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Allison Prince
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202-721-1106 Tel



December 28, 2012

Lloyd Jordan, Chairperson
D.C. Board of Zoning Adjustment
Office of Zoning
441 4th Street, NW, Suite 200 South
Washington, DC 20001

Re: BZA Case No. 18486: for Special Exception Relief for Property Located at Georgetown Park Mall (Square 1200, Lot 868)

Dear Chairperson Jordan:

The Applicant in the above-referenced case hereby supplements the application it filed on October 16, 2012 with the following information:

- Resumes of expert witnesses and proposed testimony (Exhibit A);
- A traffic analysis prepared by Gorove Slade (Exhibit B); and
- An acoustic analysis prepared by Cerami Associates (Exhibit C). The analysis includes recommendations for mitigating any potential impacts of noise generated by the proposed restaurant. The Applicant is committed to implementing each of the recommendations provided in the attached letter.

Please feel free to contact the undersigned if you have any questions regarding this application and the attached materials; otherwise, we look forward to presenting this application at the public hearing.

Sincerely,

Allison Prince ICK

Allison C. Prince

Christine A. Roddy

goulston&storrs
counsellors at law

I hereby certify that a copy of this application was sent to the following addresses on December 28, 2012:

Maxine Brown-Roberts
Office of Planning
1100 4th Street, SW
Suite E-650
Washington, DC 20024

Bryon White
District Department of Transportation
55 M Street, SE
Suite 400
Washington, DC 20003

ANC 2E
3265 S Street, NW
Washington, DC 20007

William Starrels, SMD
1045 31st Street NW #502
Washington, DC 20007

Christine Roddy

cerami
& associates

## Education
University of Canterbury, New Zealand
BACHELOR OF MECHANICAL ENGINEERING

## Licenses / Certifications
Licensed Professional Engineer
VIRGINIA

Certified Communications Technology Specialist

US Green Building Council
LEED ACCREDITED PROFESSIONAL - BUILDING DESIGN & CONSTRUCTION

## Affiliations
InfoComm International

**Chris J. Pollock, PE, CTS, LEED AP ED+C** ASSOCIATE PRINCIPAL

Chris is a Design Leader in the field of acoustics, noise and vibration consulting, with over 15 years of experience in HVAC noise control, vibration isolation, footfall noise control, sound insulation, and noise consent applications in all areas of construction from healthcare, to K-12, higher education to corporate and government facilities.

Chris is an experienced Project Manager, developing technical capabilities and procedures for all aspects of the built environment and of low voltage systems for Audiovisual/ Telecommunications/ IT / Security Systems and Medical Equipment planning. An expert on understanding how to assess client needs, he works closely with all team members to develop criteria at the early stages of design with a focus on providing effective solutions.

A frequent presenter, Chris' recent topics include "Best Practices for Acoustical & Technology Design for Broadcast Spaces" and " The impact of high noise level sites with specific review of office, residence and hospitality projects and their solutions".

## Projects
Chris' recent project experience includes:

Proskauer
NEW YORK, NY

WilmerHale
Telepresence Room
WASHINGTON, DC

Latham & Watkins
Conference Center
Upgrade*
WASHINGTON, DC

Corporate Executive
Board*
ROSSLYN, VA

Hogan & Hartson*
MCLEAN, VA
BALTIMORE, MD

AARP Headquarters*
WASHINGTON, DC

IMF Board Room &
Training Center*
WASHINGTON, DC

JP Morgan Chase
Training Center*
JERSEY CITY, NJ

CWPS Training and
Client Demo Rooms*
RESTON, VA

DLA Piper Cafeteria*
RESTON, VA

Bloomberg World
Headquarters*
NEW YORK NY

National Public Radio
Headquarters*
WASHINGTON, DC

Legg Mason
Headquarters*
BALTIMORE, MD

Dirksen and Russel
Senate Office Building*
WASHINGTON, DC

University of VA South
and East Chiller Plant*
CHARLOTTESVILLE, VA

Marriott Residence Inn*
ALEXANDRIA VA

Hotel Washington*
WASHINGTON, DC

** projects completed with previous f*

# Daniel B. VanPelt, P.E., PTOE

## Vice President and Principal

Mr. VanPelt's wide range of traffic and transportation project experience includes: traffic impact studies, site access and circulation planning, functional parking lot and garage design, parking demand analysis, corridor studies, campus master planning, major data collection efforts, loading dock design, intersection improvement design, signal design, signing and pavement marking design, and expert witness testimony. He has worked for public, private and institutional sector clients throughout the United States and has worked internationally on projects in the United Arab Emirates, China, Venezuela, Brazil and Mexico.

### Education

Master of Science in Civil Engineering, *Washington University in St. Louis*
Bachelor of Science in Civil Engineering, *Washington University in St. Louis*
Bachelor of Science in Physics, *Bethany College*

### Professional Registrations

Licensed Professional Engineer – Virginia #0402 037160, Pennsylvania #PE074759, Maryland #36413, District of Columbia #PE904669, and West Virginia #18288; Registered Professional Traffic Operations Engineer

Registered Professional Traffic Operations Engineer

### Professional Associations

Institute of Transportation Engineers (ITE); Society for College and University Planning (SCUP); International Council of Shopping Centers (ICSC); American Society of Civil Engineers (ASCE); NAIOP Northern Virginia; and Lambda Alpha International Land Economics Honor Society

### Publications

ITE webinar presenter for "Multi-Modal School Site Planning, Design and Transportation for Primary Grades K-8." 2010
"Lots to Learn; Don't let parking and traffic problems sink your entertainment business," Casino Journal, December 2003, p. 28.

### Representative Experience

#### CAMPUSES AND MASTER PLANS

Mr. VanPelt has developed transportation master plans, demand management plans, construction management plans, circulation studies, and parking studies for a number of universities, schools and institutions including the American University Campus Plan, Washington, DC; Georgetown University Campus Plan, Washington, DC; Howard University Campus Plan, Washington, DC; Indiana University Campus Plan, Bloomington, IN; IUPUI Campus Plan, Indianapolis, IN; Calhoun Street East-Waterfront Area Plan, Charleston, SC; US Capitol Complex Master Plan, Washington, DC; The Capitol Visitor Center, Washington, DC; Cannon House Office Building Renewal, Washington, DC; Princeton University Campus Framework Plan, Princeton, NJ; Yale University Medical District, New Haven, CT; Hartford Strategic Framework, Hartford, CT; The National Cathedral Campus Plan, Washington, DC; The Bullis School, Potomac, MD; Alexandria Country Day School, Alexandria, VA; and The Phillips Collection, Washington, DC.

#### MIXED-USE AND COMMERCIAL DEVELOPMENTS

Mr. VanPelt has prepared traffic studies, parking analysis, site access planning, loading access design, site circulation planning and signal designs for projects including: Monument Ballpark, Washington, DC; Monaco I/II and Sanremo, Jersey City, NJ; Children's Museum and Air Rights Buildings at L'Enfant Plaza, Washington, DC; Shamrock Business Center, Painesville, OH; Auyare I/II and Hacienda Santa Cruz, Caracas, Venezuela; Oaklawn in

Leesburg, Leesburg, VA; Dubai International Finance Center, Dubai, UAE; 5th & K Streets NW, Washington, DC; and Journal Square Centre, Jersey City, NJ.

**HOSPITALITY AND ENTERTAINMENT**

Mr. VanPelt has worked on numerous hospitality and entertainment sites throughout North and South America. Projects include the St. Regis Mohawk Casino, Monticello, NY; Turning Stone Casino Resort, Verona, NY; Gaylord Texan, Grapevine, TX; Gaylord National Harbor, Prince George's County, MD; Mohegan Sun Casino Resort, Uncasville, CT; W Mexico City, Polanco, Mexico D.F.; Meskwaki Casino, Tama, IA; Marriott Orlando World Center, Orlando, FL; the Connecticut Convention Center, Hartford, CT; and Pikes Peak International Raceway, Colorado Springs, CO.

**SHOPPING CENTERS AND MALLS**

Mr. VanPelt has prepared traffic, parking, site access and site circulation studies for grocery stores, lifestyle centers, power centers, regional centers and urban retail including the Citadel Harris Teeter, Washington, DC; Mondawmin Mall Redevelopment, Baltimore, MD; DC USA Target and Best Buy, Washington, DC; Trotwood Town Center, Trotwood, OH; The Avenue Viera, Viera, FL; The Avenue Carriage Crossing, Collierville, TN; Woodbridge Center, Woodbridge, New Jersey; Kendall Town Center, Miami, FL; Summerlin Mall, Summerlin, NV; Chicago Premium Outlets, Aurora, IL; North Georgia Premium Outlets, Dawsonville, GA; Park Meadows Mall, Denver, CO; Owings Mills Mall, Owings Mills, MD; and Kittery Premium Outlets, Kittery, ME.

**OFFICE AND RESIDENTIAL DEVELOPMENTS**

Mr. VanPelt has worked on office and residential development projects involving site planning and access planning as well as the design of both traffic signals and parking garage facilities. Projects have included 1700 K Street NW, Washington, DC; City View Condos, Washington, DC; Westmoreland House at Huntington Metro, Alexandria, VA; Balmoral Residential, Prince William County, VA; Red Cedar, Loudoun County, VA.

**PARKING STUDIES AND PARKING GARAGE DESIGN**

Mr. VanPelt has performed parking needs studies and garage planning for projects such as the Dubai International Finance Center, Dubai, UAE; National Cathedral Bus Garage Design, Washington, DC; City View Condos, Hyattsville, MD; ER One Washington Hospital Center, Washington, DC; and Ronald Reagan National Airport, Arlington, VA.

***TRAFFIC IMPACT STUDIES***

Mr. VanPelt has conducted numerous traffic impact studies in support of rezoning, subdivision, site plan approvals and EIS applications for large and small residential, commercial, office retail and institutional developments. His work includes experience in Pennsylvania, Ohio, Virginia, Maryland, New Jersey, New York, Connecticut and the District of Columbia.

**DATA COLLECTION STUDIES**

Mr. VanPelt has conducted large-scale data collection efforts including traffic counts, pedestrian counts, vehicle classification counts, speed studies and origin-destination studies. Examples include managing a long-term data collection program for the New Jersey DOT in northern New Jersey and supervising data collection efforts at both the Lincoln and Holland Tunnels for the Port Authority of New York and New Jersey.

**MEDICAL CAMPUS AND OFFICES**

Mr. VanPelt has provided transportation master planning and traffic studies for a variety of medical facilities, including The Ohio State University Medical Center in Columbus, OH; Indiana University-Purdue University, Indianapolis/Clarian Medical Center in Indianapolis, IN; Sibley Hospital in Washington, DC; Reston Hospital in Reston, VA; and the ER-1 scalable prototype major emergency facility at Washington Hospital Center in Washington, DC.

**EXHIBIT A**

**OUTLINE OF TESTIMONY OF DALE SCHWARTZ, PINSTRIPES**

I. Description of the Operations

A. Restaurant with bowling and bocce

B. Revenues, space, staff associated with restaurant v. bowling

C. Hours of operation

D. Noise

II. Satisfaction of Special Exception Standard

A. Consistent with Zoning Regulations and Map

B. No detrimental effect on neighboring properties

III. Conclusion

**EXHIBIT A**

**OUTLINE OF TESTIMONY OF SCOTT MILSOM, APPLICANT**

I. Description of Property

II. Overview of Renovation of Georgetown Park Mall

III. Community Outreach

A. Meetings with ANC Commissioners and condominium owners

IV. Conclusion

**EXHIBIT A**

**OUTLINE OF TESTIMONY OF DANIEL VAN PELT, TRAFFIC CONSULTANT**

I. Traffic impacts of proposed use

II. Comparison between proposed use and matter-of-right proposal

III. Conclusion

B

**EXHIBIT A**

**OUTLINE OF TESTIMONY OF CHRIS POLLOCK, NOISE CONSULTANT**

I. Noise Generated by Proposed Use

II. Mitigating Noise and Vibrations Generated

III. Recommendations and Anticipated Results

IV. Conclusion

GOROVE / SLADE

1140 Connecticut Avenue NW
Suite 600
Washington, DC 20036
202.296.8625

## TECHNICAL MEMORANDUM

| | | |
|---|---|---|
| To: | Bryon White, P.E. | DDOT - PPSA |
| | Jamie Henson | DDOT - PPSA |
| Cc: | Scott Milsom | Vornado Realty Trust |
| | Allison Prince | Goulston & Storrs |
| | Christine Roddy | Goulston & Storrs |
| From: | Emily J. Dalphy | |
| | Robert B. Schiesel, P.E. | |
| | Daniel B. VanPelt, P.E., PTOE | |
| Date: | December 13, 2012 | |

Subject: Georgetown Park Mall Transportation Statement for BZA Special Exception

### *Executive Summary*

This memorandum presents the findings of a transportation statement performed in conjunction with the Special Exception Relief application for Square 1200, Lot 868 at Georgetown Park Mall, as submitted by AG Georgetown Park Holdings I LLC. The application for Special Exception Relief for the proposed development falls under Section 908.1 to permit a bowling alley in a W-1/W-2 Zone District at 3222 M Street NW. The proposed development consists of constructing a bowling alley as part of a new restaurant in the Georgetown Park Mall. The development is not proposing any changes to the access or parking as part of the application.

The purpose of this memorandum is to assess the potential impacts of the proposed development on the surrounding network, based on the existing uses approved by-right in the W-1/W-2 Zone District. The memorandum follows the scoping form approved by DDOT on November 20, 2012. This memorandum concludes the following:

- The approved by-right land uses for the Georgetown Park Mall include restaurant and retail uses;
- The Special Exception Relief is being sought for a restaurant including bowling lanes;
- Bowling lanes generate significantly fewer trips than both retail and restaurant uses; and
- In comparison to the approved by-right land uses of retail and restaurant, the proposed restaurant with bowling lanes will not have a negative impact on the roadway network due to the significantly lower number of potential trips generated.

### *Program and Zoning Comparison*

The existing Georgetown Park Mall is located in the Waterfront District of Washington, DC, zoned W-1 and W-2. The W-1 and W-2 Districts permit moderate to medium height and density, respectfully, and encourage diversity of compatible land uses including combinations of residential, office, retail, recreational, arts and culture, and other miscellaneous uses. The Districts are intended to be relatively self-contained by supplying a variety of housing, employment, and recreational

opportunities to serve the many different needs of a single population and to reduce the amount of vehicular trips generated by each of the uses.

The existing approved by-right land uses of the Georgetown Park Mall, based on the W-1 and W-2 District zoning, include hotel or inn; office; private club, restaurant, fast food establishment, prepared food shop, or food delivery service, provided it does not include a drive-through; private or public theater; recreational building or use; and retail sales or services. Currently, the Georgetown Park Mall includes primarily retail and restaurant uses, as well as a recreational sports facility.

The development program proposed by AG Georgetown Parking Holdings, LLC includes constructing a bowling alley as part of a new restaurant in the Georgetown Park Mall. According to Section 908.1 of the District Zoning Code, a Special Exception Relief must be sought in order to permit a bowling alley in a W-1 or W-2 District. The proposed restaurant will include a kitchen, seating for approximately 100 patrons, 5 bocce courts, and 12 bowling lanes. The 12 bowling lanes will comprise approximately 20% of the total square footage of the restaurant, and the revenue gained from the bowling lanes will be a small percentage (approximately 10%) of the restaurant's total revenue.

In order to determine if the bowling lanes would generate negative transportation impacts, the amount of transportation activity generated by bowling lanes was compared to the typical by-right uses. Figure 1 shows a comparison of the trip generation rates for the retail, restaurant, and bowling alley land uses for the afternoon peak hour. The trip generation rates shown are based on the average rates given for each land use from the Institute of Transportation Engineers (ITE) *Trip Generation*, 9th Edition. The afternoon peak hour is examined because it is the only time period for which data is available for bowling alleys based on trips generated per thousand square feet.

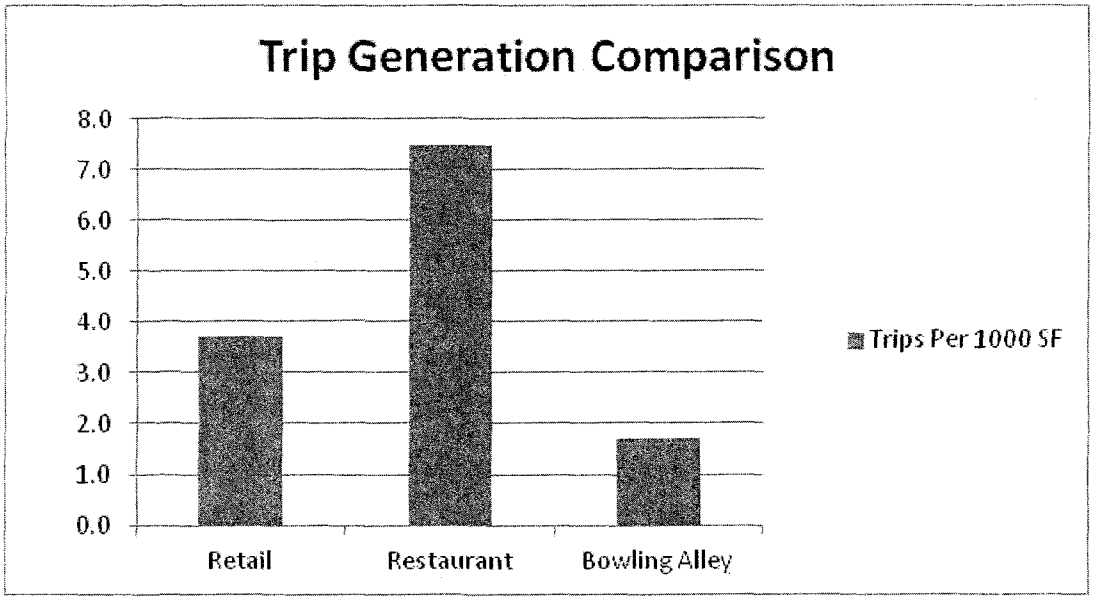


**Figure 1: Trip Generation Comparison**[1]

Based on the comparison of the existing approved uses (restaurant and retail), the proposed restaurant with bowling lanes will generate significantly fewer trips. This is due to the nature of the uses, as well as the space required per

[1] Trip generation rates are based on ITE's *Trip Generation Manual*, 9th Edition for Shopping Center (LU 820), Quality Restaurant (LU 931), and Bowling Alley (LU 437). Rates are shown for the afternoon peak period of adjacent street traffic.

patron/customer. Retail uses generate a significant number of trips per square foot of space (approximately 3.71 trips per 1,000 square feet during the weekday afternoon peak hour). Consequently, restaurant uses generate about twice as many trips per square foot as retail uses (approximately 7.49 trips per 1,000 square feet during the weekday afternoon peak hour) due to the high customer turnover of restaurant uses, as well as the compact nature of restaurant seating spaces. In contrast, bowling alleys only generate approximately 1.71 trips per 1,000 square feet during the afternoon peak hour due to the open space required for bowling lanes. The transportation impact of replacing retail/restaurant uses with bowling lanes is, if anything, beneficial, since on a square-foot basis fewer people occupy bowling space than retail/restaurant space, and thus they generate less transportation demand.

Table 1 shows a comparison of the base number of trips generated by the development, based on the trip generation rates outlined previously. For the proposed development, the trip generation comparison shown in Table 1 is based on the amount of the development that is not by-right (6,950 square feet).

**Table 1: Trip Generation Comparison**

| Land Use | Size | Trip Generation Rate[2] (Trips Per 1,000 SF) | Trips Generated |
|---|---|---|---|
| Retail | | 3.71 | 26 |
| Restaurant | 6,950 square feet | 7.49 | 52 |
| Bowling Alley | | 1.71 | 12 |

Following the base trip generation, the number of trips generated by the non by-right portion of the development was split into each mode: transit (consisting of both Metrorail and Metrobus/DC Circulator), walking/biking, and vehicle. The mode split estimates for the proposed Georgetown Park Mall development were estimated based on survey information contained in WMATA's *2005 Development-Related Ridership Survey*. The mode splits for retail/restaurant and for entertainment sites were obtained from the average mode shares at all sites surveyed, as shown in Table 2. The average rates were used because no location-specific data is available in the vicinity of the proposed development.

**Table 2: Mode Split Assumptions**

| Land Use | Mode Split | | |
|---|---|---|---|
| | *Vehicle* | *Transit* | *Walk/Bike* |
| Retail/Restaurant | 36% | 37% | 27% |
| Entertainment | 57% | 32% | 11% |

Based on the mode split estimates shown in Table 2, Table 3 shows the resulting calculations by mode. As shown in the table, the bowling lanes will generate fewer trips by mode, even though the bowling lanes may have a higher vehicular mode split than the retail/restaurant uses due to the significantly lower trip generation rate.

[2] Trip generation rates are based on ITE's *Trip Generation Manual*, 9th Edition for Shopping Center (LU 820), Quality Restaurant (LU 931), and Bowling Alley (LU 437). Rates are shown for the afternoon peak period of adjacent street traffic.

**Table 3: Trip Generation for Proposed Development by Mode**

| Land-Use | Trip Generation by Mode | | | | | | Total Trips |
|---|---|---|---|---|---|---|---|
| | *Vehicle* | | *Transit* | | *Walk/Bike* | | |
| | % Split | Trips | % Split | Trips | % Split | Trips | |
| Retail | 36% | 9 | 37% | 10 | 27% | 7 | **26** |
| Restaurant | 36% | 19 | 37% | 19 | 27% | 14 | **52** |
| Bowling Alley | 57% | 7 | 32% | 4 | 11% | 1 | **12** |

## *Conclusions*

Therefore, based on the comparison between the approved and intended uses of the Georgetown Park Mall (restaurant and retail) and the proposed land uses that fall under the Special Exception Relief application, the proposed development is not expected to have a detrimental impact to the surrounding roadway network. The proposed restaurant and bowling alley will generate significantly fewer trips than could be potentially generated based on the approved retail and restaurant land uses. In fact, based on the significantly lower trip generation potential, the proposed restaurant and bowling alley will reduce the potential transportation demand at Georgetown Park Mall.

C

cerami
& associates



November 26, 2012
*Revised December 18, 2012*

Mr. Scott Milsom
*Vice President*
Vornado Development
Vornado Realty Trust
888 Seventh Avenue
New York, NY 10019

Ref: Georgetown Mall – Pinstripes Restaurant and Bowling Alley
C&A Job # 20635

Dear Mr. Milsom;

Pursuant to your request, we have performed an initial acoustical review of the proposed Pinstripes Restaurant and Bowling Alley in the Georgetown Mall in Washington, DC. We understand that 12 lanes of bowling will be located at the Wisconsin Level, with Restaurant Banquet Rooms to be located one level up at the M Street level. Our review is provided as an initial acoustical review of these two spaces to assist in evaluating the feasibility of the proposed fit-out and we suggest that further study is needed in a number of areas.

## 1.0 Acoustic Criteria

Condominium residences exist one level above the M Street Level, two levels above the proposed bowling alley location. Given the nature of the adjacencies, we recommend that both the bowling and banquet spaces be fully isolated. It is possible that retail spaces directly adjacent to the bowling alley may experience some audible sound transmission from the bowling alley and associated pin-setting machines operating.

## 2.0 Base Building Performance / Potential Noise Levels

We have reviewed the existing space, which is currently under construction, where infill slab construction includes a steel reinforced concrete slab, which we understand is 8" thick with thicker sections at column capitals.

We have made noise measurements of a bowling alley for a previous project where noise levels varied throughout the facility. Noise from bowling balls hitting pins was clearly the loudest source of noise at 105 dBA+. At 20 feet from the pins, the noise level from ball/pin impact reduced to approximately 90 dBA. Bowling balls hitting the wood floor of the alley was approximately 85 dBA at 10 feet. Background music was measured at approximately 75 dBA when the bowling alley was only partially occupied, and 85 dBA when the bowling alley was busy and the music level was turned up. We used this typical data described above in our analysis to develop initial recommendations for noise isolation. An actual survey of a recent similar Brunswick installation will be conducted prior to the finalization of exact isolation methods.

Building structure can transmit vibration and noise both horizontally and vertically. Therefore, isolated structures at the floor, columns and ceiling will provide the best possible isolation. We have provided the following recommendations as an initial design approach (pending this further study).

## 3.0 Banquet Room Recommendations

### 3.1 Ceiling

A sound barrier ceiling is recommended to control airborne noise transmission through the residential level floor slab, notably from music, crowd and activity sound. The banquet room ceiling should consist of three (3) staggered layers of 5/8" gypsum board suspended with combination spring/neoprene isolation hangers such as Kinetics ICC, sized for a 1 inch static deflection, with approximately 6 inches batt insulation laid atop the gypsum board and an airspace between the insulation and underside of the slab above. Penetrations through the sound barrier ceiling should be minimized.

### 3.2 Partitions and column enclosures

The top and bottom stud runner should be fixed to the structure using resilient connections similar to Kinetics Noise Control "IPRB" at the top and "Wallmat" at the bottom. The columns and exterior building walls within the Banquet rooms should be enclosed with studs and two layers of 5/8" gypsum board, with resilient connections top and bottom as with the perimeter partitions. Any details associated with operable partitions must be carefully evaluated.

### 3.3 Speaker system

We understand that these rooms may have background music for events. The volume limiting system recommended for the Bowling alley below is an installed unit that can be set based on the system in the banquet room. If the system changes regularly, this volume limiting unit may not be a reliable approach. We recommend that further investigation is needed to evaluate the best approach to limiting the sound output of the systems in the room.

### 3.4 Slab edge and building envelope

Sound can potentially transmit up to the residences via the window openings, door openings to the perimeter and the slab edge. The partitions will cover the exterior walls, and the column enclosures will wrap the columns, however, there should also be control at the windows, doors and openings to the perimeter to control noise. These may include a secondary interior layer or window to limit the sound from directly impacting the exterior window or door systems.

## 4.0 Bowling Alley

There are two primary acoustic concerns associated with the bowling alley. The first is airborne noise transmission through the ceiling from music and the noise of ball/pin impacts and pin-setting machine operation. Secondly, is the structure-borne transmission of bowling ball/floor and ball/pin impacts and vibration from the pin setting machines.

cerami & associates

### 4.1 Floor system

We recommend that the floor supporting the lanes and the pin setting room be completely isolated. Based on the results of the survey of an existing bowling alley, this may include isolation on neoprene pads or a floating concrete floor system.

### 4.2 Ceiling

A sound barrier ceiling is recommended to control airborne noise transmission through the M Street Level floor slab, notably from the noise of ball/lane and ball/pin impacts. The sound barrier ceiling within the pin setting room, and for 10 feet out into the lanes, should consist of three (3) staggered layers of 5/8" gypsum board suspended with combination spring/neoprene isolation hangers such as Kinetics ICC, sized for a 1 inch static deflection, with batt insulation laid atop the gypsum board, and an airspace between the insulation and underside of the slab above. We suggest that an acoustically absorptive material on the surface of the drywall ceiling would be beneficial, and recommend a performance level of NRC 0.85 similar to 2" thick fiberglass.

For the remainder of the bowling lanes, lounge, and associated spaces, the sound barrier ceiling, we understand that ceiling constraints may require the thinnest available ceiling composition. Though slighter lower in performance than a standard spring ceiling hanger, we recommend the low profile option would include two (2) layers of staggered 5/8" gypsum board suspended on Kinetics Noise Control KSCH hangers, sized for a 1 inch static deflection, with approximately 2 inches batt insulation laid atop the gypsum board.

Penetrations through the sound barrier ceiling should be minimized. Where penetrations occur, the gypsum board should be cut to a ½ inch tolerance and the gap backfilled with batt insulation and sealed with non-hardening caulk. We also recommend that speakers are not hung from ceilings. It would be preferable to have wall mounted or floor speakers, but if it is necessary that they are hung, the speakers should be supported with combination spring/neoprene hangers such as Kinetics ICC sized for a 1" deflection based on speaker weight.

### 4.3 Partitions and Column Enclosures

The partitions surrounding the bowling area and pin-setting room may require upgraded construction in order to minimize transmission of the airborne noise associated with the bowling activity. We recommend that these partitions consist of one row of solid 8" thick CMU and one row of independent studs with three layers of 5/8" thick gypsum board and full depth batt insulation. The studs at the Pinstripes side of the partition should not contact the floating floor and should be isolated via a 1" thick perimeter isolation board. The top and bottom stud runner should be fixed to the structure using resilient connections similar to Kinetics Noise Control "IPRB" at the top and "Wallmat" at the bottom.

The columns within the bowling area should be enclosed with studs and two layers of 5/8" gypsum board, with resilient connections top and bottom as with the perimeter partitions. These should be built on top of the base slab and have a perimeter

isolation board between partition and the floating floor of the lanes.

4.4 *Sound System*
We recommend that the sound system within the Bowling Alley and associated lounge spaces be provided with a volume/ loudness limiter system similar to the Aphex "Dominator 722"

This completes our comments at this time. If you have any questions or comments, please do not hesitate to contact us.

Very truly yours,

Christopher J. Pollock, PE, CTS, LEED AP
Associate Principal

cc: Stephen Lindsey / Cerami & Associates
Adam Paiva / Cerami & Associates