

# SNCTC | CRIME ANALYSIS



04/11/11 – 10/20/11

## ACTION/Violent CFS & Liquor Establishment Comparison

### Summary

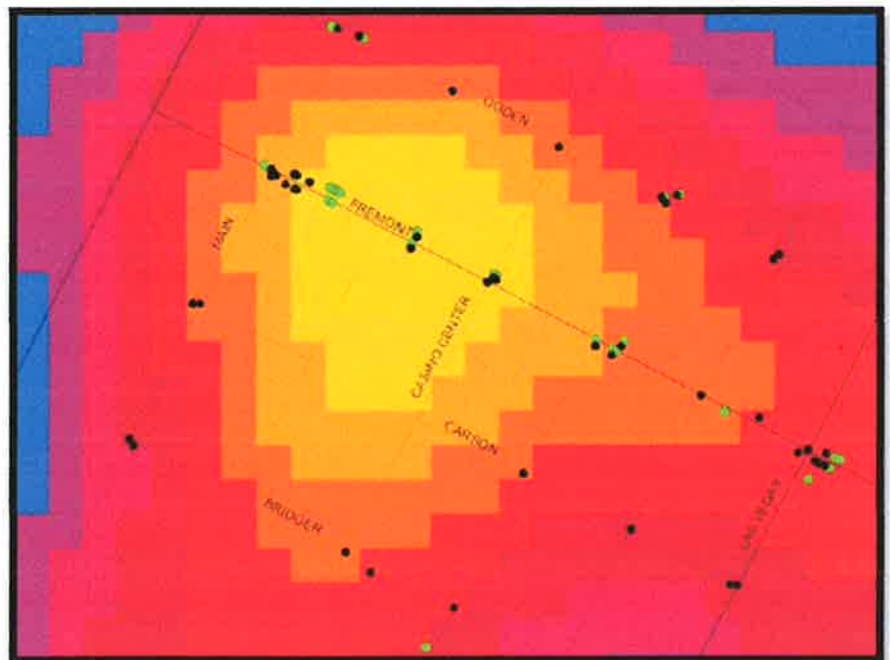
Retail liquor establishments were mapped in the defined boundaries of the Downtown Area Command. A CAD query was utilized defined by ACTION crime (406, 406v, 407, 411, 415, 420, 420z, 426) and Violent crime calls for service codes (413, 413a, 413b, 415a, 415b, 415c, 416). There were a total of 1,665 ACTION/violent crime calls for service within the reporting period in DTAC. These incidents were mapped and a density was calculated using spatial analysis.

### Hotspot

The hotspot was located in between Adam 1 and Adam 2 sector beats, along Fremont Street bordered by Ogden St. to Bridger St., and Main St. to Las Vegas Blvd. (See Figure 1).

The breakdown of ACTION/Violent crime calls for service in this hotspot was as follows:

| Type  | Total |
|-------|-------|
| 406   | 21    |
| 406V  | 11    |
| 407   | 11    |
| 411   | 15    |
| 413   | 1     |
| 413A  | 5     |
| 413B  | 1     |
| 415   | 90    |
| 415B  | 5     |
| 416   | 22    |
| 426   | 7     |
| Total | 189   |



**Figure 1.** Green Dots – Liquor Establishments,  
Black Dots/Density – ACTION/Violent crime calls for service.

Bartosz Kathy Home  
bartosz4@sbcglobal.net

**Kathy Bartosz** (bartosz4@sbcglobal.net) This sender is in your contact list.

Sun 7/21/13 5:52 PM

dianestdf@msn.com

----- Forwarded Message -----

**From:** Sue Thomas <thomas@PIRE.org>

**To:** "Kathy Bartosz (bartosz4@sbcglobal.net)" <bartosz4@sbcglobal.net>

**Sent:** Sunday, July 21, 2013 5:08 PM

**Subject:** Economic Development of Cities

Hi Kathy,

Thought you'd like to see this article from the *Economist*, especially the highlighted portion.

S.

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<http://www.economist.com/news/business/21581695-city-leaders-are-increasingly-adopting-business-methods-and-promoting-business-mayors-and-mammon>

Mayors and mammon

**City leaders are increasingly adopting business methods and promoting business**

Jul 13th 2013 | From the print edition

THE mayor of New York pays homage to business in almost everything he does. His office is modelled on the "bullpen" of a trading floor. His administration uses business methods to improve everything from city services (for example, providing 24-hour public helplines) to long-term planning. He sees New York as a corporation, city workers as talent, and the public as customers—and by and large New Yorkers love him for it.

Michael Bloomberg is a successful businessman as well as a popular mayor. But he is hardly alone in regarding himself as the CEO of his city. A growing number of mayors see their job as promoting business-friendly environments and selling their cities abroad. The mayor of Houston, Annise Parker, boasts about providing a “concierge service” for companies. The mayor of San Francisco, Ed Lee, has established a Tech Chamber of Commerce to complement the traditional chamber. The mayor of Portland, Sam Adams, has a plan to double the city’s exports. A former mayor of Los Angeles, Antonio Villaraigosa, says his biggest regret over his time in office is that he did not spend more time promoting his city in Latin America and Asia.

Why are mayors playing such a prominent role in business these days? In a new book, “The Metropolitan Revolution”, Bruce Katz and Jennifer Bradley explain that the growing paralysis in Washington, DC, with the Republicans and Democrats locked in an ideological death-struggle, is forcing mayors to step in to solve practical problems. Mr Bloomberg argues that cities are being forced to “tackle our economic problems largely on our own. Local elected officials are responsible for doing, not debating. For innovating, not arguing. For pragmatism, not partisanship.”

Mayors have certainly assumed an important role in America as Washington has imploded. But the metropolitan revolution is global. Mayors the world over now spend their time issuing urban prospectuses and flying off to gatherings of businesspeople. Your columnist recently came across the mayor of Tel Aviv, Ron Huldai, in St Petersburg promoting, among other things, the virtues of his city’s hospitals. In China mayors do not have much to do other than woo businesses and promote the local economy. True, like other local politicians, mayors employ armies of public-relations flacks to big up their contribution to local business growth, but increasingly there is substance behind the hype.

Cities are becoming more important to the fate of the global economy. The proportion of the world’s population that lives in them has grown from 3% in 1800 to 14% in 1900 to more than 50% today. It could reach 75% in 2050: in the developing world more than 1m people move to

cities every five days. Cities have always made a disproportionate contribution to growth. Parag Khanna of the New America Foundation, a think-tank, calculates that 40 city-regions produce two-thirds of the world's economic output and an even higher share of its innovations. Gerald Carlino of the Federal Reserve Bank of Philadelphia notes that the denser the city, the more inventive: the number of patents per head rises by an average of 20-30% for each doubling of the number of employed people per square kilometre. This outsize contribution will surely grow as economies become more knowledge-based.

Businesses are also rediscovering the attraction of cities after a prolonged fling with the suburbs and out-of-town office parks. Twitter has chosen to stay in San Francisco even as it has grown into an internet Leviathan. Google has chosen to open offices at King's Cross in London, and Chelsea Market in Manhattan, rather than in the cheaper suburbs. Zappos, an online shoe-shop, has moved its 2,000 workers from the Las Vegas suburbs to the city's old town hall in what passes for downtown.

This suggests a growing confidence that businesses can call the tune. Mayors can no longer rely on expanding their own payrolls to provide jobs in the way that they could in the era of "municipal socialism". And businesses can use their power of exit to get the best deals from cities: Mr Lee offered Twitter generous tax breaks to persuade it to stay in the city. Consultancies such as McKinsey and outfits such as the Economist Intelligence Unit (a sister organisation of *The Economist*) produce rankings of the most business-friendly cities to help them make a choice. The bicycle path to ruin

There are plenty of problems with the new fashion. Competition between mayors to appease businesses can become costly. China's Pearl River Delta region now has no fewer than five international airports, causing havoc with air-traffic control. Mayors can become slaves of fashion: almost everybody these days seems to be building loft apartments and bicycle paths in an effort to attract "knowledge workers". It would also be a mistake to imagine that the high costs, crime, congestion and other problems that drove companies to abandon cities in the late 20th century have disappeared. There is nothing to stop

voters dumping a pro-business mayor in favour of an old-style, business-bashing populist. Urban protest groups can discombobulate business districts, as the Occupy movement did in New York and as the demonstrators in São Paulo and Rio de Janeiro risk doing.

But the new trend is nevertheless welcome. Companies are bringing life back to urban areas that were dead or dangerous. And city governments are abandoning some of their worst habits in the name of efficiency and customer focus. In 1892 Joseph Chamberlain, a retired mayor of Birmingham in England, likened the government of cities to a “joint stock or co-operative enterprise in which every citizen is a shareholder, and of which the dividends are receivable in the improved health and the increase in the comfort and happiness of the community.” That is a pretty good description-cum-prospectus for what is going on in the best-run cities today.

----- Forwarded Message -----

**From:** Sue Thomas <thomas@PIRE.org>

**To:** "Kathy Bartosz (bartosz4@sbcglobal.net)" <bartosz4@sbcglobal.net>

**Sent:** Tuesday, July 9, 2013 5:22 PM

**Subject:** Outdoor Entertainment District Business Impact Statement

Kathy,

The more I think about this, the more I think that alcohol outlet density is an important issue when considering business impact. Research is clear that the higher the density, the more public health and law enforcement problems are found.

See, for example, just one recent piece of research:

Alcohol. 2013 Jun 23. [Epub ahead of print]

**Alcohol Outlet Density and Violence: The Role of Risky Retailers and Alcohol-Related Expenditures.**

Grubesic TH, Pridemore WA, Williams DA, Philip-Tabb L.

**Source:** Geographic Information Systems and Spatial Analysis Laboratory, College of Information Science and Technology, Drexel University, Philadelphia, PA 19104, USA.

**AIMS:** The aim of the study was to assess the association between alcohol outlet density and violence controlling for alcohol expenditures and the density of other retailers.

**METHODS:** Cross-sectional ecological study of 1816 block groups in Philadelphia. We obtained 2010 data for aggravated assaults, alcohol outlets, alcohol expenditures, business points, land use and socioeconomic and demographic characteristics. We mapped the spatial distribution of alcohol outlets and aggravated assaults using a geographic information system. We estimated the association between assault density and total, on-premise and off-premise alcohol outlet densities using spatial regression models and controlling for the covariates of urban crime rates, alcohol expenditures, and the presence of other general and risky commercial retail outlets.

**RESULTS:** The strong and positive association between alcohol outlet density and violence remained after controlling for alcohol expenditures and the density of other retailers.

**CONCLUSION:**

That means that no matter the security offered by the merchants, there are no enforcement effects as soon as people step outside the district. Moreover, I think that law enforcement from outside the district would also be called upon for serious crimes within the district, should they arise. Finally, that also means, of course, the range of public health harms increases – car crashes, assault and battery, robbery, sexual assaults, etc.

The impact on underage persons is also of particular concern in the proposal for the district – regardless of the Business Impact Statement. How do the District merchants plan to ensure that underage persons are not able to easily access alcohol? This is a bigger concern than it would be in a particular restaurant or bar outside the District due to the large, open-plan venue. RBS and open container laws may be harder to enforce in an Outdoor Entertainment District than they are in a single bar or restaurant, for example.

So, those are some immediate thoughts on the issue. Good luck tomorrow!

Sue

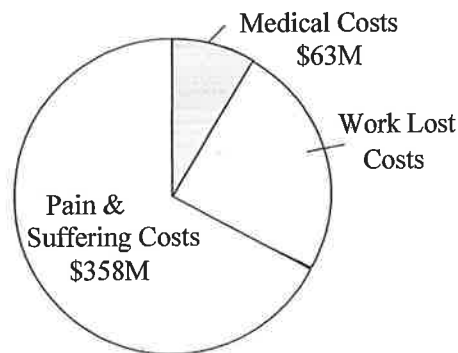
## Underage Drinking in Nevada *The Facts*

Tragic health, social, and economic problems result from the use of alcohol by youth. Underage drinking is a causal factor in a host of serious problems, including homicide, suicide, traumatic injury, drowning, burns, violent and property crime, high risk sex, fetal alcohol syndrome, alcohol poisoning, and need for treatment for alcohol abuse and dependence.

### *Problems and Costs Associated with Underage Drinking in Nevada*

Underage drinking cost the citizens of Nevada \$0.6 billion in 2010. These costs include medical care, work loss, and pain and suffering associated with the multiple problems resulting from the use of alcohol by youth.<sup>1</sup> This translates to a cost of \$2,563 per year for each youth in the State or \$4.12 per drink consumed underage. Excluding pain and suffering from these costs, the direct costs of underage drinking incurred through medical care and loss of work cost Nevada \$249 million each year or \$1.69 per drink. In contrast, a drink in Nevada retails for \$1.15.

**Costs of Underage Drinking  
Nevada, 2010 \$**



**Total: \$0.6 billion**

**Costs of Underage Drinking by Problem, Nevada, 2010 \$**

| Problem                     | Total Costs<br>(in millions) |
|-----------------------------|------------------------------|
| Youth Violence              | \$384.0                      |
| Youth Traffic Crashes       | \$72.3                       |
| High-Risk Sex, Ages 14-20   | \$49.0                       |
| Youth Property Crime        | \$47.3                       |
| Youth Injury                | \$17.3                       |
| Poisonings and Psychoses    | \$4.8                        |
| FAS Among Mothers Age 15-20 | \$13.4                       |
| Youth Alcohol Treatment     | \$18.6                       |
| <b>Total</b>                | <b>\$606.8</b>               |

Youth violence (homicide, suicide, aggravated assault) and traffic crashes attributable to alcohol use by underage youth in Nevada represent the largest costs for the State. However, a host of other problems contribute substantially to the overall cost. Among teen mothers, fetal alcohol syndrome (FAS) alone costs Nevada \$13 million.

Young people who begin drinking before age 15 are four times more likely to develop alcohol dependence

and are two and a half times more likely to become abusers of alcohol than those who begin drinking at age 21.<sup>2</sup> In 2009, 460 youth 12- 20 years old were admitted for alcohol treatment in Nevada, accounting for 11% of all treatment admissions for alcohol abuse in the state.<sup>3</sup>



## *Alcohol Consumption by Youth in Nevada*

Underage drinking is widespread in Nevada. Approximately 99,000 underage customers in Nevada drink each year. In 2009, Nevada students in grades 9-12 reported:<sup>4</sup>

- 73.2% had at least one drink of alcohol on one or more days during their life.
- 25.6% had their first drink of alcohol, other than a few sips, before age 13.
- 38.6% had at least one drink of alcohol on one or more occasion in the past 30 days.
- 22.0% had five or more drinks of alcohol in a row (binge drinking) in the past 30 days.
- 4.4% had at least one drink of alcohol on school property in the past 30 days.

In 2009, underage customers consumed 12.9% of all alcohol sold in Nevada, totaling \$169 million in sales (in 2010 dollars). These sales provided profits of \$83 million to the alcohol industry.<sup>1</sup> Ranking states based on the percentage of alcohol consumed underage, with 1 the highest, Nevada ranked number 49. This percentage is affected by both adult and youth drinking levels.

Annual sales of alcohol consumed by youth in Nevada averaged \$1,709 per underage customer. Underage customers were heavier consumers than adults. They drank an average of 4.1 drinks per day; in contrast, legal customers consumed only 2.0.

## *Harm Associated with Underage Drinking in Nevada*

Underage drinking in Nevada leads to substantial harm due to traffic crashes, violent crime, property crime, unintentional injury, and risky sex.

- During 2009, an estimated 9 traffic fatalities and 444 nonfatal traffic injuries were attributable to driving after underage drinking.
- In 2009, an estimated 19 homicides; 12,900 nonfatal violent crimes such as rape, robbery and assault; and 14,300 property crimes including burglary, larceny, and car theft were attributable to underage drinking.
- In 2007, an estimated 4 alcohol involved fatal burns, drownings, and suicides were attributable to underage drinking.
- In 2009, an estimated 285 teen pregnancies and 7,085 teens having risky sex were attributable to underage drinking.

For comparison with other states, in US rather than state prices, the harm from underage drinking per youth in Nevada averages \$1,634. Such comparisons require caution. In part, they may reflect differences in crime and crash rates, problem-reporting to police, and co-occurring drug use.

Produced by the Pacific Institute for Research and Evaluation (PIRE) with funding from the Office of Juvenile Justice and Delinquency Prevention (OJJDP), September 2011.

<sup>1</sup> Levy, D.T., Miller, T.R., & Cox, K.C. (2003). Underage drinking: societal costs and seller profits. Working Paper. Calverton, MD: PIRE.

<sup>2</sup> Grant, B.F., & Dawson, D.A. (1997). Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: Results from the National Longitudinal Alcohol Epidemiologic Survey. *Journal of Substance Abuse* 9: 103-110.

<sup>3</sup> Office of Applied Studies, Substance Abuse and Mental Health Services Administration. Treatment Episode Data Set. (2011). *Substance Abuse Treatment by Primary Substance of Abuse, According to Sex, Age, Race, and Ethnicity, 2009*. Available [On-line]: <http://www.icpsr.umich.edu/icpsrweb/SAMHDA/studies/30462>.

<sup>4</sup> Center for Disease Control (CDC). (2011). Youth Risk Behavior Surveillance System (YRBSS). Available [On-line]: <http://apps.nccd.cdc.gov/youthonline/App/Default.aspx>.

## BUSINESS IMPACT STATEMENT

### BILL NO. 2013-~~34~~

[Updating the City's Alcohol Licensing Regulations to Provide for an Outdoor Entertainment Complex Tavern-Limited License; Specifying that the City Council Shall Determine Whether Minors may be Permitted to Congregate in Certain Establishments that Serve Alcohol and to Permit an LVMC 6.06 Temporary License to Be Forwarded to the City Council for Review at the Director's Discretion.]

This business impact statement was prepared pursuant to NRS 237.090 to address the impact of a proposed ordinance, Bill No. 2013-~~34~~, that would update the City's alcohol licensing regulations to provide for an outdoor entertainment complex tavern-limited license; specifying that the city council shall determine whether minors may be permitted to congregate in certain establishments that serve alcohol and to permit an LVMC 6.06 temporary license to be forwarded to the City Council for review at the director's discretion

**1. The following constitutes a description of the number of the manner in which comment was solicited from affected businesses, a summary of their responses and an explanation of the manner in which other interested persons may obtain a copy of the summary.**

No comments were solicited. The proposal is not anticipated to have a materially different impact on businesses than existing regulations.

**2. The estimated economic effect of the proposed rule on businesses, including, without limitation, both adverse and beneficial effects, and both direct and indirect effects:**

#### **Adverse effects:**

None identified

#### **Beneficial effects:**

This ordinance will permit the creation of another type of business that caters to people looking for ever-expanding entertainment options in the downtown core by allowing the creation of an outdoor entertainment complex that will combine retail, dining, an outdoor music venue and the availability of alcoholic beverages in one cohesive setting. In addition, the ordinance clarifies that it is the City Council that will determine whether minors may congregate in certain establishments with adults consuming alcohol. Lastly, this ordinance will permit the Director of Planning and Business Licensing to submit temporary liquor license directly to the City Council for review. None of these proposals will impact any business in any material way.

#### **Direct effects:**

None

#### **Indirect effects:**

**3. The following constitutes a description of the methods the local government considers to reduce the impact of the proposed rule on businesses and a statement regarding whether and if so when, or these methods were used:**

Not applicable

**4. The governing body estimates the annual cost to the local government for enforcement of the proposed rule is:**

Not applicable

**5. If the proposed rule provides for a new fee or increases an existing fee, the total annual amount expected to be collected is:**

Not applicable. This ordinance does not provide for a new fee or an increase in a fee, but merely expands the availability of a certain type of liquor license to a new use.

**6. If the proposed rule provides for a new fee or increases an existing fee, the money generated by the new fee or increase in existing fee will be used by the local government to:**

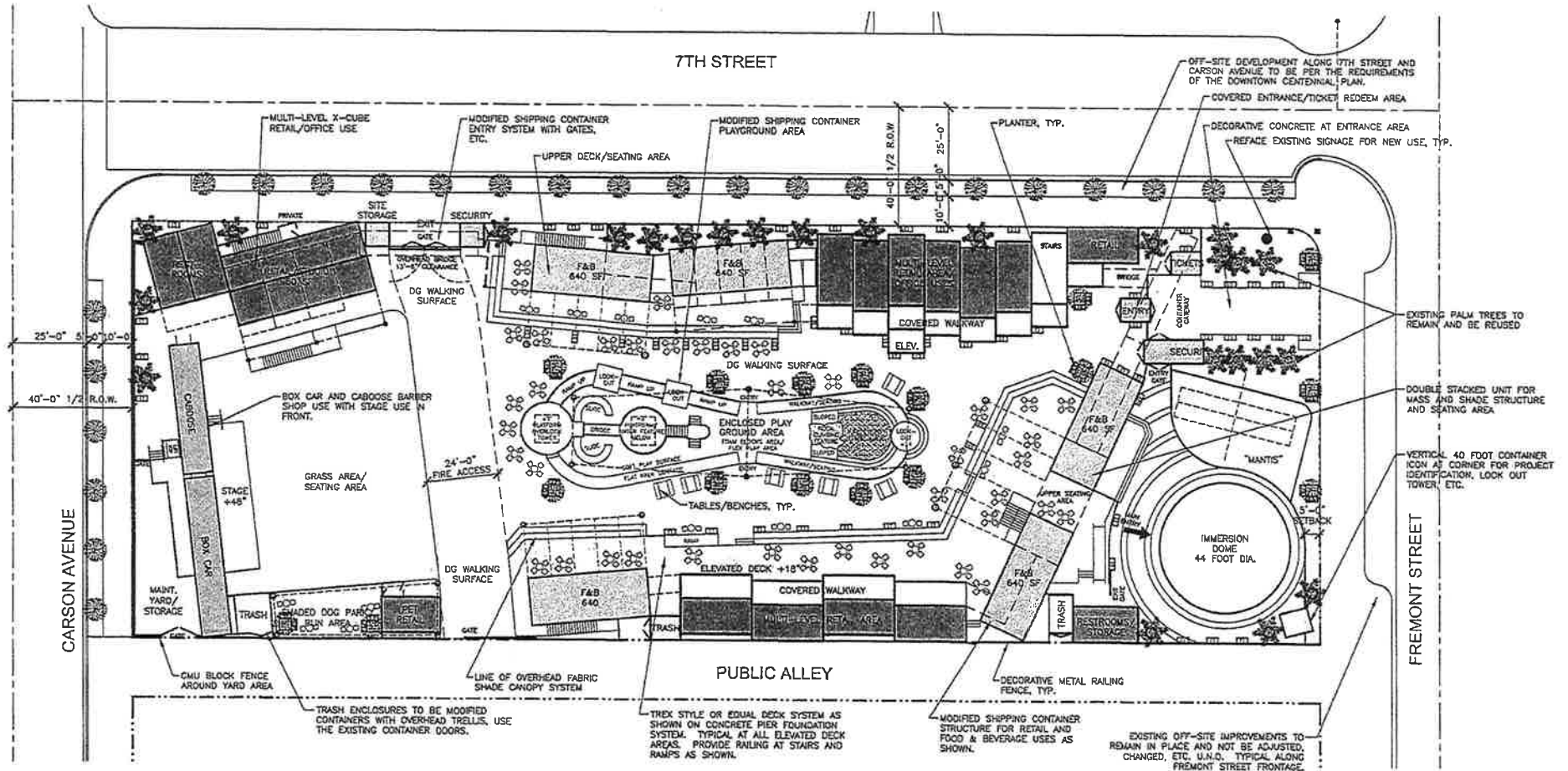
Any additional revenues from new fee categories will be used to offset enforcement costs and to replace potential revenues from existing categories.

**7. If the proposed rule includes provisions that duplicate or are more stringent than federal, state or local standards regulating the same activity, the following explains when such duplicative or more stringent provisions are necessary:**

Elizabeth H. Lusk

SQUARE FOOTAGE/USE BREAKDOWN:  
 RETAIL = 10,158 SF (MULTI-LEVEL X-CUBE AND CONTAINERS)  
 STUDIO = 960 SF  
 3RD LEVEL OFFICE = 2,688 SF  
 F&B VENUES = 3,200 SF  
 DOME USE = 1,820 SF  
 RESTROOMS/STORAGE/SUPPORT USES = 3,064 SF

# FREMONT & 7TH ST CONTAINER PARK



1 SITE PLAN  
 SCALE: 1/32"=1'-0"

0' 10' 20' 40'



BRESLIN  
 BUILDERS  
 ENGINEERS

RECEIVED

VAR-46295 JUN 26 2012

## LVMC6.50 LIQUOR CONTROL

### **6.50.240 Alcoholic beverage license—Tavern.**

A tavern license authorizes the sale of alcoholic beverages for consumption on the premises where the same are sold and authorizes the sale, to consumers only and not for resale, of alcoholic beverages, in original sealed or corked containers, for consumption off the premises where the same are sold.

*(Ord. 5607 § 25, 2003)*

### **6.50.250 Alcoholic beverage license—Tavern-limited.**

(A)

A tavern-limited license:

(1)

Authorizes the sale of alcoholic beverages only for consumption on the premises where the same are sold.

(2)

May only be issued for premises located entirely within the Downtown Centennial Plan overlay district.

(3)

Is not transferable, except to a location for which a new license of that type would qualify under Paragraph (2) of Section (A) above and to an operator who has been approved by the City Council.

(B)

A tavern-limited license, or the transfer of a license, may be conditioned upon one or more of the following:

(1)

That the establishment be a themed establishment, the theme to be approved by the Director after submission of a written description of at least three operational elements establishing a theme.

(2)

That the establishment provide live entertainment at least two nights per week, including, but not limited to the following:

(a)

Music entertainment venue, with live music or disk jockey (jazz, blues, reggae, hip hop, rock'n'roll, etc.);

(b)

Nightclub venue with dancing and live music or live disk jockey;

- (c) Comedy entertainment venue, with live comedic performers;
  - (d) Karaoke entertainment venue, with amateur guest performers; and
  - (e) Other live entertainment venues, to be determined by the City Council for acceptability and conformity to the goals and objectives of the District.
- (3) That the establishment provide for outdoor seating in a number and manner approved by the City Council.
  - (4) Establishment of an annual review for conformity to the licensing standards and conditions, for a period of time to be established by the City Council.
  - (5) Submittal of a business security plan, to be approved by the City.
  - (6) Such other conditions as may be recommended by City staff and imposed by the City Council.

*(Ord. No. 6232, § 2, 1-23-13; Ord. 5607 § 26, 2003)*

#### **6.50.255 Alcoholic beverage license—Urban lounge.**

An urban lounge license authorizes the sale of alcoholic beverages for consumption on the premises where the same are sold, and the sale, to consumers only and not for resale, of alcoholic beverages in original sealed or corked containers, for consumption off the premises where the same are sold. An urban lounge license may be issued only at a location:

- (A) Within the boundaries of the Las Vegas Arts District, as described in the Downtown Centennial Plan and as amended from time to time; and
- (B) In which, for each seat provided at the bar of the establishment, there must be a minimum of two seats within a lounge area located away from the bar.

*(Ord. 5806 § 5, 2005)*

## NEVADA REVISED STATUE

**NRS 202.030 Minor loitering in place where alcoholic beverages sold.** Any person under 21 years of age who shall loiter or remain on the premises of any saloon where spirituous, malt or fermented liquors or wines are sold shall be punished by a fine of not more than \$500. Nothing in this section shall apply to:

1. Establishments wherein spirituous, malt or fermented liquors or wines are served only in conjunction with regular meals and where dining tables or booths are provided separate from the bar; or
2. Any grocery store or drugstore where spirituous, malt or fermented liquors or wines are not sold by the drink for consumption on the premises.

[1:99:1949; A 1955, 144]—(NRS A 1967, 482)

**NRS 202.060 Saloonkeeper allowing minor to remain in establishment.** Any proprietor, keeper or manager of a saloon or resort where spirituous, malt or fermented liquors or wines are sold, who shall, knowingly, allow or permit any person under the age of 21 years to remain therein shall be punished by a fine of not more than \$500. Nothing in this section shall apply to:

1. Establishments wherein spirituous, malt or fermented liquors or wines are served only in conjunction with regular meals and where dining tables or booths are provided separate from the bar; or
2. Any grocery store or drugstore where spirituous, malt or fermented liquors or wines are not sold by the drink for consumption on the premises.

[1:152:1911; A 1955, 85]—(NRS A 1967, 483)

### Concerns:

- 1) The request for mixed venue (all age groups) to occur in an active Tavern/Tavern Limited environment. The law does not allow an under 21 year old to loiter in this environment unless they are partaking in food. See NRS 202.060. This means allowing underage to enter for a concert or entertainment venue is not allowed.
- 2) A Tavern and Tavern Limited license allows for consumption on premise of the establishment only. The alcohol is not permitted to be sold or consumed in a licensed establishment without an alcohol license.
- 3) Container Park proposed to have Tavern Limited licenses with the alcohol being consumed through the property and not isolated to the alcohol business establishment with the alcohol license. There is no commitment to a consumption area (food court, etc.). The container park has proposed a playground area within the middle of the property. This would allow children to view the consumption of alcohol with no committed consumption area that could be contained and restricted from view.





Enforcing the Underage Drinking Laws Program

NEWS FROM THE FIELD

[www.udetc.org](http://www.udetc.org)

# Stories

February 2013

## Impacting Youth Access to Alcohol and Reducing Crime in Las Vegas

Clark County, Nevada, is home to the city of Las Vegas and approximately 71 percent of Nevada's population, including 80 percent of the state's underage population. Alcohol is available 24/7 and the enforcement of liquor laws is the responsibility of local law enforcement agencies. Despite these challenges, the Las Vegas Metropolitan Police Department (LVMPD) has achieved impressive results in reducing youth access to alcohol and crime in hot spot areas of the city.

The first alcohol sale to minors compliance check in Nevada was conducted in 1999 by the LVMPD with funding provided by OJJDP through the Enforcing Underage Drinking Laws (EUDL) program. The 48 percent compliance rate was a serious wake up call. From 1999 to 2010 compliance rose to an average of 72 percent and has held steady for many years.

Enforcement data in 2010 indicated that violent and property crime numbers had reached an all-time high, triggering Sheriff Doug Gillespie to urge department members to work harder to reduce crime within each area command despite being faced with departmental budget cuts. Officer John Schutt of the Northwest Area Command (NWAC), which is one of the nine area commands in the metro area, noticed that areas with high rates of violent crimes and property crimes occurred in areas with higher concentrations of alcohol retail stores and a high number of calls for enforcement service. Using information he learned about data mapping during past EUDL National Leadership Conferences, Officer Schutt believed there may be a correlation between the high crime and retail alcohol shops. A crime density map for the NWAC and an alcohol licensee map were imposed upon each other. Officers reached out to City of Las Vegas Business License Supervisor Victoria Rosemore who assisted in creating the map of all alcohol retail licensees. The resulting map showed that the areas with the largest amount of alcohol retailers were located within the areas with the highest reported crime.

Under the leadership of Captain Chris Jones and Lieutenant James Seebock, community policing officers along with patrol officers conducted high visibility enforcement in the 'hot spot' areas with high priority calls and high alcohol retailer density. By using a shared EUDL strategy and enforcement operations during high risk times of the year for school-related gatherings one weekend per month officers conducted direct patrol activities. The enforcement actions paid off with impressive results only 9 months into the initiative. Compliance with minimum legal drinking age laws within the hotspot areas improved from 73 percent (2010) to 98 percent (2012), property crime reduced by 12 percent, and violent crimes reduced by 29 percent.

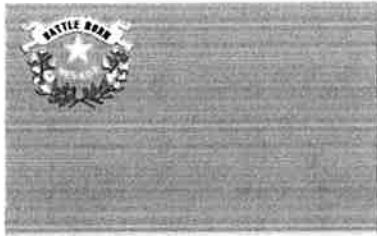
Due to the success of the NWAC EUDL Initiative, LVMPD has begun work within the Downtown Area Command on the Fremont Street Initiative. This project is in its early stages, but positive outcomes are already being recorded. In addition, officers are exploring ways to better address other alcohol-related issues such as third-party transactions between the homeless population and underage youth.

The enforcement response to alcohol and crimes provides a strong example of how proper planning and collaboration can make a measurable impact on reducing the problems associated with youth access to alcohol.

For more information contact:

Las Vegas Metropolitan Police Officer John Schutt at 702-561-5268 or [j6267s@lvmpd.com](mailto:j6267s@lvmpd.com); or Diane Anderson, Nevada EUDL Discretionary State Manager at 702-682-8647 or [dianestdf@msn.com](mailto:dianestdf@msn.com)

The views expressed in this document do not necessarily represent the views of the Office of Juvenile Justice and Delinquency Prevention (OJJDP) or the Underage Drinking Enforcement Training Center (UDET) and are solely of the author/source.



Enforcing the Underage Drinking Laws Program

NEWS FROM THE FIELD  
www.udetc.org

# Stories

August 2011

## **The University of Nevada Reno (UNR) Tackles Student Underage Drinking through successful collaborations, increased enforcement, and stronger policies**

At the University of Nevada Reno (UNR), approximately 42 percent of the undergraduate population is younger than 21. Alcohol is available to students 24/7 and is served in the stadium during sporting events. In 2007, UNR increased law enforcement efforts through bike and foot patrols in tailgate areas and enforcement teams at each stadium gate, piloting a "gate ejection" policy for obviously intoxicated fans. Before 2008, police enforced underage drinking laws at events, but without an established system of follow through and enforcement, it was a revolving door—students were cited and released. Issues with disorderly fan behaviors and unruly house parties in the surrounding neighborhoods were the norm.

In 2008, UNR was awarded a 3-year Enforcing Underage Drinking Laws (EUDL) discretionary grant to reduce underage student access to and consumption of alcohol. Using a comprehensive approach—environmental management, enforcement, intervention, and education—UNR successfully reduced alcohol availability to underage students, decreased alcohol-related crimes on and off campus, improved adjudication practices, and improved student retention. UNR continued the environmental strategies and banned alcohol outside of tailgate areas, drinking games in tailgate areas, and drinking in line at the stadium gates. Fans were heavily educated about new policies by disseminating zero-tolerance information cards to all attendees. In 2009, UNR moved from piloting these strategies to standardizing a "zero-tolerance" approach. Additional security teams were hired to enforce the ban on alcohol outside tailgate areas. Student incidents of minor in possession, assaults, fan ejections, and vandalism on game day have decreased from 262 offenses in 2007 to 102 in 2010. Costs for enforcement have also decreased from \$171,097 to \$116,991. "Game days used to be riddled with unruly fan behavior mostly related to alcohol. Now, fans are much calmer and game days more enjoyable," says Carol Millie, Office of Student Conduct.

During the grant period, UNR leveraged its *Be in the Know* campaign to build awareness and to encourage responsible student behavior. Increased late-night programs on campus

provide student alternatives to drinking at house parties. A revised student code of conduct was implemented in the fall of 2010 to send a clear message that alcohol-related offenses are not tolerated on or off campus. The student code aligns the campus with community court practices implemented during the fall of 2009. As a result, Reno City judges agreed to immediately implement uniform sentencing practices to standardize adjudication of on-campus and off-campus alcohol violations. These practices have enhanced existing court and campus mandates and resulted in reduced recidivism of offenses by college students from 10.5 percent during the 2008-2009 academic year to 5 percent in the 2009-2010 academic year.

The collaborative efforts have contributed to successful results in changing the school's culture with the most at-risk students: freshmen. In 2008, the retention rate for freshman involved in alcohol violations was 77 percent. In 2010, the retention rate rose to 94.12 percent, a 17.12 percent increase. This is proof that addressing underage drinking can significantly affect student retention and success.

### **For more information contact:**

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Phone: 775-784-4013  
Email: [ejames@police.unr.edu](mailto:ejames@police.unr.edu)

*The views expressed in this document do not necessarily represent the views of the Office of Juvenile Justice and Delinquency Prevention (OJJDP) or the Underage Drinking Enforcement Training Center (UDETC) and are solely of the author/source.*

Underage Drinking  
Enforcement Training Center

11720 Beltsville Drive, Suite 900, Calverton, MD 20705.  
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Enforcing the Underage Drinking Laws Program

# Stories

NEWS FROM THE FIELD

[www.udetc.org](http://www.udetc.org)

September 15, 2002

**The OJDP Enforcing the Underage Drinking Laws Initiative supports cooperation between community organizations, enforcement agencies, youth, and other concerned citizens to change local ordinances and enforcement practices.**

## Playing It Straight—Athletes and Alcohol in Nevada

The Nevada Interscholastic Activities Association (NIAA) is introducing a new policy to address drinking and other drug use by high-school athletes.

In Nevada, as in other states, underage drinking is a problem for high-school athletics programs. The culture of drinking and sports infuses everything from celebrations to hazing and initiation rituals. The problem is not limited only to athletes, but is strongly associated with athletics and competition.

The patchwork of authority across the State made it difficult to apply a single standard; every county in Nevada is a separate school district, with autonomy to set its own policy on alcohol, tobacco, and other drugs. Nearly 90% of Nevada's school-age youth live in just two counties, Clark and Washoe, while the rest are scattered across smaller or rural communities. In these communities, small schools were unwilling to punish star athletes for lack of ready replacements, and so enforcement of alcohol and drug rules tended to be lax.

Recognizing the problem, prevention advocates saw the need for a uniform policy for high-school athletics as part of wider efforts to prevent underage drinking. Working with the Nevada Interscholastic Activities Association, with support from the Nevada Division of Child and Family Services, advocates from "Stand Tall, Don't Fall: United Against Underage Drinking" began developing a policy that could be applied statewide.

They developed the policy with three key goals; that it be educational, corrective, and restorative. The policy begins with the educational, when all would-be athletes and their parents attend an informational session on alcohol and other drug use and its consequences.

When that session is complete, athletes are bound to the policy for the rest of their time in school. Should they violate the policy, sanctions become increasingly dire with each offense. For the first offense, a student will receive six weeks suspension from play; this can be reduced to two weeks if the student and parents take part in a further educational session on underage drinking. Students also have to complete an eight to ten hour service project. A second offense earns the student a three month suspension from play and a mandatory alcohol assessment. While suspended, students are expected to dress out and participate in practice, but are not allowed to compete. The third offense triggers full expulsion from athletics for the rest of the student's high-school career.

### ►Our Point:

**Communities, States, and law enforcement are successfully changing laws, regulations, and enforcement practices to reduce underage drinking.**

It may seem harsh, but says Kathy Bartosz of Stand Tall: "If they haven't gotten the message after the second time, they're not going to get the message."

The program is being piloted in Washoe County, under the guidance of Eddie Bonine, Washoe County Schools Director of Student Services. With support from across Nevada, the program is slated to go statewide in the 2003-04 school year. Says Bonine, "I feel it's going to be successful—I feel it is successful."

**For more information, contact Eddie Bonine of Washoe County Schools at 775-348-0375 or Kathy Bartosz of Stand Tall, Don't Fall at 775-684-7294.**

Center for Enforcing  
Underage Drinking Laws

11710 Beltsville Drive, Suite 300, Calverton, MD 20705  
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# Stories

Enforcing the Underage Drinking Laws Program

NEWS FROM THE FIELD

[www.udatc.org](http://www.udatc.org)

May 30, 2002

**With support from the OJDP Enforcing the Underage Drinking Laws Initiative, community organizations, enforcement agencies, youth, and other concerned citizens are working collaboratively to change local ordinances and enforcement practices.**

## Compliance Checks in Nevada: Enforcement through Local Ordinance

In response to a recent court decision, law enforcement agencies across Nevada are using local ordinances to enforce underage drinking laws. These ordinances ensure that the penalties imposed during compliance checks will stick.

The Las Vegas Metropolitan Police Department (LVMPD) in Nevada, with its unique commitment to the Enforcing Underage Drinking Laws (EUDL) program, has dedicated an officer, John Schutt, to work full-time on efforts across the state. Until recently these efforts included compliance checks that were conducted under a state law prohibiting sales of alcohol to minors. However, in *Garcia v. District Court*, the Nevada Supreme Court decided that the law required the seller to know—or have good reason to suspect—that the purchaser was a minor, even though the seller had *no obligation to ask for identification*. The decision made it nearly impossible for authorities to cite sellers under the state law, unless they could prove that the seller knew the purchaser was a minor.

Faced with this tough standard from the court, enforcement agencies statewide have turned to local ordinances to conduct checks. These rules can be strict-liability—meaning the seller is accountable

regardless of the buyer's appearance or failure to produce I.D.

Las Vegas provides an example of this shift. When the *Garcia* ruling was issued, the city had no ordinance on sales to minors, and the decision threatened to halt ongoing compliance checks in the city. Although no longer able to issue fines, officers continued the checks and simply warned stores of violations. Meanwhile, in support of LVMPD, local advocates, including Diane Pidsosny of Stand Tall—Don't Fall: United Against Underage Drinking (funded by OJDP), pushed for an ordinance that would prohibit sales to minors. They found support from Councilman Gary Reese, who introduced an ordinance that would close the *Garcia* loophole. Cooperation between the City Council and the LVMPD was extremely effective, says Pidsosny, and the ordinance was approved within two months.

**► Our Point:  
Communities and  
states are  
successfully changing  
laws, regulations,  
and enforcement  
practices to reduce  
underage drinking.**

Despite the initial setback from the *Garcia* decision, the situation has raised awareness of underage drinking issues in Nevada. The next step for Silver State advocates is to encourage legislators to fix the law that created the compliance check loophole. Until that happens, Nevada's law enforcement will continue compliance checks according to local ordinances.

**For more information, contact Diane Pidsosny at 702-436-2920 or Officer John Schutt at 702-813-7226.**

Center for Enforcing  
Underage Drinking Laws

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# Stories

Enforcing Underage Drinking Laws Program

NEWS FROM THE FIELD

June 26, 2000

[www.pire.org/udetc](http://www.pire.org/udetc)

[Issue 4]

With support from the OJJDP Enforcing the Underage Drinking Laws Program, enforcement agencies, community organizations, youth, and other concerned citizens are working collaboratively to identify key issues and to implement effective enforcement strategies to reduce underage drinking and youth access to alcohol.

## **7 Nevada Counties Find That Compliance Checks Are Effective in Preventing Alcohol Sales to Minors**

"I knew we had a problem, but didn't figure it was to this magnitude," said Sheriff Bernie Romero of the White Pine County Sheriff's Department. His comment followed 2 months of compliance checks and alcohol purchase surveys of alcohol retailers conducted by his department and other enforcement agencies in 7 Nevada counties. Between October and December 1999, these enforcement activities found that only 45% of the establishments complied with the State Age-21 laws by refusing to sell alcohol to minors. The 7 counties involved account for approximately 90% of Nevada's total population; therefore, these findings offer a rather comprehensive look at the issue of retail availability in the State.

Kathy Bartosz, OJJDP State Coordinator and Grant Analyst for the Nevada Division of Child and Family Services -Juvenile Justice Commission, sites this effort as a major component of the State's enforcement plan for the OJJDP Enforcing the Underage Drinking Laws Program. However, she and the enforcement agencies involved acknowledge that compliance checks alone, while effective, are not enough to reduce underage drinking. To better examine the low retail compliance rates and other factors making alcohol easily accessible to youth in Nevada, they brought enforcement agencies, community organizations, coalitions, retailers, and youth together for a *Local Policy Options* training. Conducted by the Pacific Institute's Center for Enforcing the Underage Drinking Laws, this interactive training helped community teams identify roles for everyone in increasing support for enforcement efforts to reduce underage drinking and to recognize other needed enforcement strategies, such as operations to address third party transactions of alcohol to youth.

Since the initial surveys and the State-wide training, the 7 counties have continued to conduct enforcement activities to increase the compliance rate among retailers. Every 2 months, the enforcement agencies report the percentage of retailers refusing to sell to underage "decoys" during compliance check operations. During the period March-April 2000, 69% of retailers complied by not selling to the minors - an increase of 24% since the beginning of the effort! Additionally, the compliance checks sparked other related efforts: a "hot-line" for tips about where youth can easily get alcohol, parents' groups to mobilize support for enforcement efforts, and the establishment of a youth-conducted community judicial board to hear cases related to underage drinking and youth access to alcohol. "The enforcement agencies have been terrific, and the communities' support has made these efforts all the more effective," Bartosz remarked.

*For more information about Nevada's work with compliance checks, contact Kathy Bartosz, OJJDP State Coordinator, at 775-687-3987 or the Center for Enforcing the Underage Drinking Laws at 1-877-335-1287.*

**Training Center**

11140 Rockville Pike, Suite 600 . Rockville, MD . 20852 . Toll-Free: 877-335-1287 . Phone: 301-984-6500 . Fax: 301-984-6559

**2007-2009 Nevada YRBS / Clark County Trend Data (%)**  
**Middle School and High School Population**

| Behavior                                                                                                                                    | MS<br>07 | MS<br>09 | HS<br>07 | HS<br>09 |
|---------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|----------|
| Rode in a car or other vehicle in past 30 days driven by someone who had been drinking alcohol                                              | 28.5     | 31.1     | 22.4     | 24       |
| Drove a car or other vehicle in past 30 days when they had been drinking alcohol                                                            | Na       | Na       | 8.5      | 7.8      |
| Ever had a drink of alcohol other than a few sips                                                                                           | 37.2     | 38.4     | 67.5     | 66.6     |
| Had first drink of alcohol before age 10*                                                                                                   | 20.2     | 16.7     | 12.9     | 13.0     |
| Drank alcohol on one or more of past 30 days                                                                                                | Na       | Na       | 12.9     | 13.0     |
| Had 5 or more drinks of alcohol in a row in past 30 days                                                                                    | Na       | Na       | 22.6     | 22.0     |
| Drank alcohol on school property during past 30 days                                                                                        | Na       | Na       | 5.7      | 6.1      |
| Among current alcohol users, the alcohol was given to them by "someone" in past 30 days                                                     | Na       | Na       | 14.6     | 15.0     |
| Of those who are sexually active, drank alcohol or used drugs before the last time they had sex                                             | Na       | Na       | 8.7      | 8.1      |
| Attended school under the influence of alcohol or other illegal drugs, such as marijuana or cocaine 1 to 2 times during the past 12 months. | Na       | Na       | Na       | 7.3      |

*\*Interesting to note that the rest of the state used the age of 13 years old.*

Almost every other county in the state has shown a steady improvement in underage drinking risk behaviors since 1999 including positive changes between 2007 and 2009. Therefore, Clark County was selected as the community for this application as they need an *independent professional assessment* to find out why their underage drinking rates are not improving.

# Planners OK tavern license for Fremont East coffeehouse

By [Paul Takahashi](#) (contact)

Friday, Aug. 27, 2010 | 6:41 p.m.

## Map of The Beat Coffeehouse



### The Beat Coffeehouse

520 Fremont Street, Las Vegas

The Beat Coffeehouse and record shop is one step closer to expanding its evening hours after the city of Las Vegas Planning Commission approved the owners' request for a tavern-limited license.

The license, if approved by the Las Vegas City Council, would allow the Beat, located at 520 E. Fremont St., to serve alcoholic beverages between 7 p.m. and 2 a.m. and host live music events at least four nights a week.

The Beat, in the Fremont East downtown entertainment district, opened earlier this year.

"We want to serve coffee in the morning and have beer, wine and live music in the evening, all while not spoiling the vibe of the Beat," said owner Michael Cornthwaite.

Although some commissioners raised concerns about the possibility of underage drinking if the license were approved, no public protests were mailed in, according to the city's Planning and Development department.

There is a temporary reduced tavern limited license fee in the Fremont East District as part of a neighborhood revitalization program. Cornthwaite said he was motivated to apply for the license under this program.

"What they're doing is keeping with the district," said Commissioner Steve Evans, who supported the request. "What's the best thing is (The Beat) is becoming an institution... it fosters a sense of community and camaraderie."

**Read more:** <http://www.lasvegassun.com/news/2010/aug/27/planners-ok-tavern-license-fremont-east-coffeehouse/#ixzz2XRgovPMH>



# Joe Downtown: In tavern-heavy Fremont East District, underage drinking abounds



Lella Navidi

People with a case of beer hang out in the Fremont East District on Friday, July 5, 2013.

By Joe Schuchman (contact)

Tuesday, July 9, 2013 | 2 a.m.

Fremont Street Enforcement



[Launch slideshow »](#)

Two cops rode side by side on horseback. Six officers stood in designated spots while about 18 more shifted in and out through the night. Another eight Downtown Rangers kept watch, with videotape.

This was the latest attempt to keep control of the [Fremont East Entertainment District](#), which has been plagued in recent months with spillover from nearby [First Friday](#) celebrations. City officials and business owners have grown increasingly concerned about drinking and foolish behavior among the mostly underage crowd.

On this Friday, there was plenty to discourage idiocy.

Each tavern hired its own security, and some charged a \$5 cover. Police checked the IDs of anyone who looked too young to drink, which by midnight seemed to be almost all of the 500-plus people standing on the street gabbing, ogling and stumbling.

In fact, many admitted that they were younger than 21 — but not to police.



[Leila Navidi](#)

Liliana Villegas, 19, drinks beer with her friends outside in the Fremont East District on Friday, July 5, 2013.

Officers could have ticketed any of the revelers for violating the city's open-container law. By law, you can't drink on the street, not even in Fremont East, an ironic twist given that the city stoked its development in large part by encouraging the proliferation of bars. City officials

established low-cost liquor licenses and eliminated distance requirements between taverns to help the area grow.

But on this Friday night, there were too many people to check.

The city's plan is working. Within about a block of Fremont East sit seven bars and five tavern/restaurants. Another block over, there are two more joints that serve alcohol. By October, at least three more will set up shop in Container Park a block away. A bar is going to open inside a theater at Las Vegas Boulevard and Fremont Street, and another is coming to retail space in the Ogden. Plans were just announced for three more taverns four blocks east.

...

Do you bite the hand that feeds you? With so many people breaking the law, do you ticket or arrest a few to make an example? Would that cause the crowd to dissipate or anger the volatile group?

Chris Curtis, a former Metro sergeant who now heads the Rangers, is tasked with figuring out how to deal with the problems that have come with the successful redevelopment of Fremont East.

It's now 12:30 a.m.

"Get a camera on that guy," Curtis tells one of his employees.

He points to a man standing on the sidewalk completely spaced out, staring at the sky with a huge grin on his face. He's catatonic, unmoving.

Another crew of officers shows up, including a sergeant Curtis knows. They trained together and shared a room at the police academy. The sergeant is graying at the temples, a no-nonsense drill sergeant but funny. He cracks everyone up.

"Bring that kid over here," he tells his charges.

Three cops, one of them Marine-built with muscles on muscles, walk across the street and bring over a very tall, young black man in a baseball cap notched so tightly it doesn't fit right and sits high on his head.

Sarge walks up to him. The kid, without prompting, takes off his cap and looks at the ground. He looks ashamed. Respectful. He's nodding. It's like a father telling his son what's what.

"What's he saying?" I ask Curtis.

"Telling him not to act foolish," Curtis says.

The talk is over, and the kid walks across the street. He and some friends quietly slip away.

"Sometimes you make one example and it makes a difference," one of the cops says.

By 1 a.m., there's no letup. It's still well over 100 degrees, and the crowds keep coming. No one seems to yawn.

"They're getting drunk," Curtis says, worried.



Lella Navidi

People with a case of beer hang out in the Fremont East District on Friday, July 5, 2013.

...

Five years ago, no one saw this coming.

First Friday has been taking place for 10 years a mile southwest. It ends at 11 p.m.

But Fremont East's popularity has grown, and when First Friday shuts down, a good percentage of its patrons head east. The crowds grow so large, and so many people sit outside and drink — the bars either fill to capacity or ban drinkers who aren't old enough to get in — fears are starting to break through the gleam of downtown's growth.

Last Friday was another test aimed at trying to figure out a way to maintain some kind of control, or at least gain enough of a grip that if something goes wrong, police would have ample space, time and staff to deal with it.

A single shooting, for example, could torpedo everything positive that's happened on a street that no one wanted anything to do with for so many decades, local tavern owners say.

After First Friday two months ago, the city shut down the bar section of Fremont Street. Not as many police were on hand, though. Fights took place, and although no one was seriously hurt, business owners described the scene as "ugly."

Last month, the street stayed open, and people poured into it, even though vehicles were trying to get through. Business owners say police shut down the road by 1:30 a.m.

This month, there was talk of putting a fence around the street. One option included getting business owners to agree to make their events private. Another was simply to check IDs and keep out anyone underage.

Instead, officials tried a larger police presence. Some business owners also agreed not to blast music into the street to lessen the street-party feel.



Left: Nevada

A packed Fremont East District on Friday, July 5, 2013.

Some held to that. At least two did not.

Nothing diminished the crowds.

One kid, who looked about 16, balanced himself against a trash can and stared at a wall, unable to focus. He swayed slightly.

"Drink all of it," a teenage girl ordered another, who put to her mouth and chugged an airplane-sized bottle of moscato, a sugary starter wine that's big business these days.

Kids regularly carry large quantities of beer, not always in something as obvious as a cardboard box.

Two feet from Curtis, a young man stood in shorts no baggier than normal. Suddenly, like Shriner clowns piling out of an impossibly small car, he pulled four bottles of Corona and two 24-ounce cans of Modelo from his shorts. He and his friends stood and drank, saying nothing to one another.

Two Metro officers checked their IDs. They were of age.

"A curfew would work," one of the officers suggested. "They do it on the Strip."

"Get these girls off the street and all these guys go with 'em," another said.

No one younger than 18 can be on the Strip after 9 p.m. without a guardian. Could that work one night a month downtown?

The thing is, the city already has a curfew. It has been on the books since 1948. It prohibits anyone younger than 18 from being out after midnight on weekends without a guardian.

It hasn't worked.

At 4 a.m., a few hours after Curtis ends his night, Fremont East is still packed with people.

Councilman Bob Coffin said a curfew and “all options” are being considered.

**Read more:** <http://www.lasvegassun.com/news/2013/jul/09/joe-downtown-lavern-heavy-fremont-east-district-un/#ixzz2YclFJlep>



Bill Hughes

By *Joe Schoenmann*

Tue, Jul 9, 2013 (2:56 p.m.)

Downtown's recent success as a nightlife hub is ratcheting up fears that the area is becoming so awash in booze and underage drinking that violence is growing, creating an expensive need for more law enforcement.

At a city Planning Commission meeting Tuesday night, city officials will consider applications for three more liquor stores that want to do business under the electric canopy of the Fremont Street Experience.

Fremont Street Experience executives, however, oppose the idea – even though one of the liquor stores would lease space in the Vegas Club casino-hotel, which as of about two years ago, stopped being a dues-paying member of the Experience. Other casinos pay a monthly fee that adds up to about \$1 million annually, which pays for security, cleaning and entertainment.

City planning staff have signed off on plans for all three stores, city documents show. And high-powered lawyers and lobbyists for the liquor stores have filed “justification letters” that outline arguments in favor of the stores opening.

Brown, Brown & Premsrirut, a Las Vegas law firm, represents two of the businesses, one at 300 Fremont St., the other at 316 Fremont St. It argues liquor stores are legally compatible for the space, which doesn't lie within 400 feet of any protected entity, such as a school.

Moran Law Firm represents Arelni LLC, which wants to sell liquor in the Las Vegas Club and another space almost directly across the street. The firm wrote that similar stores surround the area and two new stores “will not disrupt the surrounding land use.”

Opposing the liquor stores are Fremont Street Experience executives and the operators of The D and Golden Gate casinos.

Jeff Victor, Fremont Street Experience president, talked about a shooting a month ago in front of The D, a stabbing early Monday and what appears to be a growing incidence of underage drinking at the Experience and adjacent Fremont East Entertainment District.

Victor puts some of the blame on the relatively recent trend of selling packaged liquor. When he became president seven years ago, the 7-Eleven at Fremont Street and Las Vegas Boulevard was considered a problem spot because it sold liquor.

When it closed, a Walgreen's opened a block closer to the Fremont Street Experience. But the store was allowed only on the condition that it could not sell packaged liquor, Victor said.

“We didn't want to create another 7-Eleven issue,” he said.

But city officials more recently ignored Victor's arguments and have since approved six liquor stores within the canopied Experience.

“I opposed them all,” Victor said. “I stood at the podium and said please do not put this element back onto our street.”



For those who say he and casino owners are trying to squelch competition, because casino gift shops sell liquor, Victor vows that's not the case.

"I promise you, that is not what this is about," he said. "We have never opposed a tavern license at Fremont, Neonopolis, Fremont East or in the Arts District."

Packaged liquor sales are different, Victor said, because a middleman – a bartender – isn't involved.

"When you order from a bartender, he looks at you, and he or she can decide if you've had too much for the night," Victor said. "When you go to a liquor store, you buy a bottle of liquor or a case of beer and that cashier rings it up just as if they're selling a souvenir ashtray with no regard as to what's going to happen to that bottle ... I don't know why the city would even entertain the idea of more."

Victor walked down to the casinos after getting a phone call about 1 a.m. Saturday – "management told me things were getting a little rough," he said – and saw "kids" with 24-ounce cans of 4 Loco, which contains 12.5 percent alcohol. At a store that he can see from his Fremont Street office, one proprietor sells two cans of it for \$5.

"I can tell you, no casino is selling that stuff, and no tourist is asking for it at a casino bar," he said.

Victor also saw something typically unheard of in Las Vegas. Though hundreds, perhaps thousands, of people were still on Fremont Street at 1:30 a.m., a number of casinos shut down their outdoor bars.

The atmosphere on under the canopy "just didn't feel good to them," Victor said.

The liquor stores, meanwhile, stayed open.

"The one across the way was still open with intoxicated people waiting in line to buy more," ~~VICTOR SAYS.~~

*Joe Schoenmann doesn't just cover downtown: he lives and works there. Schoenmann is Greenspun Media Group's embedded downtown journalist, working from an office in the Emergency Arts building.*

# Community Alcohol Outlet Density and Underage Drinking

## Abstract

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### Aim

This study examined how community alcohol outlet density may be associated with drinking among youths.

### Methods

Longitudinal data were collected from 1091 adolescents (aged 14–16 at baseline) recruited from 50 zip codes in California with varying levels of alcohol outlet density and median household income. Hierarchical linear models were used to examine the associations between zip code alcohol outlet density and frequency rates of general alcohol use and excessive drinking, taking into account zip code median household income and individual-level variables (age, gender, race/ethnicity, personal income, mobility, and perceived drinking by parents and peers).

### Findings

When all other factors were controlled, higher initial levels of drinking and excessive drinking were observed among youths residing in zip codes with higher alcohol outlet densities. Growth in drinking and excessive drinking was on average more rapid in zip codes with lower alcohol outlet densities. The relation of zip code alcohol outlet density with drinking appeared to be mitigated by having friends with access to a car.

### Conclusion

Alcohol outlet density may play a significant role in initiation of underage drinking during early teen ages, especially when youths have limited mobility. Youth who reside in areas with low alcohol outlet density may overcome geographic constraints through social networks that increase their mobility and the ability to seek alcohol and drinking opportunities beyond the local community.

**Keywords:** Community alcohol outlet density, underage drinking, excessive drinking

## INTRODUCTION

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Restricting youth access to alcohol is a widely advocated strategy to reduce underage drinking and related problems [1,2]. The underlying rationale of this approach is that reducing access increases personal or economic costs for youths to obtain alcohol [3,4]. Implementing and enforcing policies restricting youth alcohol access may also reinforce community norms against

underage drinking and against providing alcohol to minors [1]. Many community-based intervention activities focus on reducing youth access to alcohol through responsible beverage service training and enforcement of underage sales laws. Such activities have reduced alcohol sales to youths [5–7]. Another commonly advocated community approach is to restrict the number or density of alcohol outlets. It is unclear, however, whether the number of outlets in a neighborhood matters for youth drinking. This paper addresses this question.

An association between geographic alcohol availability and alcohol consumption has been documented in the literature. For example, analyzing aggregate data collected from 144 zip codes in California and South Carolina, Gruenewald et al. [8] reported a marginal positive association between alcohol availability (indicated by outlet counts per kilometer of roadway) and adult alcohol consumption. This association was, however, no longer significant when zip code income and socio-demographics were taken into account. In addition, using a multilevel analytic approach and data collected from 2607 residents of New Orleans, Scribner et al. [9] reported that individual alcohol use and drinking norms were not related to individual's exposure to alcohol outlets (i.e., distance to the closest outlet from respondent's residence), but to the aggregated mean exposure to alcohol outlets at the census tract level. That is, residents residing in the census tracts with shorter mean distance to closest alcohol outlet, on average, had more positive drinking norms and consumed greater quantity of alcohol. Positive associations between alcohol availability and drinking practices are also reported in studies focusing on young people. Based on aggregate data collected from eight US college campuses, Weitzman et al. [10] reported positive correlations between alcohol outlet counts within 2-mile radius of college campuses and heavy drinking, frequent drinking, and drinking-related problems among students. Integrating contextual variables into analytic models that consisted of individual-level outcomes and covariates, Truong and Strum [11] found that for youths aged 12–17 in California, likelihoods of binge drinking and driving after drinking were significantly and positively related to counts of alcohol retailers within 0.5-mile radius of home. Consistently, a multilevel analysis of data collected from youths aged 12–17 in Auckland, New Zealand reported that alcohol outlet density (defined by alcohol outlet count within 10-minute drive from the central point of each census block) was positively related to typical-occasion quantity of drinking [12]. The associations of alcohol outlet density with frequency of drinking and drunkenness were not significant. Authors of this study also noted that alcohol outlet density and measure of neighborhood deprivation were highly correlated and replacing alcohol outlet density with neighborhood deprivation in the analyses yielded similar results. Although the size of geographic area, definition of alcohol availability or alcohol outlet density, covariates, and analytic approaches differ among these studies, positive associations of alcohol outlets with alcohol consumption have generally been found, suggesting neighborhood alcohol outlet density may influence youth alcohol use.

Adding to this literature, the present study used a multilevel analytic approach to examine how community alcohol outlet density may be related to drinking practices among youth using longitudinal data collected from a panel of adolescents (aged 14–16 at baseline) recruited from 50 zip codes in California with varying levels of alcohol outlet density and median household income. Three specific hypotheses were examined:

1. greater zip code alcohol outlet densities are associated with higher levels of drinking among youths at the beginning of the study;
2. greater zip code alcohol outlet densities are associated with higher levels of excessive alcohol use among youths at the beginning of the study; and
3. growth of drinking and excessive drinking is more rapid among youths residing in areas with greater alcohol outlet densities.

## METHODS

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### Procedure

Data were collected through three computer-assisted telephone interviews (CATI) in English or Spanish conducted at approximately 1-year intervals from November 2003 through March 2006. The sampling plan included all Californian zip codes that had at least 200 youths of ages 14–16 ( $N = 1076$ ) according to the 2000 Census [13]. Off-premise license data for the year 2000 were acquired from the California Department of Alcoholic Beverage Control. Alcohol outlet density was calculated as the count of active off-premise outlets per roadway mile within each zip code. We focused on off-premise outlets because few youths of this age group drink at bars, pubs, or restaurants [14,15]. Zip codes were stratified into “low,” “medium” and “high” outlet density groups, and “low,” “medium” and “high” income groups using the median household income data from the 2000 Census [16]. This resulted in a  $3 \times 3$  matrix, representing areas that varied orthogonally across alcohol outlet density and household income. The central and diagonal cells (i.e., high density-high income, high density-low income, medium density-medium income, low density-high income, and low density-low income) were then selected. Ten zip codes were randomly selected from each cell and each selected zip code was separated by at least two unselected zip codes. About 300 interviews in each zip code group (~30 interviews per zip code) were completed.

Listed household telephone numbers within the selected zip codes were sampled from a commercially purchased list. When a residential household was contacted, a brief screening was conducted to determine eligibility (e.g., presence of a youth aged 14–16). When more than one qualified youth existed in a household, one was randomly selected. If this youth refused, the next eligible one was invited to participate. About 85% of the purchased telephone numbers were usable; of which 66% were ineligible (e.g., no eligible youth, language barrier, quota met) and 23% eligibility unknown. The cooperation rate among contacted households was 56%. Of the eligible households, 43% completed the interview ( $N = 1541$ ). At Waves 2 and 3, 1300 (84%) and 1123 (73% of the baseline), respectively, completed the follow-up interviews.

### Individual-level variables

#### Outcome variables

At each wave of survey, respondents who reported drinking in the past 12 months were asked about frequency of drinking (i.e., number of days they had at least a whole drink of alcohol) and frequency of excessive drinking (i.e., number of days they got drunk).

## **Time-varying covariates**

### **Peer drinking**

At each wave, respondents named up to five friends that they met regularly. For each friend, we asked about frequency of meeting with this person in a typical month, on a 7-point scale (0–6: not at all – everyday), and frequency of drinking by this person in the past 12 months (0–9: not at all – every day). Frequency of drinking by each friend was multiplied by frequency of meeting with this person and then a mean score was taken over multiple friends.

### **Personal income**

Personal income was indicated by the amount of money that respondents received or earned in a typical week (0–7: \$0 – more than \$125), excluding money given to them for necessities (e.g., bus fare, lunch money).

### **Mobility**

Mobility was measured by asking the respondents to indicate if they had a car and if any of their three closest friends had a car. These items were coded as two dummy variables representing having a car or access to friends with a car.

## **Time-invariant correlates**

### **Parent drinking**

Respondents were asked number of days in the past 12 months they thought that each of their parents (or guardians) had at least one whole drink of alcohol (0–9: not at all – every day). A mean score was taken over two parents. For those having only one parent, parent drinking was indicated by that parent's drinking. Those who reported no parents/guardians were given a score of 0. Preliminary analyses indicated that perception of parent drinking was relatively stable over time ( $r = .71$ – $.78$ ). We thus treated parent drinking as a time-invariant factor and calculated a mean over three annual surveys for each respondent.

### **Background variables**

Gender, age, and race/ethnicity were included in the analyses as stable personal factors that may affect youth alcohol use. Gender was indicated by a dummy variable (male =1). We created two dummy variables to represent Latino ethnicity and non-white races (non-Hispanic white was the reference group).

### **Community-level variables**

Community alcohol outlet density was indicated by off-premise outlet counts per 1000 roadway miles at zip code level. Community income was indicated by zip code median household income. For data analysis purpose, income was rescaled by rounding to thousands of dollars. Consistent with our previous experience showing that increases or decreases of alcohol outlets within zip

codes are minimal in a short period of time [8], very little change in zip code off-premise outlet density was observed from year 2000 through 2006. In addition, although 34 respondents during Waves 1–2 and 95 during Waves 2–3 moved to different zip codes within California, preliminary analyses indicated that they tended to move to areas with similar alcohol outlet densities except for three zip codes representing college campuses. Thus, environmental changes over time or due to within-state migration were negligible.

Studies of alcohol outlet densities and related problems have been pursued at city, zip code, census tract, block group and block levels. The findings are generally consistent across these units. The problems considered have mostly been those that occur among mobile adult populations (e.g., violence, alcohol related crashes). Due to restricted access to transportation, problems among underage youth may have a different geographic scale (smaller). The zip codes used in the current study had median areas of 17.3 square miles with a diameter of 4.2 miles. These areas seemed large with respect to the likely mobility of most 14–16 year olds. Alcohol outlet density within a shorter distance of respondents' homes may be a more reasonable measure. We geo-coded respondent's home address and obtained the off-premise outlet count within a 2-mile radius of the respondent's residence. Correlation between this 2-mile measure and the zip code measure was high ( $r = .85$ ). We further replaced the zip code alcohol outlet density with this 2-mile measure in two-level analyses and obtained the same results as those presented in this paper. Thus, to this current study, the off-premise outlet count per 1,000 roadway miles at the zip code level appears to be an adequate and efficient indicator of the physical availability of alcohol in youth's living environment.

## Data analysis

Cases were excluded from the analyses if they dropped out of study ( $N = 418$ ) or moved out of California ( $N = 32$ ). The study sample thus consisted of 1091 cases: 53% male; 33% Latino, 51% non-Hispanic white, 16% other (including 5% Asian, 5% Black, and 6% other races). Mean age at baseline was 14.9 years ( $SD = .81$ ). Logistic regression analysis showed that those who were not included tended to be Latino ( $OR [95\% CI] = 1.84 [1.44–2.36]$ ,  $p < .001$ ) or other races ( $OR [95\% CI] = 1.79 [1.31–2.44]$ ,  $p < .001$ ), and aged 16 at baseline ( $OR [95\% CI] = 1.62 [1.22–2.14]$ ,  $p < .001$ ). Gender and drinker status at baseline did not differ significantly between those retained and not retained in the study.

The main data analyses used a 3-level linear growth model implemented with HLM 6 [17]. The data were three annual repeated observations for 1091 individuals who were nested within 50 zip codes. Frequency rates of drinking and excessive drinking were treated as count data with an over-dispersed Poisson distribution. Results from the unconditional models (i.e., no predictors were introduced) were first obtained for an overview of the initial levels and growth rates of the outcome variables. Data analyses for further conditional models were conducted in two steps. Step 1 (Model A) examined the associations between zip code variables and outcome measures without controlling for any individual-level factors and Step 2 (Model B) examined the same associations taking into account individual-level factors. Equation 1 is the simplified model at level 1.

$$Y_{ti} = \pi_{0i} + \pi_{1i}T_t + \pi_{2i}A_{ti} + e_{ti}$$



[1]

where  $Y_{ti}$ , the observed outcome measure at time  $t$  for person  $i$ ;  $\pi_{0i}$  is a person-specific intercept;  $\pi_{1i}$ , is a person-specific linear growth rate over the study period (where time variable  $T_t$  takes the values 0, 1, or 2);  $\pi_{2i}$  is the effect of time-varying covariate  $A_{ti}$ , and  $e_{ti}$  is an error term. In the present case, time-varying covariates included perceived peer drinking, personal income, respondent having a car and friends having a car. Change in a time-varying covariate is assumed to be associated with change in an outcome measure. To appropriately estimate the level-1 association of the outcome variable with a time-varying covariate, each time-varying covariate was centered around the individual mean and the individual mean was then added in the level-2 model as a predictor for the intercept.

[Equations 2](#) and [3](#) are the simplified models at level 2.

$$\pi_{0i} = \beta_{00} + \beta_{01}X_i + \beta_{02}\bar{A}_i + r_{0i}$$

[2]

$$\pi_{1i} = \beta_{10} + \beta_{11}X_i + r_{1i}$$

[3]

Level-2 models assessed the between-person variations in intercepts and growth rates.  $\beta_{00}$  is the mean intercept and  $\beta_{10}$  is the mean growth rate estimated at level 2.  $\beta_{01}$  (or  $\beta_{11}$ ) is the fixed effect of an individual-level explanatory variable,  $X_i$  (i.e., age, gender, perceived parent drinking).  $\beta_{02}$  is the fixed effect of the mean score of a time-varying covariate,  $\bar{A}_i$ .  $r_{0i}$  and  $r_{1i}$  are the random effects (i.e., error terms) at level 2. Level-3 models examined the between-zip code variations in intercepts and growth rates estimated at level-2 ([Equations 4](#) and [5](#)). Explanatory variables at zip code level ( $Z_i$ ) included alcohol outlet density and median household income.  $u_{0i}$  and  $u_{1i}$  are the random effects at level 3.

$$\beta_{00} = \gamma_{000} + \gamma_{001}Z_i + u_{0i}$$

[4]

$$\beta_{10} = \gamma_{100} + \gamma_{101}Z_i + u_{1i}$$

[5]

Lastly, as it is commonly indicated in the literature that alcohol outlets tend to concentrate in neighborhoods with low income and/or large minority populations [[8,9,11](#)], additional analyses were conducted to examine the possible confounding between race/ethnicity and zip code alcohol outlet density and income.

Some cases ( $N = 103$ , 9%) had missing data on the variables of interest, but a great majority had missing data on only one variable and the rest had missing data on, at most, four variables. Missing data were replaced using the expectation-maximization imputation procedure implemented in SPSS 15.0 [[18](#)].



# RESULTS

Prevalence rates of past-12-month drinking were 31%, 45%, and 55% at Waves 1, 2, and 3, respectively. In addition, 19%, 27%, and 36% at Waves 1, 2, and 3, respectively, reported ever being drunk during the same time period. [Table 1](#) presents the results from the unconditional models. The mean growth rate of frequency of drinking was significantly different from zero, whereas the mean initial level was not. Nevertheless, there was a large between-person variation in the mean initial level of frequency of drinking. The mean initial level and mean growth rate of frequency of excessive drinking were both significantly different from zero.

| Frequency of Drinking        |             |       |       |       |
|------------------------------|-------------|-------|-------|-------|
| Predictor                    | Coefficient | SE    | Z     | P     |
| Intercept                    | 0.000       | 0.000 | 0.000 | 1.000 |
| Time                         | 0.000       | 0.000 | 0.000 | 1.000 |
| Time squared                 | 0.000       | 0.000 | 0.000 | 1.000 |
| Time cubed                   | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quartic                 | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quintic                 | 0.000       | 0.000 | 0.000 | 1.000 |
| Time sextic                  | 0.000       | 0.000 | 0.000 | 1.000 |
| Time septic                  | 0.000       | 0.000 | 0.000 | 1.000 |
| Time octic                   | 0.000       | 0.000 | 0.000 | 1.000 |
| Time nonic                   | 0.000       | 0.000 | 0.000 | 1.000 |
| Time decic                   | 0.000       | 0.000 | 0.000 | 1.000 |
| Time undecic                 | 0.000       | 0.000 | 0.000 | 1.000 |
| Time duodecic                | 0.000       | 0.000 | 0.000 | 1.000 |
| Time tridecic                | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quattuordecic           | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quindecim               | 0.000       | 0.000 | 0.000 | 1.000 |
| Time sexdecim                | 0.000       | 0.000 | 0.000 | 1.000 |
| Time septemdecim             | 0.000       | 0.000 | 0.000 | 1.000 |
| Time octodecim               | 0.000       | 0.000 | 0.000 | 1.000 |
| Time novemdecim              | 0.000       | 0.000 | 0.000 | 1.000 |
| Time viginti                 | 0.000       | 0.000 | 0.000 | 1.000 |
| Time viginti et unum         | 0.000       | 0.000 | 0.000 | 1.000 |
| Time viginti et duo          | 0.000       | 0.000 | 0.000 | 1.000 |
| Time viginti et tres         | 0.000       | 0.000 | 0.000 | 1.000 |
| Time viginti et quatuor      | 0.000       | 0.000 | 0.000 | 1.000 |
| Time viginti et quinque      | 0.000       | 0.000 | 0.000 | 1.000 |
| Time viginti et sex          | 0.000       | 0.000 | 0.000 | 1.000 |
| Time viginti et septem       | 0.000       | 0.000 | 0.000 | 1.000 |
| Time viginti et octo         | 0.000       | 0.000 | 0.000 | 1.000 |
| Time viginti et novem        | 0.000       | 0.000 | 0.000 | 1.000 |
| Time triginta                | 0.000       | 0.000 | 0.000 | 1.000 |
| Time triginta et unum        | 0.000       | 0.000 | 0.000 | 1.000 |
| Time triginta et duo         | 0.000       | 0.000 | 0.000 | 1.000 |
| Time triginta et tres        | 0.000       | 0.000 | 0.000 | 1.000 |
| Time triginta et quatuor     | 0.000       | 0.000 | 0.000 | 1.000 |
| Time triginta et quinque     | 0.000       | 0.000 | 0.000 | 1.000 |
| Time triginta et sex         | 0.000       | 0.000 | 0.000 | 1.000 |
| Time triginta et septem      | 0.000       | 0.000 | 0.000 | 1.000 |
| Time triginta et octo        | 0.000       | 0.000 | 0.000 | 1.000 |
| Time triginta et novem       | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quadraginta             | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quadraginta et unum     | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quadraginta et duo      | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quadraginta et tres     | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quadraginta et quatuor  | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quadraginta et quinque  | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quadraginta et sex      | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quadraginta et septem   | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quadraginta et octo     | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quadraginta et novem    | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quinquaginta            | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quinquaginta et unum    | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quinquaginta et duo     | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quinquaginta et tres    | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quinquaginta et quatuor | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quinquaginta et quinque | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quinquaginta et sex     | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quinquaginta et septem  | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quinquaginta et octo    | 0.000       | 0.000 | 0.000 | 1.000 |
| Time quinquaginta et novem   | 0.000       | 0.000 | 0.000 | 1.000 |
| Time sexaginta               | 0.000       | 0.000 | 0.000 | 1.000 |
| Time sexaginta et unum       | 0.000       | 0.000 | 0.000 | 1.000 |
| Time sexaginta et duo        | 0.000       | 0.000 | 0.000 | 1.000 |
| Time sexaginta et tres       | 0.000       | 0.000 | 0.000 | 1.000 |
| Time sexaginta et quatuor    | 0.000       | 0.000 | 0.000 | 1.000 |
| Time sexaginta et quinque    | 0.000       | 0.000 | 0.000 | 1.000 |
| Time sexaginta et sex        | 0.000       | 0.000 | 0.000 | 1.000 |
| Time sexaginta et septem     | 0.000       | 0.000 | 0.000 | 1.000 |
| Time sexaginta et octo       | 0.000       | 0.000 | 0.000 | 1.000 |
| Time sexaginta et novem      | 0.000       | 0.000 | 0.000 | 1.000 |
| Time septuaginta             | 0.000       | 0.000 | 0.000 | 1.000 |
| Time septuaginta et unum     | 0.000       | 0.000 | 0.000 | 1.000 |
| Time septuaginta et duo      | 0.000       | 0.000 | 0.000 | 1.000 |
| Time septuaginta et tres     | 0.000       | 0.000 | 0.000 | 1.000 |
| Time septuaginta et quatuor  | 0.000       | 0.000 | 0.000 | 1.000 |
| Time septuaginta et quinque  | 0.000       | 0.000 | 0.000 | 1.000 |
| Time septuaginta et sex      | 0.000       | 0.000 | 0.000 | 1.000 |
| Time septuaginta et septem   | 0.000       | 0.000 | 0.000 | 1.000 |
| Time septuaginta et octo     | 0.000       | 0.000 | 0.000 | 1.000 |
| Time septuaginta et novem    | 0.000       | 0.000 | 0.000 | 1.000 |
| Time octoginta               | 0.000       | 0.000 | 0.000 | 1.000 |
| Time octoginta et unum       | 0.000       | 0.000 | 0.000 | 1.000 |
| Time octoginta et duo        | 0.000       | 0.000 | 0.000 | 1.000 |
| Time octoginta et tres       | 0.000       | 0.000 | 0.000 | 1.000 |
| Time octoginta et quatuor    | 0.000       | 0.000 | 0.000 | 1.000 |
| Time octoginta et quinque    | 0.000       | 0.000 | 0.000 | 1.000 |
| Time octoginta et sex        | 0.000       | 0.000 | 0.000 | 1.000 |
| Time octoginta et septem     | 0.000       | 0.000 | 0.000 | 1.000 |
| Time octoginta et octo       | 0.000       | 0.000 | 0.000 | 1.000 |
| Time octoginta et novem      | 0.000       | 0.000 | 0.000 | 1.000 |
| Time nonaginta               | 0.000       | 0.000 | 0.000 | 1.000 |
| Time nonaginta et unum       | 0.000       | 0.000 | 0.000 | 1.000 |
| Time nonaginta et duo        | 0.000       | 0.000 | 0.000 | 1.000 |
| Time nonaginta et tres       | 0.000       | 0.000 | 0.000 | 1.000 |
| Time nonaginta et quatuor    | 0.000       | 0.000 | 0.000 | 1.000 |
| Time nonaginta et quinque    | 0.000       | 0.000 | 0.000 | 1.000 |
| Time nonaginta et sex        | 0.000       | 0.000 | 0.000 | 1.000 |
| Time nonaginta et septem     | 0.000       | 0.000 | 0.000 | 1.000 |
| Time nonaginta et octo       | 0.000       | 0.000 | 0.000 | 1.000 |
| Time nonaginta et novem      | 0.000       | 0.000 | 0.000 | 1.000 |
| Time centum                  | 0.000       | 0.000 | 0.000 | 1.000 |

**Table 1**  
Linear model of growth in drinking and excessive drinking (unconditional model)

## Frequency of drinking

As it is shown in [Table 2](#), alcohol outlet density was not significantly related to either initial level or growth of frequency of drinking in Model A. After controlling for individual factors and zip code median household income (Model B), however, the initial level of frequency of drinking was significantly and positively related to alcohol outlet density, and growth of frequency of drinking was significantly and negatively related to alcohol outlet density.

| Predictor                    | Frequency of Drinking |       |             |       | Frequency of Excessive Drinking |       |             |       |
|------------------------------|-----------------------|-------|-------------|-------|---------------------------------|-------|-------------|-------|
|                              | Model A               |       | Model B     |       | Model C                         |       | Model D     |       |
|                              | Coefficient           | SE    | Coefficient | SE    | Coefficient                     | SE    | Coefficient | SE    |
| Intercept                    | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time                         | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time squared                 | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time cubed                   | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quartic                 | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quintic                 | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time sextic                  | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time septic                  | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time octic                   | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time nonic                   | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time decic                   | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time undecim                 | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time duodecim                | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time tridecim                | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quattuordecim           | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quindecim               | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time sexdecim                | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time septemdecim             | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time octodecim               | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time novemdecim              | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time viginti                 | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time viginti et unum         | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time viginti et duo          | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time viginti et tres         | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time viginti et quatuor      | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time viginti et quinque      | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time viginti et sex          | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time viginti et septem       | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time viginti et octo         | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time viginti et novem        | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time triginta                | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time triginta et unum        | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time triginta et duo         | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time triginta et tres        | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time triginta et quatuor     | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time triginta et quinque     | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time triginta et sex         | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time triginta et septem      | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time triginta et octo        | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time triginta et novem       | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quadraginta             | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quadraginta et unum     | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quadraginta et duo      | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quadraginta et tres     | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quadraginta et quatuor  | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quadraginta et quinque  | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quadraginta et sex      | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quadraginta et septem   | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quadraginta et octo     | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quadraginta et novem    | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quinquaginta            | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quinquaginta et unum    | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quinquaginta et duo     | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quinquaginta et tres    | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quinquaginta et quatuor | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quinquaginta et quinque | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quinquaginta et sex     | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quinquaginta et septem  | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quinquaginta et octo    | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time quinquaginta et novem   | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time sexaginta               | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time sexaginta et unum       | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time sexaginta et duo        | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time sexaginta et tres       | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time sexaginta et quatuor    | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time sexaginta et quinque    | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time sexaginta et sex        | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time sexaginta et septem     | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time sexaginta et octo       | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time sexaginta et novem      | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time septuaginta             | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time septuaginta et unum     | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time septuaginta et duo      | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time septuaginta et tres     | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time septuaginta et quatuor  | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time septuaginta et quinque  | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time septuaginta et sex      | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time septuaginta et septem   | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time septuaginta et octo     | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time septuaginta et novem    | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time octoginta               | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time octoginta et unum       | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time octoginta et duo        | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time octoginta et tres       | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time octoginta et quatuor    | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time octoginta et quinque    | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time octoginta et sex        | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time octoginta et septem     | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time octoginta et octo       | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time octoginta et novem      | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time nonaginta               | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time nonaginta et unum       | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time nonaginta et duo        | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time nonaginta et tres       | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time nonaginta et quatuor    | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time nonaginta et quinque    | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time nonaginta et sex        | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time nonaginta et septem     | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time nonaginta et octo       | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time nonaginta et novem      | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |
| Time centum                  | 0.000                 | 0.000 | 0.000       | 0.000 | 0.000                           | 0.000 | 0.000       | 0.000 |

Note that the associations between alcohol outlet density and the initial level or growth in frequency of drinking were not significant in Model A. These associations became significant when perceived parent drinking, perceived peer drinking, personal income, and having friends with a car were added to the model. Further investigation indicated that “friends had a car” was the key variable in this regard. “Friends had a car” was negatively related to alcohol outlet density ( $r = -.16, p < .001$ ). Because having friends with a car suggests increased mobility and access to drinking opportunities, we further examined how respondent’s drinking was related to another mobility variable, respondent having a car him/herself. The zero-order correlations showed that alcohol outlet density was also negatively related to respondent’s having a car ( $r = -.23$ ) and respondent’s having a car and having friends with a car were correlated by .34. The associations of frequency of drinking with respondent’s having a car increased over time, whereas those with having friends with a car decreased over time. On average, the association of drinking with having friends with a car was greater than that with having a car oneself (.19 vs. .11). This pattern suggests that having friends with a car may play an especially significant role in underage drinking during early teen ages when youths have relatively limited mobility.

### **Frequency of excessive drinking**

Results from Model A for excessive drinking showed that initial level of frequency of excessive drinking was not significantly related to alcohol outlet density, but growth of frequency of excessive drinking was negatively related to alcohol outlet density. When individual-level factors were considered (Model B), initial level of frequency of excessive drinking was positively related to alcohol outlet density and growth of frequency of drinking was negatively related to alcohol outlet density.

Results from the within-person model indicated that frequency of excessive drinking increased as perceived peer drinking increased. Results from the between-person models indicated that individual differences in the initial level of frequency of excessive drinking were positively related to age, perceived parent drinking, perceived peer drinking, personal income, and having friends with a car; growth rates were greater among males.

Further investigation indicated that when either having friends with a car, or perceived peer drinking, or personal income was added to the model the association between alcohol outlet density and initial level of frequency of excessive drinking became significant. As alcohol outlet density was not significantly related to either perceived peer drinking or personal income, having friends with a car was, again, was the key factor that led to the significant association between alcohol outlet density and excessive drinking.

### **Examining the effects of race/ethnicity**

The mean (SD) of zip code alcohol outlet density for each racial/ethnic subgroups was 195.74 (254.64) per 1000 roadway miles for non-Hispanic white, 302.46 (240.92) for Latino, and 250.87 (220.57) for other races. Variables for race/ethnicity were added to each Model B as predictors of between-person differences in the initial level of outcome variable. As shown in [Table 3](#), being “other” (i.e., neither non-Hispanic white nor Latino) was not significant in either model. In contrast, Latino ethnicity was associated with greater initial level of frequency of drinking. With

“Latino” in the model, the association between frequency of drinking and alcohol outlet density became non-significant, as did the association between frequency of drinking and median household income. Given that Latino youths tended to reside in zip codes with greater alcohol outlet densities than did non-Latino youths, it is likely that the significant associations between zip code variables and frequency of drinking reflected the high drinking rates in Latino youths as well as the characteristics of the zip codes where Latinos tended to live. Latinos, however, engaged in excessive drinking no more frequently than non-Latino youths did.

|                    | Frequency of Drinking |         | Frequency of Excessive Drinking |         |
|--------------------|-----------------------|---------|---------------------------------|---------|
|                    | Coefficient           | p-value | Coefficient                     | p-value |
| Intercept          | 0.0000                | 0.0000  | 0.0000                          | 0.0000  |
| White youth        | -0.0000               | 0.0000  | -0.0000                         | 0.0000  |
| Black youth        | -0.0000               | 0.0000  | -0.0000                         | 0.0000  |
| Hispanic youth     | -0.0000               | 0.0000  | -0.0000                         | 0.0000  |
| Age                | -0.0000               | 0.0000  | -0.0000                         | 0.0000  |
| Age squared        | 0.0000                | 0.0000  | 0.0000                          | 0.0000  |
| Age cubed          | 0.0000                | 0.0000  | 0.0000                          | 0.0000  |
| Constant           | 0.0000                | 0.0000  | 0.0000                          | 0.0000  |
| Adjusted R-squared | 0.0000                | 0.0000  | 0.0000                          | 0.0000  |

**Table 3**

The estimated fixed effects from the models examining the effects of race/ethnicity

[Go to:](#)

## DISCUSSION

This study examined how community alcohol outlet density may be associated with general alcohol use and excessive drinking among youths. Results from the multilevel analyses showed that only controlling for zip code median household income, zip code alcohol outlet density was not significantly related to the outcome variables. When individual-level factors were controlled, zip code alcohol outlet density was significantly and positively related to initial levels of frequency of drinking and frequency of excessive drinking. These findings supported our Hypotheses 1 and 2, indicating that at the beginning of the study and when all other factors were held equal, greater levels of drinking and excessive drinking were observed among youths residing in zip codes with higher alcohol outlet densities. The associations between alcohol outlet density and growth rates of drinking measures were all in the negative direction (some associations were significant), indicating that growth in drinking and excessive drinking was on average more rapid in zip codes with lower alcohol outlet densities. Our Hypothesis 3 thus was not supported by the data. The negative association between alcohol outlet density and growth in the outcome measures may have occurred because alcohol outlet density affected age of initiation. That is, youths in higher density areas in our study had higher initial levels of drinking, thus had slower growth over time. Future studies should examine how alcohol outlet density at the neighborhood level may be related to the initiation of drinking and drinking trajectories among younger adolescents and children.

The constraint of neighborhood alcohol availability on youth drinking in low alcohol outlet density areas appeared to be mitigated by having friends with a car. Presumably, having friends with a car increases mobility and thus the ability to seek alcohol beyond one's immediate neighborhood. High mobility and the ability to seek alcohol beyond the local community may mitigate the success of neighborhood efforts to reduce underage drinking through restrictions on

physical availability. That is, neighborhood alcohol outlet density may matter more for underage drinking when a youth's mobility is constrained or when alcohol can be obtained easily through social networks. This pattern is consistent with studies showing that social sources (e.g., peers, parents, or even strangers) are the primary suppliers of alcohol for youth [[14](#),[15](#),[19](#),[20](#)].

The associations among zip code variables, race/ethnicity, and drinking practices were examined. Both Latino and African American youths in this study were over-represented in zip codes with lower household incomes and higher alcohol outlet densities. The sample size of African Americans was too small to be analyzed, but findings for Latinos are noteworthy. Latino youths drank alcohol more frequently. They also tended to live in zip codes with higher alcohol outlet densities and lower median household income. The effect of Latino ethnicity may confound with the effects of zip code alcohol outlet density and median household income. Our findings may simply reflect Latinos' drinking and Latinos' concentration in zip codes with high alcohol outlet density and low household income. Further investigation of this issue is warranted.

Findings from this study should be considered in light of several limitations. The first limitation relates to telephone survey's low response rate, which may lead to bias. Although our survey response rate is somewhat low, it approximates the response rate of national surveys such as the Behavioral Risk Factor Surveillance Survey [[21](#)]. Secondly, using listed telephone numbers excludes unlisted numbers. Telephone survey methods, more generally, exclude households without telephone service. We were unable to address biases associated with non-responders, i.e., households which might have met our criteria but were never reached. Thirdly, the study sample may not be representative of youths in California, as it under-represented African and Asian Americans. Rates of drinking among participants of this study were, however, comparable with the National Survey on Drug Use and Health (NSDUH) data. At baseline, 10%, 20% and 28% of our 14-to-16 year olds reported past-30-day drinking compared to 13%, 21%, and 29% in the 2003 NSDUH [[22](#)]. Two years later, 24%, 40% and 49% of our 16-to-18 year olds reported such behavior compared to 27%, 32% and 46% in the 2006 NSDUH [[23](#)]. Moreover, we used a geostatistically-based sampling design to recruit adolescent participants from areas with varying levels of alcohol outlet density and household income, which provides a large variation in the neighborhood variables of interest. Furthermore, using longitudinal data, our study provides insights into how community characteristics and individual factors together shape drinking practices among youths.

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## Footnotes

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### Declarations of Interest

None.

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