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# Estimating Population Growth of Las Vegas

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# Estimating Population Growth of Las Vegas

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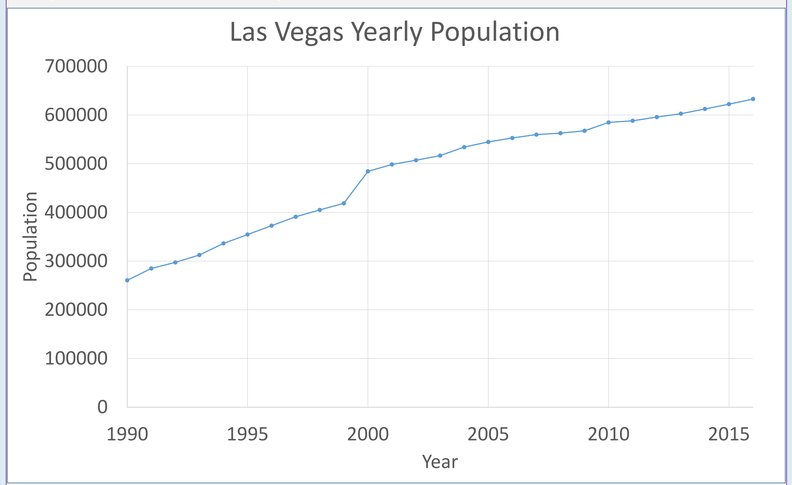
## Introduction

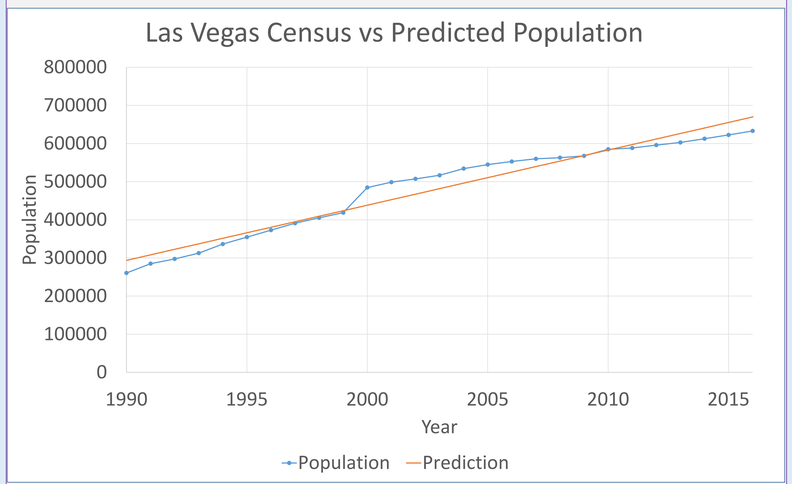
An issue we have identified is Las Vegas' population growth. To those that live in Las Vegas, many know that Las Vegas is one of the fastest-growing cities in the United States of America; due to its rampant growth, projecting future population growth is of utmost importance in order to prepare public utilities, housing developments, and other such services for the inevitable increase. Consequently, for our project, we are attempting to extrapolate upon existing population growth trends (identified by censuses of years past) and utilize the method of least squares to turn our extrapolation into a mathematical prediction.



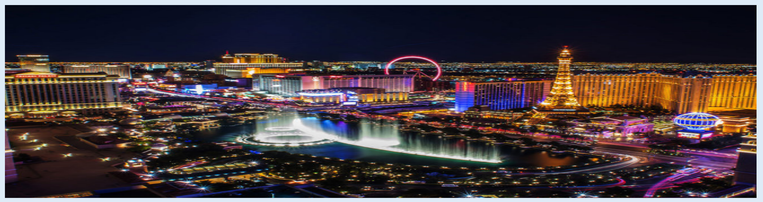

This graph illustrates the population of Las Vegas from the years 1990 – 2016.

## Method

We used the method of least squares to find the equation of the line representing Las Vegas' population growth: p = 14,460x - 28481000. Using this equation, we have calculated a reasonable estimate for the future populations of Las Vegas. After finding these estimates, we plotted these points on a line (shown in orange) over the top of our original census data to extrapolate on future population count.

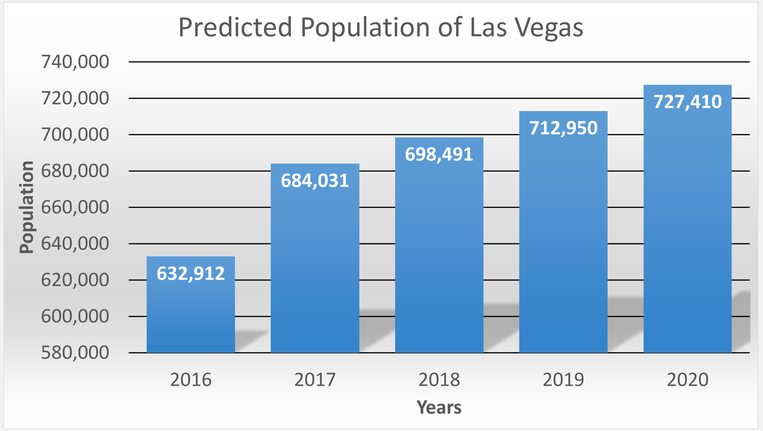



This graph illustrates the censes of Las Vegas contrasted with our predictions for the years 1990 – 2016.

## Results

Using the equation we found for the estimate, we calculated the values representing the mathematical prediction for a Las Vegas population in the future of 2017 - 2020. Note that this is an extension of our method of least squares equation, expanded for years past 2016.




This graph illustrates the last census of Las Vegas followed by our extrapolations for the years 2017 – 2020.

## Conclusion

Looking at our hard census data juxtaposed with our predictive data from our method of least squares equation, it appears that our estimations are quite reasonable and relatively likely to occur. If these current population trends continue as we have expected, Las Vegas will have sustainable population growth, and planning for this growth will help us ease into preparing public utilities, housing developments, and other such services for the inevitable increase.

## Discovery

If current trends continue over the next four years (2017 – 2020), Las Vegas should expect to have **94,498** new citizens.

## Census vs Predictions Chart

- The Years column (shown in red) represents the years for which we obtained data.
- The Census column (shown in blue) represents the data collected officially from the United States Census Bureau.
  - The available data only goes to the year 2016.
- The Predictions column (shown in green) represents our calculated populations for the years 2017 – 2020.

| Years | Census | Prediction |
|---|---|---|
| 1990 | 260561 | 293622 |
| 1991 | 284931 | 308081 |
| 1992 | 297326 | 322541 |
| 1993 | 312634 | 337000 |
| 1994 | 336380 | 351460 |
| 1995 | 354559 | 365920 |
| 1996 | 372849 | 380379 |
| 1997 | 391074 | 394839 |
| 1998 | 405245 | 409299 |
| 1999 | 418658 | 423758 |
| 2000 | 484487 | 438218 |
| 2001 | 498638 | 452677 |
| 2002 | 507219 | 467137 |
| 2003 | 516723 | 481597 |
| 2004 | 534168 | 496056 |
| 2005 | 544806 | 510516 |
| 2006 | 552855 | 524975 |
| 2007 | 559892 | 539435 |
| 2008 | 562849 | 553895 |
| 2009 | 567641 | 568354 |
| 2010 | 584862 | 582814 |
| 2011 | 588263 | 597274 |
| 2012 | 595848 | 611733 |
| 2013 | 602749 | 626193 |
| 2014 | 612531 | 640652 |
| 2015 | 622448 | 655112 |
| 2016 | 632912 | 669572 |
| 2017 | --- | 684031 |
| 2018 | --- | 698491 |
| 2019 | --- | 712951 |
| 2020 | --- | 727410 |

**References:** Data from United States Census Bureau; Pictures courtesy of Creative Commons License