

*LIMITING RETAIL ALCOHOL OUTLETS
In the Greenbush-Vilas Neighborhood,
MADISON, WISCONSIN*

Health Impact Assessment



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- The Greenbush/Vilas Revitalization Project**
- The Greenbush Neighborhood Association**
- The Vilas Neighborhood Association**
- Public Health Madison & Dane County**

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EXECUTIVE SUMMARY & KEY FINDINGS

The goals of this HIA were to determine if limiting alcohol outlet density in the Greenbush-Vilas neighborhoods would affect the health outcomes of residents and visitors, determine if these health outcomes were positive, negative, or mixed, and determine if an Alcohol Licensing Density Ordinance is the best solution for the current alcohol-related problems these two neighborhoods face.

Excessive drinking affects various health determinants, factors that contribute – directly or indirectly -- to a person's current state of health. These may be biological, socioeconomic, psychosocial, behavioral or social. The health determinants selected for analysis in this HIA are:

- Neighborhood Conditions and Residential Stability
- Drunk Driving
- Alcohol-related Violent Crime
- Alcohol-related Injuries and Death
- Risky Sexual Behavior
- Alcohol-related chronic diseases
- Academic & Work Performance

Within the neighborhood, undergraduate students are a vulnerable population, disproportionately impacted by excessive drinking. Studies suggest that alcohol availability, particularly low-cost alcohol, is particularly likely to affect those with a predisposition to heavy drinking, which includes underage drinkers.²

Key Findings

LITERATURE REVIEW:

- The literature consistently shows a significant link between total outlet densities around colleges and rates of binge-drinking and drinking related problems, such as increased crime and with numerous secondhand effects of heavy alcohol use such as noise and disturbances,³ vandalism, drunkenness, vomiting and urination.⁴⁻⁶
- College students and ticket holders also report higher drinking on game days⁷ with crimes such as assaults, vandalism, and arrests for disorderly conduct and alcohol-related offenses increased sharply on college campuses studied during division I-A football games.⁸

(There is) sufficient evidence of a positive association between outlet density and excessive alcohol consumption and related harms to recommend limiting alcohol outlet density through the use of regulatory authority (e.g., licensing and zoning) as a means of reducing or controlling excessive alcohol consumption and related harms.”¹

CDC Taskforce on Community Preventive Services

NEIGHBORHOOD SURVEYS: Members of the neighborhood were surveyed, either by face-to-face interview or on-line survey, about their opinions regarding alcohol use and any related problems it created in the neighborhood. Ninety-one responses were recorded.

Identifying a problem:

- Home owners viewed excessive drinking as a problem in the community far more frequently (75%) than renters (50%).

- Older respondents more often saw excessive drinking as a problem. The majority of those under 35 (61%) said drinking was not a problem, while the majority of those over 35 (75%) did think that excessive drinking was a problem.
- Respondents agreed that drinking was heaviest and problems spiked considerably on football Saturdays. Many, however, thought that excessive drinking was also more generalized to weekends or sporting events during the school year and to certain holidays such as Labor Day, and Graduation weekends.

Limiting alcohol outlet density as a policy solution:

- Few people surveyed (< 10%) thought that extending the ALDO to the Regent Street Corridor would be either a “very effective” or “effective” method of limiting excessive drinking in the community.
- However, 29% thought it might be “somewhat effective.”
- The majority (62%) felt that ALDO, or similar regulation to limit alcohol outlet density, would be ineffective (“ineffective”, “somewhat ineffective” or “very ineffective”).

Crime Data: The City of Madison Police Department provided the HIA team with both Calls for Service (CFS) and offense data for the Greenbush and Vilas neighborhoods.

- Seasonally, incidents in all categories -- except for violent crime -- are more likely to occur in the fall. These differences are significant in all categories, except for injury.
- Proportionately more incidents occur on weekends than during the week.
- But: **Football weekends are disproportionately responsible for the crime and nuisance that occurs in the neighborhood.**

In all categories, except for theft, incidents occur on football weekends at rates far higher than would be expected. Some of these percentages are quite large:

- Alcohol specific incidents occur 400% more frequently than expected,
- Detox transports occur 194% more frequently than expected,
- Noise and disorder complaints occur 215% more frequently than expected.
- Only noise/disorder and violence occur on regular weekends at rates higher than expected.
- Alcohol specific incidents actually occur on non-football weekends at percentages lower than expected.
- All incidents occur on weekdays at rates lower than expected.

Recommendations

To Common Council:

1. Limit or eliminate temporary liquor licenses

Respondents and crime data showed football weekends are the days of greatest concern. Alcohol density could be regulated on those days by limiting temporary licenses. Since some people in beer gardens may not have access to non-retail alcohol, such as house parties, this policy may reduce drinking by limiting party atmosphere of the neighborhood and decrease the attractiveness of coming into the area on game day.

2. Improve regulation of house parties

Concurrent efforts to regulate house-parties are also advisable. Neighborhood residents' understanding of the problem suggests that regardless of any efforts to control alcohol outlets, additional measures to regulate house parties are warranted.

City ordinance Chapter 25, "Offenses Against Public Safety," section 25.10 lays out the circumstances of a "nuisance party" and methods by which police may intervene to protect public safety.

- This ordinance should be enforced more aggressively
- The ordinance should be reviewed to ascertain whether it is adequate for effective enforcement of state drinking laws (particularly underage drinking) and mitigation of secondary neighborhood impacts of excessive alcohol use.

3. Police secondary alcohol effects in the neighborhood

- Enforce noise and other "quality of life" ordinances
- Increase police presence in neighborhood on weekends and game days, particularly at bar-closing time; ticket more aggressively
- Increase frequency of bar and liquor store compliance checks especially on football Saturdays.

4. New and improved data collection

A major weakness of this study, and much of the alcohol density literature, is the assumption that all alcohol outlets within the same license classification, regardless of size have an equal impact. City staff should collect data that would provide a more nuanced understanding of the contributors to alcohol-related harms and disturbances. Specifically, staff should:

- Collect data relating to the amount and type of alcohol sold by individual premises.
- Link alcohol-related harm data to specific premises. Analyze this data by type and size of establishments.
- The closing of the Stadium Bar provides a natural experiment for studying the impact of alcohol density in the GBVN. The Stadium Bar had a capacity of 2,416 and operated one of the largest game-day beer gardens on Regent Street. Its absence has certainly reduced density in the area. Repeating the incident analysis done in this report for the 2013 season may offer some insight into whether reduced density results in reduced alcohol-related incidents and secondary effects.
- Consider the role of private "tailgate" parties
 - Measure how these unregulated parties contribute to density and alcohol-related harms on game days.
 - If warranted, consider methods by which such parties can be more strictly regulated or eliminated.

5. Overall density in the neighborhood

Although this report is not currently recommending a ban on further alcohol outlets, it is recommended that ALRC proceed with great caution before licensing further outlets, particularly taverns and other large establishments oriented to game day clientele.

For Bars:

6. Assure that all bartending staff server-compliance training
7. Provide information/assistance with safe rides, taxis, etc.
8. Provide condoms in bathrooms

For the University:

9. Create a campus and neighborhood coalition to identify ways in which University game-day policies at Camp Randall and elsewhere contributes to binge drinking in the neighborhood. Plan and implement strategies that the University can undertake to reduce binge drinking.

Section 1: INTRODUCTION & BACKGROUND

1.1 Alcohol in Wisconsin

It is undeniable that Wisconsin has a deeply ingrained culture of drinking. Considering that the Milwaukee baseball team is called the Brewers, it is clear that brewing and consuming alcohol is an honored Wisconsin pastime. Many Wisconsin residents see alcohol consumption as a harmless habit, or even proudly as a part of the Wisconsin identity. Yet, excessive drinking is creating dire consequences for many Wisconsin residents.

Wisconsin has among the highest rates in the nation of binge drinking, chronic heavy drinking underage drinking, under age binge drinking and drinking before driving.⁹ In fact, a recent Center for Disease Control (CDC) study placed Wisconsin as the nation's worst binge-drinking state - with a quarter of all adults reporting they were binge drinkers.¹⁰ This rate is 50% higher than the national average¹¹. Wisconsin also has the highest rate in the nation of self-reported drinking and driving.¹² In 2011, there were 98 alcohol-related deaths, 3,706 alcohol-related hospitalizations, and 5,824 alcohol-related arrests in Dane County alone¹³.

Many types of mortality and morbidity as well as dangerous and criminal behavior are associated with alcohol use. Considering Wisconsin's alcohol consumption patterns, it is not surprising that many of the negative consequences of alcohol use also tend to occur at rates higher than the national average.¹²

Definitions of Alcohol Use

In this study we use the CDC's definitions of alcohol use.

- **Binge drinking:** drinking more than four (women) or five (men) alcoholic beverages on an occasion at least once a month.
- **Heavy drinking:** drinking more than one (women) or two (men) drinks per day on average
- **Excessive drinking:** binge, heavy, underage drinking or drinking while pregnant or driving

There have been some areas of progress: the rate of alcohol-related motor vehicle deaths has decreased since 2008 and the rate of drinking among high school students has been decreasing since 2001. Nonetheless, the statistics remain alarming, and have prompted a consideration of state and local policies aimed at reducing alcohol use in Wisconsin. According to the Wisconsin State Council on Alcohol and Other Drug Abuse, the state's framework for alcohol policy was established well before research demonstrated the effectiveness of public policy and community practices in preventing and reducing dangerous alcohol use. These policies evolved over many years and were the unintentional result of community growth, isolated municipal control, and the increasing influence of the alcohol and hospitality industries. The suggestion is that they are now outdated, ineffective and in need of substantial revision.¹⁴

The city of Madison, home of The University of Wisconsin and the Division 1 Wisconsin Badgers, both mirrors the state's drinking culture and presents unique challenges. The University of Wisconsin is considered a "wet" campus, where the social, residential, and market surroundings combine to create a situation where alcohol is cheap and easily accessed and where drinking is prevalent. Game days provide a "play hard" outlet to counteract the "work hard" academic and work week. Before the University banned alcohol sales at the stadium, UW ranked number one in the Big Ten for alcohol sales at the stadium during home games.¹⁵ But even for those who

don't have a ticket to the game, the tailgates, pre-game parties, and drinking games that occupy the entire day often add up to hefty alcohol consumption.

To address the consequences of high-risk drinking, particularly in the downtown area, the Madison Common Council in 2007 adopted the Alcohol Licensing Density Ordinance (ALDO), which places a limit on new alcohol licenses in the Capitol Square and State St. areas of Madison. This ordinance is set to expire on January 1, 2014 and Common Council will consider an alternative set of recommendations to change the way that liquor licenses are managed downtown.

Downtown, however, is not the only area of concern in the city regarding alcohol consumption and its consequences. High-risk drinking patterns are also evident on the Regent Street corridor, where Camp Randall Football Stadium is located and in parts of the surrounding Greenbush-Vilas neighborhoods, particularly on game days. The purpose of this Health Impact Assessment (HIA) is to consider the potential health impacts of applying a policy tool such as an ALDO to limit alcohol licenses on the Regent Street corridor. The HIA was conducted between May and August 2013.

Like all social behavior, drinking is complicated. It involves history, the drinking patterns of friends and family, marketing incentives, and perhaps genetics. Just as there is no single cause of problematic drinking, there is no single policy remedy. A blueprint that not only makes alcohol less accessible, but also less acceptable, attractive and affordable is necessary. Solutions will have to be pursued simultaneously by state and municipal officials, educational institutions, community groups and organizations, and employers. It is not the intent of this HIA to suggest that limiting alcohol outlet density alone will substantially reduce alcohol consumption and eliminate attendant harms. But, it does explore whether limiting alcohol density is an effective tool to be considered among a comprehensive set of strategies and options.

1.2 What is an HIA?

Health Impact Assessment (HIA) offers a flexible framework to inform proposed policies, plans or projects prior to their execution. This multi-step process draws upon community input, uses multiple criteria, and deploys data to project the health implications of a decision on a population and the distribution of those impacts within a community. Based on the synthesis of the best available evidence, HIA then disseminates recommendations or mitigation strategies to ameliorate the negative and bolster the positive elements of a proposed policy, plan or project. Finally, HIA entails monitoring and evaluating the utility and influence of the methodology on the decision-making process and health outcomes. HIAs brings attention to potential health issues in policy areas where health is typically not part of the policy considerations, such as transportation and land use.

This report is organized according to the six steps used to conduct an HIA:



- 1) **Screening** determines whether a HIA is feasible, timely, and would add value to the decision-making process.
- 2) **Scoping** determines the focus of the HIA, including identifying priority indicators and research questions, methods, and participant roles.
- 3) **Assessment** occurs in two steps:
 - Gathering information on existing conditions,
 - Evaluating Potential Health Impacts, including the magnitude and direction of impacts.
- 4) **Recommendations** are developed to improve the project, plan, or policy and/or to mitigate any negative health impacts.
- 5) **Reporting** communicates the recommendations and or mitigation strategies to decision-makers, stakeholders and community members.
- 6) **Monitoring** evaluates the ways in which the HIA recommendations impact the proposed plan's implementation. ¹⁶

1.3 Alcohol Licensing Density Ordinance (ALDO)

Alcohol outlet density is usually defined as the *number* of alcohol outlets in a given area, usually expressed as a ratio of outlets per capita. Alcohol density may also be defined by *capacity*, or the number of patrons who could be served alcohol at the same time.

In Wisconsin, alcohol licenses are issued by municipal governments, which have control over both the number and the type of establishments selling and serving alcohol. Municipalities always have the authority to deny any new licenses, or establish an administrative policy placing a numerical ceilings or a moratorium on new licenses. Achieving these ends by ordinance, however, makes alcohol policies less vulnerable to changes in the political climate or to changes in the governing body, as well as providing a consistent business climate.

Madison's ALDO

The implementation of Madison's ALDO was informed by research showing a relationship between concentrations of alcohol outlets and alcohol-related violent crime and other related disturbances.¹⁷ This research included Madison-specific GIS studies tracing crime incidents hour-by-hour in an area of the city with a high density of alcohol outlets and student residences.¹⁸

In 2007 the Madison Common Council adopted the ALDO to maintain or slowly decrease the number and capacity of specific types of alcohol licenses located within the Central Commercial District. The aim was to decrease alcohol-related incidences in the city's downtown area and covers any property.¹⁹

While the total number of liquor licenses in the ALDO area has increased since 2007 from 138 to 148, the number of taverns in the area has decreased from 42 to 37. During this period, the number of calls for service to police also decreased from 3,141 per year to 2,706 and the

number of people arrested for aggravated assault, liquor law violations, drunkenness and disorderly conduct all decreased.¹⁹

City staff has recommended a number of changes to the ALDO including altering the geographic area where restrictions apply to focus on the State Street and University Avenue corridors where alcohol-related problems are concentrated. Additional restrictions and levels of review would “overlay” this new district.¹⁹

For leaders in the Greenbush-Vilas neighborhood (GBVN), this ALDO review and consideration of some substantial changes to the downtown ALDO district raises the question of whether the Regent Street corridor also should be considered a “hot spot” requiring more aggressive alcohol license management.

1.4 The Neighborhood

Greenbush and Vilas are adjacent neighborhoods in Madison's Near-West side. The Greenbush neighborhood is bound by Regent Street on the north; South Park Street on the east; Erin Street, South Orchard Drive, Wingra Drive and Haywood Drive on the south; and South Randall Avenue on the west.²⁰ The Vilas neighborhood is bound by Regent Street on the north, South Randall Avenue on the east, Vilas Park Drive on the south, and Edgewood Avenue and Monroe Street on the west.²¹

Figure 1-a. Map of Greenbush-Vilas Neighborhood



The Greenbush Neighborhood offers access to Vilas Beach, Vilas Park Zoo, the UW Arboretum, the UW campus, and is a short bus ride or walk to downtown Madison. The area contains two of Madison's three hospitals and includes a wide variety of homes, from efficiency apartments to new condominiums to bungalows from the 1920s.²⁰ The Vilas Neighborhood is between Edgewood College and the University of Wisconsin- Madison. Vilas is also home to much of Monroe Street, a small commercial area consisting of locally-owned shops and services. The area is largely made up of historic homes, many of which are owner-occupied and some that have been converted into apartments. A mixture of student housing and single-family homes makes Greenbush/Vilas unique. Leafy streets and mom and pop stores create a charming and desirable place to live.²¹

These neighborhoods are similar in appearance and amenities. However, a closer look at resident demographics reveals that there is a much larger population of renters in Greenbush. These student renters are a reasonable explanation for the lower average household income in Greenbush compared to Vilas and the city of Madison as a whole.

Table 1-a. Neighborhood Characteristics

Characteristic	Greenbush	Vilas	City
Acres	179	195	49,914
No. of housing units	1,148	724	108,541
% Owner occupied	25.5%	48.3%	49.3%
Average home value	\$243,655	\$434,895	\$234,150
Age breakdown			
<i>Total Population</i>	2,879	1,881	232,626
<i>Age 4 and under</i>	2.3%	3.2%	5.8%
<i>Age 5 - 17</i>	5.6%	13.4%	17.5%
<i>Age 18 - 64</i>	88%	76.8%	67.1%
<i>Age 65 and over</i>	3.1%	6.6%	9.6%
Median Household income	\$40,165	\$57,491	\$57,124

Due to its close proximity to Camp Randall, the UW-Madison football stadium, Greenbush-Vilas is a popular destination each fall for tailgating and partying at local bars and beer gardens. On seven Saturdays between September and November, the neighborhoods are flooded with students, Madison residents, alumni, and out-of-towners who come to cheer on the Wisconsin Badgers. While many attend the games at Camp Randall, many others simply come to the neighborhood to enjoy the game day excitement. Area bars benefit greatly from this influx of people, with one bar manager claiming that many area bars make 80% of their entire annual profits from these seven Saturdays alone.

Game time revelry also brings an influx of heavy and binge drinking. Area bars increase their capacity by applying for additional temporary liquor licenses for outdoor areas, known as beer gardens. Local businesses also rent out their parking lots for beer gardens. Therefore, the alcohol density in these neighborhoods is far higher on football Saturdays than any other time of the year.

There are twenty seven Class A and Class B alcohol outlets in the GBVN. This creates an alcohol outlet density of 176 people per outlet. In comparison, the City of Madison has a density of 403 people per outlet.²²

In addition, in 2012 there were 15 additional sites that have conditional use approvals for "game day beer gardens" (three sites closed in 2013). Although not each site holds events every week, and three of them do not permit alcohol, the combined capacity of these sites is nearly 10,000

people. Zoning inspections undertaken during the 2012 season found that few violations of the conditional use approvals occurred, but in several instances they noted excessive noise, blocking of the right of way, and staff uniforms that were not adequately easy to identify.²³ Private parties and tailgating – the exact amount of which is unknown and over which the ALRC has no direct control -- brings the party atmosphere out into the street and expands capacity even further.

Figure 1-b. Map of permanent alcohol licenses



Figure 1-c. Map of temporary alcohol licenses



Section 2: SCREENING

2.1 Development of this HIA

This HIA was conducted as part of a Master's level service-learning course taught in the UW Department of Population Health Sciences during the summer semester of 2013. The course was made possible by a Morgridge Center Challenge grant with matching funding provided by the Wisconsin Center for Public Health Education and Training (WiCPHET). Service-learning and HIA are compatible approaches to generating knowledge; they share a core value of working in collaboration with community partners on problems that have been identified by, and serve the needs of the partner's community.

Finding a project where the course and the policy timelines coincided was critical. The course instructor, Dr. Elizabeth Feder, and the Teaching Assistant, Colleen Moran, contacted several neighborhood groups and Madison city staff to find a suitable HIA topic. Leaders of the Greenbush-Vilas Revitalization Project were concerned about excessive drinking in their neighborhoods, particularly on football Saturdays. They identified outlet density, particularly as it swelled with the addition of beer gardens on game days, as a potential policy remedy. The issue had particular relevance for the researchers as well. The neighborhood is adjacent to the University and the home of many University students and employees, including the instructor and coincidentally, two of the three students.

Although there were no immediate plans to restrict alcohol licenses in the neighborhood, it was an idea that had received at least cursory consideration in the past;²⁴ a redevelopment plan for the Regent Street corridor will be considered in the near future; and most important, Common Council was scheduled to take up the question of the downtown ALDO at the end of the study period. These events could all provide a space for discussion of alcohol density in the Greenbush-Vilas neighborhood.

As part of the preparation for discussion of the ALDO renewal, the Madison Common Council requested that Public Health Madison & Dane County (PHMDC) conduct an HIA on the current ALDO and any potential changes to the current policy recommended by staff. Public Health Madison & Dane County and UW Population Health Institute (UWPHI) decided to partner on the two HIAs. UWPHI offered to provide technical assistance and some research support to the downtown HIA and PHMDC shared data for the GBVN HIA. While each HIA stands on its own, they are also intended as companion studies.

To provide sufficient time to complete the downtown HIA, the Common Council extended the ALDO ordinance until January 1, 2014. The research for the GBVN HIA, nonetheless, all had to be conducted during the eight week course period. Although the deadline extension allowed analysis of data to proceed beyond the summer, this was an unusually short timeframe to conduct an extensive assessment. Therefore, this HIA relies heavily on literature review and analysis of existing data (i.e. police reports, etc.). It also incorporates a short qualitative study of community perceptions through surveys of neighborhood residents, business owners and area employees. It was intended from the project's inception that the course would provide students with an introduction to HIA, with some steps of the process covered in less depth. Similarly, the

expectation was that this report would provide preliminary information and that its greatest value might be in illuminating those areas where further policy analysis would be most constructive.

2.2 Partners and Stakeholder Involvement

Stakeholder involvement is a key component of a successful HIA. The Greenbush-Vilas Partnership has been involved with this project since its inception. The group was an ideal partner because it is so broadly representative of the neighborhood stakeholders and is thinking deeply about the future of the neighborhoods. This group's funding partners include Meriter Foundation, St. Mary's and the UW (who anchor the area as major employers) as well as Madison Gas & Electric, Park Bank, and the First Weber Foundation. The Community Advisory Committee includes area residents, the district's alder and county supervisor, members of the Monroe Street business district and local business owners and managers, city planning staff, and community organizations. Former Mayor of Madison, Dave Cieslewicz, is the project director. A full list of members can be found in Appendix C. Partnership members Dave Cieslewicz, Alder Sue Ellingson, and Hotel Red general manager Jason Ilstrup provided leadership on this project, meeting with the GBVN HIA team to provide guidance throughout the process.

The Greenbush and Vilas Neighborhood Associations were also involved in the HIA process. The Greenbush Neighborhood Association Executive Board met with the authors during the scoping process. Greenbush association members discussed their perceptions of alcohol use patterns and the potential effectiveness of an ALDO in the area. Both neighborhood associations distributed the HIA survey through their email listservs, providing invaluable input from area residents.

University partners from the University Health Service and the UW Law Wisconsin Alcohol Policy Project were critical in providing data, institutional history and broad context to the scoping phase of the work and beyond.

Of course, the partnership with Public Health Madison Dane County was crucial. Team leaders from both groups met weekly throughout the study period. Through this collaboration the research team was able to engage with a broader group of stakeholders and had enhanced access to city staff and available data. Most important, by highlighting the similarities and differences between the Regent Street corridor and the downtown district, the partnership provided a broader, city-wide context in which to understand the issue of alcohol outlet density in one neighborhood.

2.3 Added value of this HIA

The impetus for the original ALDO was to reduce alcohol-related crime in the downtown area. Crime can certainly have significant health impacts. A health impact assessment, however, goes beyond this to include potential impacts other basic health determinants such as drunk driving and alcohol-related illness. More broadly it offers a more holistic model of health, one that encompasses such health determinants as academic or work performance.

The Greenbush-Vilas neighborhood differs from the Capitol Square and State St. areas in several

ways and thus the two HIAs also have a slightly different focus. The GBVN HIA relies heavily on input from neighborhood residents. It therefore considers not just the health of those consuming alcohol but prioritizes the secondary effects of alcohol to neighborhood residents. Camp Randall and game-day populations and drinking patterns in the neighborhood provide another important point of difference. The addition of out-of-towners in the population mix creates the possibility that health impacts could extend even beyond the city borders. While the downtown HIA will provide insights into the potential success of policies to limit outlet density in other neighborhoods, its findings do not necessarily directly transfer to this area. A separate HIA of the Greenbush-Vilas neighborhood will highlight the health determinants of most concern to this neighborhood and outline viewpoints of area residents and business owners.

Section 3: SCOPING

3.1 Scoping Process

The scoping section of an HIA is designed to identify health pathways and potential equity effects of policies; assign priority to the research questions for the HIA; and identify sources of information and data.

Elizabeth Feder and Colleen Moran coordinated with Public Health Madison Dane County to establish a list of health determinants and a prototype pathway diagram. As the HIA progressed, both research teams altered the pathway diagram somewhat to better reflect the particular conditions and stakeholder concerns in the two neighborhoods. Differences also reflect the policy context in which the two HIAs were conducted. The downtown HIA assessed the potential impacts of a specific package of policy recommendations for alcohol license management and business development that is under active consideration, while the GBV HIA looked at the potential impacts of a non-specified policy to limit alcohol density. Both the downtown and the GBVN HIAs, however, have considerable overlap to allow policy comparison while also addressing the varied experiences and needs of the two geographic areas. The final GBVN pathway diagram can be viewed as Figure 3-a.

Health determinants are factors that contribute to a person's current state of health.

They may be biological, socioeconomic, psychosocial, behavioral or social.

The **Pathway Diagram** visually depicts the multiple, logical routes by which limiting alcohol license density could impact health.

3.2 Scoping in the Greenbush-Vilas Neighborhood

To assure that the GBVN study focused on areas of greatest concern to neighborhood residents, students gathered feedback to the initial pathway diagram in several ways:

- Walking the neighborhood and asking available residents to participate,
- Talking with employees, managers, and owners of area businesses,
- Discussion at a Greenbush Neighborhood Association meeting,
- Personal interviews with several key informants.

A major limitation with the scoping process was that the team was unable to reach a key party affected by alcohol use in the neighborhood, the visitors who come to the Greenbush-Vilas neighborhood on football Saturdays. However, student renters in the neighborhood can be considered a proxy for at least the student partiers who are unrepresented.

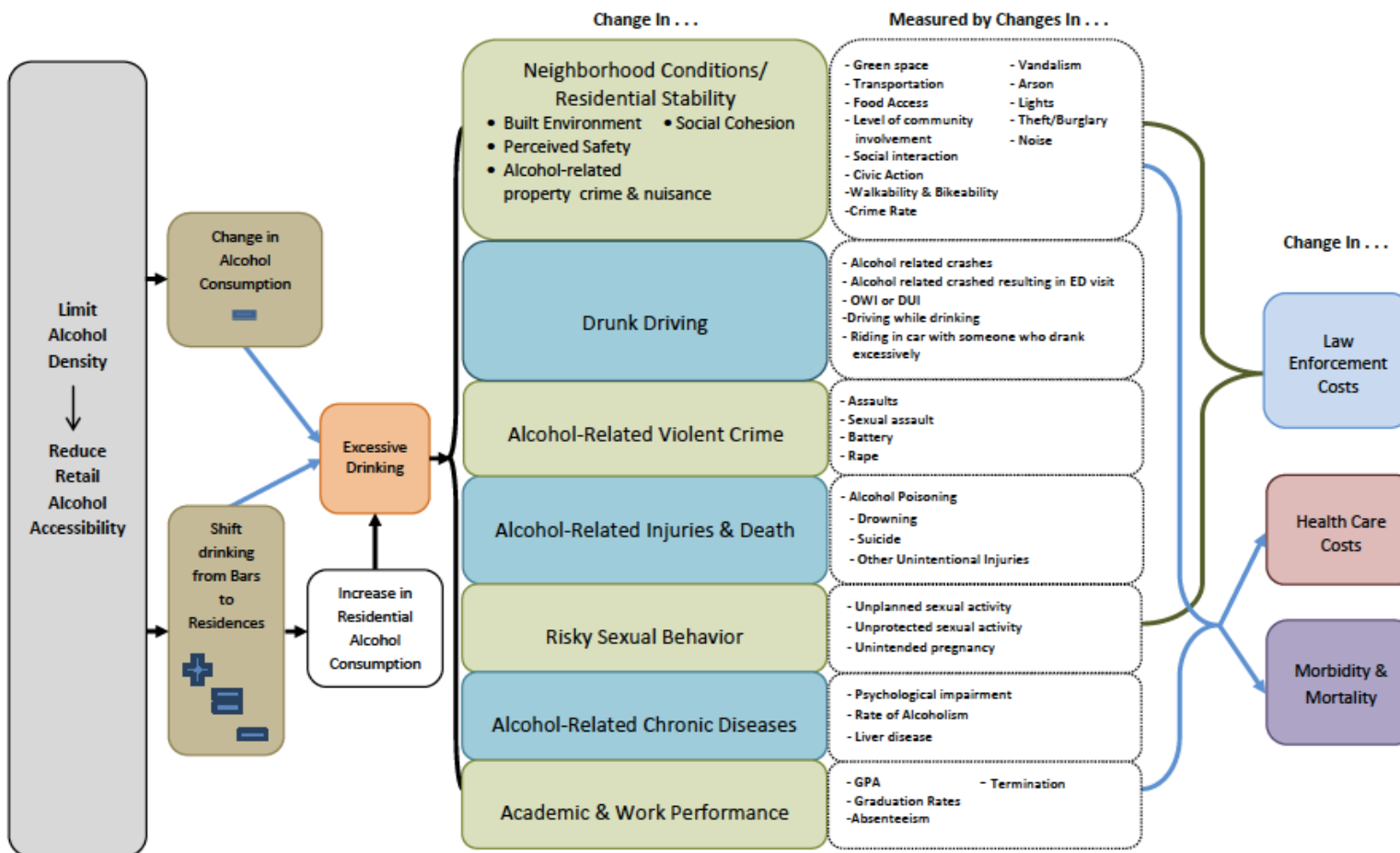
The scoping process revealed that there are very distinct populations impacted by excessive drinking in the neighborhood, and that they are impacted in very different ways.

- Long term residents and business owners reported that "neighborhood conditions" were their biggest concerns.
- Student renters (primarily undergraduates) tended to feel that alcohol use was not a problem and many actually chose the neighborhood to be near the bars and stadium.

These initial findings were confirmed by a larger, more representative internet survey sent to the email listservs of both the Greenbush and the Vilas Neighborhood Associations.

Figure 3-a. Pathway Diagram

**ALDO Health Impact Assessment:
Health, Safety, and Social Impacts
Pathway Diagram**



3.3 Establishing health determinants

Excessive drinking affects various health determinants, which in turn affect health either directly or indirectly. The health determinants selected for analysis in this HIA are:

- Neighborhood Conditions and Residential Stability
- Drunk Driving
- Alcohol-related Violent Crime
- Alcohol-related Injuries and Death
- Risky Sexual Behavior
- Alcohol-related chronic diseases
- Academic & Work Performance

There are multiple – and potentially contradictory -- effects that could occur if the ALDO is extended to the Greenbush/Vilas neighborhoods. Limiting the number of establishments that have alcohol licenses in this area would limit retail alcohol accessibility. One outcome could be to decrease alcohol consumption. Or, limiting bars could shift drinking to residences, which could have the unintended consequence of increasing excessive drinking, particularly underage drinking in the community. Either outcome would have health effects. For this reason the pathway diagram indicates where impacts could occur, not the specific direction of that impact.

3.4 Methods

The overall research questions were:

1. What kinds of health effects would there be (if any) if the city limited the number of alcohol-selling establishments in the Greenbush-Vilas neighborhoods?
2. What are the estimated magnitude and / or severity of these impacts?
3. Would the health impacts of such a policy change disproportionately affect some populations?

It is important to note that a policy to limit alcohol licenses would not immediately reduce the number of licensed establishments. Placing a moratorium on any new licenses would maintain the status quo, any reduction would only come over time with attrition. Depending upon rules involving resale of businesses possessing alcohol licenses, such a policy might not reduce alcohol density at all. The question is really, "what are the health effects of not allowing *more* density in the area."

The team used multiple research methods to address these questions. Methods included:

- a rapid literature review,
- analysis of neighborhood crime data (both calls-for-service and offense data),
- a survey of neighborhood residents
- analysis of publically available data

3.5 Limitations

A great deal of baseline data was either not available to us or is not collected at the neighborhood level. For instance, the team was not able to obtain hospital records, which would be needed to determine the number and type of alcohol-related injuries that occur in the area. Seasonality was also a limitation; while summer meant that neighborhood residents were out and accessible to researchers, conducting this review during the fall would have permitted greater study of game-day visitors to the neighborhood. The most significant limitation was the short 8-week time frame in which this assessment was conducted.

3.6 Vulnerable Populations

The team identified undergraduate students as a vulnerable population in the neighborhood that is disproportionately impacted by excessive drinking. Students often do not see or experience alcohol use as a potential problem, often reporting that excessive drinking is part of the culture of Wisconsin and of the college experience. Nonetheless, research clearly indicates their special vulnerability. According to national data, about 4 out of 5 college students drink alcohol and about half of those who drink engage in binge drinking.²⁵ Some studies suggest that alcohol availability, particularly low-cost alcohol, is particularly likely to affect those with a predisposition to heavy drinking, which includes underage drinkers.²

College drinking must be understood and addressed in the context of the state's overall drinking culture. College binge drinking is very strongly correlated with binge drinking in the general population. Student binge drinking is lowest where students attend college in states with low binge drinking rates and with more stringent alcohol control policies.²⁶ Considering Wisconsin's consumption patterns, perhaps it is not surprising that the University of Wisconsin - Madison is also a "wet environment." Students in "wet" environments -- which includes social, residential, and market surroundings in which drinking is prevalent and alcohol cheap and easily accessed -- are more likely to engage in binge drinking than peers without these exposures.² Unfortunately, attending the University of Wisconsin is itself a risk factor for alcohol misuse.

The beginning of the school year, which coincides with the football season, is a particularly vulnerable time for students, and for new students especially. Many find themselves establishing new peer relationships in a setting where, often for the first time, there is little oversight of their behavior. Football season is just one of the ways in which campus rituals can normalize drinking as a way to negotiate this new environment. It is perhaps not surprising that a disproportionate number of serious alcohol-related incidents on campus happen in the first two months of the school year. In fact, nearly one half of all UW detox transport counts (46% in 2011-12 and 48% in 2012-13) for the past two years occurred in September and October.²⁷

Underage drinkers are generally inexperienced drinkers; their smaller body mass, lower initial alcohol tolerance, and patterns of drinking place them at higher risk for immediate negative outcomes such as blackouts and alcohol poisoning.²⁸ College students, who are in an age group that has the highest rate of binge drinking, are at even higher risk for heavy episodic drinking than their peers who are not in college. Many analyses point to the pervasiveness of binge drinking in the college experience, and the epidemiological evidence pointing to the association of binge drinking with severe health problems such as serious injury, unsafe sex,

aggressive behavior and assault, and social and psychological problems have led some analysts to argue that binge drinking is the Number 1 health hazard and the primary source of preventable morbidity and mortality for America's college students. ²⁹

Table 3-a shows data taken from the American College Health Association - National College Health Assessment II (ACHA-NCHA II). This national research survey provides the largest known comprehensive data set on the health of college students. The University of Wisconsin-Madison and the national reference group data below highlights student self-reported alcohol behaviors during the spring 2011. ^{30,31}

Many UW-Madison students who consume alcohol also report engaging in concurrent behaviors that can mitigate alcohol's impact such as alternating non-alcoholic beverages with alcoholic ones, eating before and/or during drinking; pacing drinks to one or fewer an hour; setting a drink limit in advance. However, the data also clearly indicate that many students still engage in dangerous drinking behavior and experience negative consequences as a result of their drinking.

Table 3-a. American College Health Association-National College Health Assessment II

	% UW Madison			% All US Colleges and Universities
	Male	Female	Total	
Reported Alcohol Use				
Never used	10.0	8.6	9.0	21.3
Used, but not in the last 30 days	6.5	9.9	8.7	12.8
Used 1-9 days	58.7	64.1	62.5	50.0
Used 10-29 days	24.3	16.8	19.3	14.9
Used all 30 days	0.4	0.4	0.4	1.0
Any use within the last 30 days	83.5	81.4	82.2	65.9
Reported number of drinks consumed last time student "partied"*				
• 4 or fewer	33.0	56.3	48.8	58.6
• 5	10.9	10.4	10.5	11.4
• 6	8.3	9.4	8.9	8.7
• 7 or more	33.5	11.3	18.6	21.3
Reported number of times students consumed five or more drinks in a sitting within the last two weeks *				
• None	33.9	56.3	49.0	43.3
• 1-2 times	36.1	25.2	28.7	22.7
• 3-5 times	16.5	9.6	11.8	9.3
• 6 or more times	3.5	0.6	1.7	2.1

Reported driving after having 5 or more drinks in the past 30 days*			1.0	3.1
Reported driving after having any alcohol in the last 30 days*			26.3	23.0
College students who drank alcohol reported the following consequences occurring in the last 12 months as a result of their own drinking:*				
Alcohol negatively affected academic performance	Not available	Not available	5.0	4.4
Did something you later regretted	42.2	33.6	36.4	34.6
Forgot where you were or what you did	34.1	33.8	33.9	30.4
Got in trouble with the police	5.8	2.1	3.5	3.6
Had sex with someone without giving your consent	1.5	2.4	2.1	2.1
Had sex with someone without getting their consent	1.5	0.5	0.8	0.5
Had unprotected sex	15.1	13.5	14.1	16.5
Physically injured yourself	20.9	15.4	17.2	14.9
Physically injured another person	4.9	1.2	2.4	2.3
Seriously considered suicide	2.4	0.2	1.0	1.7
Reported one or more of the above	51.9	48.5	49.6	50.1
* Students responding 0 drinks, "N/A, don't drive", or "N/A don't drink" were excluded from analysis 705 students were given the survey; the response rate was 14.1%				

Student residents and visitors to the Greenbush-Vilas neighborhood potentially have much to gain from policies that help reduce their drinking. However, if those policies inadvertently prompt those who might otherwise go to the bars on football Saturdays to go instead to house parties where drinking is not regulated, they may unintentionally exacerbate the drinking problem in the community.

Section 4: ASSESSMENT

4.1 Literature Review

While all health determinants are considered below, special attention was paid to the issues of neighborhood conditions and residential stability, risky sexual behavior, and academic and work performance. These factors were determined as particularly applicable to the Greenbush/Vilas neighborhood and the identified vulnerable populations.

4.1.1 The Effects of Alcohol Outlet Density

The research on alcohol outlet density – a caveat

Heavy alcohol consumption is a known and significant contributor to the burden of disease. Many studies hypothesize that the easy availability of alcohol increases heavy alcohol consumption. Yet, there are only a few studies that *directly* assess the effects of controlling alcohol outlet density.^{32,33} The studies on alcohol density are mostly cross-sectional, comparing communities with different outlet density levels. Any differences indicate associations, not causation. While the cross-sectional research is fairly conclusive indicating there is a relationship between alcohol outlet density and certain alcohol-related harms, the direction of the relationship is not determined. For example, alcohol outlets may be more likely to locate in areas where there are known drinking cultures and a market is already established. Longitudinal studies, which observe changes in population or place characteristics over time are few.

Alcohol outlet density: effects on consumption and related harms

The *What Works for Health* database finds “**some evidence**” that reducing the density of alcohol outlets reduces binge drinking, underage drinking, and alcohol-related harm.³⁴ They also recommend more research in this area.^{33,35-37} On the basis of the reviewed evidence, and cognizant of its causal limitations, the CDC appointed, independent Taskforce on Community Preventive Services, nonetheless “found **sufficient evidence** of a positive association between outlet density and excessive alcohol consumption and related harms to recommend limiting alcohol outlet density through the use of regulatory authority (e.g., licensing and zoning) as a means of reducing or controlling excessive alcohol consumption and related harms.”¹¹

The research team conducting the literature review for this HIA considers the studies conducted at the local level to show **mixed results** of effectiveness. **The impacts of alcohol outlet density seem quite context specific.**

Findings have been most positive in situations with very low alcohol availability, and more mixed in areas with high alcohol availability. The exception is the literature on college students which consistently shows a significant link between outlet densities around colleges and rates of binge-drinking and drinking related problems.⁴⁻⁶

“(There is) sufficient evidence of a positive association between outlet density and excessive alcohol consumption and related harms to recommend limiting alcohol outlet density through the use of regulatory authority (e.g., licensing and zoning) as a means of reducing or controlling excessive alcohol consumption and related harms.”

CDC Taskforce on Community Preventive Services

Evidence of effectiveness:

- A systematic review found that greater outlet density is associated with increased alcohol consumption and alcohol related harms including drunk-driving,³⁸ property crime, injury, violence, and medical problems such as liver disease.^{32,38}
- There are consistent links between outlet density and violence rates across a range of settings, study designs and data sources.³⁹
- Alcohol outlet density is also associated with higher market competition, leading to promotional drink specials which encourage heavy drinking.⁴⁰⁻⁴²
- One natural experiment of a reduction in alcohol outlets resulted in marked declines in rates of gonorrhea, which were considered a proxy for risky sexual behavior.⁴³
- Alcohol outlet density also impacts quality of life in neighborhoods, through secondary effects such as late night noise, garbage, public urination, and minor vandalism.⁵
- Regulating the time of sales is another way to achieve reduced alcohol density that may also decrease alcohol-related harms. A systematic review determined that restricting alcohol availability either by limiting hours and days of sale or by limiting alcohol density, were effective measures to reduce overall consumption, change drinking patterns, and reduce alcohol-related damages.⁴⁴ In high income nations (not including the United States) increasing the hours of alcohol sales by two or more hours increased alcohol-related harms.⁴⁵ In the US, a study found that states with more restrictive alcohol regulations had lower alcohol-related traffic fatalities, though they did not look at alcohol density specifically.⁴⁶

In contrast:

- An analysis of 82 California neighborhoods showed that while bars and off-premise outlets were concentrated in the most economically disadvantaged neighborhoods, alcohol consumption was highest in more economically advantaged areas.⁴⁷
- While an analysis of 38 states showed that increased outlets led to increased sales⁴⁸, a replication of this study at the neighborhood level in California found no relationship between outlet densities and consumption.⁴⁹
- Two longitudinal studies found that the effects of residential proximity to bars, and the density of those proximate bars on alcohol consumption was positive, albeit very small.^{50 51,52}

Alcohol outlet density: effects on college drinking

Rates of drinking and binge drinking on college campuses are higher when greater numbers of off-premise⁴ or on-premises⁵³ outlets are available nearby. It is not known whether the alcohol outlets themselves encourage higher drinking levels or whether outlets are more likely to locate on campuses that are known for high-levels of drinking, or whether the two tendencies reinforce each other.

- **Crime.** In a study of a nonmetropolitan college town (Bloomington, Indiana) total alcohol density was significantly associated with both simple and aggravated assault.³
- **Second-hand effects.** Neighbors living near college campuses are more likely to report a lowered quality of neighborhood life through secondhand effects of heavy alcohol use

such as noise and disturbances, vandalism, drunkenness, vomiting and urination. Analysis indicates that the number of nearby alcohol outlets was an important factor, especially at “wet” colleges.⁵

Studies focusing on college students consistently found a significant link between outlet densities around colleges and rates of binge-drinking and drinking related problems, both for students and the surrounding communities.

Alcohol density is associated with underage drinking

The argument is often made that limiting alcohol density will have no impact on underage drinking because youth cannot legally purchase alcohol. While this argument seems intuitively correct, the literature does not support it. It is the case that underage drinkers almost always obtain alcohol through social, not commercial sources such as parents, peers, or relatives. However, higher alcohol outlet density may actually increase underage drinkers' access to alcohol both by increasing the availability of alcohol to their social sources, and by increasing the opportunity for “shoulder tapping” – the practice of asking an adult stranger outside the premises to purchase alcohol for them. Key points from this literature include:

- Off-premise outlets are more likely to sell to underage drinkers if there are competing outlets nearby.^{54,55} About 35%-40% of underage purchase attempts are successful.^{54,56,57}
- Youth ages 14 to 20 in 5 states were more likely to make an alcohol purchase attempt -- and to do so successfully – if they resided in census tracts with the highest off-premise alcohol outlet density. Importantly, the quantity and frequency with which youth drank was highly clustered in census tracts with on-premise alcohol outlet density.⁵⁸
- Youth binge drinking and driving after drinking are both positively correlated with number of alcohol outlets in a half-mile radius.⁴¹ The risk of riding with a drinking driver is higher in areas with higher off-premise alcohol outlet density.⁵⁸

Game day drinking patterns

In a survey of college students and season-ticket holders, researchers found that football fans drank more at home games than they drank at other parties. Men reported drinking more than women on game days and students drank more than nonstudents on all occasions. Not surprisingly, nondrinkers were most supportive of interventions to limit game day drinking while heavy drinkers were the least supportive.⁷ Likewise, undergraduates at a university with a team playing in the basketball Final Four semifinals and champions drank more on game days. Those who already drank heavily were more likely to drink on both days and to drink heavily. The Final Four basketball games were not played on campus.⁵⁹ Crimes such as assaults, vandalism, and arrests for disorderly conduct and alcohol-related offenses increased sharply on college campuses studied during division I-A football games.⁸

4.1.2 The Effects of Excessive Drinking on Health Determinants

The literature suggests that alcohol outlet density may have an impact on the excessive consumption of alcohol, particularly for college students. Excessive drinking, in turn, impacts health through a variety of routes. Table 4-a is a summary table of the literature review examining the impacts of excessive drinking on the health determinants under examination in this study. Full results from the review of the literature can be found in Appendix A.

Table 4-a. Literature Review of Effects of Alcohol on Health Determinants

Determinant	Strength of Evidence	Notes
Neighborhood Conditions/Residential Stability		
<ul style="list-style-type: none"> Built Environment 	Insufficient Evidence	<p>Much of this literature examines neighborhoods troubled by unemployment, poverty, decrepit housing stock, and food deserts. Since this does not in any way describe the Greenbush-Vilas communities, much of the literature may be of limited utility for the purposes of this report.</p> <p>Causal direction unclear: does the built environment lead to excessive drinking, or does drinking lead to subpar living conditions?</p>
<ul style="list-style-type: none"> Property crime and nuisance 	Scientifically supported	Neighbors living near college campuses were more likely to report a lowered quality of neighborhood life through secondhand effects of heavy alcohol use such as noise disturbances, vandalism, drunkenness, vomiting and urination. ^{5 6} One in ten students report engaging in vandalism due to alcohol; almost a quarter of heavy drinkers engage in vandalism. ⁶⁰
<ul style="list-style-type: none"> Perceived Neighborhood Safety 	Insufficient Evidence	Literature links excessive drinking to actual crime, but not to perception of safety
<ul style="list-style-type: none"> Social capital/social cohesion 	Some evidence	Increased alcohol outlet density raised the number of dysfunctional outlets and was thus strongly associated with reduced development of social capital. ⁶¹
Drunk Driving	Scientifically supported	According to the National Highway Traffic Safety Administration, in 2010 31% of all traffic accidents were alcohol related. ⁶² Wisconsin has the highest rate of drunken driving in the nation; more than 26% of the adult population in the state self-reported that they had driven under the influence during 2009. ⁶³

Alcohol Related Violent Crime	Scientifically supported	Research has shown a clear relationship between alcohol abuse and crime, including domestic abuse and violence, assault, sexual assault and robbery. ⁶⁴
Alcohol related injuries and death	Scientifically supported	Alcohol abuse and dependence is one of the major causes of injuries in the United States. Alcohol consumption has been linked with an increased risk motor vehicle crashes, drowning, falls, alcohol poisoning, burns, as well as injury while engaging in daily activities. ⁶⁵
Alcohol Related Chronic Diseases	Scientifically supported	Alcohol use has been causally linked with over 60 different serious medical conditions. ⁶⁶ For most conditions there is a dose-response relationship in relation to volume of alcohol consumed. ⁶⁷
Risky sexual behavior	Scientifically supported	Increased alcohol use increases both risky sexual behavior ⁶⁸ and the risk of sexual assault ⁶⁹ .
Academic & Work Performance		
<ul style="list-style-type: none"> Academic Performance 	Mixed Evidence	National and longitudinal studies with large sample sizes have found that excessive drinking predicts lower college GPA. ⁷⁰ However, studies that have looked at these measures over a short period of time have not found significant effects. ^{71,72}
<ul style="list-style-type: none"> Work Performance 	Mixed Evidence	It has been estimated that 20%–25% of workplace accidents are alcohol related. ⁷³ Some studies indicate that employees who drink too much on a work night or drink during a work lunch account for up to 60% of all alcohol-related work performance problems. ⁷⁴ Other studies show weak or no relationship between alcohol consumption (during non-work hours) and work performance. ⁷⁵
Rating scale: Scientifically Supported Numerous studies or systematic review(s) showing positive impacts Some Evidence Research suggests positive impacts; further study may be warranted Expert Opinion Asserted by credible groups; research evidence limited Insufficient Evidence Evidence is limited or unavailable; further study warranted Mixed Evidence Evidence is mixed; further study warranted Evidence of Ineffectiveness Research consistently shows no effect		

4.1.3 Gaps / Limitations of the Literature:

A major weakness in the literature is the assumption that all alcohol outlets within the same license classification have an equal impact. In the reviewed studies, a small bar and a multi-level nightclub each count as one outlet. Two approaches to overcoming this limitation have been suggested.

1. Collect data relating to the amount of alcohol sold by individual premises;
2. Link alcohol-related harm data to specific premises.

The systematic collection of each of these present challenges, but it would aid greater understanding of how outlet density actually influences consumption. For instance: To what degree are changes in density, which affect levels of harm, linked to changes in volume of sales and to particular types of alcohol? Do some types of premises contribute disproportionately to alcohol-related harms?

Some studies also suggest that changes in alcohol availability resulting from changes in price, hours, or density are particularly likely to affect young, marginalized, or “problematic” drinkers. This could mean that the effects of outlet density on smaller sub-populations may be difficult to detect using population-level data.³⁹ Collecting longitudinal individual-level consumption data is necessary to know whether outlet density is related to excessive consumption and harms among subgroups.

4.2 Survey Data

Members of the neighborhood were surveyed, either by face-to-face interview or on-line survey, about their opinions regarding alcohol use and any related problems it created in the neighborhood. Respondents were found via neighborhood association meetings, the Greenbush and the Vilas neighborhood associations’ email listservs, and by scouting parks, streets and local businesses. Key stakeholders were included in the surveys. A short profile of respondents’ demographics can be viewed in Figure 4-a.

Table 4-b. Survey Respondent Profile

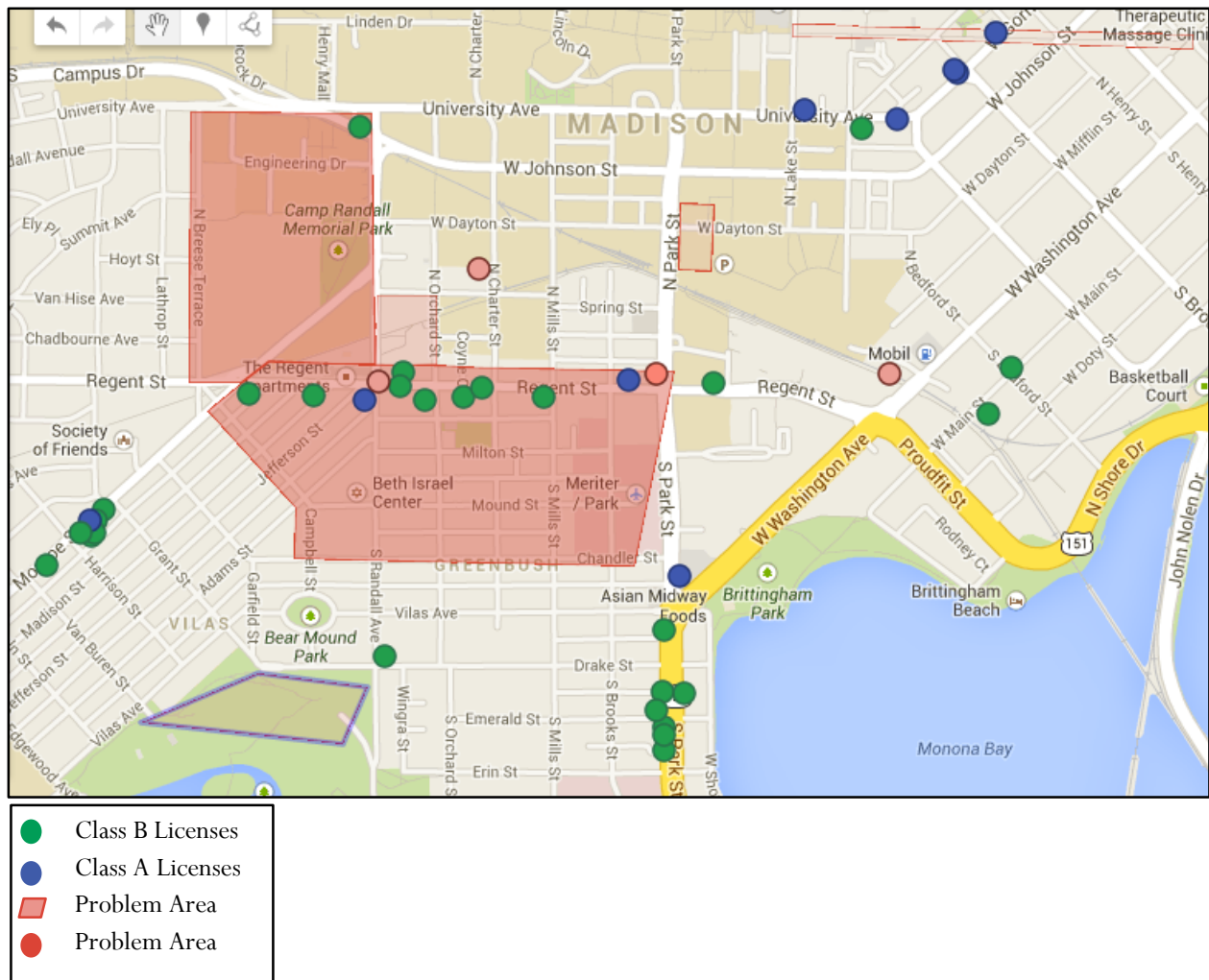
Total = 89						
Age	18-24	25-34	35-44	45-54	55-64	65 +
	26	15	16	9	11	3
Gender	Male	Female				
	39	41				
Residence	Own	Rent				
	37	31				
Community Sector	Business Owner	Neighborhood Employee	Resident	Student		
	9	6	46	20		

Excessive drinking in the Greenbush-Vilas Neighborhood

In face-to-face interviews, many respondents indicated that alcohol was not a community problem. However, these same respondents then went on to describe – often in substantial detail – examples that most people would consider problems, such as assaults, people passed out, or public harassment.

- Home owners viewed excessive drinking as a problem in the community far more frequently (75%) than renters (50%).
- Older respondents more often saw excessive drinking as a problem. The majority of those under 35 (61%) said drinking was not a problem, while the majority of those over 35 (75%) did think that excessive drinking was a problem.
- Respondents agreed that drinking was heaviest and problems spiked considerably on football Saturdays. Many, however, thought that excessive drinking was also more generalized to weekends or sporting events during the school year and to certain holidays such as Labor Day, and Graduation weekends.
- Many who considered drinking a general problem noted that it wasn't pervasive throughout the neighborhood, but rather occurred primarily in certain rental home areas and identified the problem with undergraduates.

Figure 4-a. Problem Areas in Greenbush/Vilas neighborhoods



Concerns about excessive drinking

Respondents were shown nine factors that could influence health and may be impacted by excessive alcohol use. In interviews respondents could select any of these factors or discuss other thoughts on health effects of alcohol use. In the online survey, participants were asked to select up to three that they thought were the most important.

- Across all age groups “Property crime and nuisances” was the most frequently selected. Not surprisingly, more people over 35 (77%) than younger (50%) choose this answer. Similarly, more homeowners (78%) than renters (61%) choose this answer.
- Alcohol-related injuries and deaths and perceived safety were nearly tied for the second two most frequently selected health factors (29 and 31 respondents respectively).
- Respondents complained that excessive drinking impacted the general “quality of life” in the neighborhood, via traffic, concern about hitting drunk pedestrians, excessive noise, vandalism, public urination, vomiting, trash, and inebriated people wandering the neighborhood.
- A frequent response to the excessive drinking is avoidance: Many respondents said they either left the neighborhood or stayed inside their home during game days. Others said they avoided the areas where house parties are frequent.

Most people felt alcohol-related problems were contained to certain times, certain places, or particular populations. Generally, while alcohol-related issues presented challenges and were annoying, most respondents did not indicate that they personally experienced the problems associated with alcohol as severe.

Personal Impact of Excessive Drinking

We have experienced a fair amount of vandalism and lost sleep. We have a picket fence, and we have had two sections knocked in, as if someone has rammed their shoulder into the fence to try to knock it down. We also have individual pickets broken off, as people walk by, grab the top of a picket and pull down . . . Non-fence related vandalism has included a large, metal garden trellis pulled out of our flower garden and thrown in the road, Halloween pumpkins carved by our 4 and 6 year old smashed the very night they were carved, and beer cans in our yard. We've also had the "pleasure" of listening to people wander home late at night "talking" to each other as if they were on the opposite side of the moon, or outright arguing. College parties that break up across the street routinely wake us as people leave and yell or drive recklessly and too fast through the neighborhood.

A fight occur(red) on my front lawn at 3am. I have seen young women and men drunk walking down the sidewalk . . . a young woman fell in the middle of the road and her friends walked off. My husband yelled at them to help her. I (also) witnessed a young woman puking into a bag while waiting with her friends. One afternoon during a football Saturday I went for a run. I came back and within 3 blocks I saw the police administering the "drunk" tests to 3 separate people and arresting two of them. It was bizarre. Along Adams we have beer bottles and cans strewn along our yards throughout the school year.

Some reports of sexual assaults in the area the past few years (1800 block Monroe alley, Vilas Park) with intoxicated victim; loud drunks passing our house almost every night since the restaurants/bars opened, with loud conversations right outside our windows and car engines revving (by Madison/Harrison); loud house parties on and near Madison that led to police calls.

Jumping into bushes, breaking branches on trees, urinating in front yard, loud-mouth bravado, parked cars forgotten on neighbor's lawn for several days.

House parties with beer pong tables that go from 8am - 8am the next day. House parties are the main issue.

My car was totaled by a drunk/high driver. I have had vandalized things outdoors occasionally. I have been kept awake or awakened by people walking home from bars or having house parties near me.

Policy Options

- Few people surveyed (< 10%) thought that extending the ALDO to the Regent Street Corridor would be either a "very effective" or "effective" method of limiting excessive drinking in the community.
- However, 29% thought it might be "somewhat effective."
- The majority (62%) felt that ALDO, or similar regulation to limit alcohol outlet density, would be ineffective ("ineffective", "somewhat ineffective" or "very ineffective").

Respondent comments on extending the ALDO

Ineffective

I have little hope that any policy would help. Sports fans are going to drink regardless.

Not a policy issue, but a cultural issue. Needs a cultural shift, not laws.

Limiting places either packs them into a single location in which case there are too many people to drink or moves them into houses and this leads to more problems in the neighborhood.

People don't get drunk on Regent St. Only old people drink there. The issues are more with house parties. I see the problem as an undergrad issue and they don't go to the bars.

People are going to drink no matter what.

I think ALDO is the wrong policy. Better to do what can be done to hold bars accountable for their patrons' behavior and to increase late-night bike- and foot-police presence.

Bringing the ALDO to the neighborhood might actually make things worse. Less places available will mean there are more people in smaller areas. People are more likely to have to wait outside & get into fights waiting in line or in cramped bars.

It will drive out good businesses and reduce competition. Competition is integral to the free market and allows good prices, good deals, and inventive advertising

Somewhat Effective

It would affect non-students more than students on football Saturdays. These non-students would drink less.

More restriction on liquor stores rather than bars. The ALDO could be a good thing. Too many bars could make the area too alcohol-related and congested. Families don't want kids walking by bars when they are walking to school (Randall).

But it would be good to have bars that serve food since people may be less drunk if they are eating too. So ALDO could help limit drinking only bars.

Respondents' lukewarm to hostile responses to the idea of an area ALDO doesn't mean that they did not have other ideas about how to address the alcohol-related problems of the neighborhood.

Respondents generally wanted to see current regulations enforced more consistently and more stringently. They wanted more police presence and ticketing of those violating noise, disturbance, underage drinking, and other codes. Most suggestions pertained to regulating house parties where respondents see most of the problem originating. Campus and UW police should both be responsible for assuring that underage people are not drinking at house parties. Additionally, slapping landlords with costly citations that would be passed on to tenants was suggested.

Regarding the bars, many thought it was important to assure that the existing rules governing bars, such as not serving those who are underage or visibly intoxicated, be stringently enforced. Respondents who worked at bars mentioned that people were actually safer drinking at well-regulated bars where they were watched and where safe rides were available than at house parties where alcohol was not regulated.

Respondents also indicated that the UW Athletics Department needed to set a higher standard for both athlete and fan behavior, starting with real punishments for athletes who commit sexual assault.

Respondents repeatedly asserted that they loved the neighborhood: the neighborhood bars and restaurants were a great place to spend time (many particularly liked the high-end Monroe Street restaurants and wanted more of them), and the game-day / weekend problems they encountered in no way would make them change their mind about living in the neighborhood. Many however did see room for improvement.

4.3 Crime Data

The Greenbush-Vilas neighborhoods are among the safest in the city. Only about 2% of the crimes against persons and crimes against property occur in the neighborhoods. Of the 2,186 crimes against persons citywide in 2012, only 5 occurred in Vilas and 43 in Greenbush.⁷⁶ Nonetheless, crime and other disturbances to the community are real and of concern to its residents. This analysis looks at the patterns of crime and disturbances often associated with alcohol in the community to inform possible policy remedies.

In the interview/survey responses residents disagreed about the extent of alcohol-related problems in the neighborhood. Some residents said there was no problem with drinking related crimes or disturbances, more felt that issues were isolated to game days, others saw the problems associated with heavy drinking occurring every weekend, and still others experienced a more general nuisance. Similarly residents' view regarding the severity of the problems also differed. To some degree, crime data can test whose perceptions are most accurate. Crime data can tell us what crimes and disturbances occur in the neighborhood and when they happen. With the exception of alcohol-specific violations, however, the data cannot definitively link these occurrences to alcohol.

The City of Madison Police Department provided the HIA team with both Calls for Service (CFS) and offense data for the Greenbush and Vilas neighborhoods. A CFS is recorded whenever the police are contacted by phone, email, or in-person regarding a crime. Depending on the reason for contact, the police may take a report or may come to the scene. When the police arrive at the scene, there is not always an offender still present. In offense data, the police always come to the scene and there is always a specific offender. However, the offender may not be known-- as in the case of burglary.

A comparison of CFS and Offense data reveals broadly similar patterns. The small differences that occur probably are attributable to the different ways in which incidents are counted. This analysis is based on CFS data because it permits comparison with the data that City staff currently uses to monitor incidents in the ALDO area, and because it contains some types of

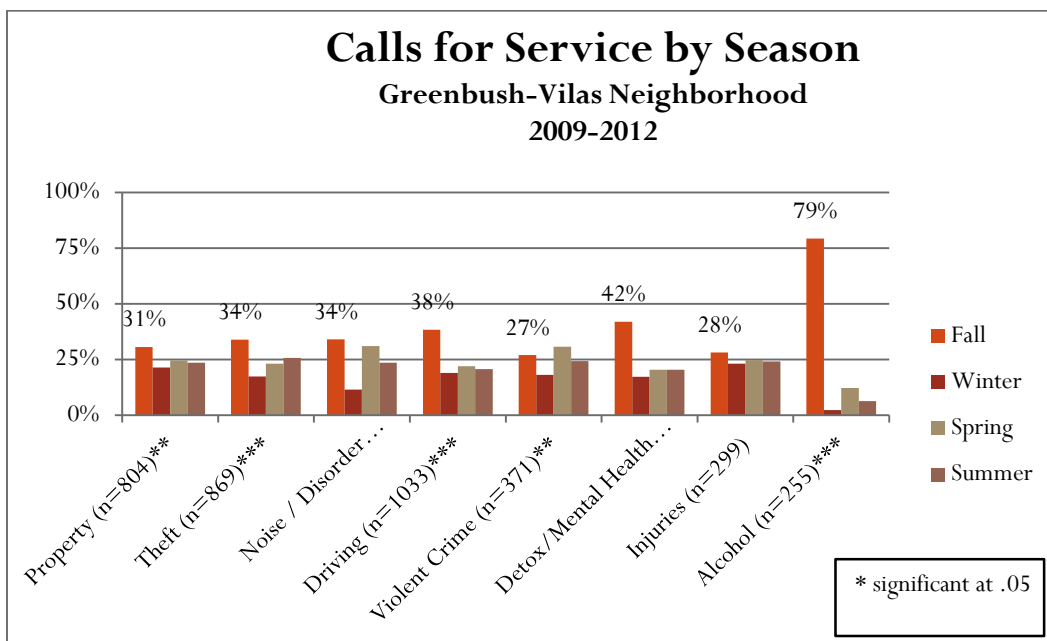
non-criminal incidents unreported in offense data, such as injury or conveyance to a detox unit. We report detailed findings for both CFS and Offense set of data in Appendix B.

The data examined does not represent an exhaustive list of all crimes committed or incidents in the neighborhood during the time period. For the purposes of this study, only incidents relevant to excessive alcohol consumption and the related indicators from the pathway diagram are considered. Many crimes were relevant to multiple indicators, and after much discussion we elected to count some incidents in more than one indicator. For instance, 'driving while intoxicated' is included in both 'traffic' and 'alcohol-specific' offenses. The entire list of crimes, their grouping and prevalence as well as a brief note about methodology can be viewed in Appendix B.

Key Findings:

- Seasonally, incidents in all categories -- except for violent crime -- are more likely to occur in the fall. These differences are significant in all categories, except for injury. (See Figure 4-c)

Figure 4-b. Calls for Service by Season 2009-2012



Looking specifically at the high-incident fall season:

- In absolute numbers, a majority of incidents in several categories highly associated with excessive drinking occur on the weekends. This includes: disorderly conduct and disturbance, conveyance to detox, violence and alcohol specific crimes. (See Figure 4-d)
- However, separating the football weekends from regular weekends tells a different story. The seven football weekends each year alone account for a very high proportion of these neighborhood incidents:
 - 53% of all disorderly conduct and disturbance
 - 50% of all conveyance to detox

- 85% of all alcohol specific crimes

Figure 4-c. Calls for Service during fall seasons 2009-2012

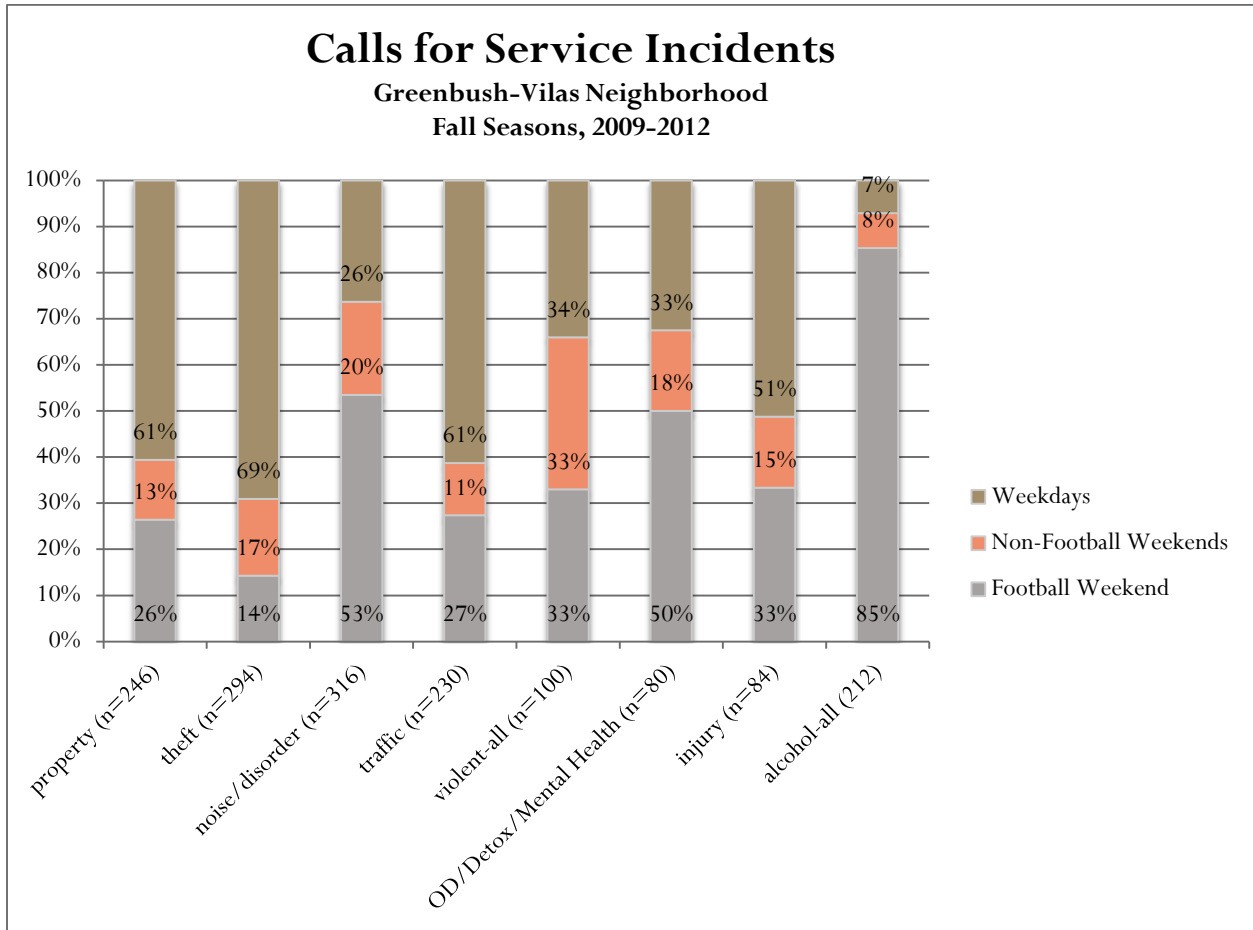


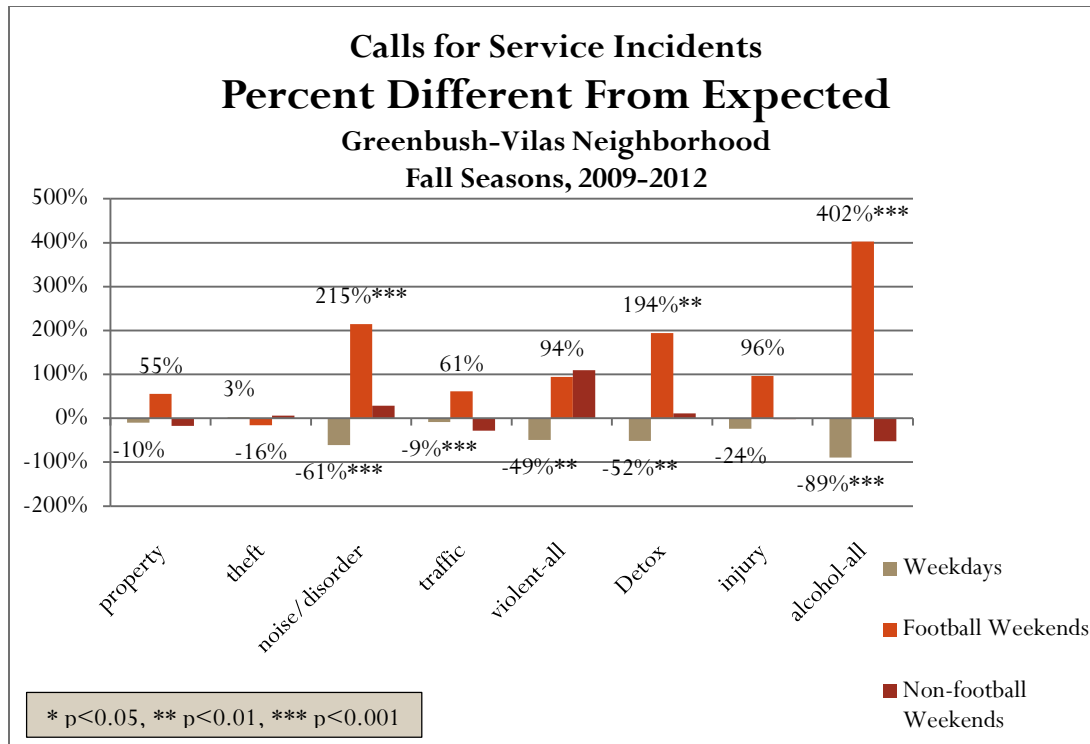
Figure 4-d shows actual values and so, as startling as some of the findings may be, they do not reflect the full effect of weekends and football weekends especially. Weekdays account for 67% of all fall days, non-football weekends 16%, and football weekends 17%. If day of the week had no effect on incidents then you would expect calls for service to match the proportion of time in each category.

Figure 4-e adjusts the data to show the percentage difference (above or below) from the expected value at which incidents would occur if the types of days were evenly distributed.

- In all categories except for theft incidents occur on football weekends at rates far higher than would be expected. Some of these percentages are quite large:
 - Alcohol specific incidents occur 400% more frequently than expected,
 - Detox transports occur 194% more frequently than expected,
 - Noise and disorder complaints occur 215% more frequently than expected.
- Only noise/disorder and violence occur on regular weekends at rates higher than expected.

- Alcohol specific incidents actually occur on non-football weekends at percentages lower than expected.
- All incidents occur on weekdays at rates lower than expected.

Figure 4-d. Calls for Service Incidents: Percent Different from Expected 2009-2012



Conclusion:

Which residents were correct – those who thought that alcohol created neighborhood problems generally throughout the year, primarily on weekends, or only on football weekends? To some degree, they are all correct. Incidents associated with excessive drinking do occur throughout the year, but are significantly clustered in the fall (and much lower in the winter). While proportionately more incidents occur on weekends than during the week, non-football weekend incidents are significantly overshadowed by the volume of incidents that occur during football weekends. Football weekends are disproportionately responsible for the crime and nuisance that occurs in the neighborhood.

Football weekends are disproportionately responsible for the crime and nuisance that occurs in the neighborhood.

Limitations of the data and analysis:

- With the exception of alcohol-specific incidents, such as OWI, conveyance to detox, or an alcohol investigation, the data does not specify whether the incidents were alcohol-related. Police did not record whether incidents were alcohol related consistently enough to permit analysis.

- Time constraints limited the analysis in several ways. Additional areas worth pursuing include:
 - detailed analysis of incident patterns in other seasons,
 - age of offenders,
 - offenders' place of residence (neighborhood, local, out-of-town), and
 - mapping of place of offense

- From a policy perspective, the most serious limitation is that the data does not answer the question of whether the incidents are associated with different types of premises – house parties, bars, restaurants, or other. Mapping the place of offense might answer some of this, but high outlet concentration would make this analysis difficult at best.

4.4 Impact Assessment

There is currently no policy under consideration to limit alcohol outlet density in the Greenbush Vilas neighborhoods. While limiting the number of retail alcohol outlets at the current level would seem to produce no change in the current situation, it should be recognized that without such a policy additional growth could have significant alcohol-related impacts. Figure 4-f indicates positive/negative impacts on the following health indicators under the theoretical policies of limiting outlets at the current level or reducing outlet density:

Table 4-c. Impact Assessment Matrix

	Likelihood	Magnitude	Severity	Disparities (Vulnerable population is disproportionately impacted)
Neighborhood Conditions				
• Perceived Safety	Likely	▲	Low	yes (female)
• Social Cohesion	Possible	▲	Low	no
• Property Crime and Nuisance	Likely	▲▲▲	Low	yes
Drunk Driving	Possible	▲▲▲	High	no
Alcohol-Related Violent Crime	Likely	▲	High	yes
Alcohol-Related Injuries and Death	Likely	▲	High	yes
Risky Sexual Behavior	Likely	▲▲▲	Medium-High	yes
Alcohol-Related Chronic Disease	Possible	▲	High	no
Performance				
• Academic	Likely	▲▲	Low	yes
• Work	Uncertain	▲	Low	

Rating Scale:

Likelihood (Adapted from Habitat Health Impact Consulting)

Likely: Evidence suggests that effects commonly occur with policies of this type

Possible: Evidence suggests that effects may occur, but are not common in similar situations

Unlikely: There is little evidence that effects will occur as a result of this policy proposal

Uncertain: It is unclear if impacts will occur as a result of the proposal – evidence is absent or contradictory

Severity (Adapted from Habitat Health Impact Consulting)

Low: Causes effects that can be quickly and easily managed with current capacity

Medium: Has the potential to cause effects that necessitate treatment or medical management and are reversible

High: Has the potential to cause effects that are chronic, irreversible or fatal

Magnitude (Upstream Public Health, HIA of HB 2800 Farm to School)

▲ Small impact on few

▲▲ Moderate impact on medium number

▲▲▲ Strong impact for few OR small impact on many

▲▲▲▲ Strong impact on many

None: No effects

In Summary:

In areas where alcohol density is already very dense, and where alcohol is easily accessible elsewhere, small changes in density are unlikely to affect overall consumption rates substantially, or have any impact on alcohol-related chronic, long-term health problems.³⁹ The exception to this would be where density leads to a highly competitive market environment resulting in very low prices. Pricing does have a significant impact on consumption and low prices are especially likely to affect student drinkers.⁴²

However, outlet density is more likely to have effects on short term consequences such as binge drinking, alcohol-related injuries and violence. These effects are most likely to be seen in small areas where outlets are concentrated. Outlet “bunching” encourages drinkers to “bar hop”, raising the level of street noise and disturbances. Bunching also makes it easier for patrons to respond to drink promotions, thus making it harder to assign responsibility to any one establishment for failure to serve responsibly. Bunching does, however, make providing harm-reduction strategies such as transportation (such as safe rides or cab stands) and policing easier.³⁹

Section 5: RECOMMENDATIONS

5.1 Conclusions

- Alcohol already has a significant impact on the Greenbush-Vilas neighborhood.
- Alcohol's impact is substantially greater on game weekends. The addition of temporary licenses on football weekends is associated with a significant increase in alcohol-related consequences.
- Small changes in outlet density alone are unlikely to impact overall alcohol consumption or chronic, long-term health.
- However, changes in outlet density could exacerbate existing short-term consequences by:
 - Creating a more competitive alcohol market with lowered pricing which can significantly increase consumption, especially among students;
 - Increase binge drinking;
 - Increase alcohol-related injuries and violence;
 - Create additional secondhand effects of heavy alcohol use in the neighborhoods noise disturbances, vandalism, drunkenness, vomiting and urination.

5.2 Recommendations

To Common Council:

1. **Limit or eliminate temporary liquor licenses**

Respondents and crime data showed football weekends are the days of greatest concern. Alcohol density could be regulated on those days by limiting temporary licenses. Since some people in beer gardens may not have access to non-retail alcohol, such as house parties, this policy may reduce drinking by limiting party atmosphere of the neighborhood and decrease the attractiveness of coming into the area on game day.

2. **Improve regulation of house parties**

Impacts have been calculated assuming that different populations frequent bars versus house parties, so that there will not be a shift from bars to off-site consumption. If this is so, then a single pronged policy to limit licensed outlets could leave the problems associated with house parties untouched.

However, under a different scenario, limiting bars could theoretically lead to more and /or bigger house parties, leaving net drinking levels unchanged, or even result in increased binge and underage drinking. Therefore, if actions are taken to reduce retail outlets, concurrent efforts to regulate house-parties are also advisable. Neighborhood residents' understanding of the problem suggests that regardless of any efforts to control alcohol outlets, additional measures to regulate house parties are warranted.

City ordinance Chapter 25, "Offenses Against Public Safety," section 25.10 lays out the circumstances of a "nuisance party" and methods by which police may intervene to protect public safety.

- This ordinance should be enforced more aggressively
- The ordinance should be reviewed to ascertain whether it is adequate for effective enforcement of state drinking laws (particularly underage drinking) and mitigation of secondary neighborhood impacts of excessive alcohol use.

3. Police secondary alcohol effects in the neighborhood

- Enforce noise and other "quality of life" ordinances
- Increase police presence in neighborhood on weekends and game days, particularly at bar-closing time; ticket more aggressively
- Increase frequency of bar and liquor store compliance checks especially on football Saturdays.

4. New and improved data collection

A major weakness of this study, and much of the alcohol density literature, is the assumption that all alcohol outlets within the same license classification, regardless of size have an equal impact. City staff should collect data that would provide a more nuanced understanding of the contributors to alcohol-related harms and disturbances. Specifically, staff should:

- Collect data relating to the amount and type of alcohol sold by individual premises.
- Link alcohol-related harm data to specific premises. Analyze this data by type and size of establishments.
- The closing of the Stadium Bar provides a natural experiment for studying the impact of alcohol density in the GBVN. The Stadium Bar had a capacity of 2,416 and operated one of the largest game-day beer gardens on Regent Street. Its absence has certainly reduced density in the area. Repeating the incident analysis done in this report for the 2013 season may offer some insight into whether reduced density results in reduced alcohol-related incidents and secondary effects.
- Consider the role of private "tailgate" parties
 - Measure how these unregulated parties contribute to density and alcohol-related harms on game days.
 - If warranted, consider methods by which such parties can be more strictly regulated or eliminated.

5. Overall density in the neighborhood

Although this report is not currently recommending a ban on further alcohol outlets, it is recommended that ALRC proceed with great caution before licensing further outlets, particularly taverns and other large establishments oriented to game day clientele.

For Bars:

6. Assure that all bartending staff server-compliance training
7. Provide information/assistance with safe rides, taxis, etc.
8. Provide condoms in bathrooms

For the University:

9. Create a campus and neighborhood coalition to identify ways in which University game-day policies at Camp Randall and elsewhere contributes to binge drinking in the neighborhood. Plan and implement strategies that the University can undertake to reduce binge drinking.

Section 6: REPORTING

This report was reviewed by senior staff at Public Health Madison & Dane County.

Scheduled presentations of findings are anticipated to the:

- Alcohol License Review Commission (ALRC)
- Common Council
- Greenbush Neighborhood Association

The report will be sent to major news outlets that cover the Madison area and will be available on the UWPHI web site.

As an addendum to the ALDO HIA, it will be distributed with that report and appear on the PHMDC web site.

APPENDICES

APPENDIX A – Literature Review

Neighborhood Conditions/Residential Stability Alcohol density and/or high alcohol use could potentially impact neighborhood conditions and social stability through a variety of factors including its' effect on the built environment, alcohol-related property crime and nuisance, perceived safety, and social cohesion. Indeed, in recent years, research on excessive alcohol use has explored community influence on behaviors. These studies have shown that alcohol use varies among social contexts and is influenced by the characteristics of schools and neighborhoods.⁷⁷⁻⁷⁹ These characteristics include composition (socioeconomic status and ethnic distribution), psychosocial perceptions (collective efficacy and safety), and social norms (prevalence and acceptance of substance use) of communities.⁸⁰ This literature, however, may have several limitations for the purposes of this report. First, most studies of alcohol outlet density and/or alcohol use demonstrate only a correlation between certain neighborhood conditions and density; causal explanation is frequently lacking. Second, in studies of heavy drinking that do offer causal analysis, the causality tends to run in the opposite direction, demonstrating the influence of communities on drinking patterns, not the impact of drinking on the character of the community.

This gap makes it difficult to determine what, if any, negative impacts alcohol use has on overall neighborhood conditions. Finally, much of this literature examines neighborhoods troubled by unemployment, poverty, decrepit housing stock, and food deserts. Since this does not in any way describe the Greenbush-Vilas communities, much of the literature may be of limited utility for the purposes of this report.

Built Environment

The built environment is a neighborhood factor associated with heavy alcohol use. In a 2007 study of individuals living in New York City neighborhoods characterized by poor built environments (defined by buildings with stairway problems, toilet breakdowns, non-functioning kitchen facilities, more than three heat breakdowns in winter, large areas of peeling paint and plaster, and indoor water leakage), respondents were up to 150% more likely to report recent heavy drinking than similar respondents in neighborhoods with better built environments. However, the study does not make clear the direction of any causal relationship between the environment and drinking. The authors suggest that individuals living in poor built environments tend to be lower-income and may drink excessively to deal with stress.⁸¹ However, the study did not ask specific questions regarding motivation. Therefore, further studies are needed to determine whether the built environment leads to excessive drinking, or if drinking may also lead to subpar living conditions.

Property crime and nuisance

A causal relationship between overconsumption and property crime and nuisance is much clearer. A 2002 study of the effects of student alcohol use on neighborhoods founds that neighbors living near college campuses were more likely to report a lowered quality of neighborhood life through secondhand effects of heavy alcohol use such as noise disturbances,

vandalism, drunkenness, vomiting and urination. A comparison of neighborhoods near college campuses with high alcohol density and with lower alcohol density indicated that alcohol density was the determining factor in higher nuisance rates. This study, therefore, suggests that neighborhood disruptions may be reduced by limiting the presence of alcohol outlets in those areas.⁸²

While there is some evidence that some of these neighborhood issues can lead to detrimental health effects (i.e. constant nuisance can lead to low perceived safety, which can lead to diminished mental health⁸³), none of these issues appear to be sufficiently extreme individually to destabilize a neighborhood enough to cause poorer concrete health outcomes for area residents. However, taken together these indicators create a larger picture of the quality of life in a neighborhood. The magnitude of these issues is important in assessing real health impacts from the daily stresses of poor or diminished neighborhood conditions.

Perceived Neighborhood Safety

Perceiving one's neighborhood as unsafe has been significantly associated with anxiety,⁸⁴ poor health outcomes,⁸⁵ and poor self-rated health.⁸⁶ These studies show the perception of being at risk can be just as important as actual risk in causing stress and altered behavior, which can lead to poorer health outcomes.⁸⁷

While the literature has examined the relationship between alcohol density, actual crime, and perceived safety, no studies were found that directly link the perceived safety within neighborhoods with alcohol density or excessive drinking.

Social capital/social cohesion

Social capital is often defined as the features of social life and structure that facilitate cooperation for mutual benefit. Communities with higher levels of social capital are often thought of as cohesive and thriving communities.

A 2009 study looking for connections between alcohol outlet density and social cohesion found that the social-health effects of an alcohol outlet could be either a detriment or an asset to a neighborhood. Positively, well-run outlets could provide meeting places for residents to expand their social interactions and social networks. However, a concentration of liquor outlets that either do not cater to local residents or which threatens the neighborhood with loud noise, unruly patrons, trash, late hours of operation, and other problems such as crime can lead to decreased neighborhood cohesion and a lowered perception of safety. This study found that increasing the alcohol outlet density in a neighborhood raised the number of dysfunctional outlets and was thus strongly associated with reduced development of social capital.⁸⁸

Drunk Driving

Data provided by the National Highway Traffic Safety Administration reveals that in 2010 31% of all traffic accidents were alcohol related.⁸⁹ Every year on average 13,000 people are killed as a result of alcohol induced traffic accidents and crashes, while hundreds of thousands more are injured.⁹⁰

The state of Wisconsin exhibits the highest rate of drunk driving in the nation.

Some key findings in Wisconsin:

- US Department of Health and Human Services data showed that more than 26% of the adult population in the state self-reported that they had driven under the influence during 2009.⁶³
- Over 44,000 drunk driving convictions were issued in 2010.⁶³
- In 2011, there were 196 alcohol impaired driving fatalities and 17 of those were persons under the age of 21. Of those fatalities 73% of them involved drivers with a BAC of over 0.15.⁹¹
- Dane County Wisconsin had 17,008 OWI convictions and 84 fatal drunk driving crashes between 2003 and 2007.⁹² Dane county ranks number 50 for OWI convictions and number 66 for fatal drunken driving crashes out of 72 counties in Wisconsin.

Alcohol Related Violent Crime

Research has shown a clear relationship between alcohol abuse and crime, including domestic abuse and violence, assault, sexual assault and robbery. In the United States around 40% of violent crimes (3 million per year) take place when the offender is under the influence of alcohol. Based on victim reports this includes 15% of robberies, 25% of simple assaults, 27% of aggravated assaults, 37% of rapes and sexual assaults. Alcohol was a factor in 40% of the homicides committed by convicted and imprisoned murderers.⁹³ In 1996 alone, 36% (5.3 million adults) of the total prison adult population were under the influence at the time of their conviction offense.⁶⁴

Alcohol consumption, particularly in the form of binge drinking, increases both the risk of being a victim of violence as well as a perpetrator of violence.^{94,95} Alcohol reduces fear and anxiety thereby increasing the probability of risk-taking and aggressive behaviors. Alcohol also impacts the brain's normal cognitive processes, negatively effecting the ability to recognize/resolve problems when faced with conflict or volatile situations.⁹⁶

The availability of alcohol (measured by alcohol outlet density) also impacts levels of violence. Higher number of bars in a neighborhood (but not restaurants) was positively related to rates of child abuse and neglect in the neighborhood.⁹⁷

There was also a significant relationship between local assault rates and densities of off-premises alcohol retail establishments (as opposed to bars). This same study also found, however, that the impacts of bar densities on violence are context-specific. Bars and violence were significantly related only when bars were located within poor minority areas and in rural middle-income neighborhoods.⁹⁸

Direct costs resulting from alcohol related violent crime include health care costs arising from victim care and rehabilitation, from response to crime, including police, judiciary systems and prisons, and from anticipation of crime, such as insurance/security costs and breathalyzer costs. Indirect costs include loss of productivity (absence from work, mortality, or incarceration) and intangible costs in quality of life (QoL) losses such as pain and suffering resulting from violent injuries, and distress resulting from the death or incarceration of relatives or friends.⁹⁹

Alcohol related injuries and death

Alcohol abuse and dependence is one of the major causes of injuries in the United States. Alcohol consumption has been linked with an increased risk of injury in motor vehicle crashes, drowning, falls, alcohol poisoning, burns, as well as injury while engaging in daily activities.^{100,101} The risk of injury increased with the consumption of even a single alcoholic beverage.¹⁰⁰

Alcohol has been implicated in seventy per cent of deaths concerning water recreation, including drowning and boating accidents, and forty percent of fire related deaths.¹⁰²

Alcohol poisoning -- the result of having high blood alcohol levels that suppress the body's central nervous system -- can lead to unconsciousness, low blood pressure, a lowering of body temperature, respiratory depression and even coma and death. Surviving an alcohol overdose can still result in negative health impacts such as irreversible brain damage^{103,104}

Injury and Age

Underage drinkers, because of their smaller body mass, their initial lack of alcohol tolerance, and their patterns of alcohol intake such as binge drinking, are at an increased risk of suffering from the immediate negative impacts of alcohol use, such as blackouts, hangovers, and alcohol poisoning.¹⁰⁵ Moreover, those who began drinking prior to 21 years of age were significantly more likely to have experienced unintentional injuries while under the influence of alcohol when compared to subjects who had started imbibing alcohol at age 21. This was found to be also true when adjusting for possible confounders such as family alcoholism, history of alcohol dependence and heavy drinking frequency.¹⁰¹

A comprehensive review of international emergency room studies found that injured patients had an increased likelihood of being tested positive for blood alcohol content (BAC) at time of admission, and to report that they had been consuming alcohol within the previous 6 hours, when compared to their non-injured counterparts. This was found to be particularly more so for violence-related injuries compared to non-violence related injuries.¹⁰⁶ Once admitted, patients with BAC exceeding 30 mg/dl required more fluids, had longer mechanical ventilation requirements, longer intensive care units stays and also higher mean hospital cost charges.¹⁰⁷

Injuries and disparities

In their review of a number of publications concerning the association between race and ethnicity and alcohol related injury in the United States, Keyes et al. found that Native Americans had higher rates for alcohol related motor vehicle crash fatalities, suicide and falls when compared to other ethnic counterparts, while Asians showed the least of such rates. Hispanic and African American populations also reported disproportionately high alcohol related injury and mortality relative to their alcohol use.¹⁰⁸

Alcohol Related Chronic Diseases

Alcohol use has been causally linked with over 60 different medical conditions, including several cardiovascular disorders⁹⁶; neurological disorders including dementia, stroke and neuropathy¹⁰³; liver and intestinal disorders^{103,109,110}; cancers¹¹¹; and chronic psychiatric disorders such as depression and anxiety.¹¹² For most conditions there is a dose-response relationship in relation to volume of alcohol consumed.⁹⁶

National hospital discharge data in 2010 shows that alcohol-related diagnoses as primary diagnosis occurred at a rate of 15.8 (per 10,000) and that any listed alcohol-related diagnoses occurred at rates of 76.4 (per 10,000). [ENREF 67](#)¹¹³

(NOTE to Reviewers: WI/Dane/Madison relevant data will be included per chronic disease in their respective paragraphs. The last paragraph concerns US data. We can either keep this and add similar WI/Dane/ Madison data to it or just use the WI/Dane/Madison data only. Thanks)

Risky sexual behavior

Various studies have found that increased alcohol use increases both risky sexual behavior and the risk of sexual assault. Female college students who drink to the point of intoxication are more likely to have multiple sexual partners and lower frequency of condom use than sober female college students.¹¹⁴ Excessive drinking also increases the chance of unplanned pregnancies among white, but not African-American women. White women whose pregnancies were unintended were more likely to have engaged in excessive drinking prior to conception than white women who intended to become pregnant. This finding was not supported for African Americans.¹¹⁵ A national survey of female college students found that 1 in 20 college women experienced rape since the beginning of the school year, and 72% of rapes had occurred when victims were intoxicated. Attending a college with high levels of heavy episodic drinking and belonging to a sorority increases a woman's risk of being raped while intoxicated.¹¹⁶ As men become intoxicated, it enhances the likelihood that they will misperceive the women's refusal to the point where they force sex. Both male and female college students perceived the male perpetrator as less responsible if intoxicated than if he were sober.¹¹⁷

Academic & Work Performance

Academic Performance

National and longitudinal studies with large sample sizes have found that excessive drinking predicts lower college GPA. In a national survey 3.3% of students reported that alcohol use impacted their academic performance.¹¹⁸ Interaction with faculty is associated with high levels of student achievement and satisfaction; students at research universities who engaged in frequent, heavy drinking were found to have the least amount of interaction with faculty.¹¹⁹ However, studies that have looked at these measures over a short period of time (i.e. beginning of semester and end of it) have not found significant effects or the effects of excessive drinking on academic performance.^{120,121} This may be because a short-term measure may include new students, new to binge drinking who may not do so frequently, or may not yet attribute any issues with their academic performance to excessive alcohol use.

Work Performance

The data demonstrating connections between alcohol use and work performance point in mixed directions; some finding weak or no relationship between alcohol consumption (during non-work hours) and work performance.¹²² Others raise questions about a clear linear relationship between off-the-job alcohol consumption and work performance.¹²³ Several studies have shown a U-shaped pattern, in which moderate /social drinkers had significantly more

positive job and life attitudes and generally better psychological health than either abstainers or heavy drinkers.^{124,125}

Although it has been estimated that lost productivity is the primary social cost of harmful drinking^{126,127} costing the U.S. \$134 billion in 1998,¹²⁸ alcohol impairment at work can put both the drinker and coworkers at greater risk of injury, particularly in workplaces where heavy machinery is involved.^{129,130} It has been estimated that 20%–25% of workplace accidents are alcohol related.¹³¹ Moreover, much of the problem results not from drinking on the job but from drinking outside the workplace. 9.23% of people report coming to work hung over, and the effects of coming to work in this state may include falling asleep at work, lower output, poor work quality, conflicts with supervisors and coworkers, and injuries.^{129,132} Employees who are not alcohol dependent but occasionally drink too much on a work night or drink during a work lunch account for 60% of all alcohol-related work performance problems.¹³³ Work reports revealed that heavier drinkers were more likely to score lower on self-direction, conflict avoidance, and interpersonal relations at work.¹³⁴

APPENDIX B: Crime Data

Some notes on methods:

- Calls for Service data cover the years 2009-2012. Offense data covers January 1st 2010 through December 3, 2012.
- Of the Fall days between 2009-2012
 - 67% of the days were weekdays
 - 17% were football weekends
 - 16% were other weekends
- All Offense or Call for Services data with an incident address of one of the neighborhood's two major hospitals were omitted, as the cases could have come from anywhere in the city. This is a conservative approach that may underestimate incidents. However, including these data would strongly overestimate the incidents, particularly those related to overdose, detox, mental illness, injuries, and violent crimes.

Calls for Service Crime Data Definitions	
Property Crimes	Damaged property complaint, car accidents with property damage* and car accidents on private property*
Theft	Residential and non-residential burglary, armed and strong-armed robbery*, retail theft, car theft, thefts of other vehicles and bicycles, theft from vehicles, and other thefts
Disorderly conduct and disturbance	Disturbance calls and noise complaints
Car accidents and OMVWI	Driving while intoxicated*, hit and runs*, accidents with injuries*, accidents with property damage*, and accidents on private property*
Violent Crimes	Battery, Aggravated Battery, Sexual Assault and Rape, Domestic/Family Troubles, Fight Calls (calls to the police about observed fights)
Overdose and conveyance to detox/mental health centers	Overdose investigations, conveyance / commitment (to detox and mental health centers)
Accidents/Injuries	Injured persons, Hit and Runs*, car accidents with injuries*
Alcohol Specific	Intoxicated persons, Liquor Law Investigations, and operating vehicles while intoxicated.*
Note: Calls for Service incidents with *s are included in more than one category.	

Offense Crime Data Definitions	
Property Crimes	Leaves some physical damage to neighborhood property. Includes damage, arson, graffiti, depositing human waste, dumping trash, car accidents with property damage* and car accidents on private property*
Theft	Residential and non-residential burglary, robbery*, armed robbery*, retail theft, car theft, thefts of other vehicles and bicycles, purse-snatching and pick-pocketing, entry into and theft from vehicles, thefts from building, and other thefts
Disorderly conduct and disturbance	Noise and disturbance calls, trespassing, resisting arrest/obstructing an officer, obstructing a sidewalk, stairway, or entrance, disorderly conduct, indecent exposure, noise violations, and annoying phone calls.
Car accidents and DWI	This category includes driving while intoxicated, but also includes all other traffic crimes and accidents. Hit and Runs, accidents with injuries, accidents with property damage, and accidents on private property
Violent Crimes	Battery, Aggravated Battery, Sexual Assault and Rape, Domestic/Family Troubles, Fight Calls (calls to the police about observed fights)
Alcohol Specific	Intoxicated persons, Liquor Law Investigations, procuring or furnishing alcohol to underage persons, underage drinking, and operating vehicles while intoxicated.*
Note: Offense incidents with *s are included in more than one category.	

Calls for Service: Number of Incidents by Season					
	Fall	Winter	Spring	Summer	Total
Property	246	172	197	189	804
Theft	294	151	201	223	869
Noise/Disorder	316	106	288	219	929
Driving	392	194	225	212	1023
Violent Crime	100	67	114	90	371
Detox	80	33	39	39	191
Injuries/Accidents	84	69	74	72	299
Alcohol Specific	202	6	31	16	255

Calls For Service: Number of Incidents				
	Weekdays	Football Weekend	Other Weekends	Total
Property	149	65	32	246
theft	203	42	49	294
Noise/disorder	83	169	64	316
Traffic	141	63	26	230
Violent crime	34	33	33	100
OD/Detox	26	40	14	80
Injuries/Accident	43	28	13	84
Alcohol specific	15	181	16	212

Calls for Service Data: Percent Difference From Expected			
	Game Weekends	Other Weekends	Weekdays
Property	55%	-17%	-10%
Theft	-16%	6%	3%
Noise / Disorder	215%	29%	-61%
Driving	61%	-28%	-9%
Violent Crime	94%	110%	-49%
OD/Detox	194%	11%	-52%
Injuries/Accident	96%	-2%	-24%
Alcohol	402%	-52%	-89%

Offense Data: Number of Incidents by Season					
	Fall 3 seasons	Winter 2 seasons	Spring 3 season	Summer 3 season	Total 11 season
Property	74	34	44	39	191
Theft	167	53	115	131	466
Noise/Disorder	80	31	51	52	214
Driving	13	5	15	19	52
Violent Crime	285	39	84	85	493
Alcohol Specific	223	9	39	51	322
These data include 3 seasons of Falls, Springs, and Summers and 2 seasons of Winters					

Offense Data: Number of Incidents				
	Weekdays	Football Weekend	Other Weekends	Total
Property	22	33	19	74
theft	116	23	28	167
Noise/disorder	26	44	10	80
Traffic	3	2	8	13
Violent crime	25	17	28	70
OD/Detox	N/A	N/A	N/A	N/A
Injuries/Accident	N/A	N/A	N/A	N/A
Alcohol specific	34	157	32	223

Offense Data: Percent Difference from Expected			
	Game Weekends	Other Weekends	Weekdays
Property	166%	61%	-56%
Theft	-18%	5%	3%
Noise / Disorder	228%	-22%	-52%
Driving	-8%	286%	-66%
Violent Crime	45%	151%	-47%
Alcohol	319%	-10%	-77%

APPENDIX C: Greenbush Vilas Revitalization Project Partners

Greenbush-Vilas Community Advisory Committee

Frank Alfano - Italian Workmen's Club
Gary Brown – UW Madison
Sherrie Carter - South Metropolitan Planning Council
Dave Cieslewicz – Project Director
Ald. Sue Ellingson – 13th District
Natalie Erdman – City of Madison Community Development Authority
County Supervisor Chuck Erickson- 13th District
Dan Foley, Executive Director – Neighborhood House
David Gevers – The Vilas Neighborhood Assoc.
Dan Guerra – Communities United
Jason Ilstrup – Hotel RED
Steve King – St. Mary's Hospital
Dan Lee – First Weber Foundation
Dave Porterfield - Movin' Out
Orange Schroeder – The Monroe St. Business Association
Caitlin Siefert, President – The Greenbush NA
Kevin Snitchler – Meriter Hospital

Funding Partners

Meriter Foundation
St. Mary's
UW Madison
Madison Gas & Electric
Park Bank
First Weber Foundation

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