



November 18, 2014

Mr. Timothy R Hart, AIA, LEED AP  
Canal5studio  
One Canal Plaza, Suite 888  
Portland, Maine 04101

Subject: Proposal for Trip Generation Determination  
Restaurant at Canal Plaza Hotel  
Portland, Maine

Dear Tim:

Gorrill-Palmer Consulting Engineers Inc. has completed an estimate of the potential trip generation for a bar and grill restaurant at the Canal Plaza hotel located at the corner of Union and Fore Streets in Portland, Maine. It is our understanding that you are now proposing to change the use of and expand the 740 feet of retail to 1,600 sf bar and grill including a mezzanine with seating for up to 50 people. It is our understanding the proposed bar and grill will be high quality serving both the hotel and public and cater to customers where patrons are anticipated to spend an hour or more. The purpose of this assessment is to determine whether the additional traffic generated by this project will cause the overall development to exceed 99 trip ends, the threshold at which a traffic movement permit is required. The approved project included a 124 room hotel and 740 square feet of retail space at the street level.

**Permitted Traffic**

The trip generation estimate which was submitted as part of the site plan application for the hotel is summarized below:

**Trip Generation Summary – Exiting Project**

Land Use	AM Peak	PM Peak	Sat Peak
740 s.f. Retail Development	1	3	4
124 Room Hotel	69	73	89
<b>Total</b>	<b>70</b>	<b>76</b>	<b>93</b>

These trip generation calculations and assumptions are to be considered highly conservative and many trips to the proposed site may be pedestrian or transit-oriented. Foot traffic in the area is high and is only anticipated to increase.

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### **Trip Generation Estimate for Grill and Bar**

The 7<sup>th</sup> edition of the Trip Generation Manual published by the Institute of Transportation Engineers (ITE), which is the latest version accepted by the MaineDOT, contains several Land Use Codes (LUC) that should be reviewed in developing an estimate of trip generation for the proposed project which are summarized below:

**Trip Generation Sources**

Land Use	AM Peak	Weekday PM Peak	Sat Peak
1600 s.f. Quality Restaurant (LUC 931-4 to 6 PM)	closed	12	17
50 Seat Quality Restaurant (LUC 931-4 to 6 PM)	closed	13	17
1600 sf Drinking Place (LUC 925, 4 to 6 PM)	closed	18	26*
• Not available in ITE; used restaurant ratio			

Gorrill Palmer anticipates that the larger majority of patrons will be from the hotel and from walk-ins that are already in the Old Port for other reasons. The 7<sup>th</sup> edition of the Trip Generation Manual does not contain any information on pass-by and primary trips for a quality restaurant. However limited data is available in the 9<sup>th</sup> edition which shows approximately 40% of the traffic is primary in nature with the rest of the traffic already in the area. It is likely the large majority of these trips are pedestrians and not generated directly by the proposed project. In our opinion, the percentage of primary trips is likely even lower in the old port area, however, we have used the 40% estimate to be conservative. Applying this percentage to the highest estimate in the chart above yields an estimate of 7 and 10 trip ends in the weekday PM and Saturday peak hours respectively.

### **Combined Trip Generation for the Project**

The overall trip generation for the project with the change from 740 sf of retail space to a 1600 sf bar and grill is summarized in the table below:

**Trip Generation Summary – Overall Project**

Land Use	AM Peak	PM Peak	Sat Peak
740 s.f. Retail Development	-1	-3	-4
124 Room Hotel	69	73	89
Bar and Grill	NA	7	10
<b>Total</b>	<b>68</b>	<b>77</b>	<b>95</b>

In our opinion this estimate is conservative since it assumes that the hotel and bar will peak at the same time which is likely not the case.

### **Closing**

Based on the methodology presented above, it is Gorrill-Palmer Consulting Engineers, Inc. opinion that the proposed conversion of the approved 740 sf retail area to a 1600 sf bar and grill with 50 seats will not

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cause the trips generated by the project to exceed the 99 trip ends requiring a permit. However, this opinion should be reviewed with the City prior to undertaking the project since it is close to the permitting threshold and therefore could require a Traffic Movement Permit if they do not accept our methodology.

Please contact us with any questions.

Sincerely,

Gorrill-Palmer Consulting Engineers, Inc.



Thomas L Gorrill, P.E., PTOE  
Principal

**Table 5.20**  
**Pass-By Trips and Diverted Linked Trips**  
**Weekday, p.m. Peak Period**

**Land Use 912 — Drive-in Bank**

SIZE (1,000 SQ. FT. GFA)	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PRIMARY TRIP (%)	NON-PASS- BY TRIP (%)	DIVERTED LINKED TRIP (%)	PASS-BY TRIP (%)	ADJ. STREET PEAK HOUR VOLUME	SOURCE
16.0	Overland Park, KS	Dec. 1988	20	4:30-5:30 p.m.	55	—	30	15	n/a	n/a
3.3	Louisville area, KY	Jul. 1993	n/a	4:00-6:00 p.m.	22	—	30	48	2,570	Barton-Aschman Assoc.
3.4	Louisville area, KY	Jul. 1993	n/a	4:00-6:00 p.m.	22	—	14	64	2,266	Barton-Aschman Assoc.
3.4	Louisville area, KY	Jul. 1993	75	4:00-6:00 p.m.	11	—	32	57	1,955	Barton-Aschman Assoc.
3.5	Louisville area, KY	Jun. 1993	53	4:00-6:00 p.m.	32	—	21	47	2,785	Barton-Aschman Assoc.
6.4	Louisville area, KY	Jun. 1993	66	4:00-6:00 p.m.	20	—	27	53	2,610	Barton-Aschman Assoc.

Average Pass-By Trip Percentage: 47

**Table 5.21**  
**Pass-By Trips and Diverted Linked Trips**  
**Weekday, p.m. Peak Period**

**Land Use 931 — Quality Restaurant**

SEATS	SIZE (1,000 SQ. FT. GFA)	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PRIMARY TRIP (%)	NON-PASS- BY TRIP (%)	DIVERTED LINKED TRIP (%)	PASS-BY TRIP (%)	ADJ. STREET PEAK HOUR VOLUME	SOURCE
240	12	Louisville area, KY	Jul. 1993	38	4:00-6:00 p.m.	36	—	38	26	4,145	Barton-Aschman Assoc.
n/a	8	Orlando, FL	1992	168	4:00-8:00 p.m.	—	55	—	45	n/a	TPD Inc.
n/a	8.8	Orlando, FL	1992	84	2:00-6:00 p.m.	40	—	16	44	n/a	TPD Inc.
n/a	6.5	Orlando, FL	1995	173	2:00-6:00 p.m.	—	38	—	62	n/a	TPD Inc.

Average Pass-By Trip Percentage: 44

# Drinking Place (936)

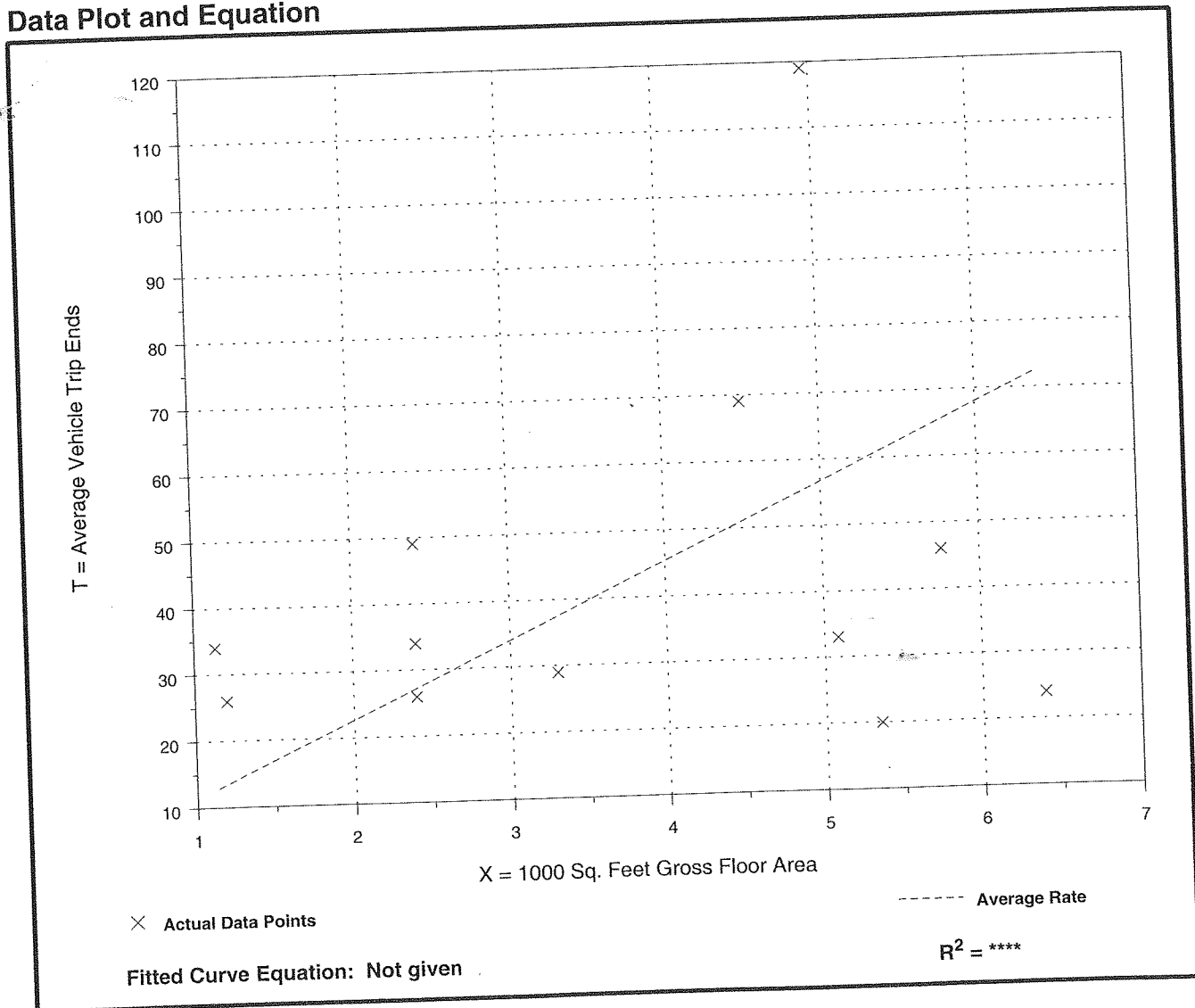
Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Floor Area  
On a: Weekday,  
Peak Hour of Adjacent Street Traffic,  
One Hour Between 4 and 6 p.m.

Number of Studies: 12  
Average 1000 Sq. Feet GFA: 4  
Directional Distribution: 66% entering, 34% exiting

## Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
11.34	3.73 - 29.98	8.04

## Data Plot and Equation



# Quality Restaurant (931)

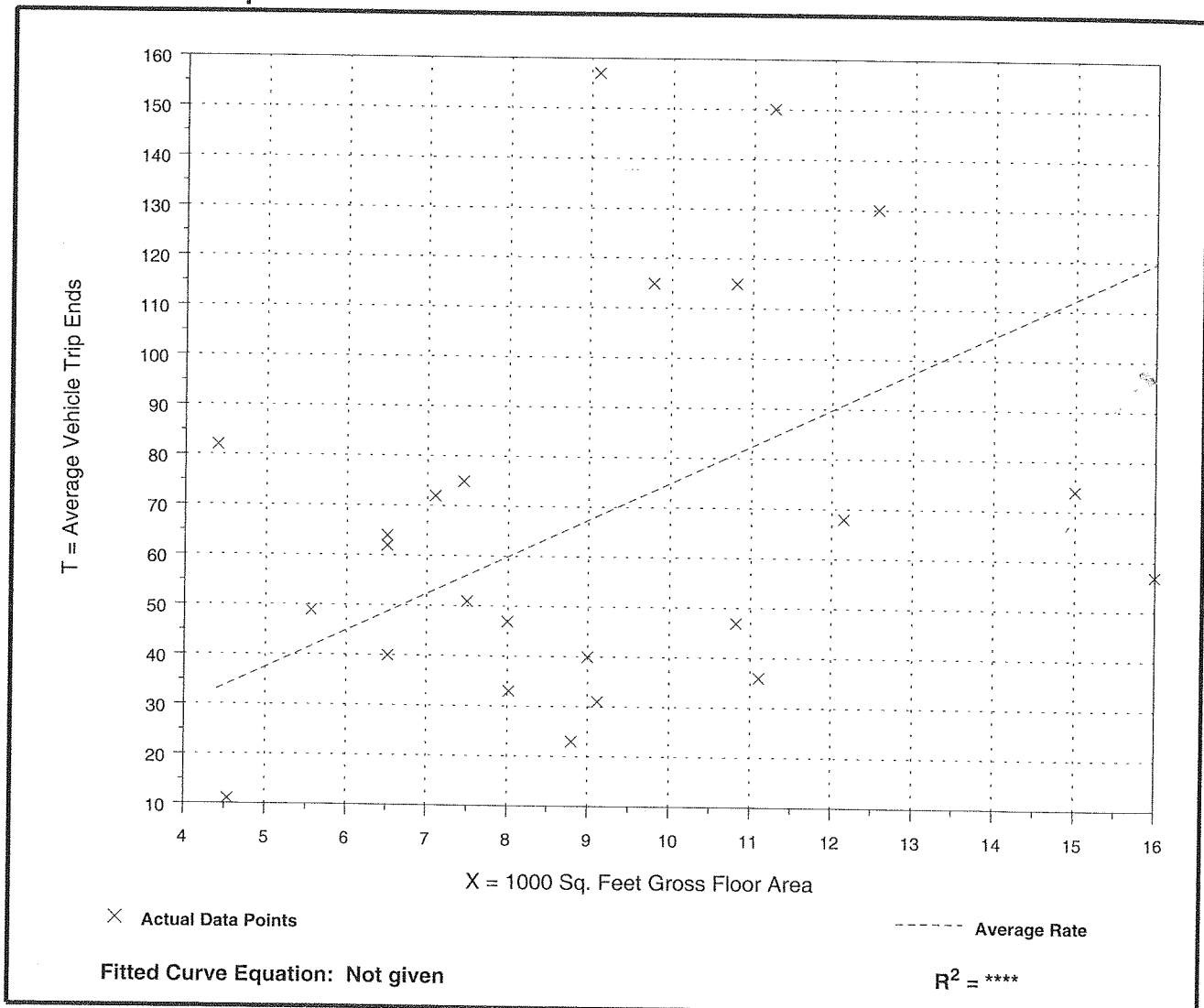
Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Floor Area  
 On a: Weekday,  
 Peak Hour of Adjacent Street Traffic,  
 One Hour Between 4 and 6 p.m.

Number of Studies: 24  
 Average 1000 Sq. Feet GFA: 9  
 Directional Distribution: 67% entering, 33% exiting

## Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
7.49	2.42 - 18.64	4.89

## Data Plot and Equation



# Quality Restaurant (931)

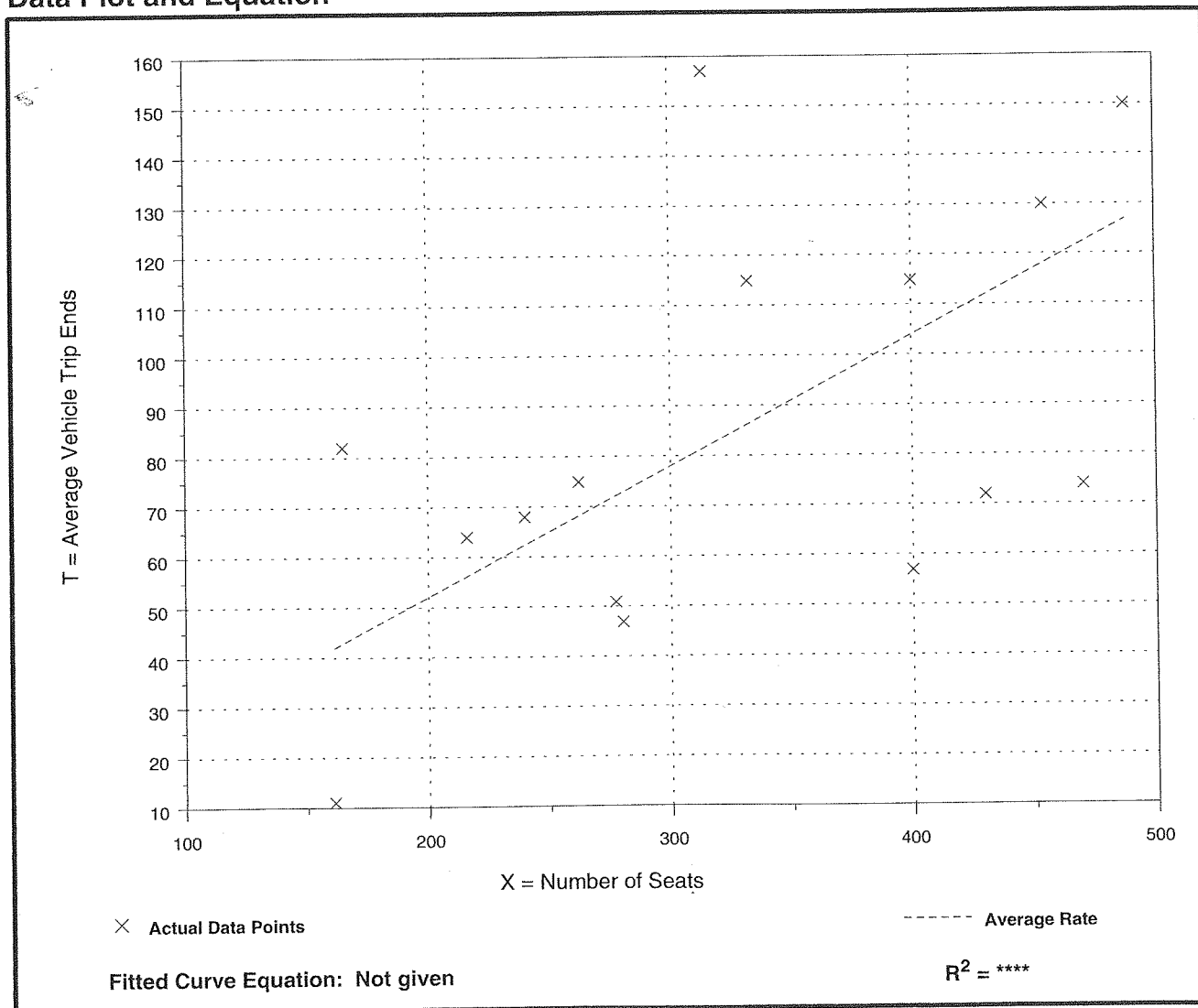
Average Vehicle Trip Ends vs: Seats  
On a: Weekday,  
Peak Hour of Adjacent Street Traffic,  
One Hour Between 4 and 6 p.m.

Number of Studies: 15  
Average Number of Seats: 326  
Directional Distribution: 67% entering, 33% exiting

## Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
0.26	0.07 - 0.50	0.52

## Data Plot and Equation



# Quality Restaurant (931)

Average Vehicle Trip Ends vs: Seats  
On a: Saturday,  
Peak Hour of Generator

Number of Studies: 11  
Average Number of Seats: 308  
Directional Distribution: 59% entering, 41% exiting

## Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
0.33	0.16 - 0.50	0.58

## Data Plot and Equation

