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Gaming Opportunities, Attractions, and Monorail Ridership in Las Vegas

Davor Jedlicka

The history of Las Vegas monorail is presented in three stages: ideas, development and operations. The decline of ridership on the Las Vegas monorail is explained based on this history. The gravitational theory of people movement is used to propose overcoming the inertia to ride among the resorts. The gravitational theory suggests that monorail could contribute to the “Las Vegas Experience” as a force in attracting visitors from around the world. An increase in inter resort visitation rates via the monorail is likely to increase the overall gaming revenues and prevent the end of monorail operations.

Keywords: Las Vegas monorail, gaming, casinos, gravitational theory, geothemes

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The city of Las Vegas has a relatively short history. When Las Vegas was incorporated in 1911 with under 1,000 inhabitants, New York City already had a subway system. It was not until the late 1960s that the idea of a rail system for Las Vegas first surfaced (BusinessWeek, 1973). By then, it was clear that urban rail transportation required public funds to build and to subsidize their operations. The proponents of a rail-based Personal Transit System in the early 1970s were quite optimistic that Las Vegas could

operate such a system without public funds. Private investors, it was argued, could support such a system, because of the large number of tourists living an around-the-clock lifestyle. The proponents insisted that a monorail would be an efficient public transportation system (Eisen, 2007) that would reduce traffic congestion and improve the air quality along the strip (Batt, 1997).

With its 3.9 mile track, the monorail in Las Vegas is hardly a significant urban transit system. However,

it could be more than an amusement ride. A historical analysis below will reveal why the “urban transit” model for the monorail has not attracted enough riders in the past and why it is even less likely to attract them in the future. Without a change of its image and a change of its purpose, the next financial crisis will most likely end the monorail.

Historical Background

The history of the Las Vegas monorail can be divided into three stages. The first stage, the “ideas stage,” began in 1968 and terminated abruptly in 1974. During this period varied proposals for an overhead rail system were offered to the Clark County Commission. By 1974, all plans for any type of rail system were abandoned. For the next two decades, nothing significant occurred in regard to ideas or the development of a monorail.

The second, “developmental,” stage began in 1993 with a proposal to build a monorail from MGM Grand resort to Bally’s resort. This stage continued until July 2004 when the present day monorail made its inaugural run. The third, “operational,” stage continues under the marketing model of an “urban transit system.”

Ideas Stage: 1968 – 1974

In an article entitled “A transit system promises to pay for itself,” published in the March 17, 1973 issue of *Business Week*, there is mention of “studies that were begun in 1968”; however, there were no references to who did these studies. Nevertheless, the article concluded that a personal rapid transit system would attract a large number of riders and pay for itself. Various proposals for such a system included monocabs on an overhead rail, personal cabs on guided rails, and even concrete guide ways for air trams on rubber wheels.

Private companies offered such proposals in response to the Trust Law, Bill No. 607, passed by the Nevada State Legislature in 1971. This law allowed issuance of municipal bonds for use in building transportation systems (Lutin & Falls, 1980). The bonds would be free of income taxes and could be used to pay private contractors. The City of Las Vegas and the County Commission of Clark County entered into an agreement on December 30, 1971 with a contractor A. J. Kavanaugh to prepare a feasibility study for the development of a transportation system according to the following specifications:

an efficient elevated rapid transit system to serve the City of Las Vegas and portions of Clark County, outside the corporate boundaries of said City which would connect McCarran International Airport with various business districts of the City, the entertainment centers, hotels and other points of interest within the Las Vegas metropolitan area. (Kavanaugh Agreement with County, 1971).

Other companies interested in the project offered their own feasibility studies. Simpson and Curtin (1972) projected 56,000 passengers per day by the year 1985. The opponents of the project produced their own feasibility reports (Lay People of Clark County, 1974) claiming that the projections provided to the County Commission by hired consultants were unreasonable. In retrospect, the lay people were right.

By the time Kavanaugh produced his report in 1974, the idea of any kind of rail system for Las Vegas was losing support. Most resort owners opposed it, consumer groups opposed it (Consumer League of Nevada, 1972), and finally, the state legislature opposed it. In 1974 the Nevada State legislature repealed the 1971 Trust Law. The private investors lost interest, and nothing major was accomplished to revive the idea of a monorail until 1993.

Developmental Stage: 1993 – July 2004

In June 1993, MGM Grand and Bally’s released a request for proposals for a monorail that would connect these two properties about .7 miles apart (Walker, 1999, p 7). The proposal requested a system that could eventually become an urban transit system much as was envisioned during the early 1970s. In June 1995, the monorail track connecting these two hotels was completed. It operated with two Disney trains as an “amusement ride,” because it did not meet Clark County’s “safety standards of a transit grade system” (Walker, 1999, p. 8).

This Disney monorail was intended as a prototype for a larger system that would connect the McCarran International airport with the resorts along the Strip and beyond (Robiglio, 1996). In 1996, the Regional Transportation Board completed a master plan which included an 18-mile elevated monorail track with 31 stations. The plan was not well received by some resort owners who feared that the monorail would entice their guest to visit other properties (Ruston, 1997). As the chronology in Table 1 indicates, the final monorail route did not include the downtown nor the airport. In fact, the final route approved by

the county commissioners was 3.9 miles long with 7 stations. Adding about 3.2 miles to the original .7 miles between Bally's and MGM Grand, seemed to be enough for the local and federal government to consider the monorail "an urban transit system." As such, it would qualify for issuance of state bonds for its construction.

The construction of the monorail was a strained venture. Its planned inaugural run for January 20, 2004 was not met. During testing in January, a drive shaft fell from a moving train. The new starting date set in March was also missed, this time due to problems with the driverless, computer-operated steering system.

Operational Stage: July 15, 2004 through Present (2013)

The inaugural run of the Las Vegas monorail took place on July 15, 2004. During its first six weeks of operations the ridership exceeded one half million (Table 2). It stayed in operation through August. On September 1st, 2004 the monorail closed after a wheel fell from a moving train. Far more shocking than the incident itself was the fact that the workers ignored 149 system alarms the day before the incident. After 107 days in repairs, the monorail reopened on December 24th, 2004.

The following year was the most successful in terms of annual ridership (Table 2). The ridership in 2005 exceeded ten million, a record not repeated since. The total annual revenues in 2005 exceeded \$30 million (Table 3). It is worth noting that the record for the lowest per passenger revenues was also set in 2005 (Table 4). The average monthly ridership peaked in 2005 (Figure 1) and the highest average monthly revenue peaked in 2006 (Figure 2). Both the ridership and the average monthly revenues progressively declined until, in January 2010, the Las Vegas Monorail Company filed for Chapter 11 protection of the bankruptcy code (Seymour, 2010). It was not until May of 2012 that the U.S. Bankruptcy Court Judge Bruce Markell approved the reorganization plan (O'Rieley, 2012). By the end of 2012, the ridership was about six million passengers lower than at the annual peak in 2005, and over one million less than in 2010. Obviously, the Monorail Company continues to operate as an urban transit system, even though that model has never fit the environment in which the monorail functions. It is safe to assume

that doing more of the same will continue to produce more of the same results.

There is much to be learned from the historical data. First, let us note that the monorail never achieved even close to the forecast minimum of 20 million riders annually. After the first two years of operation the novelty wore off, but the operating model for the monorail never changed. Because most of the visitors to Las Vegas Strip have been there before, the number of visitors for whom the monorail would be a novel experience declined. One would expect, if everything remained the same, that the number of riders would stabilize in proportion to the number of visitors arriving for the first time. However, everything did not remain the same. The resorts have become bigger and more self-contained creating a formidable "inertia." The lack of response by the Monorail Company to overcome this inertia inevitably resulted in declining ridership rates.

Overcoming the Inertia

During the first full year of monorail operation in 2005, the number of boardings exceeded 10 million. When the monorail ceased to be a novelty, the ridership declined. Since 2006, it has been evident that the utilitarian appeal has not motivated tourist to ride. The appeal to ride, as advertised on the monorail website, because the monorail is "quick, cost-effective, eco-friendly, convenient, reliable, climate-controlled, and safe" failed to achieve the desired rates of ridership.

A new strategy based on the understanding of 1) the behavior of a typical Las Vegas Strip visitor, 2) the inertia, forces that keep visitors from using the monorail, and 3) the "pull" forces that can motivate visitors to overcome the inertia. The "pull" forces exclude places of work and activities at the Convention Center.

Much has been studied about a typical Las Vegas visitor (Lovat, 2012). We know, for example, that "the vast majority (86 percent) of those visiting Las Vegas play on the Strip, and they visited on an average three different casinos to gamble" (Schwartz, 2010). This knowledge is enough to apply a gravitational theory of geographic movement to estimate the rates of inter resort ridership. This theory postulates that the number of people going to a given destination is directly related to the magnitude of attractions at the destina-

tion and inversely related to the distance separating it from the origin. In moves over short distances, (3.9 miles of the monorail track is a very short distance) sociologists substitute "intervening opportunities" and "competing opportunities," because geographic distance is a negligible variable (Jedlicka, 1972).

If most people visit three casinos on average, the gravitational theory predicts that in addition to inertia at the origin, the attractions within walking distance between the closest monorail station and the resort of origin further reduce the probability that a visitor will board a monorail. The inertia and the intervening opportunities pose obstacles that must be a part of any equation forecasting the boarding rates at each station.

The "pull" forces posed by the attractions at resorts competing with each other tend to be equal in magnitude to the force of the inertia. For example, Table 7 shows a high correlation between the number of rooms at a resort and the number of gaming machines. The correlation of .93 indicates that the gaming opportunities are proportionate to the size of the resort. Visitors do not need to go elsewhere to maximize their opportunities to gamble or to be entertained. Consequently, the "pull" forces tend to be balanced by the force of "inertia."

One way to reduce the inertia is to provide the visitors with a motivation to buy a ticket to ride. A motive strong enough to overcome the inertia could be found in *geothemes*. A geotheme is a concept I adapted from the popular activity called *geocache*. Participants in geocache visit numerous places in search of hidden, unrelated, unclassified items. A *geotheme*, on the other hand, consists of points of interest dispersed in space and categorized by a common theme. For example, a geotheme along the Las Vegas Strip could consist of objects of public art. In Las Vegas, public art can be found in casinos, restaurants, and sidewalks along locations from the Stratosphere to Mandalay Bay. For a fee, a printed guide of locations with public art within a radius of about .5 miles from each monorail station could be provided to the visitors, and locals. A printed guide, or a hired tourist guide, would instruct riders to walk from the station to observe the art, return to the station, and proceed to the next destination. Combining walking with riding could also add "fitness" as an added benefit while having fun exploring Las Vegas.

Turning Intervening Attractions into Stepping Stones

Las Vegas is all about fun. The resorts are fun, and if the monorail is to become more popular, it must be fun too. The proximity of a number of resorts surrounding some stations impedes the monorail ridership. A person can walk to an adjacent casino, and never consider taking the monorail to a resort beyond the easy reach. But if a person is participating in a geothemed experience, then an attraction between the host resort and the nearest station could become a "stepping stone" to the station, and to the next geothemed point of interest. At each new destination, a geothemed guidebook would point to the nearest station on the way to the next geothemed experience.

Geothemes along the monorail route could include resorts themselves. But Las Vegas is full of exciting possibilities for exploring geothemes by visitors of all ages whether they are interested in gambling or not. In fact, some who are not interested in gambling could be inveigled to do so. Providing a geotheme of different types of machines, could encourage some to experience gambling using different types of slot machines at different casinos. While most casinos all use the same machines, some casinos have specialty machines that others do not. Searching the resorts for specialized machines or machines unique to a resort could be a version of a scavenger hunt that would benefit the resorts and the Monorail Company.

Other geothemes could include places frequented by famous performers, famous gamblers, movie locations, best chocolate places, architecture, commercial art, street logos, specialty shops, sites of implosions, and of course, gambling stories, among many other possible geothemes.

A geotheme relating to drinking could also promote the monorail image as enabling visitors to have fun. Consider a slogan "Drink and Ride" connected to a geotheme of "signature cocktails." The "Drink and Ride" guide could motivate a person to search for answers such as "What signature drinks does the bar serve at Skylofts at MGM?" The freedom of having more than one or two drinks and not having to worry about driving from place to place would certainly appeal to most people. And the monorail could capitalize on that appeal.

To turn around the declining monorail ridership rates requires planning, data collection, and analysis.

The Monorail Company either does not have adequate data required for monitoring ridership patterns, or they were unable to share the data they do have. Estimating the baseline of inter resort ridership rates was possible only with the use of the aggregate data in a manner described below.

Calculating a Baseline for Monorail Boarding Rates

The Monorail Company could only provide the monorail boarding data for November 2011 (see Table 5). And then, only with the exception of boardings at the Convention Center station, no other boarding numbers specific to each station were made available. With this limited information, I was only able to estimate the station-to-station ridership rates. I subtracted the Convention Center boardings twice from the total. Doubling the boardings at the Convention Center assumes that everyone had to board at one of the other stations to get there. Table 5 shows the difference representing the total daily inter resort ridership.

With this estimate of the total resort boardings, the gravitational model described above was used to estimate the probability that a visitor at a resort adjacent to a monorail station will ride to one or more of the other resorts. Table 8 shows relative “pull” forces based on the number of gaming machines closest to each station. Using a competing opportunities model (Jedlicka, 1972), the inertia is defined as the number of gaming machines near the station of origin and competing opportunities are defined as the total number of gaming machines surrounding all other stations. The resulting probabilities that a visitor will move between any two stations is shown in Table 9. These probabilities were then applied to the total number of daily boardings for November 2011. The results shown in Table 10 give an estimate of the total daily, inter-resort ridership. Figure 3 also shows daily variations from November 1 through November 30.

A Proposal for Change of the Monorail Image

The baseline ridership estimates shown in Table 10 support the notion that the exchanges of visitors among resorts are proportionate to each resort’s room capacity. That means that inter resort travel by monorail away from one station is balanced by visitors coming from other stations. The balanced

rates suggest that the exchange of guests among the resorts will have little effect on gaming revenues if the visitors behave in the same manner at the new location as they would at their host location. The likelihood is, however, that they do not behave the same and that exchange of visitors among the resorts could increase overall gaming revenues.

Consider what we know about most nonprofessional gamblers. They like the novelty of a resort. When the novelty wears off, “the excitement of gambling” takes over (Schwartz, 2006, p. 498). For most visitors the “excitement of gambling” wares off too, especially if they are losing. However, the novelty of the casino and the “excitement of gambling” may repeat if the visitor experiences “new” resorts during one stay. It is reasonable to postulate that

the greater the exchange of visitors among the resorts, the greater the revenues from gaming among all resorts.

Today’s promotional strategies tend to focus on customer loyalty without consideration for the overall Las Vegas experience. Consider one corporation, that owns numerous properties on the Strip, whose slogan is “Total Las Vegas.” No matter how many properties are under one corporate umbrella, none of them are “Total Las Vegas.” To claim otherwise is misleading and could be damaging to Las Vegas image building around the world. In general, the megaresort operators manipulate the environment and customers’ emotions so that as few people as possible experience anything located at a competitors property (Lovat, 2012). This strategy, in the increasingly competitive international gaming, may have already reached the point of diminishing returns. There was a time before the monorail when “independently owned properties worked together to produce what became known as the “Las Vegas Experience” (Strauss, 2012). That kind of cooperative thinking is even more necessary to compete in the expanding, worldwide gaming market.

The Las Vegas monorail could make a contribution to the overall attraction of the real “Total Las Vegas” through geothemes. The significance of geothemes as a means of increasing the “Las Vegas Pull” around the world lies in the enriched content of conversations by visitors once they leave Las Vegas. Research shows that people move in response to the information they receive from those they know (Jedlicka, 1979). A strategy of loyalty that promotes only individual corporations, no matter how many properties they own, is to ignore the reality as expressed in this proposition:

The international and national visitor streams to Las Vegas are directly proportionate to the “pull” forces associated with the destination as a whole, that is the Las Vegas experience, and inversely proportionate to the “pull” forces at all other domestic and foreign competing destinations.

How Las Vegas businesses promote themselves, including the Monorail Corporation, must be evaluated in terms of this proposition. The Las Vegas monorail could be one of the forces contributing to the “pull” of a globally recognized Las Vegas experience. Through guided geothemes, the monorail could integrate the Las Vegas image thus enhancing the profitability of properties it connects and beyond.

Conclusions

The lessons from history of the Las Vegas monorail should be obvious. The most important lesson is that the Las Vegas monorail is not an urban transportation system with any significant impact on the environment or on the traffic congestion. Nor, given its location, should it be an urban transportation system. Instead, the monorail could best be run as a for profit, entirely private enterprise such as the two observation wheels currently being built. If the visitors are willing to pay for the fun of a ride on an observation wheel, they would be just as eager to ride a monorail for the same reason.

The extension of this argument is that the monorail would not be any more profitable if it were extended to the airport. The sooner the persisting belief that an airport connection would solve the Monorail Company’s financial problems is abandoned, the sooner we can implement solutions that have a chance to work. Just imagine the type of Las Vegas experience by visitors who would have to drag their luggage from an elevated station through a labyrinth of long corridors on the way to the front desk. Not exactly an experience that increases the “pull” of the resort or of Las Vegas. Even more damaging than that, would be the loss of an opportunity to promote the monorail as an amusement in itself, and as a facilitator of having fun along the Strip.

Considering that promotions of the monorail as an urban, “eco-friendly, efficient transportation system” has not motivated visitors to ride in large enough numbers, a strategy that uses slogans like “Walk and Ride for Fun and Fitness,” “LVM for Fun and Convenience,” “Explore Las Vegas with LVM” or

“Drink and Ride” might. This study proposes the use of geothemes as one way to increase the motivation to ride. The geotheme strategy is proposed to contribute to the “mega pull” of Las Vegas as a whole. Visitors’ experience at the host resort is only a small part of the “Total Las Vegas Experience.” The sum of the “pull” forces at each resort, combined with the pull of “Las Vegas Experience,” would be unmatched by any location of similar size anywhere in the world.

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Table 1 : Las Vegas Monorail ChronologyOperational Stage: July 15 2004 – December 31, 2012

2012 December 31	Annual ridership declined to 4,128, 134 from the high of over 10 million record set in 2005.
2012 December 8	Judge Bruce Markell approves plans for Las Vegas Monorail Corporation to exit Chapter 11 proceedings.
2011 December 1	The Las Vegas Monorail Company celebrates the Monorail's 50 millionth rider. The official 50 millionth rider was Richard Cabrera, a resident of Houston, Texas.
2011 November 18	Judge Bruce Markell rejects plans for Las Vegas Monorail to emerge from bankruptcy.
2011 May 16	Sahara hotel, the end station for the monorail, closes.
2010 March	Clark County Regional Transportation Commission rejected a proposal to help Las Vegas Monorail Company secure federal transit grants.
2010 February 5	Fitch Ratings downgraded Las Vegas Monorail Bonds from "C" to "D"
2010 January 13	Las Vegas Monorail Company filed for Chapter 11 protection of the Bankruptcy code.
2009 June	Fitch Ratings downgraded Las Vegas Monorail Bonds from "CC" to "C," the lowest rating before default.
2008 March 3	The Nevada Tax Commission extended the Las Vegas Monorail's tax exemption.
2008 January 28	Moody's Investors Services downgraded Las Vegas Monorail Bonds from B3 to Caa2. On a scale of 11 levels, Caa2 is three levels above agency's lowest rating of "C".
2005 December 31	The annual ridership exceeded 10 million.
2005 August	The highest average daily ridership peaked at about 30,000 passengers.
2004 December 24	Las Vegas Monorail reopens after 107 days of shutdown.
2004 September	Monorail closes after a metal flange falls from a moving train's drive shaft.
2004 September 7	Monorail reopens to public.
2004 September 1	Monorail closes after a wheel falls from a moving train. Workers ignore 149 system alarms the day before.
2004 July 15	Monorail opens to public. The initial proposal (1996) of 18 miles with 31 stations was reduced to a 3.9 miles rail with 7 stations.

Developmental Stage: 1993 – July 2004

2004 March 1	New target date for opening monorail is missed because of computer glitches in train's driverless steering system.
2004 January 20	Targeted opening day. Monorail builder Bombardier Inc. Fails to meet contractual deadline to have monorail ready for passengers. Bombardier and co-builder Granite Construction of Watsonville, California were fined \$11 million for missing the deadline.

2004 January 5	Monorail testing is halted for three days after a drive shaft falls from a moving train.
2003 August 9	Robert N. Broadbent, the manager of the MGM Grand-Bally's monorail, died.
2003 January 26	MGM Grand – Bally's monorail made its last run.
2000	The state of Nevada issued monorail officials \$650 million in tax-exempt bonds to build the 3.9 mile rail system.
1998 July	The final monorail route proposed by a group seeking county approval.
1997 October 2	A panel of resort executives endorsed with reservations a monorail proposal that would run along east and west side of the strip to downtown.
1997 July	The Nevada State legislature passed the bill that takes regulatory authority for monorails from the Public Service Commission and the Regional Transit Commission and enables private companies to franchise with Las Vegas or Clark County to develop a rail system
1996 December 12	Members of the Regional Transportation Board completed the Resort Corridor Master Plan. The proposal included 18-mile elevated monorail track with 31 stations between the McCarran International Airport and a Cashman Field north of downtown
1995 June	MGM Grand and Bally's monorail inaugurated.
1993	MGM Grand released a Request for Proposal for a monorail between MGM Grand and Bally's.
<u>Ideas Stage: 1968 - 1974</u>	
1974 December	The Personal Rapid Transit monorail system project abandoned.
1974	Monorail Feasibility Report prepared by and for the lay people of Clark County. The Nevada State Legislature repeals the Trust Law enacted in 1971.
1974 April	Kavanaugh produced his feasibility report.
1974 March	Simpson and Curtin, Transportation Engineers of Philadelphia, release a monorail feasibility study based on their estimate of over 32 million riders per year.
1972	Consumer League of Nevada released a statement unequivocally opposing the proposed monorail project.
1972 October	Simpson & Curtin, Inc., Transportation Engineers of Philadelphia submit "Las Vegas Patronage Study" for Monocab, Inc. Garland, Texas. The study estimated the average daily ridership to exceed 56, 000 passengers by the year 1985. The monorail reached its peak daily ridership of about 30,000 in August of 2005.
1971 December 31	The city of Las Vegas and the County Commission of Clark County sign an agreement with A.J. Kavanaugh and Associates to develop a plan for overhead monorail, known at the time as Personal Rapid Transit connecting "McCarran International Airport with various business districts of the City, the entertainment centers, hotels and other points of interest within Las Vegas metropolitan area."
1971	The Nevada State Legislature passed the Trust Law which enabled Las Vegas to finance a monorail system.
1968	Feasibility studies for Las Vegas rail transportation begin.

Table 2: Las Vegas Monorail Monthly Ridership. July 2004 - December 2012

	2004	2005	2006	2007	2008	2009	2010	2011	2012	Monthly AVG	± 1/2 SD
January		691,712	563,823	548,389	611,818	456,923	426,135	446,697	382,217	515,964	49,263
February		621,909	518,566	488,120	595,317	449,019	352,250	322,043	260,643	450,983	60,879
March		1,002,622	657,354	637,141	788,541	576,180	470,933	537,574	351,101	627,681	93,419
April		957,621	704,527	668,550	713,525	556,546	460,554	477,930	355,211	611,808	88,644
May		899,685	623,640	645,641	676,109	532,371	424,975	410,340	356,642	571,175	83,292
June		872,344	567,992	713,711	693,654	490,623	440,835	421,595	347,382	568,517	83,275
July	523,794	1,020,796	600,763	790,412	698,183	555,116	495,569	423,185	384,030	610,205	94,084
August	837,566	934,483	580,912	739,994	705,076	542,568	468,702	400,131	323,855	614,810	96,334
September		869,515	567,603	703,049	604,195	516,028	430,680	405,170	363,650	557,486	78,939
October		893,424	580,038	756,994	594,921	485,751	461,616	391,054	387,726	568,941	83,736
November		773,651	576,558	631,749	514,376	465,777	435,009	355,590	292,937	505,706	72,279
December	295,101	726,905	478,333	593,863	406,884	378,122	373,005	340,138	322,740	435,010	66,951
Annual Total	1,656,461	10,264,667	7,020,109	7,917,613	7,602,599	6,005,024	5,240,263	4,931,447	4,128,134		
Monthly AVG	552,154	855,389	585,009	659,801	633,550	500,419	436,689	410,954	344,011		
± 1/2 SD	111,183	60,231	28,213	42,211	48,948	27,357	19,550	28,355	18,327		
Cumulative Total	1,656,461	11,921,128	18,941,237	26,858,850	34,461,449	40,466,473	45,706,736	50,638,183	54,766,317		

Source: Las Vegas Monorail (2013). Ridership & Revenue Data. Retrieved from: <http://www.lvmonorail.com>

Table 3: Las Vegas Monorail Monthly Revenue, July 2004 - December 2012 (in 1000s)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	Monthl y AVG	± ½ SD
January		\$2,039	\$2,558	\$2,558	\$2,289	\$2,007	\$1,985	\$2,058	\$1,754	\$2,156	\$134
February		\$1,782	\$2,32	\$2,243	\$2,163	\$2,035	\$1,674	\$1,492	\$1,210	\$1,866	\$184
March		\$2,952	\$2,934	\$2,830	\$2,893	\$2,563	\$2,158	\$2,425	\$1,631	\$2,548	\$217
April		\$2,806	\$3,250	\$2,977	\$2,547	\$2,518	\$2,174	\$2,117	\$1,663	\$2,507	\$239
May		\$2,684	\$2,792	\$2,580	\$2,393	\$2,367	\$1,965	\$1,862	\$1,538	\$2,273	\$206
June		\$2,519	\$2,500	\$2,276	\$2,554	\$2,155	\$1,894	\$1,841	\$1,533	\$2,159	\$174
July	\$1,603	\$2,946	\$2,657	\$2,657	\$2,763	\$2,441	\$2,080	\$1,899	\$1,643	\$2,386	\$215
August	\$2,498	\$2,681	\$2,520	\$2,657	\$2,898	\$2,381	\$1,982	\$1,798	\$1,451	\$2,296	\$234
September		\$2,559	\$2,502	\$2,446	\$2,559	\$2,302	\$1,861	\$1,918	\$1,657	\$2,226	\$168
October		\$2,619	\$2,667	\$2,719	\$2,535	\$2,253	\$2,033	\$1,783	\$1,801	\$2,301	\$181
November		\$2,275	\$2,567	\$2,249	\$2,213	\$2,154	\$1,848	\$1,570	\$1,270	\$2,018	\$198
December	\$295	\$2,330	\$2,173	\$2,117	\$1,839	\$1,794	\$1,684	\$1,599	\$1,503	\$1,880	\$138
Annual Total	\$4,39	\$30,198	\$31,452	\$30,315	\$29,652	\$26,974	\$23,345	\$22,369	\$18,661		
Monthly AVG	\$1,465	\$2,516	\$2,621	\$2,526	\$2,471	\$2,247	\$1,945	\$1,864	\$1,555		
± 1/2 SD	\$452	\$169	\$133	\$126	\$149	\$109	\$77	\$123	\$85		
Cumulative Total	\$4,397	\$34,596	\$66,048	\$96,364	\$126,016	\$152,990	\$176,336	\$198,705	\$217,367		

Source: Las Vegas Monorail (2013). Ridership & Revenue Data. Retrieved from: <http://www.lvrmonorail.com>

Table 4: Average Per Passenger Revenue for Las Vegas Monorail, July 2004 - December 2012

	2004	2005	2006	2007	2008	2009	2010	2011	2012	AVG	SD
January		\$2.95	\$4.54	\$4.67	\$3.74	\$4.39	\$4.66	\$4.61	\$4.59	\$4.27	\$0.29
February		\$2.87	\$4.49	\$4.60	\$3.63	\$4.53	\$4.75	\$4.64	\$4.64	\$4.27	\$0.31
March		\$2.95	\$4.46	\$4.44	\$3.67	\$4.45	\$4.58	\$4.51	\$4.65	\$4.21	\$0.28
April		\$2.93	\$4.61	\$4.45	\$3.57	\$4.53	\$4.72	\$4.43	\$4.68	\$4.24	\$0.30
May		\$2.98	\$4.48	\$4.00	\$3.54	\$4.45	\$4.63	\$4.54	\$4.31	\$4.12	\$0.27
June		\$2.89	\$4.40	\$3.19	\$3.68	\$4.39	\$4.30	\$4.37	\$4.42	\$3.95	\$0.29
July	\$3.06	\$2.89	\$4.42	\$3.36	\$3.96	\$4.40	\$4.20	\$4.49	\$4.28	\$4.00	\$0.27
August	\$2.98	\$2.87	\$4.34	\$3.59	\$4.11	\$4.39	\$4.23	\$4.50	\$4.48	\$4.06	\$0.26
September		\$2.94	\$4.41	\$3.48	\$4.24	\$4.46	\$4.32	\$4.74	\$4.56	\$4.14	\$0.29
October		\$2.93	\$4.60	\$3.59	\$4.26	\$4.64	\$4.41	\$4.56	\$4.65	\$4.20	\$0.29
November		\$2.94	\$4.45	\$3.56	\$4.30	\$4.63	\$4.25	\$4.42	\$4.34	\$4.11	\$0.27
December	\$1.00	\$3.21	\$4.54	\$3.57	\$4.52	\$4.74	\$4.52	\$4.70	\$4.66	\$4.31	\$0.27
AVG	\$2.35	\$2.95	\$4.48	\$3.87	\$3.94	\$4.50	\$4.46	\$4.54	\$4.52		
± 1/2 SD	\$0.48	\$0.04	\$0.04	\$0.25	\$0.16	\$0.06	\$0.10	\$0.05	\$0.07		

Source: Calculated from Tables 2 and 3.

Table 5: Las Vegas Monorail Daily Ridership for November 2011

Weekday	Date	System Riders On	Riders on LVCC	2X Riders on LVCC	Total Intra-resort Riders
Tuesday	11/01/11	26,491	8,948	17,896	8,595
Wednesday	11/02/11	30,945	9,887	19,774	11,171
Thursday	11/03/11	29,387	9,266	18,532	10,855
Friday	11/04/11	24,449	6,600	13,200	11,249
Saturday	11/05/11	15,243	489	978	14,265
Sunday	11/06/11	10,481	302	604	9,877
Monday	11/07/11	9,332	638	1,276	8,056
Tuesday	11/08/11	10,298	1,031	2,062	8,236
Wednesday	11/09/11	10,349	1,104	2,208	8,141
Thursday	11/10/11	11,019	1,034	2,068	8,951
Friday	11/11/11	13,956	511	1,022	12,934
Saturday	11/12/11	17,464	644	1,288	16,176
Sunday	11/13/11	10,593	373	746	9,847
Monday	11/14/11	7,169	230	460	6,709
Tuesday	11/15/11	6,264	197	394	5,870
Wednesday	11/16/11	6,102	184	368	5,734
Thursday	11/17/11	5,831	199	398	5,433
Friday	11/18/11	8,713	266	532	8,181
Saturday	11/19/11	13,938	293	586	13,352
Sunday	11/20/11	8,940	176	352	8,588
Monday	11/21/11	7,298	144	288	7,010
Tuesday	11/22/11	6,581	158	316	6,265
Wednesday	11/23/11	6,713	148	296	6,417
Thursday	11/24/11	8,898	158	316	8,582
Friday	11/25/11	11,153	473	946	10,207
Saturday	11/26/11	11,659	427	854	10,805
Sunday	11/27/11	6,445	230	460	5,985
Monday	11/28/11	5,046	219	438	4,608
Tuesday	11/29/11	7,040	377	754	6,286
Wednesday	11/30/11	7,793	613	1,226	6,567
TOTAL		355,590	45,319	90,638	264,952

Source: Data provided by the Las Vegas Monorail Company

Table 6: Expected Ridership Based on Gaming Opportunities and Number of Rooms in the Vicinity of Each Monorail Station

Stations	Property	Casino Square Footage	Number of Gaming Machines in Casino	Number of Rooms in Hotel
1	MGM Grand	170,000	2,500	5,073
2	Bally's - Las Vegas	66,200	1,010	2,814
	Paris - Las Vegas	95,300	1,070	2,916
	Station Total	161,500	2,080	5,730
3	Flamingo - Las Vegas	77,000	1,350	3,545
	Caesars Palace	136,500	1,370	3,954
	Station Total	213,500	2,720	7,499
4	Harrah's	90,600	1,370	2,526
	The Quad (Imperial Palace)	118,000	800	2,796
	Station Total	208,600	2,170	5,322
5	Las Vegas Convention Center	0	0	0
6	LVH - Las Vegas Hotel and Casino	74,000	1,200	2,950
7	Stratosphere Casino Hotel and Tower	100,000	1,200	2,427

*Source: Casino City's Business Gaming Directory. October 2012.
Newton, MA: Casino City Press.*

Table 7: Correlation Matrix of Station Variables

	Casino Square Footage	Number of Gaming Machines in Casino	Number of Rooms in Hotel
Casino Square Footage	1.00		
Number of Gaming Machines in Casino	0.92	1.00	
Number of Rooms in Hotel	0.90	0.93	1.00

Source: Table 6

Table 8: Estimated Pull Based on Number of Gaming Machines at Each Station

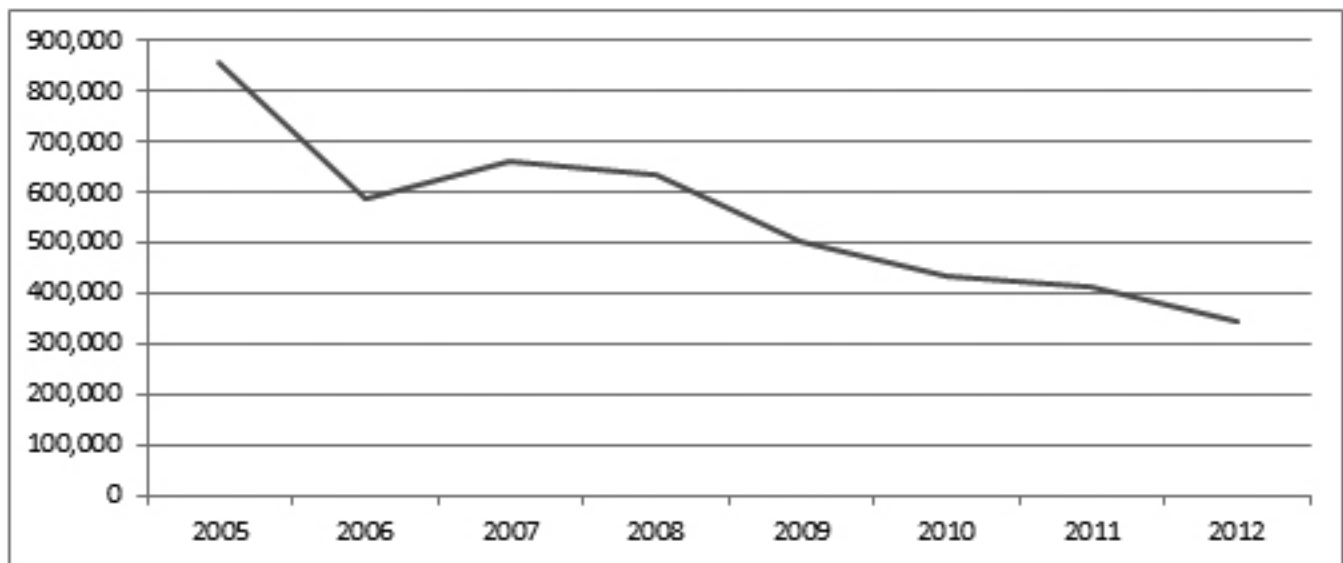
Station		Destination						
		1	2	3	4	6	7	Total
Gaming Machines		2,500	2,080	2,720	2,170	1,200	1,200	11,870
Origin	1	0	531	743	559	281	281	2,396
	2	555	0	618	465	234	234	2,106
	3	726	578	0	608	306	306	2,524
	4	579	461	645	0	244	244	2,173
	6	320	255	357	268	0	135	1,335
	7	320	255	357	268	135	0	1,335
	Total	11,870	2,500	2,080	2,720	2,170	1,200	1,200

Table 9: Probability of Inter-Resort Movement

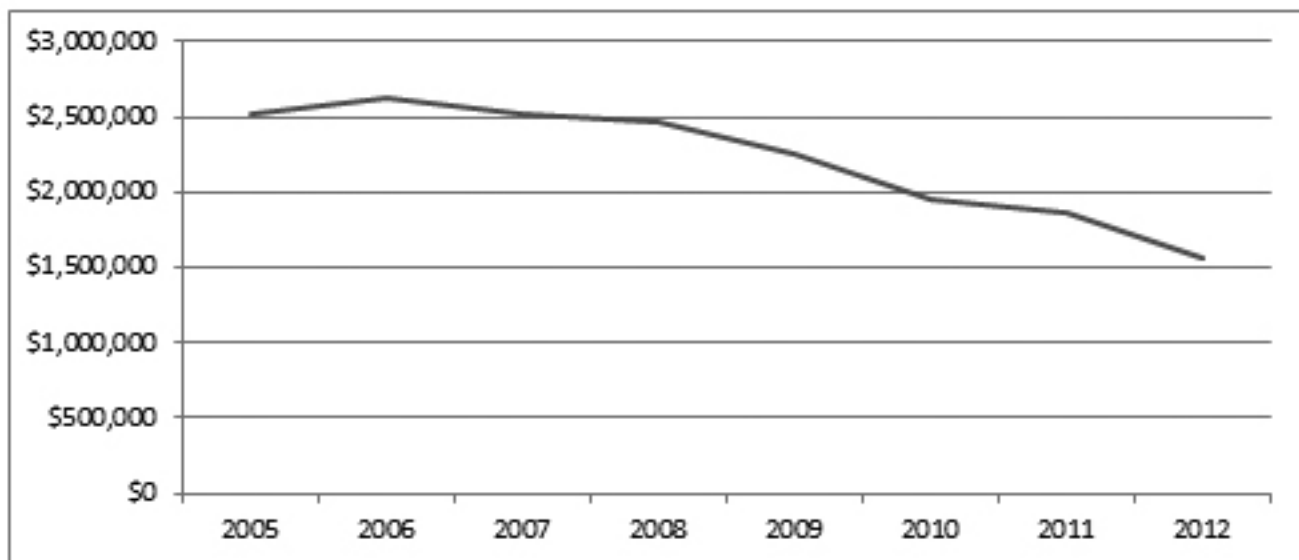
Station		Destination						
		1	2	3	4	6	7	Total
Origin	1	0.000	0.045	0.063	0.047	0.024	0.024	0.202
	2	0.047	0.000	0.052	0.039	0.020	0.020	0.177
	3	0.061	0.049	0.000	0.051	0.026	0.026	0.213
	4	0.049	0.039	0.054	0.000	0.021	0.021	0.183
	6	0.027	0.021	0.030	0.023	0.000	0.011	0.112
	7	0.027	0.021	0.030	0.023	0.011	0.000	0.112
	Total	0.211	0.175	0.229	0.183	0.101	0.101	1.000

Table 10: Estimated Inter-Resort Ridership, November 2011

Station		Destination						
		1	2	3	4	6	7	Total
Origin	1	0	11,856	16,588	12,484	6,276	6,276	53,480
	2	12,387	0	13,802	10,386	5,222	5,222	470,018
	3	16,199	12,899	0	13,582	6,828	6,828	56,337
	4	12,923	10,291	14,399	0	5,447	5,447	48,508
	6	7,147	5,691	7,962	5,992	0	3,012	29,804
	7	7,147	5,691	7,962	5,992	3,012	0	29,804
	Total	55,803	46,428	60,714	48,437	26,785	26,785	264,952

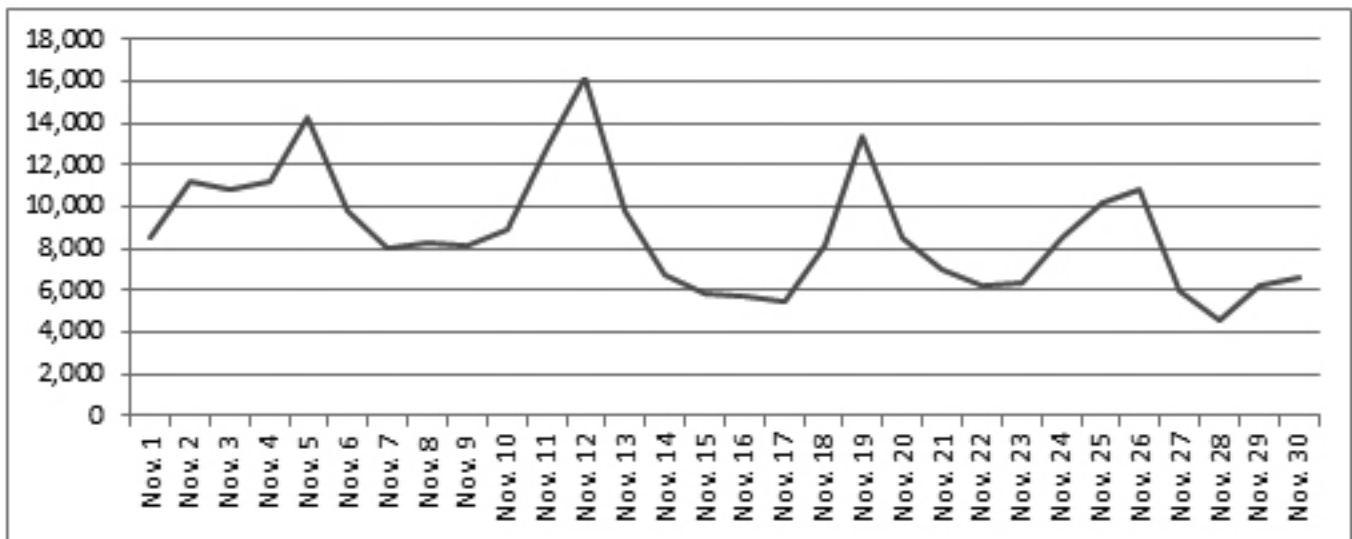
Figure 1: Las Vegas Monorail Average Monthly Ridership, 2005-2012

Source: Table 2

Figure 2: Las Vegas Monorail Average Monthly Revenue, 2005-2012

Source: Table 3

Figure 3: Las Vegas Monorail Daily Estimated Inter-Resort Riders, November 2011

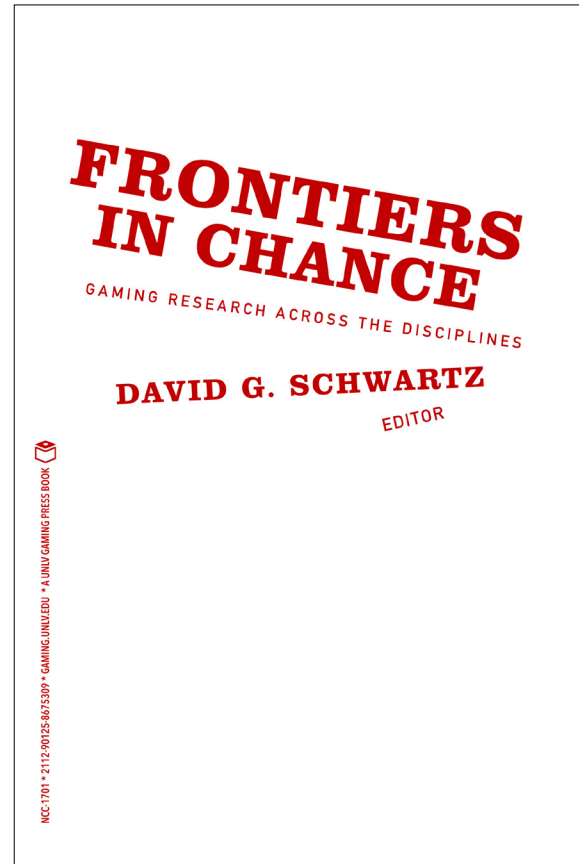


Source: Table 5

About the Author



Davor Jedlicka received his master's degree and doctorate in sociology from the University of Hawaii. His work on geographic movement of people include a master thesis on international migration. Among his publications are articles on his research relating to why people move. These appeared in the journal *Social Networks* and in *Geojournal*. He is a Fulbright scholar and a recipient of research grants including the United States Department of Commerce and National Science Foundation. His academic positions included staff researcher at the Population Institute at the East-West Center in Hawaii, director of Sociology Data Analysis Center at the University of Georgia, and professor and Sociology Programs Coordinator at the University of Texas at Tyler. Currently, Dr. Jedlicka is managing editor of Affinocom Press.



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