# Multiway Stop Control Warrant Analysis for the Intersection of 

## Blondy Jhune Road and Winningkoff Road City of Lucas, Texas



TBPE Firm F-450

July 2020

## EXECUTIVE SUMMARY

Lee Engineering has completed a multiway stop control warrant analysis for the intersection of Blondy Jhune Road and Winningkoff Road in Lucas, Texas. Currently, the intersection operates with a yield sign on the eastbound approach (Blondy Jhune Road), and Winningkoff Road has the right of way.

The multiway stop control warrant analysis was undertaken with 24 -hour turning movement volumes collected on Tuesday, March 3, 2020. Please note that these volumes were collected in early March before school closures and shelter-in-place orders due to COVID-19, which occurred in late March.

Based on the existing traffic volumes and the analysis results, warrants are not satisfied for the installation of multiway stop control at the intersection of Blondy Jhune Road and Winningkoff Road, as summarized below. The intersection of Blondy Jhune Road and Winningkoff Road also does not meet additional criteria for the installation of a multiway stop control.

| Texas MUTCD Multiway Stop Control <br> Warrant | Warrant Met? | Notes |
| :---: | :---: | :---: |
| A - Interim measure until signal installation | NO | Traffic signal is not planned |
| B - Crash Warrant | NO | Crash history does not meet warrants |
| C - Minimum Traffic Volumes | NO | Average volumes do not exceed requirements |

Based on the existing low traffic volumes, lack of reported crashes, and the Texas MUTCD allowances for other criteria, multiway stop control is not recommended at this intersection at this time.

Based on the sight distance assessment presented in this report, we recommend installing stopcontrol on the eastbound approach of Blondy Jhune Road at Winningkoff Road rather than the existing yield-control.

Finally, we also recommended that the City trim and maintain the vegetation on the east side of Winningkoff Road between Blondy Jhune Road and the bridge to the south. Vegetation (shrubs, overhanging branches, etc.) should be trimmed to the tree line. The City should also continue to trim and maintain the vegetation on the west side of Winningkoff Road north of Blondy Jhune Road (per Figure 7).

## INTRODUCTION

The City of Lucas has requested that an analysis be conducted to determine if multiway stop control is warranted at the intersection of Blondy Jhune Road and Winningkoff Road. This report summarizes the results of a multiway stop control warrant analysis conducted for this intersection.

The analysis was performed using existing approach volumes collected over a 24 -hour period on Tuesday, March 3, 2020, which are summarized in Table 1 with the raw data presented in the Appendix. It should be noted that these volumes were collected in early March before school closures and shelter-in-place orders due to COVID-19, which occurred in late March. For reference, a graphical representation of the hourly approach volumes is shown in Figure 1.

The analysis is based on the multiway stop control warrants contained in Chapter 2B, "Regulatory Signs," of the 2011 Texas Manual on Uniform Traffic Control Devices (Texas MUTCD). Three warranting criteria are included in the Texas MUTCD for multiway stop sign installation. These warrants are:
A. Installing multiway stop control as an interim measure while arrangements are being made for a traffic signal installation;
B. A crash warrant; and
C. Minimum traffic volumes.

Winningkoff Road is a two-lane, north-south, undivided roadway with a posted speed limit of 35 miles per hour (mph). Based on a speed study conducted in the vicinity on Tuesday, March 3, 2020, the $85^{\text {th }}$ percentile speed on Winningkoff Road in the study area is 35 mph for the northbound approach and 41 mph for the southbound approach. Raw speed data is also included in the Appendix.

Blondy Jhune Road is a two-lane, east-west, undivided roadway with a posted speed limit of 30 mph . Based on a speed study, the $85^{\text {th }}$ percentile speed on Blondy Jhune Road is 34 mph in the eastbound direction and 33 mph in the westbound direction. Blondy Jhune Road terminates at Winningkoff Road, with only an eastbound approach at the intersection. No dedicated turn lanes exist at the intersection on either roadway. The intersection of these two streets is currently yieldcontrolled on the Blondy Jhune Road approach with Winningkoff having the right of way.

Based on the traffic volumes at this intersection, Winningkoff Road is considered the Major Roadway for this analysis with single lane approaches. Blondy Jhune Road will be considered a Minor Roadway with a single lane approach. An aerial photograph of the intersection is provided in Figure 2. A vicinity map of the study intersection is provided in Figure 3.

Table 1: Existing Traffic Volume Summary - Collected March 3, 2020

| Hour <br> Begin | Winningkoff Road |  |  | Blondy Jhune Road |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} \text { NB } \\ \text { Volume } \end{gathered}$ | $\begin{gathered} \text { SB } \\ \text { Volume } \end{gathered}$ | Total Volume Volume | $\begin{gathered} \text { EB } \\ \text { Volume } \end{gathered}$ | $\begin{gathered} \text { WB } \\ \text { Volume } \end{gathered}$ | Total Volume |
| 0:00 | 1 | 1 | 2 | 1 | - | 1 |
| 1:00 | 0 | 0 | 0 | 0 | - | 0 |
| 2:00 | 0 | 0 | 0 | 0 | - | 0 |
| 3:00 | 0 | 1 | 1 | 0 | - | 0 |
| 4:00 | 3 | 4 | 7 | 1 | - | 1 |
| 5:00 | 15 | 6 | 21 | 3 | - | 3 |
| 6:00 | 30 | 18 | 48 | 5 | - | 5 |
| 7:00 | 83 | 48 | 131 | 17 | - | 17 |
| 8:00 | 66 | 47 | 113 | 23 | - | 23 |
| 9:00 | 44 | 36 | 80 | 17 | - | 17 |
| 10:00 | 37 | 30 | 67 | 13 | - | 13 |
| 11:00 | 27 | 41 | 68 | 34 | - | 34 |
| 12:00 | 27 | 29 | 56 | 32 | - | 32 |
| 13:00 | 30 | 30 | 60 | 18 | - | 18 |
| 14:00 | 27 | 33 | 60 | 36 | - | 36 |
| 15:00 | 33 | 59 | 92 | 38 | - | 38 |
| 16:00 | 26 | 45 | 71 | 51 | - | 51 |
| 17:00 | 40 | 50 | 90 | 65 | - | 65 |
| 18:00 | 26 | 46 | 72 | 52 | - | 52 |
| 19:00 | 15 | 24 | 39 | 58 | - | 58 |
| 20:00 | 5 | 5 | 10 | 29 | - | 29 |
| 21:00 | 4 | 5 | 9 | 20 | - | 20 |
| 22:00 | 1 | 3 | 4 | 7 | - | 7 |
| 23:00 | 1 | 2 | 3 | 1 | - | 1 |
| TOTAL | 541 | 563 | 1,104 | 521 | 0 | 521 |

*Highlighted cells indicate the highest 8 hours of major street traffic volumes entering the intersection.

Figure 1: Hourly Approach Volumes


Figure 2: Blondy Jhune Road at Winningkoff Road


Figure 3: Vicinity Map


## MULTIWAY STOP CONTROL WARRANT ANALYSIS

## Warrant A

The first warrant allows for multiway stop control as an interim measure to control traffic while arrangements are being made for a traffic signal installation if the traffic signal is warranted and urgently needed. Since a traffic signal has not been warranted at the intersection and it does not appear that the existingvolumes would meet one of the first two signal warrants for the intersection, Warrant A is NOT met for the intersection of Blondy Jhune Road and Winningkoff Road.

## Warrant B

Warrant B is satisfied when five or more reported crashes, of the type susceptible to correction by a multiway stop control installation, have occurred within a 12 -month period. Lee Engineering utilized TxDOT's online Crash Records Information System (CRIS) to identify crashes that have occurred at this intersection between 2015 and 2020. There was one (1) reported crash in the vicinity of this intersection between 2015 and 2020, based on TxDOT's records. This crash involved a single vehicle striking a fixed object due to distracted driving and would not be correctible by installation of multiway stop control. A summary table of the crash information is included in the Appendix.

Therefore, Warrant B is NOT MET for the intersection of Blondy Jhune Road and Winningkoff Road.

## Warrant C

Warrant C is based on minimum traffic volumes and delays. Both portions of the warrant (C. 1 and C.2) must be met in order to justify an all-way stop.

Warrant C.1. The total vehicular volume entering the intersection from the major street approaches (total of both approaches) must average at least 300 vehicles per hour (vph) for any eight (8) hours of an average day, and

Warrant C.2. The combined vehicular, pedestrian, and bicycle volume from the minor street must average at least 200 units per hour for the same eight (8) hours, with an average delay to minor street vehicular traffic of at least 30 seconds per vehicle during the maximum hour.

These criteria may be reduced to 70 percent of the above requirements when the $85^{\text {th }}$ percentile speed exceeds 40 mph on the major street. Since the $85^{\text {th }}$ percentile speed on the major street (Winningkoff Road) is greater than $40 \mathrm{mph}(41 \mathrm{mph})$, the reduced warranting threshold may be used for this warrant. However, both threshold values will be presented in the analysis. The hourly traffic volumes were previously summarized in Table 1.

The eight (8) hourly periods with the highest number of vehicles entering the intersection were identified and noted in Table 1. The average major street vehicular volume entering each intersection was calculated and compared to the criteria contained in Warrant C.1. Table 2 summarizes the peak hour and average total vehicular volume entering the intersection from the major street and compares these values to the criteria in Warrant C.1.

Table 2: Major Street (Winningkoff Road) Traffic Volumes

| Intersection | Volumes (vph) |  | Warrant C.1 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Peak Hour <br> $(7: 00$ AM) | 8-Hour <br> Average | Minimum Required <br> $(\mathrm{vph})$ | 8-Hour Average <br> Volume as a \% of <br> Required Volume | Met? |
|  | 131 | 90 | 300 or <br> $210(70 \%$ Reduction $)$ | $90 / 300=30 \%$ <br> $90 / 210=43 \%$ | No |

Based on the collected data, the average eight (8) hour major street vehicular volume entering this intersection ( 90 vph ) does not meet the minimum volume requirement ( 300 vph ) identified in Warrant C.1. The average eight (8) hour major street vehicular volume entering this intersection ( 90 vph ) is only $30 \%$ of the required volume to meet the warranting criteria. The average 8 -hour major street volume also does not meet the reduced threshold ( 210 vph ) if the $70 \%$ reduction is applied based on the $85^{\text {th }}$ percentile speed in the southbound direction ( 41 mph ). The average eight (8) hour major street vehicular volume entering this intersection ( 90 vph ) is only $43 \%$ of the reduced volume threshold.

The average minor street entering volumes were also determined for the same eight (8) hours and compared to the criteria contained in Warrant C.2. Table 3 summarizes the average hourly volume entering the intersection from the minor street and compares the values to the criteria in Warrant C.2.

Table 3: Minor Street (Blondy Jhune Road) Traffic Volumes

| Intersection | Volumes (vph) |  | Warrant C.2 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Peak Hour <br> $(5: 00$ PM) | 8-Hour <br> Average | Minimum Required <br> (vph) | 8-Hour Average <br> Volume as a \% of <br> Required | Met? |
| Blondy Jhune Road and <br> Winningkoff Road | 65 | 37 | 200 or <br> $140(70 \%$ Reduction $)$ | $37 / 200=19 \%$ <br> $37 / 140=26 \%$ | No |

Based on the results shown in Table 3, the average eight (8) hour minor street volume entering the intersection ( 37 vph ) does not satisfy the minimum volume requirement ( 200 vph ) identified in Warrant C.2. The average 8 -hour minor street volume also does not meet the reduced threshold $(140 \mathrm{vph})$ if the $70 \%$ reduction is applied based on the $85^{\text {th }}$ percentile speed in the southbound direction.

For Warrant C. 2 to be met, both the minimum volume and the minor street delay criteria must be satisfied. However, because Warrant C. 2 volume criteria were not met, further evaluation of minor street delay was not performed.

Given the existing traffic volumes at the study intersection, Warrant C is NOT satisfied for the intersection of Blondy Jhune Road and Winningkoff Road.

## Sight Distance Evaluation

As part of this study, the stopping sight distance for vehicles on Winningkoff Road was assessed based on a field visit performed on April 10, 2020. Motorists traveling along the major road should have adequate time to react and bring their vehicle to a stop after they see a vehicle enter the roadway from the minor street. The recommended stopping sight distance for a design speed of 35 mph is 250 feet, based on the 2018 edition of A Policy on Geometric Design of Highways and Streets published by the American Association of State Highway and Transportation Officials (AASHTO). Table 4 presents the available stopping sight distance for motorists on Winningkoff Road.

Table 4: Stopping Sight Distance Evaluation

| Major Roadway | Winningkoff Road |  |
| :---: | :---: | :---: |
| Posted Speed Limit | 35 mph |  |
| $85^{\text {th }}$ Percentile Speed | 41 mph (southbound) |  |
| Minor Roadway | Blondy Jhune Road |  |
| Approach | Northbound | Southbound |
| Required Stopping Sight Distance | Based on posted speed: 250 feet Based on $85^{\text {th }}$ percentile speed: 315 feet |  |
| Available Stopping Sight Distance | $>400$ feet | >400 feet |
| Sight Distance Available $>$ Required | Yes | Yes |

As shown in Table 4 and based on the field investigation results, available stopping sight distance is greater than the minimum required for both the posted speed of 35 mph and the $85^{\text {th }}$ percentile speed of 41 mph . Thus, a vehicle traveling on Winningkoff Road at the posted ( 35 mph ) or $85^{\text {th }}$ percentile ( 41 mph ) speed should be able to stop if a vehicle enters the roadway from Blondy Jhune Road, assuming typical perception-reaction time and deceleration. Note that the $85^{\text {th }}$ percentile speed was 41 mph in the southbound direction and 35 mph in the northbound direction.

In addition, intersection sight distance for motorists on the minor street (Blondy Jhune Road) approach to the intersection was assessed. On a stop-controlled approach, the motorist should be able to see if and when adequate gaps exist to perform their desired maneuver.

The intersection sight distance recommended for the eastbound approach of Blondy Jhune Road was estimated using the procedures developed by the American Association of State Highway and Transportation Officials (AASHTO) and published in the 2018 edition of A Policy on Geometric Design of Highways and Streets. Table 5 presents the recommended and available sight distance for vehicles turning onto Winningkoff Road at Blondy Jhune Road.

For the purposes of this study, intersection sight distance for Blondy Jhune Road was assessed using the typical procedures for a stop-controlled minor street approach. It should be noted that additional sight distance would be required for a yield-controlled approach, based on AASHTO procedures.

Table 5: Intersection Sight Distance Evaluation - Preliminary Field Visit

| Major Roadway |  | Winningkoff Road |  |
| :---: | :---: | :---: | :---: |
| Posted Speed Limit |  | 35 mph |  |
| $85^{\text {th }}$ Percentile Speed |  | 41 mph (southbound) |  |
| Minor Roadway |  | Blondy Jhune Road |  |
| Approach |  | Eastbound | Westbound |
| Required Intersection Sight Distance | Posted Speed | 390 feet |  |
|  | $85^{\text {th }}$ Percentile Speed | 455 feet |  |
| Available Sight Distance to the Left |  | 385 feet | N/A |
| Available Sight Distance to the Right |  | $>455$ feet | N/A |
| Sight Distance Available > Required |  |  |  |
| To the Left |  | No | N/A |
| To the Right |  | Yes | N/A |

As shown in Table 5, the available sight distance to the right for the eastbound approach of Blondy Jhune Road meets requirements, based on conditions at the time of the preliminary field visit. However, sight distance to the left is less than required. Sight distance is obstructed by vegetation, as shown in Figure 4.

Figure 4: Sight Distance to the Left for Eastbound Blondy Jhune Road - Preliminary Field Visit


Additionally, aerial illustrations of the maximum available and the required sight distance visibility triangles are shown in Figure 5 and Figure 6 for stop-control and yield-control, respectively.

As shown in Figure 5, a utility pole and vegetation are currently within the sight triangle for eastbound Blondy Jhune Road looking to the left (north). Based on these results, we recommended that the City remove or trim all vegetation east of the utility poles along Winningkoff Road and within an additional area as identified in Figure 7. Vegetation should continue to be kept clear of this area.

Note that, as shown in Figure 6, additional vegetation removal would be required to provide intersection sight distance for a yield control condition on Blondy Jhune Road. Based on this sight distance limitation, it is recommended to replace the existing yield-control on Blondy Jhune with stop-control.


After City staff trimmed vegetation along the west side of Winningkoff Road, Lee Engineering performed a follow-up field visit on May 21, 2020, to reassess intersection sight distance for motorists on the minor street (Blondy Jhune Road) approach to the intersection. Table 6 presents the recommended and available sight distance for vehicles turning onto Winningkoff Road at Blondy Jhune Road identified in the second field visit.

Table 6: Intersection Sight Distance Evaluation - Second Field Visit

| Major Roadway | Winningkoff Road |  |
| :---: | :---: | :---: |
| Posted Speed Limit | 35 mph |  |
| $85^{\text {th }}$ Percentile Speed | 40 mph (southbound) |  |
| Minor Roadway | Blondy Jhune Road |  |
| Approach | Eastbound | Westbound |
| Required Intersection Sight Distance | 390 feet |  |
|  | 455 feet |  |
| Available Sight Distance to the Left | $>500$ feet | N/A |
| Available Sight Distance to the Right | $>455$ feet | N/A |
| Sight Distance Available > Required |  |  |
| To the Left | Yes | N/A |
| To the Right | Yes | N/A |

As shown in Table 6, the available sight distance to the left for the eastbound approach of Blondy Jhune Road meets requirements after vegetation was trimmed, based on conditions at the time of the follow-up field visit on May 21, 2020. Based on these results, the City should continue to keep vegetation trimmed within the sight triangle. For reference, the improved sight distance with vegetation trimmed is shown in Figure 8.

Finally, while sight distance to the right exceeds the requirements at this time, it was noted during this field visit that there is the potential for vegetation to obscure visibility as it grows, as identified in Figure 9. It is recommended that the City also trim and maintain the vegetation on the east side of Winningkoff Road between Blondy Jhune Road and the bridge to the south, as shown in Figure 10. Vegetation (shrubs, overhanging branches, etc.) should be trimmed to the tree line.

Figure 8: Sight Distance to the Left for Eastbound Blondy Jhune Road - Second Field Visit


Figure 9: Sight Distance to the Right for Eastbound Blondy Jhune Road


Figure 10: Additional Vegetation to Trim and Maintain on East Side of Winningkoff Road


## Optional Considerations for Multiway Stop Control Studies

In addition to the warrants above, the Texas MUTCD (Sec. 2B.07) allows for other criteria to be considered for the potential installation of a multiway stop. This includes:

- Need to control left-turning conflicts;
- Need to control vehicle and pedestrian conflicts near locations that generate high pedestrian volumes;
- Provide safe turning movements where sight visibility is an issue; and
- Improve traffic operational characteristics of the intersection, or identify priority at "an intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multiway stop control would improve traffic operational characteristics of the intersection."

Based on the City of Lucas Master Thoroughfare Plan map (dated March 2017), Winningkoff Road and Blondy Jhune Road are both classified as a Type C Neighborhood Connector with 50 feet of right of way, as shown in Figure 11. However, the installation of multiway stop control is not anticipated to improve traffic operations at the intersection.

Figure 11: City of Lucas Thoroughfare Plan Clip


Source: City of Lucas 2017 Comprehensive Plan
As previously stated, there was one crash at this intersection within the past five years. Thus, there do not appear to be significant left-turn conflicts. Additionally, while pedestrian volumes were not collected, it is not anticipated that significant pedestrian volumes would be present at this intersection based on the location, lack of pedestrian facilities, and the surrounding land uses. Finally, sight distance meets requirements for stop-control on the minor street approach, based on conditions at the time of the follow-up field visit on May 21, 2020. Thus, the additional criteria for consideration of a multiway stop is not met.

## CONCLUSION

Based on the existing traffic volumes and this multiway stop control warrant analysis, warrants are not satisfied for the intstallation of multiway stop control at the intersection of Blondy Jhune Road and Winningkoff Road. A summary of the multiway stop-control warrants is provided in Table 7.

Table 7: Warrant Summary - Winningkoff Road and Blondy Jhune Road

| Warrant | Warrant <br> Met? | Notes |
| :---: | :---: | :---: |
| A - Interim measure until signal <br> installation | NO | Traffic signal is not planned |
| B - Crash Warrant | NO | Crash history does not meet warrants |
| C - Minimum Traffic Volumes | NO | Average volumes do not exceed requirements |

The intersection of Blondy Jhune Road and Winningkoff Road also does not meet additional criteria for the installation of a multiway stop. Additionally, based on observed sight distance, crash history, and current operation, the additional criteria for consideration of a multiway stop is not met.

Based on the low existing volumes, lack of reported accidents, and the Texas MUTCD allowances for other criteria, a multiway stop is not recommended at this intersection at this time.

Based on the sight distance assessment presented in this report, we recommend installing stopcontrol on the eastbound approach of Blondy Jhune Road at Winningkoff Road rather than the existing yield-control.

We also recommend that the City trim and maintain the vegetation on the east side of Winningkoff Road between Blondy Jhune Road and the bridge to the south. Vegetation (shrubs, overhanging branches, etc.) should be trimmed to the tree line. The City should also continue to trim and maintain the vegetation on the west side of Winningkoff Road north of Blondy Jhune Road (per Figure 7).

If you have any comments or questions regarding this study, please feel free to contact us at your convenience.

## APPENDIX

TXDOT CRASH HISTORY (2015-2020) - BLONDY JHUNE ROAD AT WINNINGKOFF ROAD

| Crash ID | Crash Year | Day | Time | Crash Description | Crash Type | Contributing Factors | Light <br> Condition | Weather | Pavement Condition | Crash Severity | Could Crash Be Prevented by Multiway Stop Control? |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 16916288 | 2019 | FRIDAY | 8:36 PM | SOUTH - ONE MOTOR VEHICLE GOING STRAIGHT | $\begin{aligned} & \text { FIXED } \\ & \text { OBJECT } \end{aligned}$ | ATTENTION DIVERTED FROM DRIVING (CELL/MOBILE DEVICE USE - TEXTING) |  | CLEAR | WET | N - NOT INJURED | NO |

# GRAM Traffic NTX Inc. 

Arlington, Texas, United States 76013

| Start Time | WINNINGKOFF RD Southbound |  |  |  |  | RESIDENTIAL DWY Westbound |  |  |  |  | WINNINGKOFF RD <br> Northbound |  |  |  |  | BLONDY JHUNE RD Eastbound |  |  |  |  | $\begin{aligned} & \text { Int. } \\ & \text { Total } \\ & \hline \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Left | Thru | Right | U-Turn | App. <br> Total | Left | Thru | Right | U-Turn | App. <br> Total | Left | Thru | Right | U-Turn | App. <br> Total | Left | Thru | Right | U-Turn | App. <br> Total |  |
| 12:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:45 AM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 |
| Hourly Total | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 3 |
| 1:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3:15 AM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hourly Total | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 AM | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4:30 AM | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 3 |
| 4:45 AM | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 |
| Hourly Total | 0 | 1 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 1 | 8 |
| 5:00 AM | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 3 |
| 5:15 AM | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 5 |
| 5:30 AM | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 7 | 1 | 0 | 0 | 0 | 1 | 9 |
| 5:45 AM | 0 | 2 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 1 | 7 |
| Hourly Total | 0 | 2 | 4 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 4 | 11 | 0 | 0 | 15 | 2 | 0 | 1 | 0 | 3 | 24 |
| 6:00 AM | 0 | 1 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 7 |
| 6:15 AM | 0 | 2 | 3 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 6 | 1 | 0 | 1 | 0 | 2 | 13 |
| 6:30 AM | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 0 | 0 | 9 | 1 | 0 | 0 | 0 | 1 | 12 |
| 6:45 AM | 0 | 4 | 4 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 5 | 6 | 0 | 0 | 11 | 0 | 0 | 2 | 0 | 2 | 21 |
| Hourly Total | 0 | 8 | 10 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 10 | 20 | 0 | 0 | 30 | 2 | 0 | 3 | 0 | 5 | 53 |
| 7:00 AM | 0 | 2 | 7 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 6 | 5 | 0 | 0 | 11 | 3 | 0 | 2 | 0 | 5 | 25 |
| 7:15 AM | 0 | 6 | 3 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 5 | 22 | 0 | 0 | 27 | 2 | 0 | 1 | 0 | 3 | 39 |
| 7:30 AM | 0 | 4 | 10 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 10 | 14 | 0 | 0 | 24 | 4 | 0 | 1 | 0 | 5 | 43 |
| 7:45 AM | 0 | 11 | 5 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 7 | 14 | 0 | 0 | 21 | 2 | 0 | 2 | 0 | 4 | 41 |
| Hourly Total | 0 | 23 | 25 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 28 | 55 | 0 | 0 | 83 | 11 | 0 | 6 | 0 | 17 | 148 |
| 8:00 AM | 0 | 6 | 8 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 7 | 13 | 0 | 0 | 20 | 5 | 0 | 4 | 0 | 9 | 43 |
| 8:15 AM | 0 | 7 | 7 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 10 | 6 | 0 | 0 | 16 | 2 | 0 | 1 | 0 | 3 | 33 |
| 8:30 AM | 0 | 2 | 4 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 7 | 9 | 0 | 0 | 16 | 4 | 0 | 3 | 0 | 7 | 29 |
| 8:45 AM | 0 | 7 | 6 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 5 | 9 | 0 | 0 | 14 | 0 | 0 | 4 | 0 | 4 | 31 |
| Hourly Total | 0 | 22 | 25 | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 29 | 37 | 0 | 0 | 66 | 11 | 0 | 12 | 0 | 23 | 136 |
| 9:00 AM | 0 | 3 | 2 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 3 | 11 | 0 | 0 | 14 | 4 | 0 | 3 | 0 | 7 | 26 |
| 9:15 AM | 0 | 7 | 3 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 2 | 6 | 0 | 0 | 8 | 2 | 0 | 0 | 0 | 2 | 20 |
| 9:30 AM | 0 | 8 | 5 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 2 | 7 | 0 | 0 | 9 | 3 | 0 | 1 | 0 | 4 | 26 |
| 9:45 AM | 0 | 4 | 4 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 3 | 10 | 0 | 0 | 13 | 3 | 0 | 1 | 0 | 4 | 25 |
| Hourly Total | 0 | 22 | 14 | 0 | 36 | 0 | 0 | 0 | 0 | 0 | 10 | 34 | 0 | 0 | 44 | 12 | 0 | 5 | 0 | 17 | 97 |
| 10:00 AM | 0 | 5 | 2 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 3 | 7 | 0 | 0 | 10 | 4 | 0 | 0 | 0 | 4 | 21 |
| 10:15 AM | 0 | 3 | 7 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 0 | 0 | 8 | 2 | 0 | 1 | 0 | 3 | 21 |
| 10:30 AM | 0 | 5 | 2 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 10 | 1 | 0 | 1 | 0 | 2 | 19 |
| 10:45 AM | 0 | 4 | 2 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 3 | 6 | 0 | 0 | 9 | 2 | 0 | 2 | 0 | 4 | 19 |
| Hourly Total | 0 | 17 | 13 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 14 | 23 | 0 | 0 | 37 | 9 | 0 | 4 | 0 | 13 | 80 |
| 11:00 AM | 0 | 10 | 4 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 7 | 4 | 0 | 5 | 0 | 9 | 30 |
| 11:15 AM | 0 | 8 | 2 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 7 | 2 | 0 | 4 | 0 | 6 | 23 |
| 11:30 AM | 0 | 8 | 0 | 0 | 8 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 2 | 5 | 0 | 6 | 0 | 11 | 22 |
| 11:45 AM | 0 | 7 | 2 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 2 | 9 | 0 | 0 | 11 | 6 | 0 | 2 | 0 | 8 | 28 |
| Hourly Total | 0 | 33 | 8 | 0 | 41 | 0 | 1 | 0 | 0 | 1 | 7 | 20 | 0 | 0 | 27 | 17 | 0 | 17 | 0 | 34 | 103 |
| 12:00 PM | 0 | 6 | 4 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 4 | 3 | 0 | 0 | 7 | 3 | 0 | 5 | 0 | 8 | 25 |
| 12:15 PM | 0 | 4 | 1 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 5 | 3 | 0 | 1 | 1 | 5 | 15 |


| 12:30 PM | 0 | 7 | 3 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 5 | 3 | 0 | 0 | 8 | 1 | 0 | 7 | 0 | 8 | 26 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 12:45 PM | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 7 | 5 | 0 | 5 | 1 | 11 | 22 |
| Hourly Total | 0 | 21 | 8 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 12 | 15 | 0 | 0 | 27 | 12 | 0 | 18 | 2 | 32 | 88 |
| 1:00 PM | 0 | 8 | 2 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 0 | 0 | 8 | 1 | 0 | 3 | 0 | 4 | 22 |
| 1:15 PM | 0 | 4 | 2 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 3 | 1 | 0 | 2 | 0 | 3 | 12 |
| 1:30 PM | 0 | 5 | 1 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 0 | 0 | 9 | 2 | 0 | 3 | 0 | 5 | 20 |
| 1:45 PM | 0 | 7 | 1 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 0 | 10 | 0 | 0 | 6 | 0 | 6 | 24 |
| Hourly Total | 0 | 24 | 6 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 9 | 21 | 0 | 0 | 30 | 4 | 0 | 14 | 0 | 18 | 78 |
| 2:00 PM | 0 | 8 | 5 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 0 | 0 | 7 | 5 | 0 | 2 | 0 | 7 | 27 |
| 2:15 PM | 0 | 4 | 5 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 8 | 6 | 0 | 5 | 2 | 13 | 30 |
| 2:30 PM | 0 | 6 | 1 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 3 | 3 | 2 | 2 | 1 | 8 | 18 |
| 2:45 PM | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 3 | 6 | 0 | 0 | 9 | 0 | 0 | 8 | 0 | 8 | 21 |
| Hourly Total | 0 | 22 | 11 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 11 | 16 | 0 | 0 | 27 | 14 | 2 | 17 | 3 | 36 | 96 |
| 3:00 PM | 0 | 8 | 7 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 3 | 0 | 5 | 0 | 8 | 27 |
| 3:15 PM | 0 | 8 | 1 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 1 | 11 | 0 | 0 | 12 | 3 | 0 | 5 | 0 | 8 | 29 |
| 3:30 PM | 0 | 19 | 3 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 7 | 7 | 0 | 1 | 0 | 8 | 37 |
| 3:45 PM | 0 | 12 | 1 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 0 | 10 | 7 | 0 | 7 | 0 | 14 | 37 |
| Hourly Total | 0 | 47 | 12 | 0 | 59 | 0 | 0 | 0 | 0 | 0 | 4 | 29 | 0 | 0 | 33 | 20 | 0 | 18 | 0 | 38 | 130 |
| 4:00 PM | 0 | 3 | 2 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 4 | 6 | 0 | 0 | 10 | 3 | 0 | 3 | 0 | 6 | 21 |
| 4:15 PM | 0 | 6 | 1 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 5 | 2 | 0 | 0 | 7 | 8 | 0 | 11 | 0 | 19 | 33 |
| 4:30 PM | 0 | 16 | 6 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 5 | 7 | 0 | 6 | 0 | 13 | 40 |
| 4:45 PM | 0 | 11 | 0 | 0 | 11 | 0 | 1 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 4 | 8 | 0 | 5 | 0 | 13 | 29 |
| Hourly Total | 0 | 36 | 9 | 0 | 45 | 0 | 1 | 0 | 0 | 1 | 11 | 15 | 0 | 0 | 26 | 26 | 0 | 25 | 0 | 51 | 123 |
| 5:00 PM | 0 | 9 | 2 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 10 | 4 | 0 | 9 | 0 | 13 | 34 |
| 5:15 PM | 0 | 8 | 4 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 4 | 9 | 0 | 0 | 13 | 9 | 0 | 13 | 0 | 22 | 47 |
| 5:30 PM | 0 | 11 | 5 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 5 | 6 | 0 | 9 | 0 | 15 | 36 |
| 5:45 PM | 0 | 7 | 4 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 4 | 8 | 0 | 0 | 12 | 7 | 1 | 7 | 0 | 15 | 38 |
| Hourly Total | 0 | 35 | 15 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 16 | 24 | 0 | 0 | 40 | 26 | 1 | 38 | 0 | 65 | 155 |
| 6:00 PM | 0 | 7 | 1 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 6 | 4 | 0 | 0 | 10 | 6 | 0 | 8 | 0 | 14 | 32 |
| 6:15 PM | 0 | 13 | 1 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 5 | 4 | 0 | 10 | 0 | 14 | 33 |
| 6:30 PM | 0 | 10 | 1 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 0 | 0 | 7 | 6 | 0 | 6 | 0 | 12 | 30 |
| 6:45 PM | 0 | 7 | 6 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 4 | 8 | 0 | 4 | 0 | 12 | 29 |
| Hourly Total | 0 | 37 | 9 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 17 | 9 | 0 | 0 | 26 | 24 | 0 | 28 | 0 | 52 | 124 |
| 7:00 PM | 0 | 2 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 4 | 3 | 0 | 12 | 0 | 15 | 23 |
| 7:15 PM | 0 | 5 | 2 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 8 | 0 | 10 | 0 | 18 | 27 |
| 7:30 PM | 0 | 4 | 1 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 4 | 10 | 0 | 3 | 0 | 13 | 22 |
| 7:45 PM | 0 | 5 | 3 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 5 | 5 | 0 | 7 | 0 | 12 | 25 |
| Hourly Total | 0 | 16 | 8 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 7 | 8 | 0 | 0 | 15 | 26 | 0 | 32 | 0 | 58 | 97 |
| 8:00 PM | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 5 | 0 | 6 | 0 | 11 | 14 |
| 8:15 PM | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 5 | 0 | 5 | 0 | 10 | 14 |
| 8:30 PM | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 4 | 5 |
| 8:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 | 0 | 2 | 0 | 4 | 6 |
| Hourly Total | 0 | 3 | 2 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 5 | 14 | 0 | 15 | 0 | 29 | 39 |
| 9:00 PM | 0 | 2 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 3 | 6 |
| 9:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 7 | 0 | 11 | 11 |
| 9:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 2 | 0 | 2 | 0 | 4 | 6 |
| 9:45 PM | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 6 |
| Hourly Total | 0 | 4 | 1 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 8 | 0 | 12 | 0 | 20 | 29 |
| 10:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 2 |
| 10:15 PM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 3 | 4 |
| 10:30 PM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 10:45 PM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 2 | 4 |
| Hourly Total | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 5 | 0 | 2 | 0 | 7 | 11 |
| 11:00 PM | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 11:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 11:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Hourly Total | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 4 |
| Grand Total | 0 | 380 | 183 | 0 | 563 | 0 | 2 | 0 | 0 | 2 | 192 | 348 | 0 | 1 | 541 | 244 | 3 | 269 | 5 | 521 | 1627 |
| Approach \% | 0.0 | 67.5 | 32.5 | 0.0 | - | 0.0 | 100.0 | 0.0 | 0.0 | - | 35.5 | 64.3 | 0.0 | 0.2 | - | 46.8 | 0.6 | 51.6 | 1.0 | - | - |
| Total \% | 0.0 | 23.4 | 11.2 | 0.0 | 34.6 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 11.8 | 21.4 | 0.0 | 0.1 | 33.3 | 15.0 | 0.2 | 16.5 | 0.3 | 32.0 | - |
| Lights | 0 | 361 | 174 | 0 | 535 | 0 | 2 | 0 | 0 | 2 | 187 | 331 | 0 | 1 | 519 | 234 | 3 | 259 | 3 | 499 | 1555 |
| \% Lights | - | 95.0 | 95.1 | - | 95.0 | - | 100.0 | - | - | 100.0 | 97.4 | 95.1 | - | 100.0 | 95.9 | 95.9 | 100.0 | 96.3 | 60.0 | 95.8 | 95.6 |
| Mediums | 0 | 19 | 9 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 4 | 15 | 0 | 0 | 19 | 10 | 0 | 9 | 1 | 20 | 67 |
| \% Mediums | - | 5.0 | 4.9 | - | 5.0 | - | 0.0 | - | - | 0.0 | 2.1 | 4.3 | - | 0.0 | 3.5 | 4.1 | 0.0 | 3.3 | 20.0 | 3.8 | 4.1 |
| Articulated Trucks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 3 | 0 | 0 | 1 | 1 | 2 | 5 |
| $\begin{gathered} \text { \% Articulated } \\ \text { Trucks } \\ \hline \end{gathered}$ | - | 0.0 | 0.0 | - | 0.0 | - | 0.0 | - | - | 0.0 | 0.5 | 0.6 | - | 0.0 | 0.6 | 0.0 | 0.0 | 0.4 | 20.0 | 0.4 | 0.3 |



Turning Movement Data Plot

# GRAM Traffic NTX Inc. 

Arlington, Texas, United States 76013
Count Name: WINNINGKOFF
RD @ BLONDY JHUNE RD
Site Code:
Site Code:
Start Date: 03/03/2020
Page No: 4

| Start Time | Turning Movement Peak Hour Data (7:15 AM) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | WINNINGKOFF RD <br> Southbound |  |  |  |  | RESIDENTIAL DWY <br> Westbound |  |  |  |  | WINNINGKOFF RD <br> Northbound |  |  |  |  | BLONDY JHUNE RD Eastbound |  |  |  |  | $\begin{aligned} & \text { Int. } \\ & \text { Total } \end{aligned}$ |
|  | Left | Thru | Right | U-Turn | App. <br> Total | Left | Thru | Right | U-Turn | App. Total | Left | Thru | Right | U-Turn | App. Total | Left | Thru | Right | U-Turn | App. <br> Total |  |
| 7:15 AM | 0 | 6 | 3 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 5 | 22 | 0 | 0 | 27 | 2 | 0 | 1 | 0 | 3 | 39 |
| 7:30 AM | 0 | 4 | 10 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 10 | 14 | 0 | 0 | 24 | 4 | 0 | 1 | 0 | 5 | 43 |
| 7:45 AM | 0 | 11 | 5 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 7 | 14 | 0 | 0 | 21 | 2 | 0 | 2 | 0 | 4 | 41 |
| 8:00 AM | 0 | 6 | 8 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 7 | 13 | 0 | 0 | 20 | 5 | 0 | 4 | 0 | 9 | 43 |
| Total | 0 | 27 | 26 | 0 | 53 | 0 | 0 | 0 | 0 | 0 | 29 | 63 | 0 | 0 | 92 | 13 | 0 | 8 | 0 | 21 | 166 |
| Approach \% | 0.0 | 50.9 | 49.1 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 31.5 | 68.5 | 0.0 | 0.0 | - | 61.9 | 0.0 | 38.1 | 0.0 | - | - |
| Total \% | 0.0 | 16.3 | 15.7 | 0.0 | 31.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.5 | 38.0 | 0.0 | 0.0 | 55.4 | 7.8 | 0.0 | 4.8 | 0.0 | 12.7 | - |
| PHF | 0.000 | 0.614 | 0.650 | 0.000 | 0.828 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.725 | 0.716 | 0.000 | 0.000 | 0.852 | 0.650 | 0.000 | 0.500 | 0.000 | 0.583 | 0.965 |
| Lights | 0 | 25 | 26 | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 27 | 61 | 0 | 0 | 88 | 12 | 0 | 6 | 0 | 18 | 157 |
| \% Lights | - | 92.6 | 100.0 | - | 96.2 | - | - | - | - | - | 93.1 | 96.8 | - | - | 95.7 | 92.3 | - | 75.0 | - | 85.7 | 94.6 |
| Mediums | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 4 | 1 | 0 | 2 | 0 | 3 | 9 |
| \% Mediums | - | 7.4 | 0.0 | - | 3.8 | - | - | - | - | - | 6.9 | 3.2 | - | - | 4.3 | 7.7 | - | 25.0 | - | 14.3 | 5.4 |
| Articulated Trucks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| \% Articulated Trucks | - | 0.0 | 0.0 | - | 0.0 | - | - | - | - | - | 0.0 | 0.0 | - | - | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 |



Turning Movement Peak Hour Data Plot (7:15 AM)

# GRAM Traffic NTX Inc. 

Arlington, Texas, United States 76013
Count Name: WINNINGKOFF
RD @ BLONDY JHUNE RD
Site Code:
817.265.8968

Start Date: 03/03/2020
Page No: 6

| Start Time | WINNINGKOFF RD Southbound |  |  |  |  | ng | Mov | ame | nt P | ak | Hou | Da | a | 00 | M) |  |  |  |  |  | Int. Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | RESIDENTIAL DWY <br> Westbound |  |  |  |  | WINNINGKOFF RD Northbound |  |  |  |  | BLONDY JHUNE RD <br> Eastbound |  |  |  |  |  |
|  | Left | Thru | Right | U-Turn | App. <br> Total | Left | Thru | Right | U-Turn | App. <br> Total | Left | Thru | Right | U-Turn | App. <br> Total | Left | Thru | Right | U-Turn | App. Total |  |
| 5:00 PM | 0 | 9 | 2 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 10 | 4 | 0 | 9 | 0 | 13 | 34 |
| 5:15 PM | 0 | 8 | 4 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 4 | 9 | 0 | 0 | 13 | 9 | 0 | 13 | 0 | 22 | 47 |
| 5:30 PM | 0 | 11 | 5 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 5 | 6 | 0 | 9 | 0 | 15 | 36 |
| 5:45 PM | 0 | 7 | 4 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 4 | 8 | 0 | 0 | 12 | 7 | 1 | 7 | 0 | 15 | 38 |
| Total | 0 | 35 | 15 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 16 | 24 | 0 | 0 | 40 | 26 | 1 | 38 | 0 | 65 | 155 |
| Approach \% | 0.0 | 70.0 | 30.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 40.0 | 60.0 | 0.0 | 0.0 | - | 40.0 | 1.5 | 58.5 | 0.0 | - | - |
| Total \% | 0.0 | 22.6 | 9.7 | 0.0 | 32.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.3 | 15.5 | 0.0 | 0.0 | 25.8 | 16.8 | 0.6 | 24.5 | 0.0 | 41.9 | - |
| PHF | 0.000 | 0.795 | 0.750 | 0.000 | 0.781 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.800 | 0.667 | 0.000 | 0.000 | 0.769 | 0.722 | 0.250 | 0.731 | 0.000 | 0.739 | 0.824 |
| Lights | 0 | 35 | 14 | 0 | 49 | 0 | 0 | 0 | 0 | 0 | 16 | 24 | 0 | 0 | 40 | 26 | 1 | 38 | 0 | 65 | 154 |
| \% Lights | - | 100.0 | 93.3 | - | 98.0 | - | - | - | - | - | 100.0 | 100.0 | - | - | 100.0 | 100.0 | 100.0 | 100.0 | - | 100.0 | 99.4 |
| Mediums | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| \% Mediums | - | 0.0 | 6.7 | - | 2.0 | - | - | - | - | - | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.6 |
| Articulated Trucks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| \% Articulated Trucks | - | 0.0 | 0.0 | - | 0.0 | - | - | - | - | - | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 |



Turning Movement Peak Hour Data Plot (5:00 PM)
GRAM Traffic North Texas, Inc.



[^0] Arlington, TX $76013 \quad$ Site Code: 955
atitude: 33' 6.5682 North
GRAM Traffic North Texas, Inc.
1120 W Lovers Lapeond JHUNE RD WEST OF WINNINGKOFF RD - 24 HR - SPEED W 4 SEC FILTER
Site Code 955
Arlington, TX 76013

Latitude: 0' 0.0000 South


 Code: 921
Station ID:






Latitude: 33' 6.5314 North



[^0]:    21-30 MPH 155
    $57.8 \%$
    0
    $0.0 \%$
    27 MPH

