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**PARKING ANALYSIS FOR
A PROPOSED EXPANSION
TO THE BEAN BUILDING AT
MAINE MEDICAL CENTER
PORTLAND, MAINE**

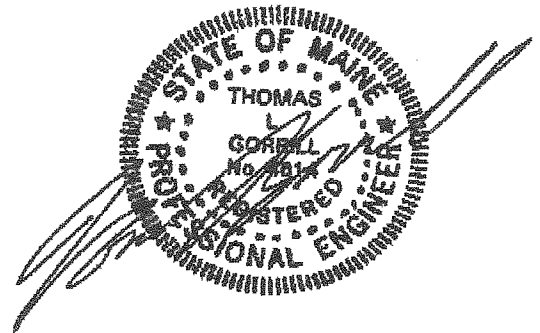
Prepared for

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June 1996



PARKING ANALYSIS

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EXECUTIVE SUMMARY

The following Executive Summary is prepared for the reader's convenience but is not intended to be a substitute for reading the full report.

DeLuca-Hoffman Associates, Inc. has been retained by Maine Medical Center (MMC) to complete a parking analysis for the hospital off Bramhall Street in Portland. Maine Medical Center is planning to add a fifth and sixth floor to the Bean Building and the total square footage of the addition will be approximately 67,560. The project is expected to be completed by the end of 1999. The purpose of this study is to evaluate the impact that this addition will have on the parking demand, to determine if the existing supply is adequate to meet this demand, and to make recommendations as required to increase the supply or manage the demand.

The following is a summary of the major findings of the parking study:

1. The existing parking supply for the hospital is approximately 2,383 spaces including the spaces in the Gateway garage which is owned by Maine Medical Center.
2. The proposed construction will reduce the number of available spaces by 20.
3. The proposed expansion to the hospital will not increase the number of beds at the facility. The purpose of the expansion is to reduce overcrowding at the site. The total licensed number of beds at Maine Medical Center is expected to be reduced from 606 to 520 by 1999.
4. As part of Maine Medical Center's effort to reduce overcrowding at the hospital, a total of approximately 240 patients and employees will be relocated to the new ambulatory care facility currently under construction on Route 1 in Scarborough. Another 80 employees will be relocated to the lab on John Roberts Road. The relocation of these 320 employees and patients will reduce the estimated parking demand by 244 spaces.
5. The current parking demand at MMC is estimated to be 2158 spaces. With the relocations of 320 employees and patients the estimated parking demand should be reduced to approximately 1914 spaces or 81% of the supply.
6. Maine Medical Center has adopted a parking demand management strategy in response to parking concerns in the area. MMC owns the Gateway Garage on Cumberland Avenue and currently shuttles approximately 200 people to and from MMC. In addition, MMC also has a ride share program to encourage people to carpool to work. This program includes a guaranteed ride home program. Preferential parking is offered to participants in the program as an incentive, however, the number of participants is limited. It is DeLuca-Hoffman Associates, Inc.'s recommendation that MMC increase their effort to involve people in the ride

share program through additional promotion. All employees should be encouraged to be entered into the ride share database.

Based upon these findings, it is the opinion of DeLuca-Hoffman Associates, Inc. that the planned addition to the Bean Building will have no negative impact on the parking demand nor significantly decrease the current supply. Further, with the relocation of employees and patients to the Scarborough and John Roberts Road facilities, and the expansion of the ride share program, the parking demand by MMC should be reduced significantly.

I. INTRODUCTION

Maine Medical Center (MMC) has adopted a Master Facilities Plan. This plan includes significant construction and renovation to ease overcrowding at the hospital. The construction components of the plan include the following:

- Construction of two floors on the Bean Building; one for medical/surgical beds and one for pediatric beds.
- New construction and renovation of the emergency department in order to expand treatment areas, improve patient flow, and relocate CT scanning and ultrasound units from the Radiology Department to this area.

This construction is planned to be completed by the end of 1999 and will add approximately 67,560 s.f. to the hospital. Approximately 20 parking spaces will be lost as a result of the project.

The City of Portland's principal traffic engineer has requested that MMC complete an evaluation of parking supply and demand in response to concerns voiced by residents of the Western Promenade over the availability of on-street parking. The purpose of this study is to evaluate the impact that this addition will have on the parking demand, to determine if the existing supply is adequate to meet this demand, and to make recommendations as required to increase the supply or manage the demand.

II. PARKING SUPPLY

Currently, based on data furnished by MMC, there are approximately 2,383 off-street parking spaces for the hospital. The locations of these spaces are shown on Figure 1 following this page and are summarized in Table 1 below:

Location	Number of Available Spaces
Ramp Parking Garage	1,276
Congress Street, Parking Lot by Sportsman's Grill	52
Admitting	9
Visitors Parking Lot	315
MRI	11 ?
In back of Gilman Street	15
Emergency	30
Oncology	10.9
Gateway Garage (Not Shown in Figure 1)	650
Diabetes Center	15
Total Available Spaces	2,383

Approximately 20 spaces will be lost to accommodate the emergency room expansion which will reduce the off-street parking supply to 2,363 spaces.

The Gateway Garage listed as a source of parking in Table 1 above is located on Cumberland Street and is owned by MMC. The garage has approximately 650 spaces and currently 350 are reserved for MMC employees and the remaining 300 are currently open to the general public. These additional 300 spaces could be dedicated to MMC use if it becomes necessary. MMC purchased the garage in 1992 to relieve parking congestion and they operate a shuttle from the garage to the hospital.

III. PARKING DEMAND

DeLuca-Hoffman Associates, Inc. utilized information from MMC's certificate of need for the project which was filed with the State's Department of Human Resources and information on parking generation contained in professional publications to estimate the existing parking demand and the demand upon completion of the project.

- Existing demand based upon the Institute of Transportation's (ITE) Publication, *Parking Generation, 2nd Edition*:

Land Use Code 610 of this publication contains parking generation rates based upon 20 studies of hospitals around the nation in suburban areas. The facilities surveyed had between 124 and 1,450 beds with an average number of beds of 406. Based upon this data, a fitted curve equation was developed to forecast parking requirements on a weekday based upon the number of beds at the facility.

Maine Medical Center is currently licensed for a total of 606 beds at their Bramhall Street Campus. Applying the fitted curve equation for 606 beds yields a parking requirement of 989 spaces. This appears to be low based on experience at MMC. The highest rate observed in the national study was 2.96 spaces per bed. Applying this rate to 606 beds yields 1,794 spaces required based on the existing bed count.

- Existing demand based upon methodology contained in the 2nd edition of the *Dimensions of Parking* published by the *Urban Land Institute*.

This publication states the following:

"A sound approach in the determination of parking requirements for industrial facilities, or for that matter, any type of facility with employees, is the following:

- ◆ *Multiply number of employees for the shift under consideration by 85 percent to account for normal absences that occur because of travel, illness, and vacations. The product is the average number of employees who would be present on a given day during a given shift.*
- ◆ *Multiply the number of employees by the percent arriving by automobile--after deducting the percent arriving by transit, by drop-off, or by walking--to determine the number of persons traveling by automobile.*
- ◆ *Divide the number of persons arriving by automobile by the average automobile occupancy factor to determine the parking requirements. Parking requirements determined in this manner represent those for given shift. Through a similar process, parking for a following shift can be determined and the impact of shift overlap on total parking requirements can thus be identified."*

MMC has the following shifts:

Shift	No. of Employees
1	2,735
2	489
3	524

The parking requirements have been determined based upon the ULI methodology as follows:

Step 1: Multiply number of employees by 0.85 to account for normal absences.

$$0.85 \times 2,735 = 2,325$$

Step 2: Determine number of traveling by automobile.

The Portland Council of Governments provided DeLuca-Hoffman Associates, Inc. with 1990 census data for people who work in the vicinity of the hospital. (Traffic analysis zone 37). Eighty seven percent of the people in the zone work in the health service industry. The data showed that 92 percent use the automobile as their means of travel to work.

$$2,325 \times 0.92 = 2,139 \text{ people travel to work by car}$$

Step 3: Divide the number of persons arriving by automobile by the average automobile occupancy. The census data showed the average vehicle occupancy within the zone to be 1.08 people per car.

$$\frac{2,139}{1.08 \text{ people/car}} = 1,980 = \text{Staff parking demand}$$

The total parking demand for the visitors must be added to the estimated staff parking. The total visitor vehicles on site at any one time are estimated at 364, which is based upon the capacity of the visitors lot, admitting, and emergency lots. This yields a total demand for the hospital of 2,344.

The above analysis shows a total of 2,344 spaces are required for the day shift. For the purpose of estimating overlap in staff parking a similar methodology was applied to the evening shift to yield 354 spaces. The departure of the day shift and arrival of the evening shift is somewhat staggered. Therefore, DeLuca-Hoffman Associates, Inc. has assumed that 50 percent of the evening shift will overlap with the day shift yielding a peak parking demand of 2,521 spaces.

DeLuca-Hoffman Associates, Inc.'s estimate of the total demand has been calculated based upon an average of the two methodologies as follows:

Source	Estimated Parking Demand
ITE	1794
ULI	2521
Average	2158

The estimated demand of 2158 compares to 2363 spaces, or in other words demand is 91 percent of supply. Ideally the demand should be not more than 90 percent of the supply or 2127 vehicles. Thus, the hospital should attempt to reduce the demand by at least 31 spaces.

IV. FUTURE PARKING

The proposed expansion of the hospital will not increase the number of beds at the facility. The purpose of the expansion is to reduce overcrowding in the hospital. The total number of licensed beds at Maine Medical is expected to be reduced from 606 to 520 by 1999 reducing the parking demand to 1,540 using the ITE methodology. In addition, to further reduce overcrowding at the hospital, approximately 240 visitors and employees will be relocated to the new ambulatory care facility currently under construction on Route 1 in Scarborough. Another 80 employees will be relocated to the John Roberts Road. The relocation of these 320 employees and patients is anticipated to reduce the

parking demand to 2,289 applying the ULI methodology previously presented in this study. Averaging the ULI and ITE future parking demand estimates of 1,540 and 2,289 spaces respectively yields 1,914 spaces or 81 % of the supply.

V. PARKING DEMAND MANAGEMENT PROGRAMS

MMC has adopted a parking demand management strategy in response to parking concerns in the area. MMC owns the Gateway Garage and currently shuttles approximately 200 people to and from MMC. An additional 300 spaces are available which are currently being utilized by the general public. These could be dedicated to MMC use if it becomes necessary. In addition, MMC also has a ride share program to encourage people to carpool to work. This program includes a guaranteed ride home program. Preferential parking is offered to participants in the program as an incentive, however, participation in the program is low. DeLuca-Hoffman Associates, Inc. recommends that MMC increase their effort to involve people in the ride share program through additional promotion. The shifting of employees to Scarborough and the ride share program should significantly relieve parking congestion in many areas.

VI. CONCLUSION/RECOMMENDATIONS

Based upon the methodology presented in this report, DeLuca-Hoffman Associates, Inc. has made the following findings:

1. The existing parking supply for the hospital is approximately 2,383 spaces including the spaces in the Gateway garage which is owned by Maine Medical Center.
2. The proposed construction will reduce the number of available spaces by 20.
3. The proposed expansion to the hospital will not increase the number of beds at the facility. The purpose of the expansion is to reduce overcrowding at the site. The total licensed number of beds at Maine Medical Center is expected to be reduced from 606 to 520 by 1999.
4. As part of Maine Medical Center's effort to reduce overcrowding at the hospital, a total of approximately 240 patients and employees will be relocated to the new ambulatory care facility currently under construction on Route 1 in Scarborough. Another 80 employees will be relocated to the lab on John Roberts Road. The relocation of these 320 employees and patients will reduce the estimated parking demand by 244 spaces.
5. The current parking demand at MMC is estimated to be 2158 spaces. With the relocations of 320 employees and patients the estimated parking demand should be reduced to approximately 1914 spaces or 81% of the supply.

6. **Maine Medical Center has adopted a parking demand management strategy in response to parking concerns in the area. MMC owns the Gateway Garage on Cumberland Avenue and currently shuttles approximately 200 people to and from MMC. In addition, MMC also has a ride share program to encourage people to carpool to work. This program includes a guaranteed ride home program. Preferential parking is offered to participants in the program as an incentive, however, the number of participants is limited. It is DeLuca-Hoffman Associates, Inc.'s recommendation that MMC increase their effort to involve people in the ride share program through additional promotion. All employees should be encouraged to be entered into the ride share database.**

Based upon these findings, it is the opinion of DeLuca-Hoffman Associates, Inc. that the planned addition to the Bean Building will have no negative impact on the parking demand nor significantly decrease the current supply. Further, with the relocation of employees and patients to the Scarborough and John Roberts Road facilities, and the expansion of the ride share program, the parking demand by MMC should be reduced significantly.