M3: Advanced Matplotlib Graphing Assignment - William Stencel

In [1]:
```python
%matplotlib inline
```

In [2]:
```python
import matplotlib.pyplot as plt
```

In [3]:
```python
import pandas as pd
```

In [8]:
```python
df_const = pd.read_csv('C:\\Grad\Competing Through Business Analytics\\M3\\ConstructionTimeSeriesData.csv')
```

In [9]: `df_const`

Out[9]:

	Year	Private Total	Private Residential	Private Lodging	Private Office	Private Commercial	Private Health care	Private Educational	Private Religious	Private Public safety	...	Public Health care	Public Educational	Public Public safety	An r
0	2008	768356.9	359171.4	35364.0	55501.9	82654.3	38437.4	18623.8	7197.0	623.4	...	8464.4	86266.6	12459.7	
1	2009	591508.0	247526.0	25388.0	37282.0	51128.0	35309.0	16851.0	6177.0	471.0	...	9536.0	86351.0	13316.0	
2	2010	505152.0	242035.0	11201.0	24368.0	37154.0	29552.0	13418.0	5237.0	241.0	...	9792.0	74986.0	10913.0	
3	2011	501807.0	244122.0	8395.0	23738.0	39153.0	28906.0	14081.0	4205.0	205.0	...	11297.0	70903.0	10202.0	
4	2012	570915.0	269784.0	10197.0	27448.0	44312.0	31429.0	16625.0	3819.0	103.0	...	11116.0	68047.0	10328.0	
5	2013	637418.0	323381.0	13028.0	30133.0	50947.0	29696.0	16919.0	3565.0	125.0	...	10993.0	62141.0	9382.0	
6	2014	731062.0	369793.0	16306.0	38864.0	60890.0	28885.0	16583.0	3380.0	227.0	...	9762.0	63098.0	9211.0	
7	2015	836482.0	422300.0	21436.0	47864.0	64493.0	30939.0	17688.0	3589.0	225.0	...	8726.0	67658.0	8280.0	
8	2016	914134.0	467138.0	26632.0	59758.0	75514.0	31756.0	20036.0	3752.0	105.0	...	8818.0	71593.0	8072.0	
9	2017	969065.0	525015.0	28065.0	59918.0	84479.0	33517.0	21232.0	3586.0	107.0	...	9604.0	75453.0	8432.0	
10	2018	999844.9	539606.7	30464.1	64591.1	91798.7	33254.8	21351.0	3261.9	169.4	...	9387.2	76426.1	9298.3	
11	2019	976963.0	514629.0	32455.0	68516.0	80992.0	35305.0	18997.0	2937.0	192.0	...	8941.0	78994.0	9994.0	

12 rows × 32 columns
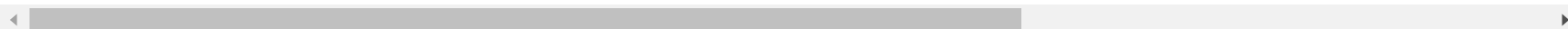
```
In [52]: df_const1 = df_const.set_index('Year')
         fig, ax = plt.subplots()
         plt.plot(df_const1['Private Total'], label = 'Private Total', linewidth='2.5', linestyle='--')
         plt.plot(df_const1['Public Total'], label = 'Public Total', linewidth='2.5')
         fig.set_size_inches(15,5)
         ax.xaxis.set_label_text('Year', fontsize='15')
         ax.yaxis.set_label_text('Construction Value (Millions)', fontsize='14')
         ax.axvspan(2009,2011, facecolor='k', alpha= 0.1)
         ax.text(2009, 850000, 'Economic Recession', fontsize='14')
         fig.suptitle("Public vs Private Construction from 2008 to 2019", fontsize='16')
         ax.grid(True)
         ax.set_yticklabels(['{:,.0f}'.format(x) for x in ax.get_yticks()])
         plt.legend(fontsize='14')
         plt.show()
         fig.savefig('Const.jpg', dpi=600)
```
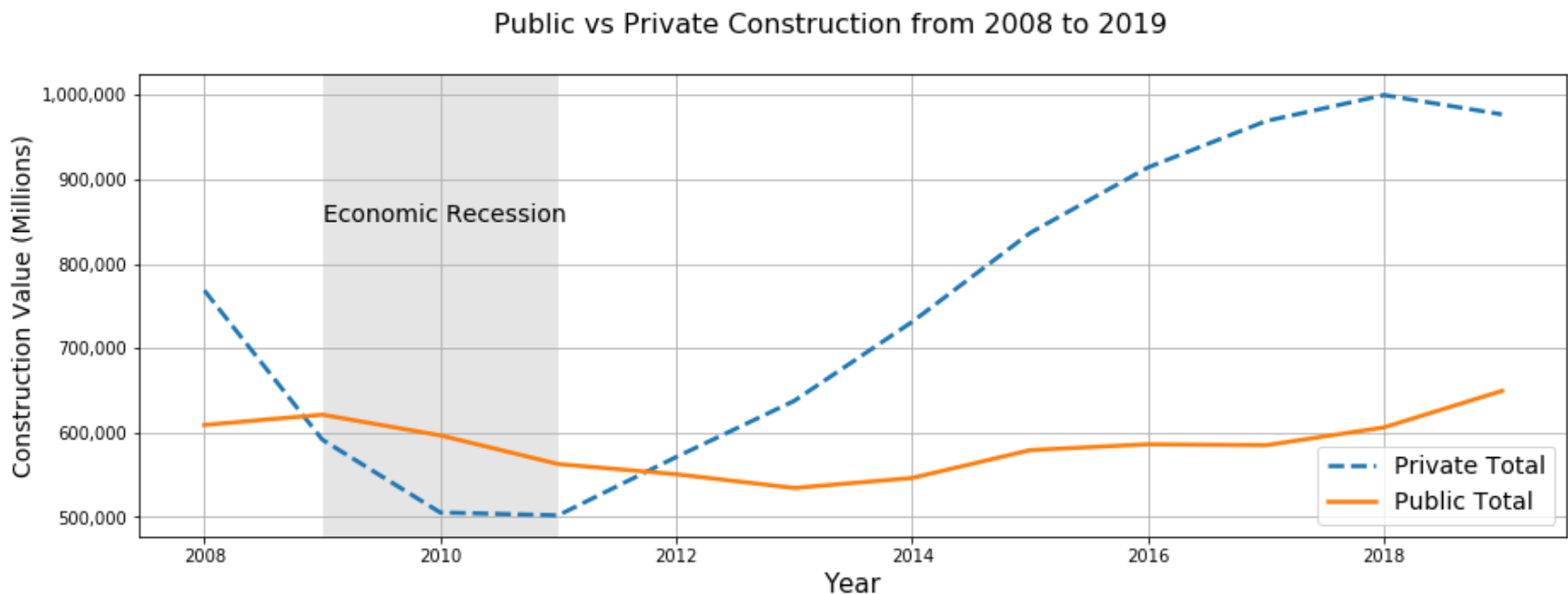

The economic recession that began in late 2008 severely depressed private construction spending in the United States. It started to rebound in 2011. Public construction was much less effected. See the blue dotted line in the chart.