |
| 13 - 14 | *        | 30      | 32        | *        | *      | *        | *      | 31      | 0       | 31           |
| 14 - 15 | *        | 31      | 31        | *        | *      | *        | *      | 31      | 0       | 31           |
| 15 - 16 | *        | 30      | 32        | *        | *      | *        | *      | 31      | 0       | 31           |
| 16 - 17 | *        | 32.3    | 33        | *        | *      | *        | *      | 32.65   | 0       | 32.65        |
| 17 - 18 | *        | 32      | 32.5      | *        | *      | *        | *      | 32.25   | 0       | 32.25        |
| 18 - 19 | *        | 32      | 30        | *        | *      | *        | *      | 31      | 0       | 31           |
| 19 - 20 | *        | 32      | 33        | *        | *      | *        | *      | 32.5    | 0       | 32.5         |
| 20 - 21 | *        | 30      | 28        | *        | *      | *        | *      | 29      | 0       | 29           |
| 21 - 22 | *        | 32      | 28.5      | *        | *      | *        | *      | 30.25   | 0       | 30.25        |
| 22 - 23 | *        | 34      | 28        | *        | *      | *        | *      | 31      | 0       | 31           |
| 23 - 24 | *        | 28      | 29        | *        | *      | *        | *      | 28.5    | 0       | 28.5         |

Eastbound(in):Average Hourly Volume for Week of 2/26/2024  
Average Counts By Hour (2/26/2024) — Average Counts By Hour (2/26/2024)



Eastbound(in):Average Hourly WEEKDAY Speeds for Week of 2/26/2024  
Average Hourly WEEKDAY Speeds By Hour (2/26/2024) —●— Average Hourly WEEKDAY Speeds By Hour (2/26/2024)

Karen Drive 2024  
Civic 29 Karen Dr  
Average Weekly Speeds

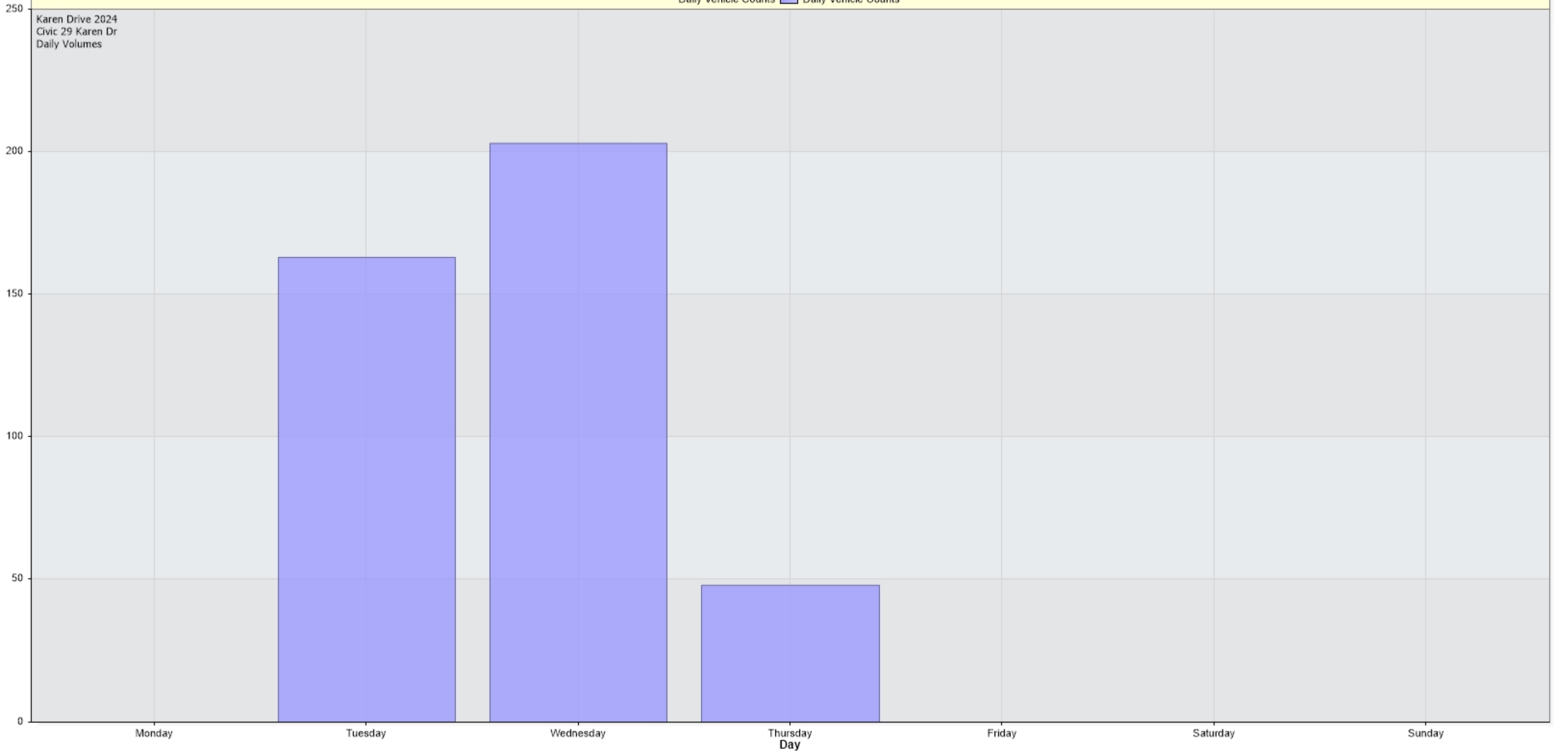


Eastbound(in):Daily Volume for Week of 2/26/2024

Daily Vehicle Counts

Karen Drive 2024  
Civic 29 Karen Dr  
Daily Volumes

Vehicles



For Project: Karen Drive 2024  
 Project Notes: Civic 29 Karen Dr  
 Location/Name: Westbound(out)  
 Report Generated: 2/29/2024 12:02:32 PM  
 Speed Intervals: 1 km/h  
 Time Intervals: Instant  
 Traffic Report From: 2/27/2024 1:00:00 PM through 2/29/2024 11:59:59 AM  
 85th Percentile Speed: 35 km/h  
 85th Percentile Vehicles: 738  
 Max Speed: 59 km/h on 2/28/2024 7:42:20 AM  
 Total Vehicles: 868  
 AADT: 443

## Volumes - weekly counts

| Time          | 5 Day      | 7 Day |
|---------------|------------|-------|
| Average Daily | 289        | 289   |
| AM Peak       | 7:00 AM 58 | 58    |
| PM Peak       | 5:00 PM 43 | 43    |

## Speed

Speed Limit: 50  
 85th Percentile Speed: 35  
 50th Percentile Speed: 31  
 10 km/h Pace Interval: 26.0 km/h to 36.0 km/h  
 Average Speed: 31.23

|                  | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
|------------------|--------|---------|-----------|----------|--------|----------|--------|
| Count over limit | N/A    | 0       | 1         | 0        | N/A    | N/A      | N/A    |
| % over limit     | N/A    | 0.0     | 0.2       | 0.0      | N/A    | N/A      | N/A    |
| Avg Speeder      | N/A    | 0.0     | 59.0      | 0.0      | N/A    | N/A      | N/A    |
| Avg Speed        | N/A    | 30.6    | 31.3      | 31.9     | N/A    | N/A      | N/A    |

## Class Counts

|                     | Number           | %               |
|---------------------|------------------|-----------------|
| VEH_SM              | 9                | 1               |
| VEH_MED             | 829              | 95.5            |
| VEH_LG              | 30               | 3.5             |
| [VEH_SM=motorcycle, | VEH_MED = sedan, | VEH_LG = truck] |



Westbound(out) Weekly Counts  
 Karen Drive 2024  
 Civic 29 Karen Dr

from Tue-Feb-27-2024-01-00-PM to Thu-Feb-29-2024-11-59-AM

|            | 2/26/2024 | to        | 3/3/2024  |           |          |          |          |         |         |              |
|------------|-----------|-----------|-----------|-----------|----------|----------|----------|---------|---------|--------------|
|            | Monday    | Tuesday   | Wednesday | Thursday  | Friday   | Saturday | Sunday   | Week    | Weekend | Week Day 85% |
| Hour       | 2/26/2024 | 2/27/2024 | 2/28/2024 | 2/29/2024 | 3/1/2024 | 3/2/2024 | 3/3/2024 | Day Avg | Avg     | Avg Speed    |
| 0 - 1      | *         | *         | 1         | 2         | *        | *        | *        | 1.5     | 0       | 23           |
| 1 - 2      | *         | *         | 0         | 0         | *        | *        | *        | 0       | 0       | 0            |
| 2 - 3      | *         | *         | 0         | 0         | *        | *        | *        | 0       | 0       | 0            |
| 3 - 4      | *         | *         | 0         | 0         | *        | *        | *        | 0       | 0       | 0            |
| 4 - 5      | *         | *         | 1         | 1         | *        | *        | *        | 1       | 0       | 23           |
| 5 - 6      | *         | *         | 3         | 2         | *        | *        | *        | 2.5     | 0       | 30.5         |
| 6 - 7      | *         | *         | 23        | 18        | *        | *        | *        | 20.5    | 0       | 32.5         |
| 7 - 8      | *         | *         | 66        | 51        | *        | *        | *        | 58.5    | 0       | 37           |
| 8 - 9      | *         | *         | 54        | 53        | *        | *        | *        | 53.5    | 0       | 36.1         |
| 9 - 10     | *         | *         | 18        | 28        | *        | *        | *        | 23      | 0       | 34.85        |
| 10 - 11    | *         | *         | 28        | 22        | *        | *        | *        | 25      | 0       | 34.65        |
| 11 - 12    | *         | *         | 18        | 13        | *        | *        | *        | 15.5    | 0       | 34.5         |
| 12 - 13    | *         | *         | 21        | *         | *        | *        | *        | 21      | 0       | 37.3         |
| 13 - 14    | *         | 26        | 19        | *         | *        | *        | *        | 22.5    | 0       | 34.5         |
| 14 - 15    | *         | 19        | 31        | *         | *        | *        | *        | 25      | 0       | 35.15        |
| 15 - 16    | *         | 35        | 36        | *         | *        | *        | *        | 35.5    | 0       | 35           |
| 16 - 17    | *         | 37        | 35        | *         | *        | *        | *        | 36      | 0       | 35           |
| 17 - 18    | *         | 54        | 33        | *         | *        | *        | *        | 43.5    | 0       | 33.85        |
| 18 - 19    | *         | 19        | 15        | *         | *        | *        | *        | 17      | 0       | 34           |
| 19 - 20    | *         | 27        | 11        | *         | *        | *        | *        | 19      | 0       | 31.75        |
| 20 - 21    | *         | 10        | 6         | *         | *        | *        | *        | 8       | 0       | 29.75        |
| 21 - 22    | *         | 8         | 12        | *         | *        | *        | *        | 10      | 0       | 32           |
| 22 - 23    | *         | 4         | 3         | *         | *        | *        | *        | 3.5     | 0       | 31           |
| 23 - 24    | *         | 4         | 1         | *         | *        | *        | *        | 2.5     | 0       | 31           |
| Totals     | 0         | 243       | 435       | 190       | 0        | 0        | 0        |         |         |              |
| % of Total | 0%        | 28%       | 50.12%    | 21.89%    | 0%       | 0%       | 0%       |         |         |              |

Westbound(out) Monthly Counts  
 Karen Drive 2024  
 Civic 29 Karen Dr

from Tue-Feb-27-2024-01-00-PM to Thu-Feb-29-2024-11-59-AM

| Hour       | Feb 2024 |         |           |          |        |          |        | Week<br>Day Avg | Weekend<br>Avg | Week Day 85%<br>Avg Speed |
|------------|----------|---------|-----------|----------|--------|----------|--------|-----------------|----------------|---------------------------|
|            | Monday   | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |                 |                |                           |
| 0 - 1      | *        | *       | 1         | 2        | *      | *        | *      | 1.5             | 0              | 23                        |
| 1 - 2      | *        | *       | 0         | 0        | *      | *        | *      | 0               | 0              | 0                         |
| 2 - 3      | *        | *       | 0         | 0        | *      | *        | *      | 0               | 0              | 0                         |
| 3 - 4      | *        | *       | 0         | 0        | *      | *        | *      | 0               | 0              | 0                         |
| 4 - 5      | *        | *       | 1         | 1        | *      | *        | *      | 1               | 0              | 23                        |
| 5 - 6      | *        | *       | 3         | 2        | *      | *        | *      | 2.5             | 0              | 30.5                      |
| 6 - 7      | *        | *       | 23        | 18       | *      | *        | *      | 20.5            | 0              | 32.5                      |
| 7 - 8      | *        | *       | 66        | 51       | *      | *        | *      | 58.5            | 0              | 37                        |
| 8 - 9      | *        | *       | 54        | 53       | *      | *        | *      | 53.5            | 0              | 36.1                      |
| 9 - 10     | *        | *       | 18        | 28       | *      | *        | *      | 23              | 0              | 34.85                     |
| 10 - 11    | *        | *       | 28        | 22       | *      | *        | *      | 25              | 0              | 34.65                     |
| 11 - 12    | *        | *       | 18        | 13       | *      | *        | *      | 15.5            | 0              | 34.5                      |
| 12 - 13    | *        | *       | 21        | *        | *      | *        | *      | 21              | 0              | 37.3                      |
| 13 - 14    | *        | 26      | 19        | *        | *      | *        | *      | 22.5            | 0              | 34.5                      |
| 14 - 15    | *        | 19      | 31        | *        | *      | *        | *      | 25              | 0              | 35.15                     |
| 15 - 16    | *        | 35      | 36        | *        | *      | *        | *      | 35.5            | 0              | 35                        |
| 16 - 17    | *        | 37      | 35        | *        | *      | *        | *      | 36              | 0              | 35                        |
| 17 - 18    | *        | 54      | 33        | *        | *      | *        | *      | 43.5            | 0              | 33.85                     |
| 18 - 19    | *        | 19      | 15        | *        | *      | *        | *      | 17              | 0              | 34                        |
| 19 - 20    | *        | 27      | 11        | *        | *      | *        | *      | 19              | 0              | 31.75                     |
| 20 - 21    | *        | 10      | 6         | *        | *      | *        | *      | 8               | 0              | 29.75                     |
| 21 - 22    | *        | 8       | 12        | *        | *      | *        | *      | 10              | 0              | 32                        |
| 22 - 23    | *        | 4       | 3         | *        | *      | *        | *      | 3.5             | 0              | 31                        |
| 23 - 24    | *        | 4       | 1         | *        | *      | *        | *      | 2.5             | 0              | 31                        |
| Totals     | 0        | 243     | 435       | 190      | 0      | 0        | 0      |                 |                |                           |
| % of Total | 0%       | 28%     | 50.12%    | 21.89%   | 0%     | 0%       | 0%     |                 |                |                           |

Westbound(out) Weekly Speeds  
 Karen Drive 2024  
 Civic 29 Karen Dr

from Tue-Feb-27-2024-01-00-PM to Thu-Feb-29-2024-11-59-AM

|            | 2/26/2024 | to        | 3/3/2024  |           |          |          |          |         |         |              |
|------------|-----------|-----------|-----------|-----------|----------|----------|----------|---------|---------|--------------|
|            | Monday    | Tuesday   | Wednesday | Thursday  | Friday   | Saturday | Sunday   | Week    | Weekend | Week Day 85% |
| Hour       | 2/26/2024 | 2/27/2024 | 2/28/2024 | 2/29/2024 | 3/1/2024 | 3/2/2024 | 3/3/2024 | Day Avg | Avg     | Avg Speed    |
| 0 - 1      | *         | *         | 19        | 22        | *        | *        | *        | 21      | *       | 23           |
| 1 - 2      | *         | *         | 0         | 0         | *        | *        | *        | *       | *       | 0            |
| 2 - 3      | *         | *         | 0         | 0         | *        | *        | *        | *       | *       | 0            |
| 3 - 4      | *         | *         | 0         | 0         | *        | *        | *        | *       | *       | 0            |
| 4 - 5      | *         | *         | 24        | 22        | *        | *        | *        | 23      | *       | 23           |
| 5 - 6      | *         | *         | 30.33     | 26.5      | *        | *        | *        | 28.8    | *       | 30.5         |
| 6 - 7      | *         | *         | 29        | 28.61     | *        | *        | *        | 28.83   | *       | 32.5         |
| 7 - 8      | *         | *         | 32.86     | 33.1      | *        | *        | *        | 32.97   | *       | 37           |
| 8 - 9      | *         | *         | 31.74     | 32.57     | *        | *        | *        | 32.15   | *       | 36.1         |
| 9 - 10     | *         | *         | 31.72     | 33        | *        | *        | *        | 32.5    | *       | 34.85        |
| 10 - 11    | *         | *         | 32.36     | 31.5      | *        | *        | *        | 31.98   | *       | 34.65        |
| 11 - 12    | *         | *         | 33.06     | 29.92     | *        | *        | *        | 31.74   | *       | 34.5         |
| 12 - 13    | *         | *         | 31.86     | *         | *        | *        | *        | 31.86   | *       | 37.3         |
| 13 - 14    | *         | 28.46     | 31.89     | *         | *        | *        | *        | 29.91   | *       | 34.5         |
| 14 - 15    | *         | 31.84     | 31.58     | *         | *        | *        | *        | 31.68   | *       | 35.15        |
| 15 - 16    | *         | 31.17     | 32.31     | *         | *        | *        | *        | 31.75   | *       | 35           |
| 16 - 17    | *         | 30.92     | 31.97     | *         | *        | *        | *        | 31.43   | *       | 35           |
| 17 - 18    | *         | 31.8      | 28.88     | *         | *        | *        | *        | 30.69   | *       | 33.85        |
| 18 - 19    | *         | 30.63     | 28.13     | *         | *        | *        | *        | 29.53   | *       | 34           |
| 19 - 20    | *         | 28.78     | 29.45     | *         | *        | *        | *        | 28.97   | *       | 31.75        |
| 20 - 21    | *         | 29.3      | 26.5      | *         | *        | *        | *        | 28.25   | *       | 29.75        |
| 21 - 22    | *         | 31.25     | 28.92     | *         | *        | *        | *        | 29.85   | *       | 32           |
| 22 - 23    | *         | 30.75     | 29        | *         | *        | *        | *        | 30      | *       | 31           |
| 23 - 24    | *         | 29.75     | 31        | *         | *        | *        | *        | 30      | *       | 31           |
| Totals     | 0         | 30.6      | 31.3      | 31.9      | 0        | 0        | 0        |         |         |              |
| % of Total | 0%        | 32.62%    | 33.37%    | 34.01%    | 0%       | 0%       | 0%       |         |         |              |

Westbound(out) Monthly Speeds  
 Karen Drive 2024  
 Civic 29 Karen Dr

from Tue-Feb-27-2024-01-00-PM to Thu-Feb-29-2024-11-59-AM

| Hour       | Feb 2024 |         |           |          |        |          |        | Week<br>Day Avg | Weekend<br>Avg | Week Day 85%<br>Avg Speed |
|------------|----------|---------|-----------|----------|--------|----------|--------|-----------------|----------------|---------------------------|
|            | Monday   | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |                 |                |                           |
| 0 - 1      | *        | *       | 19        | 22       | *      | *        | *      | 21              | *              | 23                        |
| 1 - 2      | *        | *       | 0         | 0        | *      | *        | *      | *               | *              | 0                         |
| 2 - 3      | *        | *       | 0         | 0        | *      | *        | *      | *               | *              | 0                         |
| 3 - 4      | *        | *       | 0         | 0        | *      | *        | *      | *               | *              | 0                         |
| 4 - 5      | *        | *       | 24        | 22       | *      | *        | *      | 23              | *              | 23                        |
| 5 - 6      | *        | *       | 30.33     | 26.5     | *      | *        | *      | 28.8            | *              | 30.5                      |
| 6 - 7      | *        | *       | 29        | 28.61    | *      | *        | *      | 28.83           | *              | 32.5                      |
| 7 - 8      | *        | *       | 32.86     | 33.1     | *      | *        | *      | 32.97           | *              | 37                        |
| 8 - 9      | *        | *       | 31.74     | 32.57    | *      | *        | *      | 32.15           | *              | 36.1                      |
| 9 - 10     | *        | *       | 31.72     | 33       | *      | *        | *      | 32.5            | *              | 34.85                     |
| 10 - 11    | *        | *       | 32.36     | 31.5     | *      | *        | *      | 31.98           | *              | 34.65                     |
| 11 - 12    | *        | *       | 33.06     | 29.92    | *      | *        | *      | 31.74           | *              | 34.5                      |
| 12 - 13    | *        | *       | 31.86     | *        | *      | *        | *      | 31.86           | *              | 37.3                      |
| 13 - 14    | *        | 28.46   | 31.89     | *        | *      | *        | *      | 29.91           | *              | 34.5                      |
| 14 - 15    | *        | 31.84   | 31.58     | *        | *      | *        | *      | 31.68           | *              | 35.15                     |
| 15 - 16    | *        | 31.17   | 32.31     | *        | *      | *        | *      | 31.75           | *              | 35                        |
| 16 - 17    | *        | 30.92   | 31.97     | *        | *      | *        | *      | 31.43           | *              | 35                        |
| 17 - 18    | *        | 31.8    | 28.88     | *        | *      | *        | *      | 30.69           | *              | 33.85                     |
| 18 - 19    | *        | 30.63   | 28.13     | *        | *      | *        | *      | 29.53           | *              | 34                        |
| 19 - 20    | *        | 28.78   | 29.45     | *        | *      | *        | *      | 28.97           | *              | 31.75                     |
| 20 - 21    | *        | 29.3    | 26.5      | *        | *      | *        | *      | 28.25           | *              | 29.75                     |
| 21 - 22    | *        | 31.25   | 28.92     | *        | *      | *        | *      | 29.85           | *              | 32                        |
| 22 - 23    | *        | 30.75   | 29        | *        | *      | *        | *      | 30              | *              | 31                        |
| 23 - 24    | *        | 29.75   | 31        | *        | *      | *        | *      | 30              | *              | 31                        |
| Totals     | 0        | 30.6    | 31.3      | 31.9     | 0      | 0        | 0      |                 |                |                           |
| % of Total | 0%       | 32.62%  | 33.37%    | 34.01%   | 0%     | 0%       | 0%     |                 |                |                           |

Westbound(out) Weekly EightyFifthSpeeds  
 Karen Drive 2024  
 Civic 29 Karen Dr

from Tue-Feb-27-2024-01-00-PM to Thu-Feb-29-2024-11-59-AM

|            | 2/26/2024 | to        | 3/3/2024  |           |          |          |          |         |         |              |
|------------|-----------|-----------|-----------|-----------|----------|----------|----------|---------|---------|--------------|
|            | Monday    | Tuesday   | Wednesday | Thursday  | Friday   | Saturday | Sunday   | Week    | Weekend | Week Day 85% |
| Hour       | 2/26/2024 | 2/27/2024 | 2/28/2024 | 2/29/2024 | 3/1/2024 | 3/2/2024 | 3/3/2024 | Day Avg | Avg     | Avg Speed    |
| 0 - 1      | *         | *         | 19        | 27        | *        | *        | *        | 23      | 0       | 23           |
| 1 - 2      | *         | *         | 0         | 0         | *        | *        | *        | 0       | 0       | 0            |
| 2 - 3      | *         | *         | 0         | 0         | *        | *        | *        | 0       | 0       | 0            |
| 3 - 4      | *         | *         | 0         | 0         | *        | *        | *        | 0       | 0       | 0            |
| 4 - 5      | *         | *         | 24        | 22        | *        | *        | *        | 23      | 0       | 23           |
| 5 - 6      | *         | *         | 34        | 27        | *        | *        | *        | 30.5    | 0       | 30.5         |
| 6 - 7      | *         | *         | 34        | 31        | *        | *        | *        | 32.5    | 0       | 32.5         |
| 7 - 8      | *         | *         | 36        | 38        | *        | *        | *        | 37      | 0       | 37           |
| 8 - 9      | *         | *         | 35.7      | 36.5      | *        | *        | *        | 36.1    | 0       | 36.1         |
| 9 - 10     | *         | *         | 35        | 34.7      | *        | *        | *        | 34.85   | 0       | 34.85        |
| 10 - 11    | *         | *         | 35.3      | 34        | *        | *        | *        | 34.65   | 0       | 34.65        |
| 11 - 12    | *         | *         | 34        | 35        | *        | *        | *        | 34.5    | 0       | 34.5         |
| 12 - 13    | *         | *         | 37.3      | *         | *        | *        | *        | 37.3    | 0       | 37.3         |
| 13 - 14    | *         | 33        | 36        | *         | *        | *        | *        | 34.5    | 0       | 34.5         |
| 14 - 15    | *         | 36        | 34.3      | *         | *        | *        | *        | 35.15   | 0       | 35.15        |
| 15 - 16    | *         | 34.7      | 35.3      | *         | *        | *        | *        | 35      | 0       | 35           |
| 16 - 17    | *         | 34        | 36        | *         | *        | *        | *        | 35      | 0       | 35           |
| 17 - 18    | *         | 36        | 31.7      | *         | *        | *        | *        | 33.85   | 0       | 33.85        |
| 18 - 19    | *         | 34        | 34        | *         | *        | *        | *        | 34      | 0       | 34           |
| 19 - 20    | *         | 32.5      | 31        | *         | *        | *        | *        | 31.75   | 0       | 31.75        |
| 20 - 21    | *         | 31.5      | 28        | *         | *        | *        | *        | 29.75   | 0       | 29.75        |
| 21 - 22    | *         | 33        | 31        | *         | *        | *        | *        | 32      | 0       | 32           |
| 22 - 23    | *         | 31        | 31        | *         | *        | *        | *        | 31      | 0       | 31           |
| 23 - 24    | *         | 31        | 31        | *         | *        | *        | *        | 31      | 0       | 31           |
| Totals     | 0         | 366.7     | 683.6     | 285.2     | 0        | 0        | 0        |         |         |              |
| % of Total | 0%        | 27.46%    | 51.19%    | 21.36%    | 0%       | 0%       | 0%       |         |         |              |

Westbound(out) Monthly EightyFifthSpeeds  
 Karen Drive 2024  
 Civic 29 Karen Dr

from Tue-Feb-27-2024-01-00-PM to Thu-Feb-29-2024-11-59-AM

|         | Feb 2024 |         |           |          |        |          |        | Week    | Weekend | Week Day 85% |
|---------|----------|---------|-----------|----------|--------|----------|--------|---------|---------|--------------|
| Hour    | Monday   | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday | Day Avg | Avg     | Avg Speed    |
| 0 - 1   | *        | *       | 19        | 27       | *      | *        | *      | 23      | 0       | 23           |
| 1 - 2   | *        | *       | 0         | 0        | *      | *        | *      | 0       | 0       | 0            |
| 2 - 3   | *        | *       | 0         | 0        | *      | *        | *      | 0       | 0       | 0            |
| 3 - 4   | *        | *       | 0         | 0        | *      | *        | *      | 0       | 0       | 0            |
| 4 - 5   | *        | *       | 24        | 22       | *      | *        | *      | 23      | 0       | 23           |
| 5 - 6   | *        | *       | 34        | 27       | *      | *        | *      | 30.5    | 0       | 30.5         |
| 6 - 7   | *        | *       | 34        | 31       | *      | *        | *      | 32.5    | 0       | 32.5         |
| 7 - 8   | *        | *       | 36        | 38       | *      | *        | *      | 37      | 0       | 37           |
| 8 - 9   | *        | *       | 35.7      | 36.5     | *      | *        | *      | 36.1    | 0       | 36.1         |
| 9 - 10  | *        | *       | 35        | 34.7     | *      | *        | *      | 34.85   | 0       | 34.85        |
| 10 - 11 | *        | *       | 35.3      | 34       | *      | *        | *      | 34.65   | 0       | 34.65        |
| 11 - 12 | *        | *       | 34        | 35       | *      | *        | *      | 34.5    | 0       | 34.5         |
| 12 - 13 | *        | *       | 37.3      | *        | *      | *        | *      | 37.3    | 0       | 37.3         |
| 13 - 14 | *        | 33      | 36        | *        | *      | *        | *      | 34.5    | 0       | 34.5         |
| 14 - 15 | *        | 36      | 34.3      | *        | *      | *        | *      | 35.15   | 0       | 35.15        |
| 15 - 16 | *        | 34.7    | 35.3      | *        | *      | *        | *      | 35      | 0       | 35           |
| 16 - 17 | *        | 34      | 36        | *        | *      | *        | *      | 35      | 0       | 35           |
| 17 - 18 | *        | 36      | 31.7      | *        | *      | *        | *      | 33.85   | 0       | 33.85        |
| 18 - 19 | *        | 34      | 34        | *        | *      | *        | *      | 34      | 0       | 34           |
| 19 - 20 | *        | 32.5    | 31        | *        | *      | *        | *      | 31.75   | 0       | 31.75        |
| 20 - 21 | *        | 31.5    | 28        | *        | *      | *        | *      | 29.75   | 0       | 29.75        |
| 21 - 22 | *        | 33      | 31        | *        | *      | *        | *      | 32      | 0       | 32           |
| 22 - 23 | *        | 31      | 31        | *        | *      | *        | *      | 31      | 0       | 31           |
| 23 - 24 | *        | 31      | 31        | *        | *      | *        | *      | 31      | 0       | 31           |

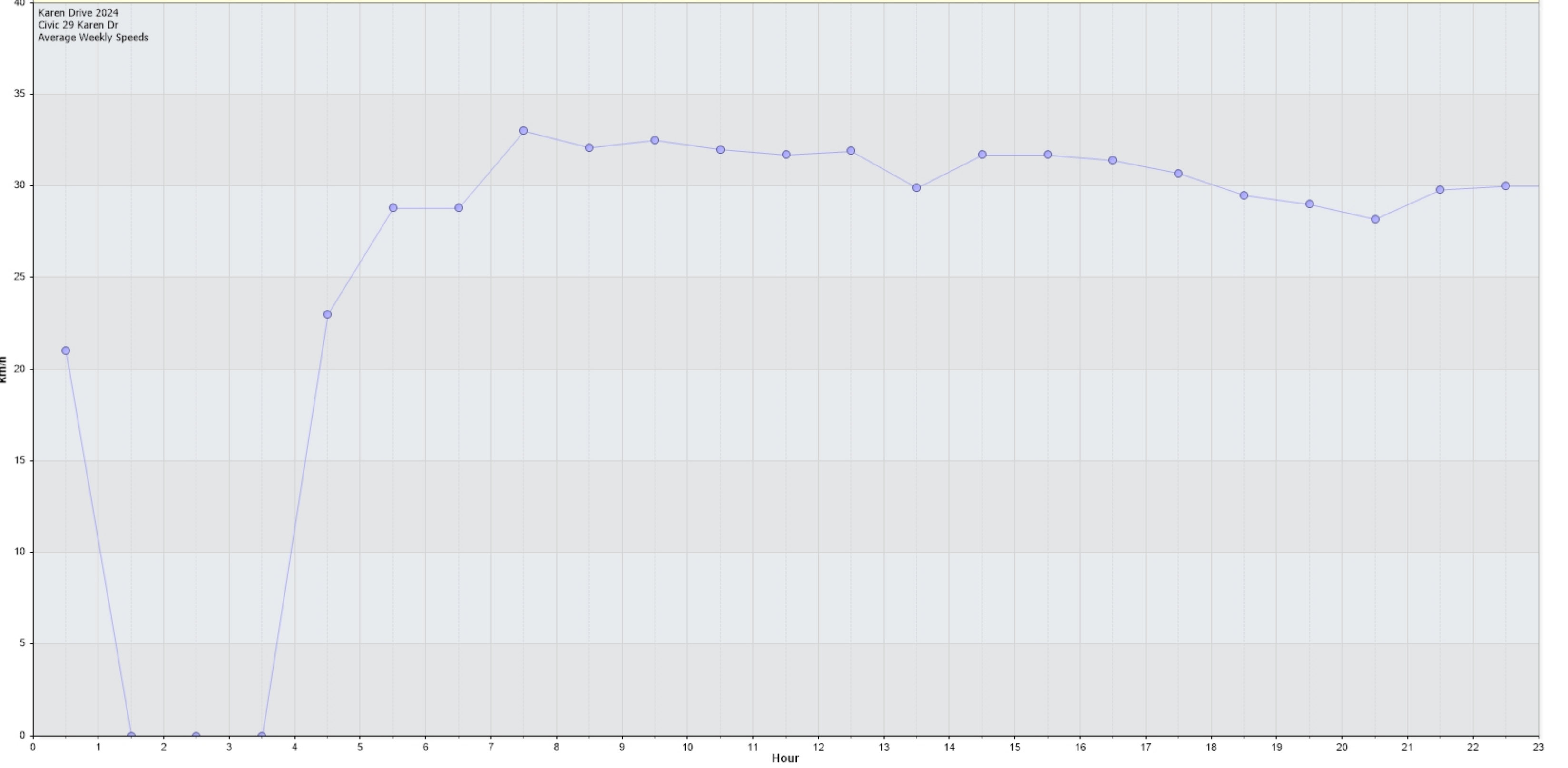


Westbound(out):Average Hourly Volume for Week of 2/26/2024  
Average Counts By Hour (2/26/2024)



Karen Drive 2024  
Civic 29 Karen Dr  
Average Weekly Volumes

Westbound(out):Average Hourly WEEKDAY Speeds for Week of 2/26/2024  
Average Hourly WEEKDAY Speeds By Hour (2/26/2024) — Average Hourly WEEKDAY Speeds By Hour (2/26/2024)



Karen Drive 2024  
Civic 29 Karen Dr  
Average Weekly Speeds

Westbound(out):Daily Volume for Week of 2/26/2024

Daily Vehicle Counts

Karen Drive 2024  
Civic 29 Karen Dr  
Daily Volumes

Day

Vehicles

