```
In [6]: runfile('C:/Users/bijus/Google Drive/Business/USA Project (1)/Maatic Inc/Santosh
Khadka/Python 2 JAVA conversion/LightCTOP/LightCTOP/Main.py', wdir='C:/Users/bijus/Google
Drive/Business/USA Project (1)/Maatic Inc/Santosh Khadka/Python 2 JAVA conversion/LightCTOP/
LightCTOP')
Reloaded modules: Global_Variables, Process_ADL, Process_TOS, Visualization,
Process_Capacity
----------------------------------------------------------------------------------------
--------
Current Time       2018-08-06 16:19:08Z
CTOP Window        2018-08-06 21:00:00Z to 2018-08-07 01:59:59Z
Airport Flow       DFW South Flow

Reading Parameters from Excel File

Capacity Information in Each 15-mins Time Periods
BRDJE  9  9  9  9  9  9  9  9  9  9  9  9  9  9  9  9  9  9  9  9
VKTRY  9  9  9  9  9  9  9  9  9  9  9  9  9  9  9  9  9  9  9  9
BOOVE  8  8  8  8  8  8  8  8  8  8  8  8  8  8  8  8  8  8  8  8
BEREE  8  8  8  8  8  8  8  8  8  8  8  8  8  8  8  8  8  8  8  8

ADL File     : Data\ADL_Files\dfw__.lcdm.06161908.01.all.gamf
TOS File     : Data\cannedrouteexport. 20180606_1707.csv
Output Folder: Data\Model_Output_DFW_South\
----------------------------------------------------------------------------------------
--------
Input CTOP Parameters Checking

CTOP Parameters Checking Passed
----------------------------------------------------------------------------------------
--------
TOS File Analysis
Map route to the arrival fix is successful

For the Following Airline/Station, in a TOS Set at Least Two Routes Cross the Same Arrival
Fix
     airline_code departure_station    AFIX
10            AAL               ATL   BRDJE
11            AAL               ATL   BRDJE
71            ENY               GSO   BEREE
72            ENY               GSO   BEREE
85            AAL               ICT   VKTRY
86            AAL               ICT   VKTRY
88            ASH               ICT   BRDJE
89            ASH               ICT   BRDJE
90            ENY               ICT   VKTRY
92            ENY               ICT   VKTRY
114           AAL               LAX   VKTRY
115           AAL               LAX   VKTRY
142           ENY               MEM   BRDJE
143           ENY               MEM   BRDJE
199           AAL               SAN   VKTRY
200           AAL               SAN   VKTRY
221           ENY               SWO   BRDJE
222           ENY               SWO   BRDJE
237           AAL               VPS   BEREE
238           AAL               VPS   BEREE
----------------------------------------------------------------------------------------
```

```
--------
The Following Flights Don't Have EAFT Information
        ACID  ORIG DCENTR     ETD      ETA
75   ENY3612  SPS    ZFW  A061555  E061619
217  AAL221  EHAM    ZEU  A060853  E061836
-------------------------------------------------------------------------------------------
--------
The Following Flights Have Been Cancelled
Empty DataFrame
Columns: [ACID, ETD, AFIX, EAFT]
Index: []
-------------------------------------------------------------------------------------------
--------
Demand Capacity Imbalance Information
From 08-06 21:45 to 08-06 21:59 at BRDJE, demand  13 exceed capacity   9 ( 4)
From 08-06 22:15 to 08-06 22:29 at BRDJE, demand  13 exceed capacity   9 ( 4)
From 08-07 01:30 to 08-07 01:44 at BRDJE, demand  12 exceed capacity   9 ( 3)
From 08-07 00:00 to 08-07 00:14 at VKTRY, demand  10 exceed capacity   9 ( 1)
From 08-06 22:00 to 08-06 22:14 at BEREE, demand  11 exceed capacity   8 ( 3)
From 08-06 23:45 to 08-06 23:59 at BEREE, demand   9 exceed capacity   8 ( 1)
In total 16 FCA Capacity Violations
{'AA No TOS': array([0, 0, 0, 5, 4, 6, 1, 1, 0, 3, 0, 3, 1, 1, 1, 1, 0, 6, 7, 4]), 'En
route': array([1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]), 'OA': array([0,
3, 0, 1, 3, 2, 2, 4, 0, 2, 0, 1, 0, 2, 0, 1, 1, 0, 1, 1]), 'Reroutable': array([1, 1, 2, 7,
2, 5, 0, 0, 0, 0, 1, 5, 3, 3, 0, 0, 1, 3, 4, 4])}
{'AA No TOS': array([3, 1, 4, 4, 3, 2, 0, 0, 0, 4, 8, 5, 5, 2, 0, 0, 0, 3, 2, 5]),
'Exempted': array([2, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]), 'OA':
array([1, 2, 1, 1, 0, 0, 1, 0, 2, 0, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0]), 'Reroutable': array([1,
1, 1, 1, 2, 3, 1, 0, 0, 1, 0, 3, 5, 0, 0, 1, 0, 1, 1, 3])}
{'AA No TOS': array([3, 1, 1, 1, 1, 0, 0, 0, 2, 2, 0, 0, 2, 0, 0, 0, 0, 1, 0, 0]), 'OA':
array([1, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0]), 'Reroutable': array([1,
1, 1, 2, 6, 2, 1, 0, 0, 1, 2, 8, 4, 0, 1, 0, 0, 4, 3, 3])}
{'AA No TOS': array([0, 1, 3, 0, 5, 2, 1, 0, 3, 3, 1, 3, 4, 1, 0, 0, 0, 2, 3, 2]), 'OA':
array([0, 0, 0, 0, 2, 0, 0, 0, 1, 2, 0, 3, 0, 0, 1, 0, 1, 0, 0, 0]), 'Reroutable': array([1,
0, 1, 0, 4, 3, 0, 0, 1, 1, 2, 3, 3, 2, 0, 1, 0, 0, 3, 4])}
```
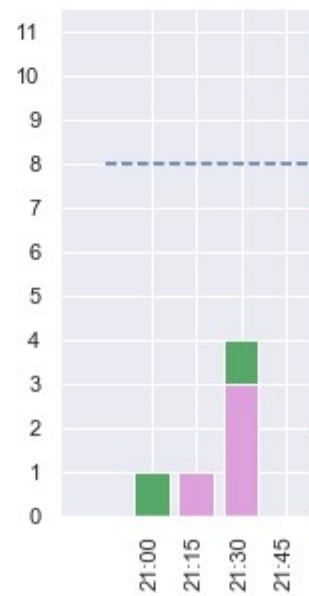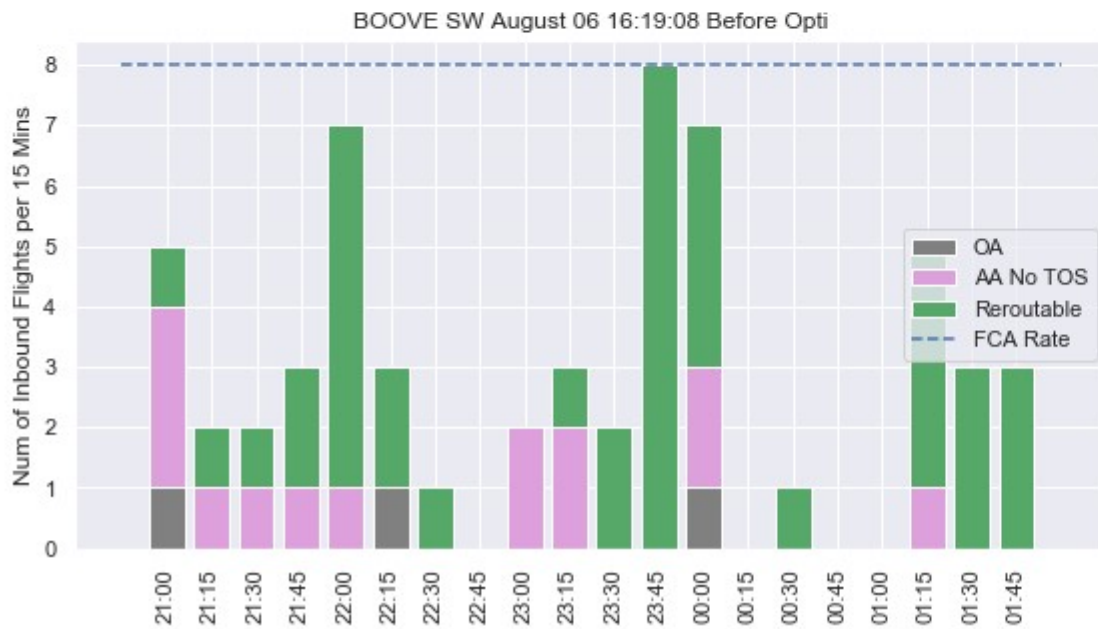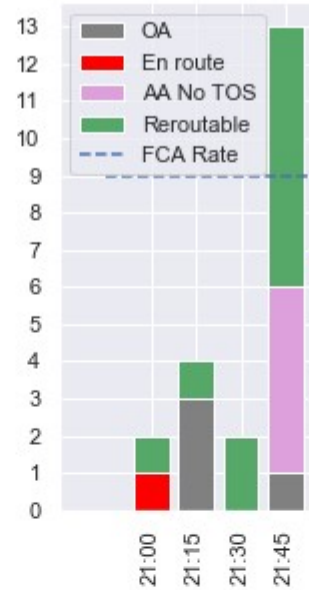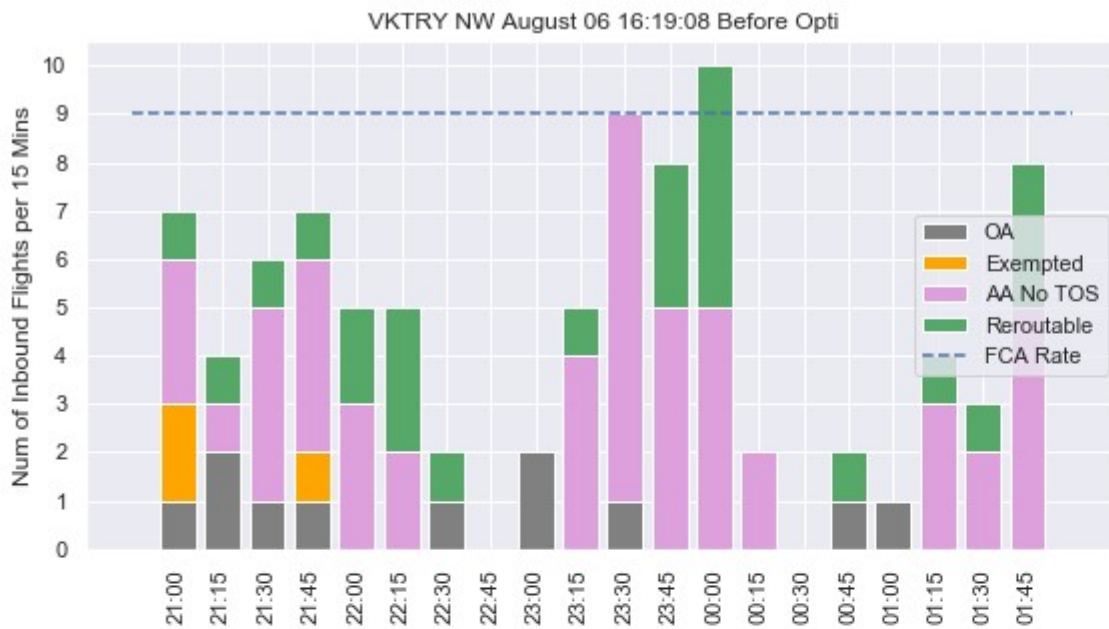
VKTRY NW August 06 16:19:08 Before Opti

BOOVE SW August 06 16:19:08 Before Opti

```
In [7]: tos
Traceback (most recent call last):

  File "<ipython-input-7-7412a7ccfbf7>", line 1, in <module>
    tos

NameError: name 'tos' is not defined


In [8]:

In [8]: TOS
Out[8]:
    airline_code  ...      AFIX
1            ENY  ...     BOOVE
```

2	ENY	...	VKTRY
3	AAL	...	VKTRY
4	AAL	...	BOOVE
5	ASH	...	VKTRY
6	ASH	...	BOOVE
7	ENY	...	BEREE
8	ENY	...	BRDJE
9	AAL	...	BEREE
10	AAL	...	BRDJE
11	AAL	...	BRDJE
12	AAL	...	BOOVE
13	AAL	...	BEREE
14	ASH	...	BEREE
15	ASH	...	BRDJE
16	ENY	...	BEREE
17	ENY	...	BRDJE
18	ASH	...	BRDJE
19	ASH	...	VKTRY
20	AAL	...	BRDJE
21	AAL	...	BEREE
22	AAL	...	VKTRY
23	ENY	...	BEREE
24	ENY	...	BOOVE
25	ASH	...	BOOVE
26	ASH	...	BEREE
27	ENY	...	BEREE
28	ENY	...	BRDJE
29	ASH	...	BRDJE
30	ASH	...	BEREE
..	...	...	...
213	ENY	...	BEREE
214	ENY	...	BRDJE
215	AAL	...	BOOVE
216	AAL	...	VKTRY
217	ENY	...	BRDJE
218	ENY	...	VKTRY
219	AAL	...	BRDJE
220	AAL	...	VKTRY
221	ENY	...	BRDJE
222	ENY	...	BRDJE
223	AAL	...	BRDJE
224	AAL	...	VKTRY
225	ASH	...	BRDJE
226	ASH	...	VKTRY
227	AAL	...	BOOVE
228	AAL	...	VKTRY
229	ENY	...	BRDJE
230	ENY	...	VKTRY
231	ENY	...	BEREE
232	ENY	...	BRDJE
233	ASQ	...	BRDJE
234	ASQ	...	BEREE
235	ENY	...	BRDJE
236	ENY	...	BEREE
237	AAL	...	BEREE
238	AAL	...	BEREE
239	ENY	...	BEREE
240	ENY	...	BRDJE
241	ENY	...	BRDJE

242   ENY ...   VKTRY

[242 rows x 8 columns]

In [**9**]: