In [1]:
```
import pandas as pd
import datetime
import os
import plotly.express as px
```

In [2]:
```
# Highway vehicle detections

df_traffic_data_autobahn_total = None

# assign directory
directory = 'traffic data/autobahn data'

# iterate over files in
# that directory
for filename in os.listdir(directory):
    file_path = os.path.join(directory, filename)
    # checking if it is a file
    if os.path.isfile(file_path):
        print(file_path)

        # Open File
        df_traffic_data_autobahn_year = pd.read_csv(file_path,  delimiter=';')

        df_traffic_data_autobahn_year['Datum'] = '20' + df_traffic_data_autobahn_year['Datum'].apply(str)

        df_traffic_data_autobahn_year['Datum'] = pd.to_datetime(df_traffic_data_autobahn_year['Datum'], format='%Y%m%

        df_traffic_data_autobahn_year['Autobahn_KFZ_Total'] = df_traffic_data_autobahn_year['KFZ_R1'] + df_traffic_da

        df_traffic_data_autobahn_year = df_traffic_data_autobahn_year[['Datum','Autobahn_KFZ_Total']]

        # Step 4: Group KFZ_R1 and KFZ_R2 values on date.
        df_traffic_data_autobahn_year = df_traffic_data_autobahn_year.groupby('Datum').sum('Autobahn_KFZ_Total')

        if df_traffic_data_autobahn_total is None:
            df_traffic_data_autobahn_total = df_traffic_data_autobahn_year
        else:
            df_traffic_data_autobahn_total = pd.concat([df_traffic_data_autobahn_total, df_traffic_data_autobahn_year


df_traffic_data_autobahn_total['Autobahn_KFZ_Total_Rolling_Average_7_Days'] = df_traffic_data_autobahn_total.rolling(

# Read File
df_traffic_data_autobahn_total
```

```
traffic data/autobahn data\2017_A_S.txt
traffic data/autobahn data\2018_A_S.txt
traffic data/autobahn data\2019_A_S.txt
traffic data/autobahn data\2020_A_S.txt
traffic data/autobahn data\2021_A_S.txt
```

Out[2]:

Datum	Autobahn_KFZ_Total	Autobahn_KFZ_Total_Rolling_Average_7_Days
2017-01-01	26975627	2.697563e+07
2017-01-02	41560509	3.426807e+07
2017-01-03	39117647	3.588459e+07
2017-01-04	36828052	3.612046e+07
2017-01-05	39337185	3.676380e+07
...	...	...
2021-12-27	42884833	4.293691e+07
2021-12-28	41452599	4.184089e+07
2021-12-29	41882438	4.037421e+07
2021-12-30	43390035	3.904579e+07
2021-12-31	26765605	3.820287e+07

1826 rows × 2 columns

In [3]:
```
# Federal roads vehicle detections

df_traffic_data_bundesstrassen_total = None

# assign directory
directory = 'traffic data/bundesstrassen data'

# iterate over files in
# that directory
for filename in os.listdir(directory):
    file_path = os.path.join(directory, filename)
    # checking if it is a file
    if os.path.isfile(file_path):
        print(file_path)

        # Open File
        df_traffic_data_bundesstrassen_year = pd.read_csv(file_path, delimiter=';', low_memory=False)

        df_traffic_data_bundesstrassen_year['Datum'] = '20' + df_traffic_data_bundesstrassen_year['Datum'].apply(str)

        df_traffic_data_bundesstrassen_year['Datum'] = pd.to_datetime(df_traffic_data_bundesstrassen_year['Datum'], f

        df_traffic_data_bundesstrassen_year['Bundesstrassen_KFZ_Total'] = df_traffic_data_bundesstrassen_year['KFZ_R1

        df_traffic_data_bundesstrassen_year = df_traffic_data_bundesstrassen_year[['Datum','Bundesstrassen_KFZ_Total'

        # Step 4: Group KFZ_R1 and KFZ_R2 values on date.
        df_traffic_data_bundesstrassen_year = df_traffic_data_bundesstrassen_year.groupby('Datum').sum('Bundesstrasse

        if df_traffic_data_bundesstrassen_total is None:
            df_traffic_data_bundesstrassen_total = df_traffic_data_bundesstrassen_year
        else:
            df_traffic_data_bundesstrassen_total = pd.concat([df_traffic_data_bundesstrassen_total, df_traffic_data_b


df_traffic_data_bundesstrassen_total['Bundesstrassen_KFZ_Total_Rolling_Average_7_Days'] = df_traffic_data_bundesstras

# Read File
df_traffic_data_bundesstrassen_total
```

```
traffic data/bundesstrassen data\2017_B_S.txt
traffic data/bundesstrassen data\2018_B_S.txt
traffic data/bundesstrassen data\2019_B_S.txt
traffic data/bundesstrassen data\2020_B_S.txt
traffic data/bundesstrassen data\2021_B_S.txt
```

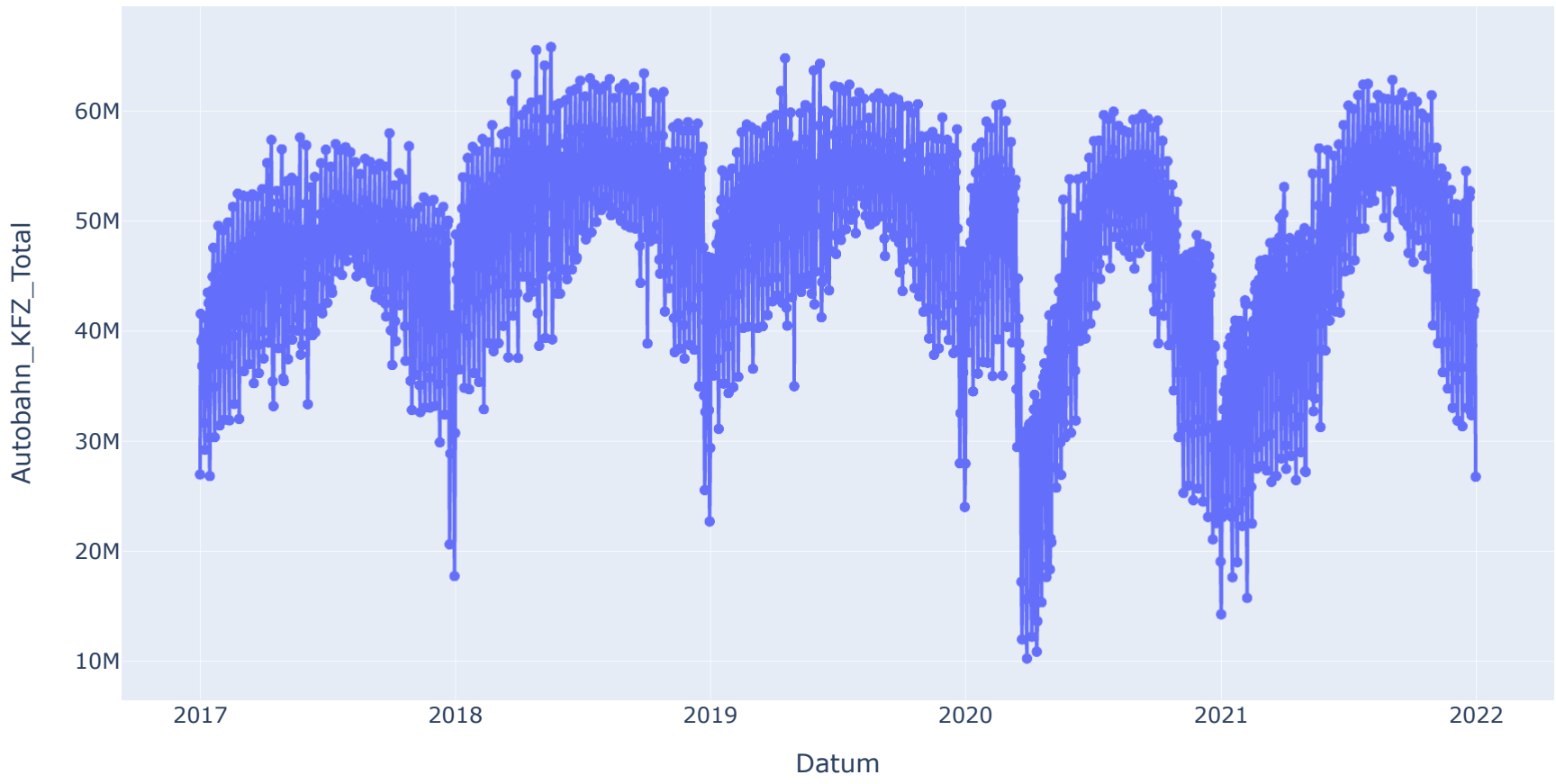
Out[3]:

Datum	Bundesstrassen_KFZ_Total	Bundesstrassen_KFZ_Total_Rolling_Average_7_Days
2017-01-01	3886847	3.886847e+06
2017-01-02	7362853	5.624850e+06
2017-01-03	7740331	6.330010e+06
2017-01-04	7537968	6.632000e+06
2017-01-05	8039175	6.913435e+06
...	...	...
2021-12-27	7923371	7.957952e+06
2021-12-28	8050999	7.596847e+06
2021-12-29	8310961	7.272411e+06
2021-12-30	8555059	7.103476e+06
2021-12-31	5568421	7.044972e+06

1826 rows × 2 columns

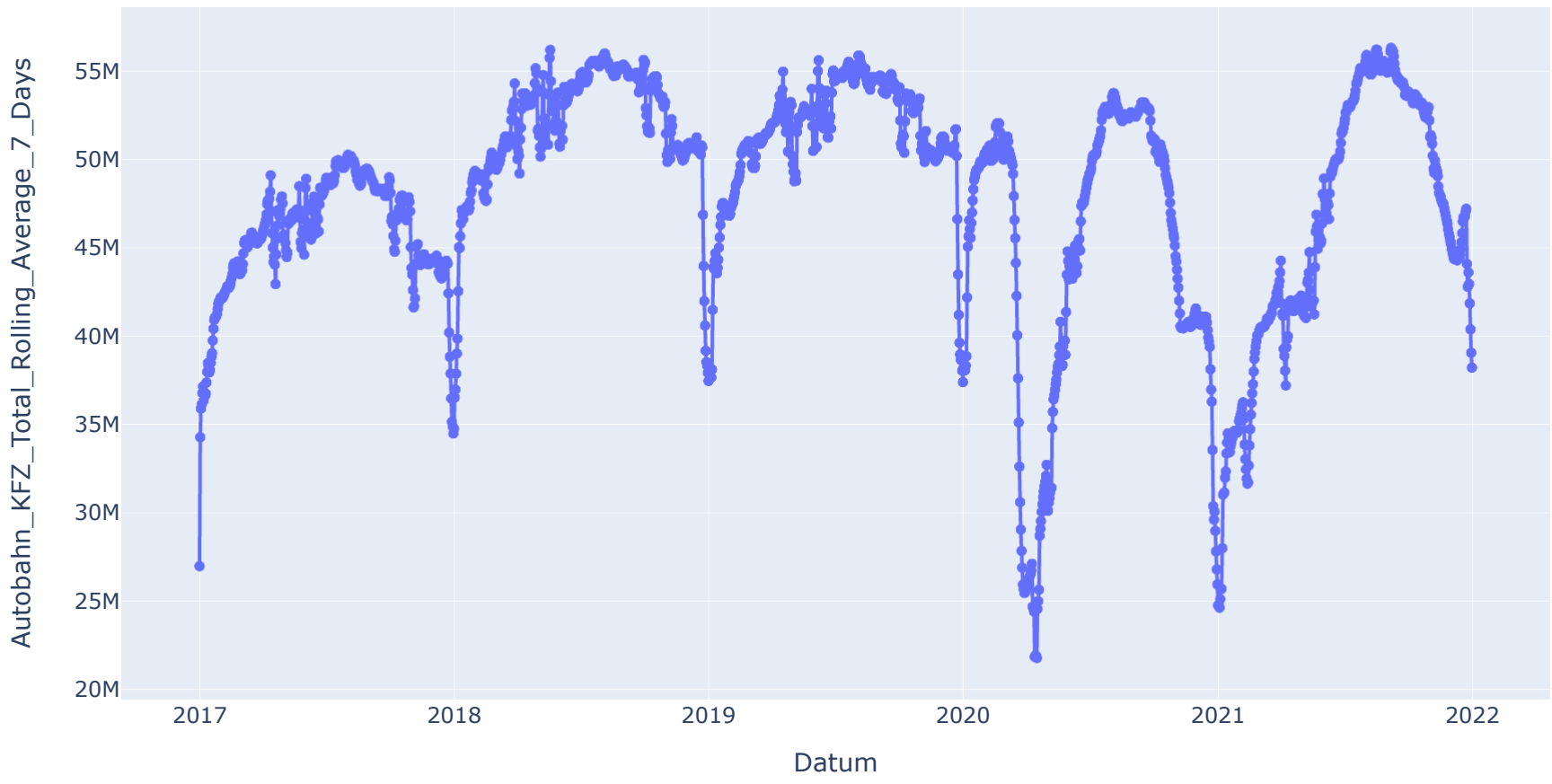
In [4]:
```
# Plot and check highway vehicle detections data
fig = px.line(df_traffic_data_autobahn_total, x=df_traffic_data_autobahn_total.index, y='Autobahn_KFZ_Total', markers

fig.show()
```



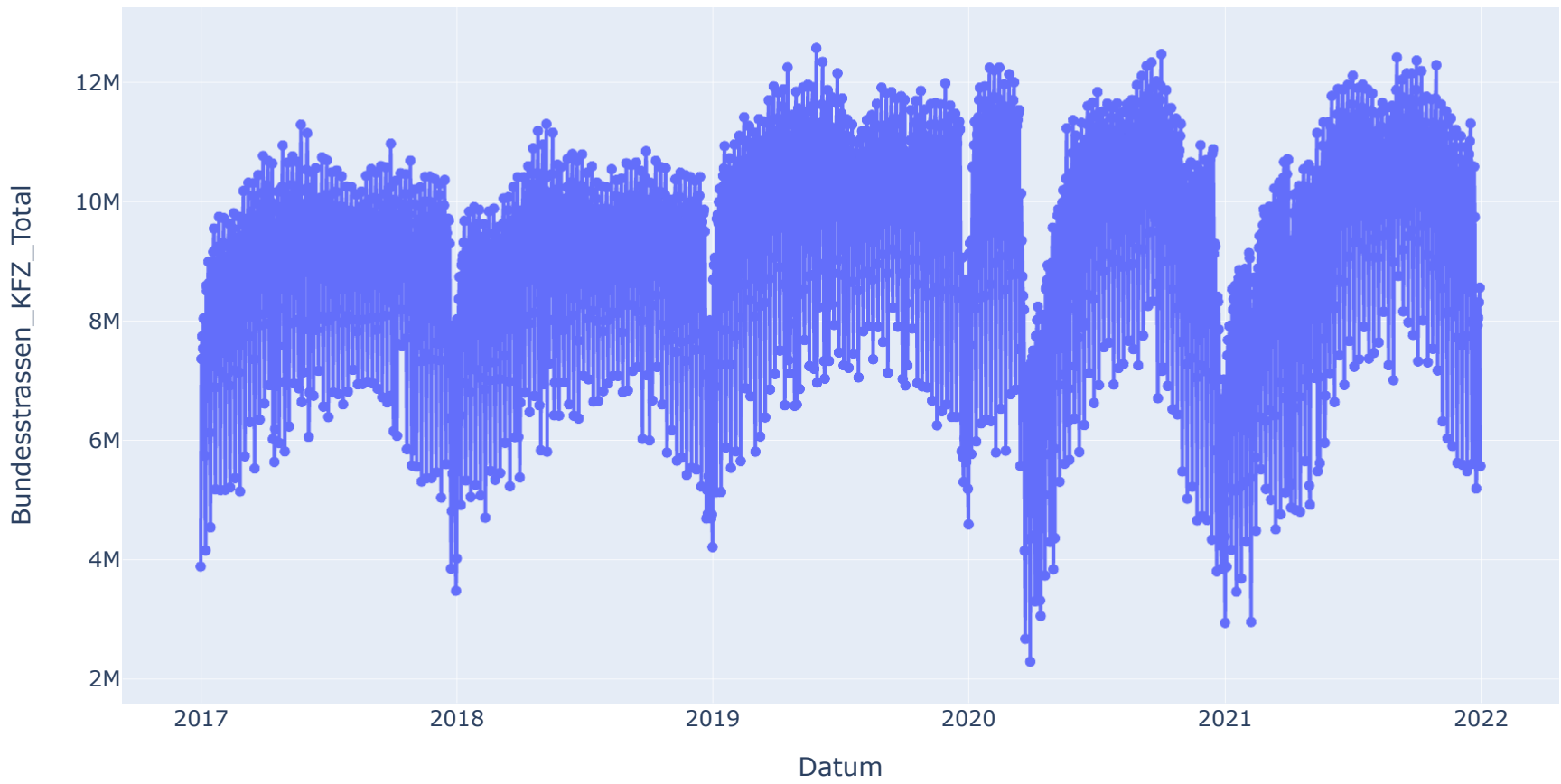
In [5]:
```
# Plot and check highway vehicle detections smoothed moving average 7 days data
fig = px.line(df_traffic_data_autobahn_total, x=df_traffic_data_autobahn_total.index, y='Autobahn_KFZ_Total_Rolling_A

fig.show()
```



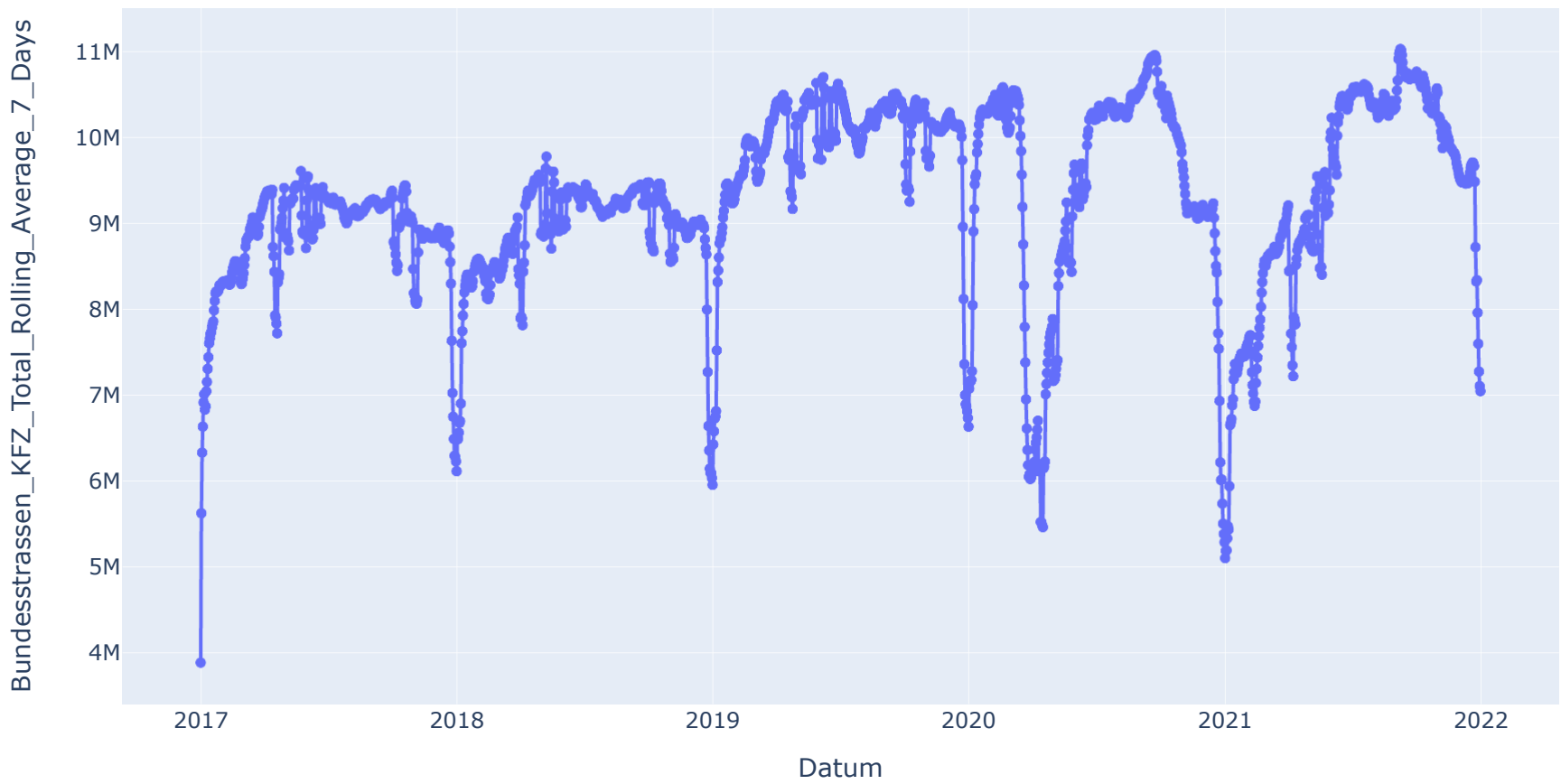
In [6]:
```
# Plot and check federal roads vehicle detections data
fig = px.line(df_traffic_data_bundesstrassen_total, x=df_traffic_data_bundesstrassen_total.index, y='Bundesstrassen_K

fig.show()
```



In [7]:
```
# Plot and check federal roads vehicle detections smoothed moving average 7 days data
fig = px.line(df_traffic_data_bundesstrassen_total, x=df_traffic_data_bundesstrassen_total.index, y='Bundesstrassen_K

fig.show()
```



In [8]:
```
# Combine the two dataframes using a outer join
# This allows for all the information to be available per day on row level

df_traffic_data_total = pd.merge(df_traffic_data_autobahn_total, df_traffic_data_bundesstrassen_total, how='left', or
```

In [9]:
```
# Add the vehicle detections for highways and federal roads to get the total result

df_traffic_data_total['Total'] = df_traffic_data_total['Autobahn_KFZ_Total'] + df_traffic_data_total['Bundesstrassen_
df_traffic_data_total['Total_Rolling_Average_7_Days'] = df_traffic_data_total['Autobahn_KFZ_Total_Rolling_Average_7_D

# Show total dataframe
df_traffic_data_total
```

Out[9]:

Datum	Autobahn_KFZ_Total	Autobahn_KFZ_Total_Rolling_Average_7_Days	Bundesstrassen_KFZ_Total	Bundesstrassen_KFZ_Total_Rolling_Averag
2017-01-01	26975627	2.697563e+07	3886847	3.88
2017-01-02	41560509	3.426807e+07	7362853	5.62
2017-01-03	39117647	3.588459e+07	7740331	6.33
2017-01-04	36828052	3.612046e+07	7537968	6.63
2017-01-05	39337185	3.676380e+07	8039175	6.91
...	...	...	...	
2021-12-27	42884833	4.293691e+07	7923371	7.95
2021-12-28	41452599	4.184089e+07	8050999	7.59
2021-12-29	41882438	4.037421e+07	8310961	7.27
2021-12-30	43390035	3.904579e+07	8555059	7.10
2021-12-31	26765605	3.820287e+07	5568421	7.04

1826 rows × 6 columns

In [10]:
```
# Write dataframe to the output file

df_traffic_data_total.to_csv('traffic data output/traffic data out.csv')
```