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## COVID-19: Economic Recovery, Twitter, and Public Perception of Las Vegas

Mary Blankenship

*University of Nevada, Las Vegas, mary.blankenship@unlv.edu*

Caitlin Saladino

*The Lincy Institute and Brookings Mountain West, caitlin.saladino@unlv.edu*

William E. Brown Jr.

*The Lincy Institute and Brookings Mountain West, william.brown@unlv.edu*

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## COVID-19: ECONOMIC RECOVERY, TWITTER, AND PUBLIC PERCEPTION OF LAS VEGAS

Economic Development & Workforce Fact Sheet No. 18 | April 2020

Prepared by: Mary Blankenship, Caitlin J. Saladino, and William E. Brown, Jr.

### PURPOSE:

This Fact Sheet analyzes responses posted on Twitter, following an interview conducted by CNN reporter Anderson Cooper, who interviewed Carolyn Goodman, Mayor of the City of Las Vegas, concerning the re-opening of the Las Vegas economy during the COVID-19<sup>1</sup> pandemic.<sup>2</sup>

### THE INTERVIEW:

The interview aired on the afternoon of Wednesday, April 22<sup>nd</sup>, 2020.<sup>3</sup> In the days following the interview, the remarks offered by Mayor Goodman garnered extensive national and international media coverage. A number of elected officials and business leaders in Las Vegas and Nevada expressed their views on this topic via Twitter and other media outlets. Governor Steve Sisolak appeared with Anderson Cooper for a separate interview on the evening of April 22, 2020.<sup>4</sup>

In the interview, Mayor Goodman urged the immediate reopening of Las Vegas, to cease the statewide stay-at-home orders so that hospitality employees could return to the workforce and regain economic stability. The interview took place as states across the nation considered the public health and economic implications for closing non-essential businesses, requiring schools to conduct online classes through the spring semester, and maintaining social distancing and stay-at-home measures to level the rate of infections, hospitalizations, and deaths.<sup>5</sup>

Additionally, many reports and interviews following the events of April 22<sup>nd</sup> clarified that Carolyn Goodman serves as the mayor of the City of Las Vegas, and that the famed Las Vegas Strip resides in unincorporated Clark County. The Strip is governed by the Clark County Commission, currently led by its chairperson, Marilyn Kirkpatrick.

### KEY TAKEAWAYS:

1. In this collection, over 320,000 tweets concern the interview with Mayor Goodman and the highest number of tweets appeared on the day of the interview (186,150 tweets).
2. “#Covid19” is the most used hashtag within the collection (3,676 uses), followed by “#LasVegas” (2,713 uses) and “#coronavirus” (1,196 uses).
3. The top 3 emojis appearing in tweets include images of a laughing face, a woman face-palming her forehead, and a thumbs up emoji.
4. Tweets originated from 32 different countries outside of the United States; the top countries responding to the interview include the Philippines, Spain, Canada, Mexico, and Colombia.

<sup>1</sup> Twitter.com. [https://about.twitter.com/en\\_us/company.html](https://about.twitter.com/en_us/company.html)

<sup>2</sup> Also referred as SARS-CoV-2

<sup>3</sup> CNN Politics. (22 April 2020). Anderson Cooper presses Las Vegas mayor over wish to reopen. <https://www.cnn.com/videos/politics/2020/04/22/las-vegas-mayor-carolyn-goodman-reopen-coronavirus-entire-interview-anderson-cooper-sot-nr-vpx.cnn>

<sup>4</sup> Ibid.

<sup>5</sup> Nevada governor responds to Las Vegas mayor's remarks, YouTube, April 22, 2020. <https://www.youtube.com/watch?v=PzuDi7UIVYg>

<sup>6</sup> Sinatra, C. (6 April 2020). A New Texas COVID-19 Pandemic Toolkit Shows the Importance of Social Distancing. Received from <https://news.utexas.edu/2020/03/26/a-new-texas-covid-19-pandemic-toolkit-shows-the-importance-of-social-distancing/>

## ABOUT THE DATA:

Twitter allows its members to post information to a global audience of internet users. Individual posts, or tweets, published in the aftermath of Mayor Goodman’s remarks, can be harvested and analyzed to provide insights to the broad public interpretation of this interview. At Brookings Mountain West, we compiled a collection of 1,353,185 tweets generated between April 22<sup>nd</sup> 00:00:00 a.m. to April 27<sup>th</sup> 02:42:45 p.m., using Coordinated Universal Time (UTC). Led by UNLV student Mary Blankenship, an open-sourced source command line tool called Twarcr<sup>7</sup> was used to archive all tweets containing the word “mayor.” This broad term gathered an inclusive span of tweets, but not all tweets in the archive pertained to Mayor Goodman’s interview. To focus on relevant tweets, a sub-collection of tweets specifically mentioning “Goodman,” “Vegas,” “Nevada,” “LV,” or “NV” were extracted, and duplicates removed. Further discussion of methodology is available in Appendix A.

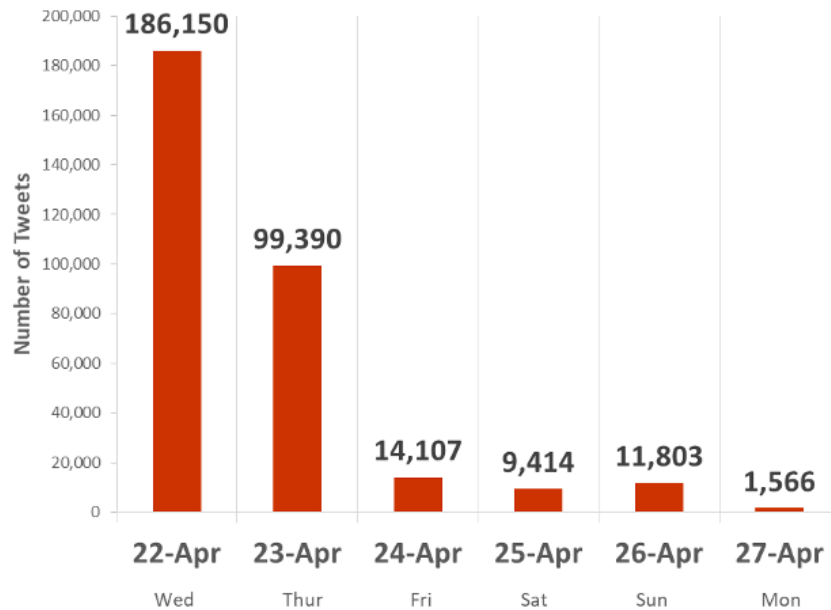
Table 1 shows the total number of tweets within the sub-collection that explicitly respond to Mayor Goodman’s interview. Within this sub-collection, tweets included 36,310 emojis and 43,014 hashtags within the 322,403 tweets.

**TABLE 1: DESCRIPTIVE STATISTICS**

	Number of Tweets
Tweets concerning Mayor Goodman	322,403
Emojis used	36,310
Hashtags used	43,014

Chart 1 shows a day-by-day breakdown of tweets within the sub-collection, with the greatest number of tweets (186,150) generated on Wednesday, April 22<sup>nd</sup> - the day of the interview. The number of tweets concerning the topic decreased as the days continued, which is typical given the 2.5-day lifespan of a topic on Twitter.<sup>8</sup> The volume of tweets increased slightly on Sunday, April 26<sup>th</sup>, perhaps due to renewed media coverage on television, newspaper, and online media outlets.

**CHART 1: NUMBER OF TWEETS PER DAY**



<sup>7</sup> DocNow. <https://www.docnow.io/>

<sup>8</sup> Carr, C. (April 2015). The data behind the average article lifespan. Received from <https://blog.parse.ly/post/1768/data-on-article-lifespans/>

Table 2 shows the top 5 hashtags and the frequency of use in the sub-collection, with “#Covid19” being the most popular hashtag with 3,676 uses. “#LasVegas” and “#coronavirus” follow as second and third-most used hashtags. It is important to note that there are many variations of similar hashtags and each variation is counted as a separate hashtag in this analysis.

### TABLE 2: TOP 5 HASHTAGS

Hashtag	Number of Uses
#Covid19	3,676
#LasVegas	2,713
#coronavirus	1,196
#CarolynGoodman	699
#signsyoureacovidiot	590

Figure 1 shows a word cloud generated, containing the top 150 hashtags used in the sub-collection. Some of the other hashtags used include #andersoncooper #stayhomesavelives #cuba #elsalvador #cnn #jimmykimmel #breaking

**FIGURE 1: POPULAR HASHTAGS USED<sub>9</sub>**



Chart 2 shows the top 5 emojis used in the sub-collection, with a “tears of joy face” as the most used emoji (3,567 uses). “Woman face palming” is in second place and is followed closely by “thumbs up” and the “rofl face” (rolling on floor laughing face). A “video camera” in fifth place and is this image typically highlights a video or news story present within a tweet. These emojis show mixed reactions of Twitter users. While the thumbs up indicates approval and the face palming woman can indicate discontent.

**CHART 2: TOP 5 EMOJIS USED**

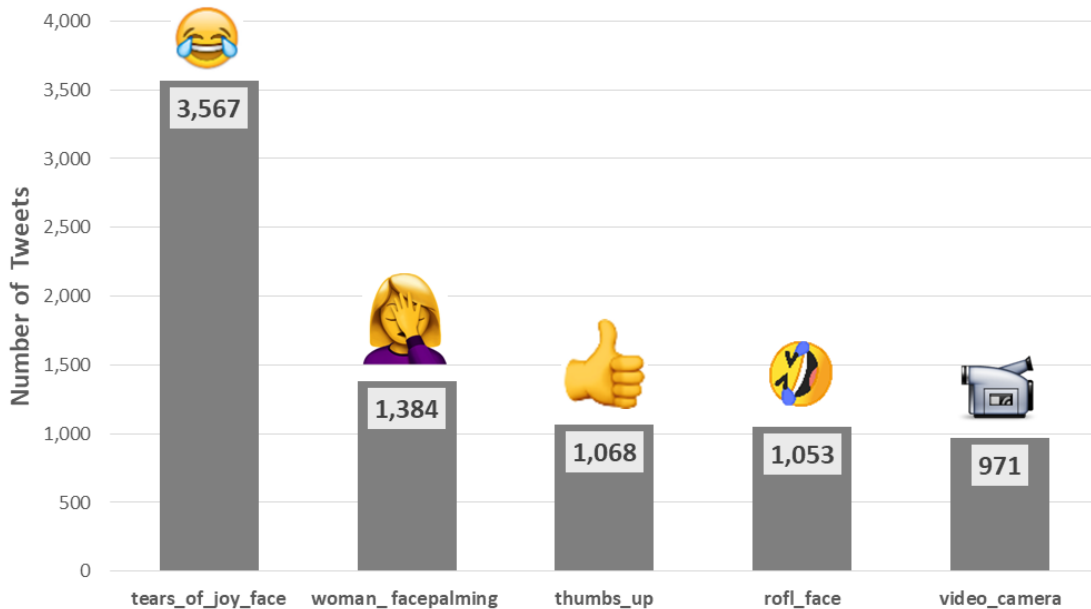


Chart 3 specifically focuses on yellow face-emojis, which offer the benefit of providing direct interpretation of the emotional response of the users. The top face-emoji is the “tears of joy face” with 3,567 uses within the sub-collection. The second most used emoji is the “rofl face,” which indicates laughter and/or chagrin. Other popular face-emojis include “flushed face,” “sobbing face,” and “rolling eyes face,” each indicating an unfavorable reaction.

**CHART 3: TOP 5 FACE-EMOJIS USED**

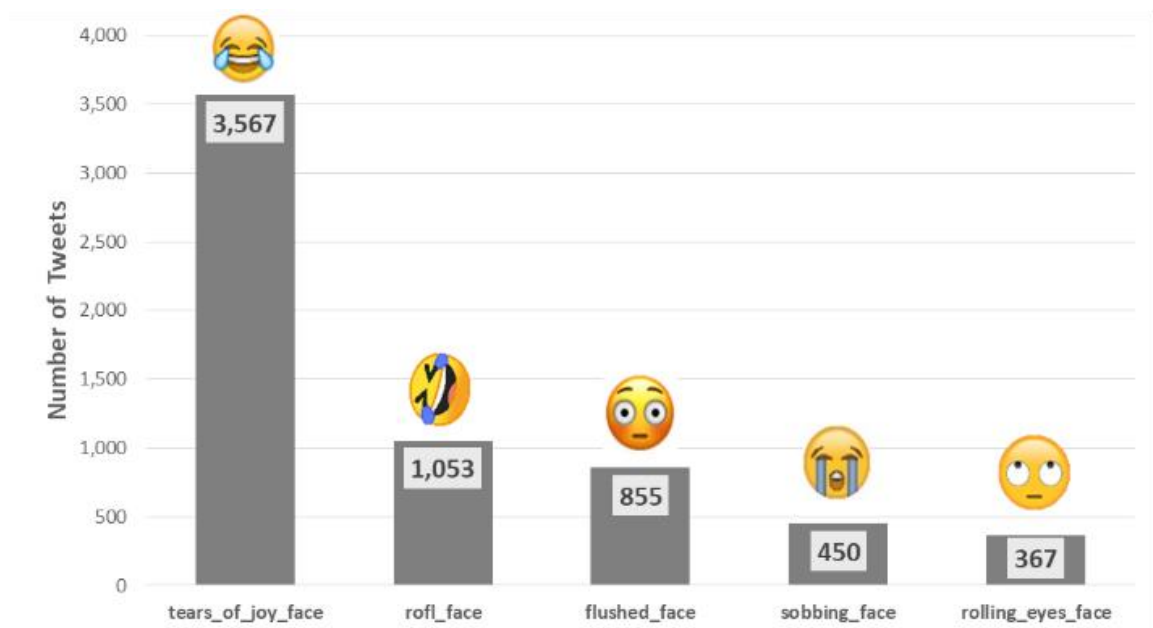


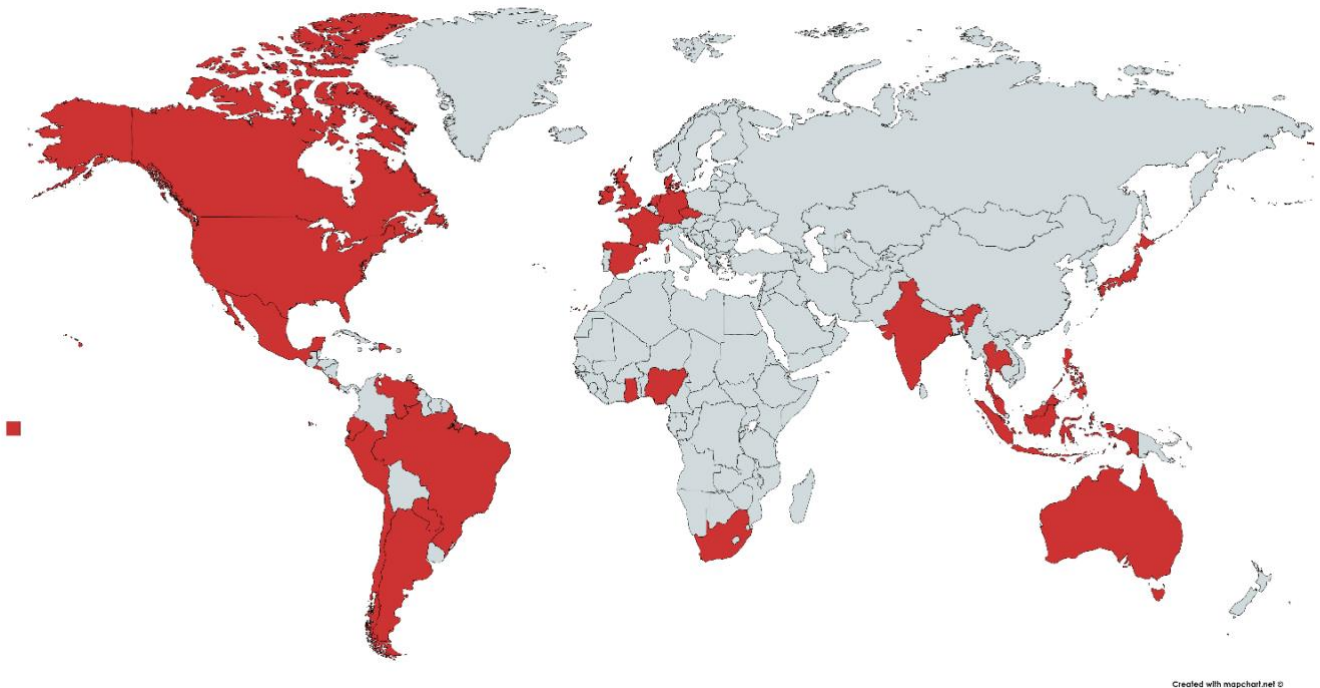
Table 3 shows the top cities within the United States where tweets originated from on Wednesday, April 22<sup>nd</sup> with a total of 1,743 locations. These locations were extracted from the location variable of “place,” which logs the location of a user at the time of a tweet. This is a feature that users must enable in their Twitter account settings and as a result most tweets do not have this information logged.

**TABLE 3: TOP 5 LOCATIONS WITHIN UNITED STATES**

City Name	Uses
Las Vegas	114
Paradise	46
Los Angeles	38
Henderson	35
Houston	35

Figure 2 shows a world map and the countries highlighted in red hosted users tweeting about the Mayor Goodman’s remarks on April 22<sup>nd</sup>. Tweets originated from 32 different countries outside of the United States (with 1,219 entries). The top countries recorded include the Philippines, Spain, Canada, Mexico, and Colombia.

**FIGURE 2: LOCATIONS OF TWEETS WORLDWIDE<sup>10</sup>**



<sup>10</sup> Map made with MapChart

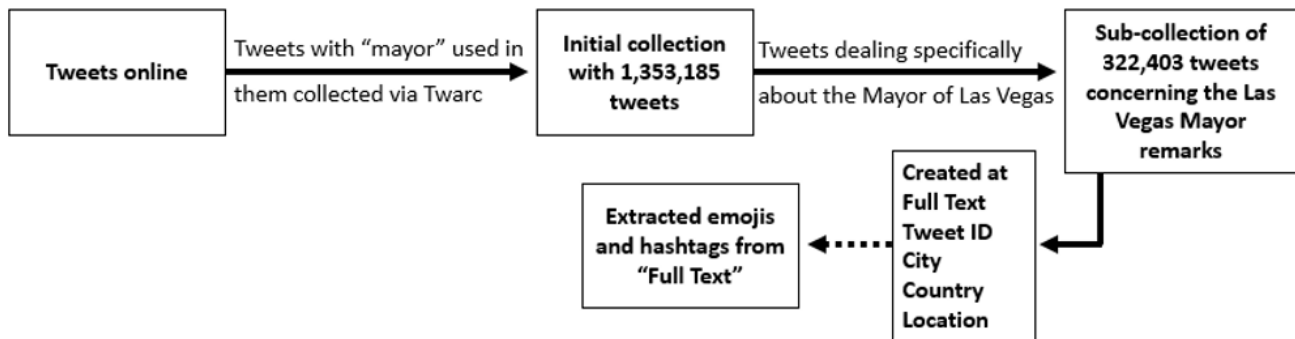


## APPENDIX A: METHODOLOGY

The “Schematic of Data Processing” visualizes the layout of the data processing of the tweets. First, the tweets generated by users with a search term of “mayor” qualified a tweet to be included in the collection via Twarc. It is better to use a general search term such as this to collect the greatest variations of tweets concerning the topic of interest. Not every tweet in the “mayor” collection pertained to the Mayor Goodman’s remarks, so a sub-collection was created with extracted tweets that contained “Goodman,” “Vegas,” “Nevada,” “LV,” or “NV” within the tweets; any duplicates were removed afterwards.

A single tweet is rich in information, containing more than 150 different data variables. The variables of interest (created at, full text, tweet id, city, county, location) were extracted and used for the analysis. Emojis and hashtags used within the sub-collection were embedded within the text of the tweet, and were also extracted and formatted. Emojis were recorded in Unicode, so they were converted to their long form names utilizing the repository found on GitHub.<sup>11</sup>

### SCHEMATIC OF DATA PROCESSING



The variables extracted for the analysis and their brief description available on the Twitter Developer dictionary are offered below.<sup>12</sup> Twitter has several different location variables. “City” and “Country” both belong to a location identifier called “place,” which gives the location of a Twitter user when a tweet is posted. A user is required to give Twitter approval to access this information when they set-up an account; as a result, not many tweets include data on “places.” “Location” is the user defined location and does not necessarily indicate a user’s exact location when a tweet is posted. Nevertheless, “location” might indicate some place that the user has an emotional connection to. Since this variable is user defined, there is variation in the names of the location that make it difficult to format for quantitative analysis.

### DESCRIPTION OF EXTRACTED VARIABLES

Variable	Description
Created at	UTC time when this Tweet was created.
Full Text	entire text of the tweet
Tweet ID	unique identifier for this Tweet
City	name of city containing the Tweet
Country	name of the country containing the Tweet
Location	user-defined location for this account’s profile

<sup>11</sup> woorm (n.d.). Gemoji, Support. GitHub. Received from <https://github.com/woorm/gemoji/blob/master/support.md>

<sup>12</sup> Twitter. (n.d.). Tweet objects. Twitter. Received from <https://developer.twitter.com/en/docs/tweets/data-dictionary/overview/tweet-object>