



March 6, 2019

Mr. Dick Burton
Cherokee Flight LLC
8 SW Missouri Route AA
Kingsville, MO 64061

RE: Burton Townhomes Trip Generation – Lee's Summit, Missouri

Dear Mr. Burton,

As requested, Priority Engineers, Inc. has reviewed the proposed Burton Town Homes residential development in regards to the anticipated traffic impacts and the compliance with the City of Lee's Summit's Unimproved Road Policy.

Existing Conditions

The proposed Burton Townhome development is located near the intersection of NW Olive Street with NW Orchard Street in Lee's Summit, Missouri. The intersection of NW Olive Street and NW Orchard Street is stop controlled on NW Orchard Street. NW Olive street is a two-lane facility with a posted speed limit of 25 MPH. The Mid-America Regional Council (MARC) has given Olive Street a functional classification of Local Road. NW Olive Street is also listed in the City of Lee's Summit Thoroughfare Master Plan 2015-2040 as a local road. North of the proposed development, NW Olive Street intersects NE Chipman Road at a signalized intersection. NE Chipman Road has been designated by MARC as having a function classification of Minor Arterial while the City's 2015-2040 TMP identifies NE Chipman Road as a Major Arterial. NW Orchard street is a two-lane facility with a posted speed limit of 25 MPH. Both MARC and the 2015-2040 TMP identify NW Orchard Street as having a functional classification of Local Road. East of the proposed development NW Orchard Street intersects NE Douglas at a stop-controlled intersection. NW Orchard Street and NW Olive Street both have an open drainage system.

Proposed Development

In the attachments is Figure 2, a copy of the site plan provided by the client. The proposed development will have a single access onto NW Olive Street. It is proposed that there be 9 buildings constructed with 4 multi-family residences in each building. The proposed site plan includes pedestrian facilities and an 80' ROW.

The site plan shows a throat length less than 50'. Lee's Summit 2018 Access Management Code requires a minimum throat length of 50' feet. While the minimum throat length requirements are not met due to the locations of proposed driveways, the site still provides good internal circulation as illustrated in Figure 3, which illustrates that the site is navigable with a fire truck.

The City has indicated that parking on NW Olive adjacent to the proposed development will not be permitted due to roadway widths and the existing spacing of drives. The proposed site plan includes 14 additional parking stalls within the proposed site beyond the driveways provided at each building.

Trip generation

The proposed development with consist of 9 multi-family buildings with 4 dwelling units in each building. The vehicle trips generated were estimated using the Institute of Transportation Engineers' Trip Generation Manual, 10th Edition. The Multifamily Housing (Low-Rise) Land Use 220 was utilized. Table 1 below illustrates the anticipated trips generation by the proposed development at full occupancy.

Table 1: Trip Generation								
Land Use	Intensity	Daily	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
Multifamily Housing (Low Rise)	36 Units	231	18	4	14	24	15	9
Total		231	18	4	14	24	15	9

Unimproved Road Policy

The design consultant for this project, Renaissance Infrastructure Consulting, has stated that their survey indicates that NW Olive Street has a pavement width of 22 feet or greater. The consultant survey data did not include a pavement width for NW Orchard Street. A review of aerial photography indicates a width that is less than 22' in width for the majority of NW Orchard Street. The City of Lee's Summit's unimproved road policy defines unimproved roads (<22') or interim roads (2 12' lanes with paved shoulders) while the City's Thoroughfare Master Plan 2015-2040 states "*Per this policy an unimproved roadway is an arterial or collector generally narrow in width (18-20 feet) with open drainage ditches adjacent to the roadway*". The policy does not allow for the improvement of local roads to an interim standard. While City of Lee Summit's 2016 Unimproved Road Policy allows residential developments on unimproved roads when the developments can be processed without a preliminary plat or major plat. It is our understanding that this development is not a minor plat but a preliminary plat.

The City only allows developments on unimproved roads until the roadway reaches a traffic volume of approximately 50 percent of the roadway's capacity, or 5,000 vehicles per day. In order to determine if NW Orchard Street and NW Olive Street were approaching the 5,000 vehicle per day threshold, pneumatic tube counters were placed and twenty-four-hour traffic counts were attempted on September 25th, 2018. Attached is the data from the pneumatic tube count on NW Orchard Street. The rubber tubes associated with the count on NW Olive were damaged by traffic before the count was completed so the traffic data for NW Olive Street was collected via a traffic video camera. The data collected for NW Olive Street via video camera is also attached. NW Orchard street was found to have a total daily traffic of 285 vehicles with 119 vehicles traveling westbound and 166 vehicles traveling eastbound. NW Olive Street was found to have a total daily traffic of 848 vehicles with 426 vehicles traveling southbound and 422 vehicles traveling northbound. NW Olive Street and NW Orchard Street are expected to operate with volumes that are less than the 50 percent threshold of the Unimproved Road Policy, after factoring in the additional traffic generated with the proposed development.

Conclusion

The proposed development will produce minimal increases in both Peak Hour and Daily traffic volumes. The anticipated additional traffic will be distributed between NW Olive Street and NW Orchard Street. NW Olive Street's intersection with NE Chipman Road is signalized. NW Orchard Street's intersection with NE Douglas Street is stop controlled. It is anticipated that these existing intersections are sufficient for these minimal increases in traffic.

Adjacent to the proposed Burton Townhome development, NW Orchard Street, meets the Unimproved Road Policy's definition of an unimproved roadway (pavement width less than 22'). If NW Olive Street is found to be less than the 22' indicated in the survey it would also fall under the definition of an unimproved roadway. I recommend that you seek a waiver from the City Council on this policy based upon the following grounds:

- The proposed development is located at the end of NW Orchard Street and located approximately $\frac{3}{4}$ of the way from the terminus of NW Olive Street with mature residential developments already having occurred on both streets.
- Conforming with an Urban Standard for a local road could potentially affect property owners adjacent to either roadway.

Please let me know if you have any questions or require additional information. I can be reached at (816) 810-4964.

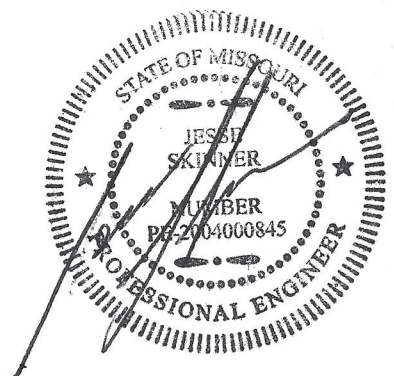
Sincerely,

PRIORITY ENGINEERS, INC.



Jesse Skinner, P.E., PTOE
Senior Traffic Engineer

Attachments



3-6-19



LEGEND

- Stop Sign
- Traffic Signal

24 HOUR TRAFFIC VOLUMES

BURTON TOWN HOMES
LEE'S SUMMIT, MO

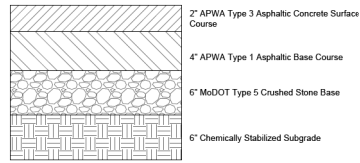
No Scale

Figure 1

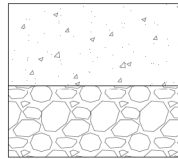


priority
ENGINEERS

PO Box 563
Garden City, MO 64747
816.738.4400



Asphaltic Pavement Section



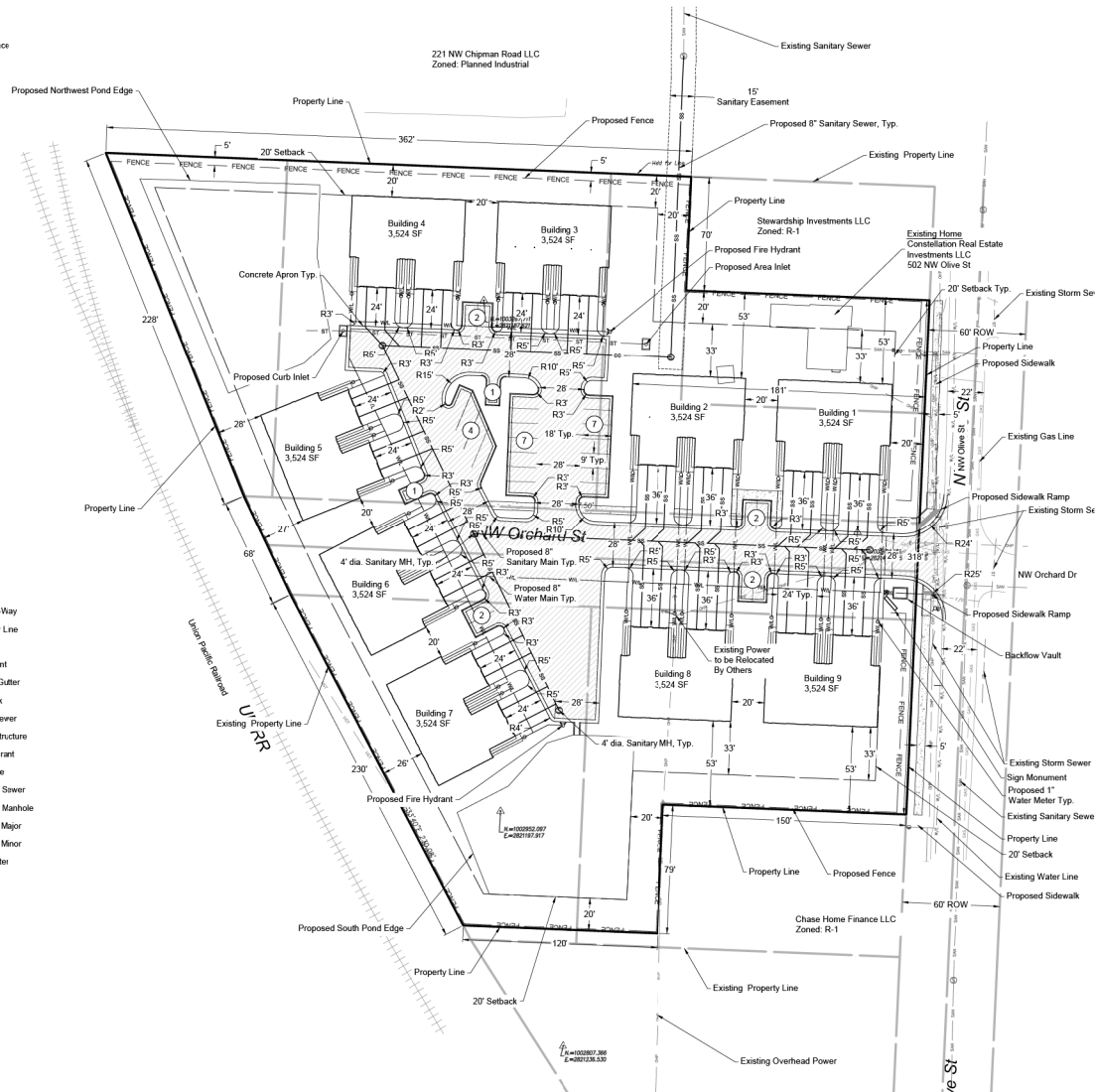
PCC Pavement Section

- Roll Back Dry Curb & Gutter (Type CG-2 Dry)
- Straight Back Dry Curb & Gutter (Type CG-1 Dry)

LEGEND

- | | |
|--------------------------------|-----------------------------|
| --- Existing Section Line | --- Proposed Right-of-Way |
| --- Existing Right-of-Way Line | --- Proposed Property Line |
| --- Existing Lot Line | --- Proposed Lot Line |
| --- Existing Easement Line | --- Proposed Easement |
| --- Existing Curb & Gutter | --- Proposed Curb & Gutter |
| --- Existing Sidewalk | --- Proposed Sidewalk |
| --- Existing Storm Sewer | --- Proposed Storm Sewer |
| □ Existing Storm Structure | □ Proposed Storm Structure |
| --- Existing Waterline | --- Proposed Waterline |
| --- Existing Gas Main | --- Proposed Gas Main |
| --- Existing Sanitary Sewer | --- Proposed Sanitary Sewer |
| ○ Existing Sanitary Manhole | ○ Proposed Sanitary Manhole |
| --- Existing Contour Major | --- Proposed Contour Major |
| --- Existing Contour Minor | --- Proposed Contour Minor |
| | --- Future Curb & Gutter |

Lot Info
 Lot Area: 3.76AC
 Units: 36
 Units per Acre: 9.57
 Unit Size: 1,063 SF
 Total Floor Area: 66,520 SF
 Floor Area Ratio: .43
 Impervious Area: 68,663 SF (44.8%)
 Parking Required: 72 (2/Unit)
 Parking Provided: 136 (3/Unit, & 28 Visitor Parking)



SITE PLAN

BURTON TOWNHOMES
 LEE'S SUMMIT, MO

No Scale

Figure 2



priority
 ENGINEERS

PO Box 563
 Garden City, MO 64747
 816.738.4400

Time	SB Thru	NB Thru
00:00	0	0
00:15	0	1
00:30	0	0
00:45	2	1
01:00	1	1
01:15	0	0
01:30	1	1
01:45	0	0
02:00	0	0
02:15	1	0
02:30	0	0
02:45	0	1
03:00	0	0
03:15	0	0
03:30	1	0
03:45	0	0
04:00	0	0
04:15	0	1
04:30	0	1
04:45	0	0
05:00	0	3
05:15	0	2
05:30	1	1
05:45	3	3
06:00	3	7
06:15	1	7
06:30	7	4
06:45	9	8
07:00	3	13
07:15	14	7
07:30	2	13
07:45	5	8
08:00	4	6
08:15	6	3
08:30	4	7
08:45	5	5
09:00	2	7
09:15	6	4
09:30	5	6
09:45	2	7
10:00	6	4
10:15	6	6
10:30	4	5
10:45	2	6
11:00	9	4
11:15	14	4

11:30	4	1
11:45	6	9
12:00	8	5
12:15	1	2
12:30	2	5
12:45	3	1
13:00	4	3
13:15	6	4
13:30	7	2
13:45	1	8
14:00	5	5
14:15	6	5
14:30	12	2
14:45	4	6
15:00	8	1
15:15	10	12
15:30	11	13
15:45	11	6
16:00	11	7
16:15	13	14
16:30	10	8
16:45	13	7
17:00	11	11
17:15	7	10
17:30	11	7
17:45	6	11
18:00	11	10
18:15	14	8
18:30	11	3
18:45	24	5
19:00	7	5
19:15	3	4
19:30	2	3
19:45	6	5
20:00	0	8
20:15	5	9
20:30	2	12
20:45	2	6
21:00	2	7
21:15	1	2
21:30	3	2
21:45	3	2
22:00	4	1
22:15	4	3
22:30	2	1
22:45	0	3
23:00	0	0

23:15	0	1
23:30	0	0
23:45	0	0
Subtotal	426	422

Total	848
-------	-----

Olive Street South of intersection with Chipman Road
9/26/2018-9/27/2018

Study Nameorchard st

Study ID7216773905

Device Serial NumberF4:A3:5D:64:38:C7

Location (Google Maps)http://maps.google.com/maps?z=12&t=m&q=loc:38.9215734+-94.3799356

Dwell setting58 milliseconds

Tube spacing36 inches

Total axle events in range1810 axles

Algorithm version2.15

Time ZoneAmerica/Chicago - Central Daylight Time

Daily Summary		9/25/2018	9/26/2018
WestBound	Volume	119	17
EastBound	Volume	166	16
Total	Volume	285	33
WestBound	Average Speed	15	15
EastBound	Average Speed	20	20
Total	Average Speed	18	17
WestBound	85th Percentile Speed	18	18
EastBound	85th Percentile Speed	24	24
Total	85th Percentile Speed	22	23
WestBound	Percent Trucks	13%	35%
EastBound	Percent Trucks	4%	6%
Total	Percent Trucks	8%	21%
WestBound	AM Peak Hour	11:00-11:59	08:00-08:59
EastBound	AM Peak Hour	08:00-08:59	07:00-07:59
Total	AM Peak Hour	08:00-08:59	07:00-07:59
WestBound	AM Peak Hourly Volume	10	6
EastBound	AM Peak Hourly Volume	12	6
Total	AM Peak Hourly Volume	22	12
WestBound	PM Peak Hour	16:00-16:59	
EastBound	PM Peak Hour	15:00-15:59	
Total	PM Peak Hour	16:00-16:59	
WestBound	PM Peak Hourly Volume	18	
EastBound	PM Peak Hourly Volume	16	
Total	PM Peak Hourly Volume	34	0
*****			*****

Study Volume

Date	Hour	WestBound	EastBound	Total
9/25/2018	00:00-00:59	1	1	2
9/25/2018	01:00-01:59	0	2	2
9/25/2018	02:00-02:59	0	2	2
9/25/2018	03:00-03:59	0	0	0
9/25/2018	04:00-04:59	0	0	0
9/25/2018	05:00-05:59	0	2	2
9/25/2018	06:00-06:59	6	5	11
9/25/2018	07:00-07:59	5	7	12
9/25/2018	08:00-08:59	8	12	20
9/25/2018	09:00-09:59	4	8	12
9/25/2018	10:00-10:59	8	4	12
9/25/2018	11:00-11:59	10	9	19
9/25/2018	12:00-12:59	1	8	9
9/25/2018	13:00-13:59	6	13	19
9/25/2018	14:00-14:59	4	15	19
9/25/2018	15:00-15:59	12	16	28
9/25/2018	16:00-16:59	18	10	28
9/25/2018	17:00-17:59	7	15	22
9/25/2018	18:00-18:59	15	15	30
9/25/2018	19:00-19:59	6	11	17
9/25/2018	20:00-20:59	5	6	11
9/25/2018	21:00-21:59	2	1	3
9/25/2018	22:00-22:59	0	1	1
9/25/2018	23:00-23:59	1	3	4
9/26/2018	00:00-00:59	0	0	0
9/26/2018	01:00-01:59	0	0	0
9/26/2018	02:00-02:59	0	0	0
9/26/2018	03:00-03:59	0	0	0
9/26/2018	04:00-04:59	0	0	0
9/26/2018	05:00-05:59	4	2	6
9/26/2018	06:00-06:59	4	4	8
9/26/2018	07:00-07:59	3	6	9
9/26/2018	08:00-08:59	6	4	10

WestBound

[illegible]

EastBound

[illegible]

Total																				
Date	Hour	5-14 MPH	15-19 MPH	20-24 MPH	25-29 MI	30-34 MF	35-39 MF	40-44 M	45-49 MF	50-54 MI	55-59 MF	60-64 MF	65-69 MI	70-74 MPH	75-79 MPH	80-99 MPH	Total			
	9/25/2018 00:00-00:59	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2		
	9/25/2018 01:00-01:59	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2		
	9/25/2018 02:00-02:59	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2		
	9/25/2018 03:00-03:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9/25/2018 04:00-04:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9/25/2018 05:00-05:59	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2		
	9/25/2018 06:00-06:59	1	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	11		
	9/25/2018 07:00-07:59	1	6	3	2	0	0	0	0	0	0	0	0	0	0	0	0	12		
	9/25/2018 08:00-08:59	4	11	4	1	0	0	0	0	0	0	0	0	0	0	0	0	20		
	9/25/2018 09:00-09:59	3	4	4	1	0	0	0	0	0	0	0	0	0	0	0	0	12		
	9/25/2018 10:00-10:59	3	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	12		
	9/25/2018 11:00-11:59	2	13	3	1	0	0	0	0	0	0	0	0	0	0	0	0	19		
	9/25/2018 12:00-12:59	0	5	2	2	0	0	0	0	0	0	0	0	0	0	0	0	9		
	9/25/2018 13:00-13:59	3	10	5	1	0	0	0	0	0	0	0	0	0	0	0	0	19		
	9/25/2018 14:00-14:59	2	10	5	2	0	0	0	0	0	0	0	0	0	0	0	0	19		
	9/25/2018 15:00-15:59	5	12	9	2	0	0	0	0	0	0	0	0	0	0	0	0	28		
	9/25/2018 16:00-16:59	10	14	3	1	0	0	0	0	0	0	0	0	0	0	0	0	28		
	9/25/2018 17:00-17:59	2	12	6	2	0	0	0	0	0	0	0	0	0	0	0	0	22		
	9/25/2018 18:00-18:59	6	16	4	3	1	0	0	0	0	0	0	0	0	0	0	0	30		
	9/25/2018 19:00-19:59	4	6	7	0	0	0	0	0	0	0	0	0	0	0	0	0	17		
	9/25/2018 20:00-20:59	1	6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	11		
	9/25/2018 21:00-21:59	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3		
	9/25/2018 22:00-22:59	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
	9/25/2018 23:00-23:59	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4		
	9/26/2018 00:00-00:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9/26/2018 01:00-01:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9/26/2018 02:00-02:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9/26/2018 03:00-03:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9/26/2018 04:00-04:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9/26/2018 05:00-05:59	3	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	6		
	9/26/2018 06:00-06:59	1	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	8		
	9/26/2018 07:00-07:59	2	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	9		
	9/26/2018 08:00-08:59	4	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	10		

WestBound

[illegible]

EastBound

[illegible]

Total																
Date	Hour	Class #1	Class #2	Class #3	Class #4	Class #5	Class #6	Class #7	Class #8	Class #9	Class #10	Class #11	Class #12	Class #13	Unknown	Total
	9/25/2018 00:00-00:59	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
	9/25/2018 01:00-01:59	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
	9/25/2018 02:00-02:59	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
	9/25/2018 03:00-03:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9/25/2018 04:00-04:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9/25/2018 05:00-05:59	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
	9/25/2018 06:00-06:59	1	6	3	1	0	0	0	0	0	0	0	0	0	0	11
	9/25/2018 07:00-07:59	2	9	0	0	1	0	0	0	0	0	0	0	0	0	12
	9/25/2018 08:00-08:59	1	12	5	1	0	1	0	0	0	0	0	0	0	0	20
	9/25/2018 09:00-09:59	2	6	3	1	0	0	0	0	0	0	0	0	0	0	12
	9/25/2018 10:00-10:59	3	8	1	0	0	0	0	0	0	0	0	0	0	0	12
	9/25/2018 11:00-11:59	1	11	6	1	0	0	0	0	0	0	0	0	0	0	19
	9/25/2018 12:00-12:59	1	5	3	0	0	0	0	0	0	0	0	0	0	0	9
	9/25/2018 13:00-13:59	2	13	1	1	1	1	0	0	0	0	0	0	0	0	19
	9/25/2018 14:00-14:59	0	17	0	0	0	2	0	0	0	0	0	0	0	0	19
	9/25/2018 15:00-15:59	2	19	4	1	2	0	0	0	0	0	0	0	0	0	28
	9/25/2018 16:00-16:59	5	14	7	2	0	0	0	0	0	0	0	0	0	0	28
	9/25/2018 17:00-17:59	0	17	5	0	0	0	0	0	0	0	0	0	0	0	22
	9/25/2018 18:00-18:59	2	20	4	3	1	0	0	0	0	0	0	0	0	0	30
	9/25/2018 19:00-19:59	2	9	5	1	0	0	0	0	0	0	0	0	0	0	17
	9/25/2018 20:00-20:59	1	7	2	1	0	0	0	0	0	0	0	0	0	0	11
	9/25/2018 21:00-21:59	1	1	1	0	0	0	0	0	0	0	0	0	0	0	3
	9/25/2018 22:00-22:59	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	9/25/2018 23:00-23:59	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
	9/26/2018 00:00-00:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9/26/2018 01:00-01:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9/26/2018 02:00-02:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9/26/2018 03:00-03:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9/26/2018 04:00-04:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9/26/2018 05:00-05:59	1	3	1	1	0	0	0	0	0	0	0	0	0	0	6
	9/26/2018 06:00-06:59	2	6	0	0	0	0	0	0	0	0	0	0	0	0	8
	9/26/2018 07:00-07:59	0	5	4	0	0	0	0	0	0	0	0	0	0	0	9
	9/26/2018 08:00-08:59	1	2	1	2	2	2	0	0	0	0	0	0	0	0	10