SEA-TAC INTERNATIONAL AIRPORT HOTEL

Draft Environmental Impact Statement

March 20, 1995

March 20, 1995

To Recipients of this Draft EIS:

Attached for your review is the Draft Environmental Impact Statement (EIS) for the proposed Sea-Tac International Airport Hotel. This Draft EIS has been prepared pursuant to the provisions of the Washington State Environmental Policy Act (SEPA) under Chapter 43.12C Revised Code of Washington (RCW); Chapter 197-11, Washington Administrative Code (WAC); and Resolution 3028, Port of Seattle SEPA Policies and Procedures.

This Draft EIS analyzes the Port of Seattle proposal to lease property to a private hotel operator to construct and operate a hotel at Sea-Tac Airport. The hotel would be located on a 77,000 square-foot site at the northeast end of the Sea-Tac Airport Main Terminal between the "D" Concourse and the airport entry drives. The site is currently occupied by a United Airlines office building. The hotel would be 16 stories tall with 384 guest rooms and would be connected to the airport terminal and parking garage by pedestrian skybridges. The hotel would include 10,000 square feet of meeting rooms and a restaurant and lounge.

The Port encourages your comments on this Draft EIS. Please send your comments to:

Port of Seattle
Attn: Barbara Hinkle
Health, Safety & Environmental Management
P.O. Box 1209
Seattle, WA 98111.

All comments must be received by April 20, 1995.

Sincerely,

W E Brougher

William E. Brougher, P.E.
Director, Aviation Facilities and Maintenance
SEPA Responsible Official

SEA-TAC INTERNATIONAL AIRPORT HOTEL

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Prepared for

PORT OF SEATTLE
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March 1995

FACT SHEET

Name of Proposal

Sea-Tac International Airport Hotel

Proposed Action

The Port of Seattle proposes to lease approximately 77,000 sq. ft. of land at Sea-Tac International Airport for the development by a private hotel operator of a 384 room hotel. The site, currently occupied by a United Airlines administrative office building, is directly adjacent to the main terminal complex (northeast end) and bounded by the "D" Concourse and the airport terminal enplane (upper/ticketing level) drive. The hotel would be connected to both the Main Terminal and the Parking Garage by enclosed overhead walkways. In addition to the guest rooms, the hotel would have 10,000 sq. ft. of meeting space and a restaurant.

Proposal Timing

Site preparation and construction is expected to start in early 1996, with completion and occupancy in mid-1997.

Lead Agency & Proponent

Port of Seattle

SEPA File: #94-14

Responsible Official

William E. Brougher, P.E.
Director, Aviation Facilities and Maintenance

Contact Person

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Seattle, WA 98111

Licenses & Permits Required

City of SeaTac Building Permit
Federal Aviation Administration
Notice of Construction or Alteration (7460-1)

Date of Issue of Draft EIS

March 20, 1995

Dates Comments Due on Draft EIS

April 20, 1995

Mail Comments on Draft EIS to

Barbara Hinkle
Port of Seattle
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1. SUMMARY

1.1 PROJECT GOALS AND OBJECTIVES

The Port of Seattle is a public agency with authority granted by the State of Washington to provide services and facilities to accommodate the transportation of cargo and passengers by air, water, and land, and to provide for services and facilities for the fishing industry. The mission and goals of the Port of Seattle are contained in a document developed in 1989 by the Port Commission together with customers, labor unions, government officials and community and business groups (Port of Seattle, 1989). It states in part, that the Port will strive to:

- Conduct Port business and development in a manner which preserves the quality of life in the region;
- Emphasize productive, cooperative relationships with other ports, governments, unions, private sector entities, and communities;
- Act as a catalyst to create economic benefits and diversity;
- Manage the Port's financial resources and physical assets in order to ensure maximum long-term economic development;

The proposed hotel project is authorized by RCW 14.08.030 which states "the Port may install or maintain airport facilities for the comfort and accommodation of air travelers" and RCW 14.08.120(4) which authorizes the Port to lease property.

The general goals that have guided the concept of developing a hotel at the airport are:

- Pursue opportunities available to the Port for providing service to air travelers.
- Work in partnership with the private sector to create opportunities for economic development.
- Develop projects that will benefit trade, tourism, transportation and employment.
- Develop non-aviation revenue sources to offset landing fees.

The specific objectives to be achieved by the proposed Sea-Tac Airport Hotel are:

- Develop a hotel that is connected to the Sea-Tac Airport terminal and therefore convenient to air travelers and uniquely suited to development by the Port and a private sector partner, experienced in hotel construction and management.

- Develop a hotel in a location that will not be disturbed by major redevelopment in the next 20 years and therefore will not preclude likely future opportunities for a particular property.

- Develop a project managed by a private hotel operator that achieves a desirable rate of return from non-aviation revenue sources.

- Develop an aesthetically pleasing yet functional structure that provides a desirable image for the entry to Sea-Tac Airport.

1.2 PROJECT NEED

The Port of Seattle commissioned a study in January 1993 to determine the need for a hotel at the airport and to assess the ability of such a project to meet the Port's financial goals (Chambers Group, 1993). The study included the following analyses:

- supply and demand analysis of the competitive market

- comparable analysis of airport terminal hotel operations throughout the country

- estimates of future growth in demand for the Sea-Tac area hotel market

- utilization estimates based on the expected competitive position of the hotel in the market

- financial projections for the proposed hotel

The study concluded that the project as proposed at the time was economically feasible. However, at the time of the January 1993 study, the development under consideration included an office component to house Port staff. Space freed up by moving Port staff from the main terminal was to be occupied by airline office functions. The study also considered a smaller hotel at 310 rooms. The office component was dropped from further consideration when, due to economic conditions, airlines expressed little interest in additional office space. In order to evaluate the market for the revised project, an update to the original market study was prepared in November 1994 (Chambers Group, 1994).

The current market study concludes that there is a demand for a high-quality hotel such as the proposal. That conclusion is based in part on the continued strong demand for the two newest such hotels in the Sea-Tac area market. The 1994 hotel occupancy rate is expected to be 75.5 percent which indicates that the market is relatively strong and that the Sea-Tac area is capturing a significant level of the greater Seattle area lodging demand. The November 1994 study estimates that the proposed hotel will achieve an occupancy of 73 percent in 1998, rising to 78 percent in 2001.

The hotel is expected to serve the needs of a significant number of commercial travelers as well as some group travelers and tourists. Commercial travelers currently generate over half the demand in the Sea-Tac competitive hotel market and are expected to be the primary market for the proposed hotel. The meeting space proposed to be included in the hotel is intended to accommodate moderate size group meetings, particularly day meetings, with attendees flying into the area for a short period of time. Tourist demand is expected to consist of travelers with short layovers and missed, delayed or canceled flights.

1.3 PROPOSED ACTION

1.3.1 Proposal

The Port of Seattle is proposing to enter into a lease with a private hotel operator for development of a 384 room hotel on a site immediately adjacent to the northeast end of the existing main terminal at Sea-Tac International Airport (see Figures 1.1 and 1.2). The hotel would contain a restaurant and lounge, fitness center and 10,000 square feet of meeting/banquet space. As conceived, the hotel would rise 16 stories (150 feet) to the FAA elevation limit of 578 feet above mean sea level.

Access to the hotel would be provided in three different ways:

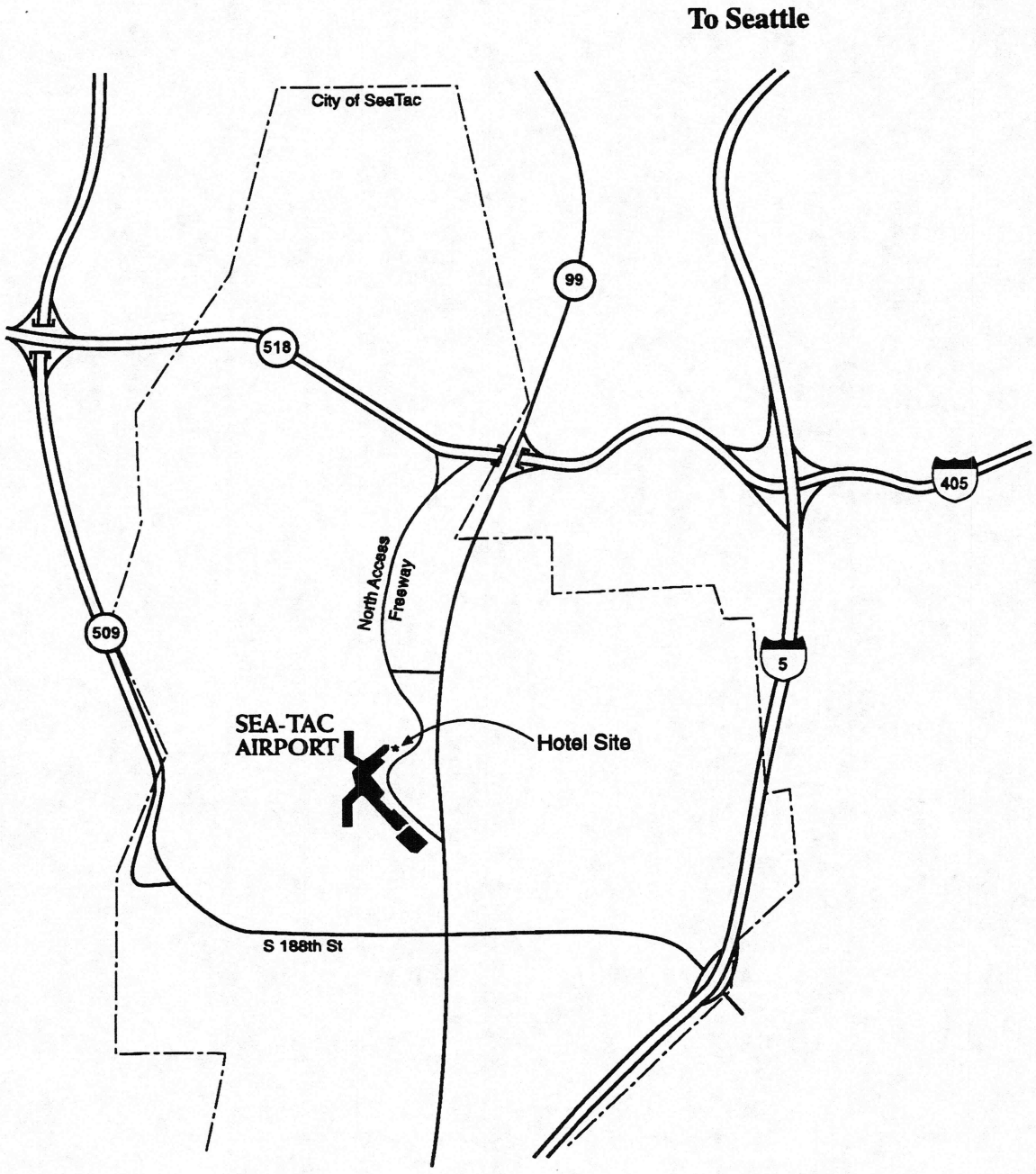
- Directly from the airport terminal enplane (upper/ticketing level) drive (vehicles only),
- From the sixth floor of the parking garage via a covered walkway (pedestrian only) and,
- From the main airport terminal via a covered walkway (pedestrian only).

Up to 15 parking spaces would be provided at ground level next to the hotel and accessible from the enplane drive. These would be short-term to serve check-in, drop-off and pick-up functions for hotel patrons. Seventy dedicated parking spaces would be provided in the existing Port parking garage, with residual parking demand absorbed as available in the garage or on private surface lots around the airport.

A previously scheduled Port project to widen the ramps leading to the enplane drive by two lanes would be carried out in conjunction with the hotel development.

Employment at the hotel is expected to reach 218 full-time equivalent staff at full operation in 1998 with approximately 75% of the employees working a normal day shift.

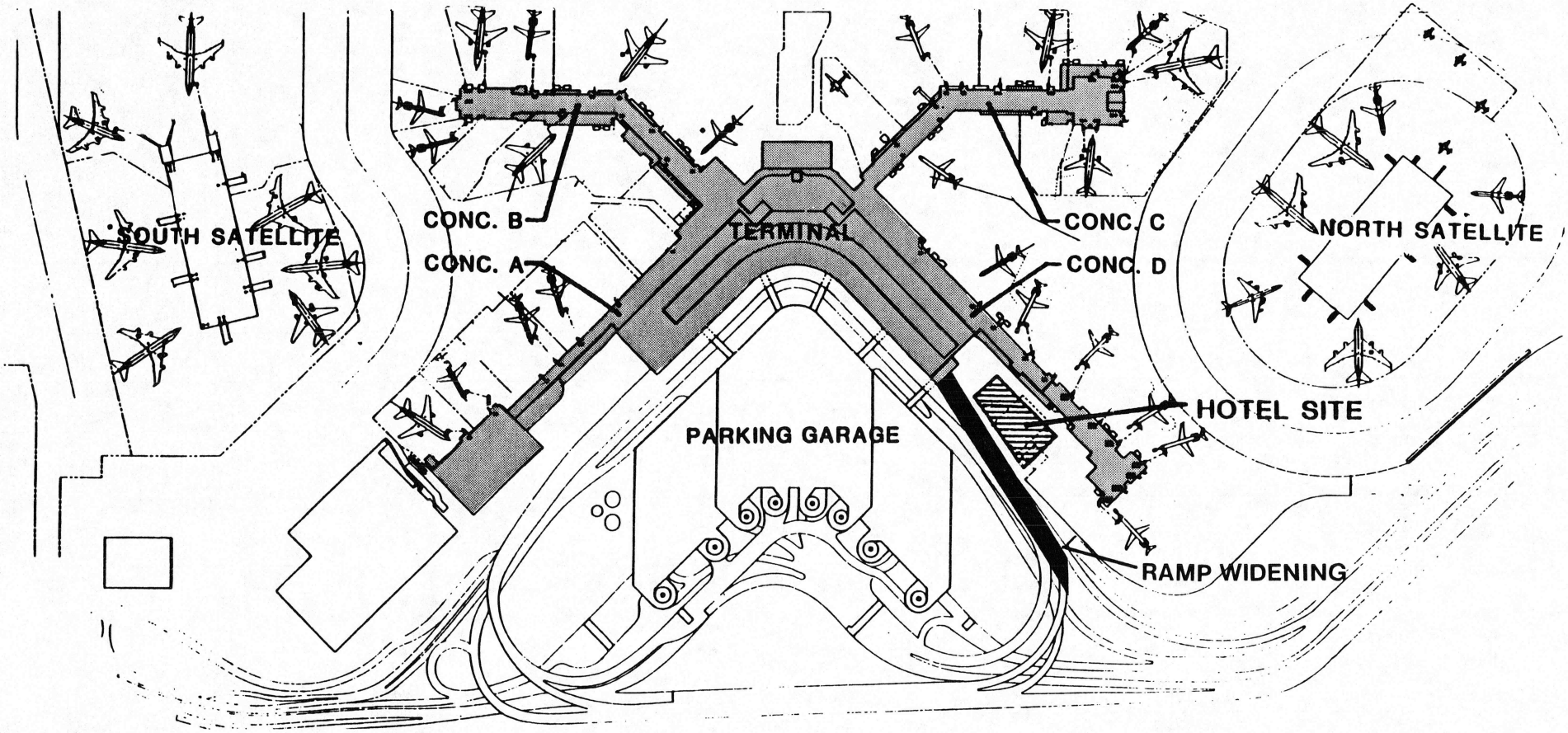
Construction of the proposal would require demolition of an existing 3 story building (circa 1950) that is used by United Airlines for administrative offices. The building is only partially occupied and any displaced offices or storage space would be relocated into the main terminal and other



No Scale

Vicinity Map

Figure 1.1



Hotel Location

Figure 1.2

No Scale

United Airlines facilities at the airport. Site preparation is expected to begin in early 1996 with completion and occupancy in mid-1997.

The Port would be responsible for providing utility service to the site, construction of the skybridges and, as previously planned, widening of the ramps leading to the enplane drive.

1.3.2 Relation to Sea-Tac Airport Master Plan Update

The Port of Seattle is currently preparing a comprehensive Airport Master Plan Update and EIS to guide development of Sea-Tac Airport to the year 2020. The Airport Master Plan Update EIS is anticipated to be issued in late April 1995. The Plan will be implemented based on results of the environmental analysis.

The proposed hotel project is independent of the Master Plan Update and therefore planning and environmental analysis of the proposed hotel are proceeding separately from the Master Plan Update. The hotel is an independent project in that the justification, planning, and development of the hotel do not rely on the content or implementation of the Master Plan Update and would proceed with or without the Master Plan Update. The Master Plan Update is a long-term improvement plan for the airport and it is not necessarily intended to encompass projects that are timed to take advantage of immediate, near-term opportunities or projects that fulfill immediate needs. In the case of the hotel proposal, there is both an existing market opportunity and an interested, major hotel operator.

Development of an office and/or hotel at the proposed site has been planned for several years dating back to the late 1980's and was recommended in the "Terminal Development Program" (Thompson Consultants International, 1992). Based on the previous analysis, and subsequent market studies, the airport hotel is being reviewed regardless of the outcome of the master planning process. For the purposes of preparing the Master Plan Update and analyzing its environmental impacts, the proposed hotel is assumed to be completed in 1997 and in full operation by 1998.

1.4 PROJECT LOCATION AND VICINITY

The proposed hotel would be located at Sea-Tac International Airport (STIA) adjacent to the northeast end of the main terminal. The airport is located approximately 14 miles south of Seattle and 18 miles north of the City of Tacoma (see Figures 1.1 and 1.2). The City of SeaTac surrounds the airport.

1.5 SUMMARY OF ALTERNATIVES

1.5.1 Smaller Scale Hotel Alternative

A smaller scale hotel is described in this EIS for purposes of comparison and has been developed without regard to whether it constitutes a "reasonable alternative" as that term is used in SEPA

Chapter 197-11 WAC. Rather, it is offered to allow an assessment of the relative impacts of a smaller facility.

The smaller scale hotel is based on 268 rooms (versus 384 rooms in the proposed action) and 5000 square feet of banquet/meeting space (versus 10,000 square feet in the proposed action). At this size, the hotel would be 12 floors in height and require 50 dedicated parking spaces in the parking garage. This smaller hotel is similar in size to the average size of hotels in the airport vicinity and contains a minimum practical amount of meeting space.

The hotel would occupy the same approximate footprint and have the same pedestrian bridge connections to the parking garage and main terminal. It would also require the same utility connections and would be accompanied by the previously planned ramp widening.

1.5.2 No Action Alternative

Under the No Action Alternative, the site would continue to be used as it is currently, containing the United Airlines administrative offices and limited surface parking for airport operations. The United Airlines building is on a year-to-year land lease and could be removed along with the parking at any time if a use with a higher economic return were identified or if other more urgent needs were identified.

1.6 SUMMARY OF IMPACTS, MITIGATION MEASURES AND SIGNIFICANT ADVERSE IMPACTS THAT CANNOT BE MITIGATED.

The only area of identified significant adverse environmental impact is associated with traffic and transportation systems. Traffic increases on the enplane (upper/ticketing level) drive could increase by up to 2% during the mid-day due to activity associated with the meeting room and banquet facilities and hotel guests. Parking impacts would also be experienced during those same periods in the airport parking garage. Parking requirements during peak use periods could reach 323 cars, representing 4% of the garage capacity. This would come at certain times (e.g. August, October and Thanksgiving and Christmas holiday periods) when the garage approaches capacity.

Primary mitigation in the proposal aimed at reducing traffic impacts includes:

- signage on airport entry roads directing arriving hotel guests and visitors directly to the parking garage entrance of the hotel rather than the enplane (upper level) drive hotel entrance.

- requirement that hotel staff park in off-site lots and make use of an employee shuttle service.

Other mitigation measures available include:

- Implementation of trip reduction program by the hotel operator for employees.
- Development of an information program by the hotel operator to inform facility users (especially of banquet/meeting facilities) of periods of peak airport/parking activity; identification of alternative parking measures to reduce or eliminate impacts.

SECTION 2. ALTERNATIVES

2. ALTERNATIVES

2.1 DEVELOPMENT OF THE ALTERNATIVES

For several years, the Port of Seattle has considered options for siting an office and/or hotel on Port controlled land at the airport. Several other major international airports have developed hotels/offices within their airport complexes and a similar opportunity was thought to exist at Sea-Tac. Such a facility would provide an opportunity to conveniently serve that component of the traveling public requiring short business stops, extended layovers, or affected by canceled or missed flights.

The prospect of siting a hotel/office at the terminal area in the vicinity of the "D" Concourse was first studied in a report entitled "Proposed Concourse D East Site Development" (Church/Suzuki, 1989). This was followed in 1991 with the preparation of the "Terminal Development Plan" (Thompson Consultants International, 1992) which was initiated in order to identify overall mid-term and long-term needs at the terminal. This study concluded that a hotel/office directly linked to the terminal building of Concourse "D" would be a positive addition to the airport and would not conflict with foreseeable terminal expansion. Furthermore, it would make use of an under-utilized site occupied by the United Airlines administrative building which was also formerly a flight kitchen. This recommendation of the Terminal Development Plan was supported through subsequent reviews and is treated as a completed project in the current master planning process.

In 1991, the Port of Seattle Aviation Business Plan recommended further study of the feasibility of a hotel/office complex at that site. Four major goals were articulated by the Aviation Business Committee for guiding the planning process:

- The responsibility for design and construction of the facility should be assumed by the private sector.
- The project should develop a net revenue source to the Port.
- The Aviation Division should explore options that expand and diversify the Port revenue base and allow revenue from a development such as this to be used for other projects.
- The facility should serve the traveling public, the airlines, the Port of Seattle and other tenants.

In 1992, the Port of Seattle commissioned the Chambers Group to study the market, economic and space planning feasibility of developing a hotel/office at the terminal. The study addressed the following factors:

- Basic market support and financial feasibility for a hotel (office space was not included as this was to be Port of Seattle committed office space).

- Architectural planning, designs and space allocations for the proposed facility.
- Traffic planning and analysis.
- Utility analysis.

The resulting study, "Market/Economic feasibility and Space Planning for a Hotel/Office Building Development at Sea-Tac International Airport" (Chambers Group, January, 1993), indicated that such a facility was both economically feasible and could be physically developed on the site currently occupied by the United Airlines building. With this understanding, the Port of Seattle solicited proposals from perspective hotel/office developers to build a facility with approximately 310 rooms, 5000 square feet of meeting/banquet space and 50,000 square feet of office.

Response to this initial solicitation revealed certain changes would need to be made to the program to obtain acceptable offers. These included:

- Removal of specific limitation on amount of meeting room/banquet space that could be provided.
- Eliminating the office component (due to economic conditions, the airlines had little need for additional office space.

To test the potential market feasibility of the new program, an update of the original Chambers Group study was requested. This study concluded that there was continued strong demand for a high-quality hotel (Chambers Group, August, 1993).

A new solicitation was authorized incorporating these changes and resulted in receipt of at least one proposal determined to be suitable for further consideration. Based on this favorable response, the Port of Seattle began this review process for a new hotel.

2.2 ALTERNATIVES CONSIDERED BUT REJECTED

2.2.1 Occupancy Alternatives

2.2.1.1 Airport (Port of Seattle) Office Building

The Port considered constructing a new building to house all Port of Seattle office functions currently located throughout the terminal building. The size of this facility was estimated at 50,000 square feet with its location being the site of the existing United Airlines building off the northeast end of the main terminal. The space vacated by the Port in the terminal would be absorbed by the various airlines active at Sea-Tac and provide them adequate in-terminal space to better coordinate their operations. A review of site capabilities and market opportunities suggested that the office building should be accomplished in conjunction with a major new hotel on the same site. Therefore, the office-only alternative was dropped from further consideration.

2.2.1.2 Combination Hotel-Airport Office

The Port of Seattle considered and sought proposals from developers in 1993 for a combination hotel/office building on the site of the existing United Airlines building. This facility would have contained 50,000 square feet of office and a 310 room hotel. Again, the office space would have been exclusively for Port of Seattle needs that are currently located throughout the main terminal. The hotel/office complex was to be linked directly to the main terminal and the parking garage by pedestrian skybridges. Other than limited parking available at the hotel entrance for handling check-in procedures, parking needs of the hotel were to be accommodated in the existing parking garage.

Responses to the Port's solicitation were not considered satisfactory due, in part, to the fact that changing economic conditions had eliminated the airlines need for additional office space at the airport. Without this airline need, there would be no aviation related tenant to occupy the vacated Port of Seattle office space in the terminal. The Port determined that interest in the hotel component was strong and that a revised solicitation should be sent focusing only on that element. This led to the development of the proposed action as identified below (Section 2.3.1).

2.2.2. Site Alternatives

2.2.2.1 Parking Garage/International Boulevard

The Port of Seattle considered the possibility of locating the proposed new hotel or hotel/office complex on the site lying between the airport parking garage and International Boulevard. This site is currently vacant although it was used recently as a construction staging area for the parking garage expansion. The site has excellent visibility from International Boulevard and could link to the terminal through the parking garage. However, hotel operators advised that this linkage was too long to be desirable for hotel connectivity. The site is also under consideration for other uses. For example, the site has been identified as a potential location for a RTA light rail transit station. It was determined that ultimate use of this site needed to be considered as part of the new master plan effort for the airport. Once other potential uses for the site are resolved, it is possible that, in the long term, another hotel or hotel/office complex could be integrated into the site development scheme. Because site availability did not meet the existing hotel market opportunity, this site was dropped from further consideration.

2.2.2.2 Concourse A

The Port of Seattle also considered the possibility of locating the proposed new hotel or hotel/office complex on the site lying between the southeast end of the airport main terminal and Concourse A. It could be linked by pedestrian bridges to the main terminal and to the parking garage. The site was dropped from further consideration in the near term because this site will be subject to considerable disruption over the next several years. Specifically, Concourse A has been identified for a major renovation much like occurred at Concourse D and the subsurface portion of the site has been identified as the expansion area for international arrivals. Once timing and the physical extent of major projects are known, it is possible that a second hotel or hotel/office complex could be

integrated into the ultimate design. Because site availability did not meet the existing hotel market opportunity, this site was dropped from further consideration.

2.3 PROPOSED ACTION AND ALTERNATIVES

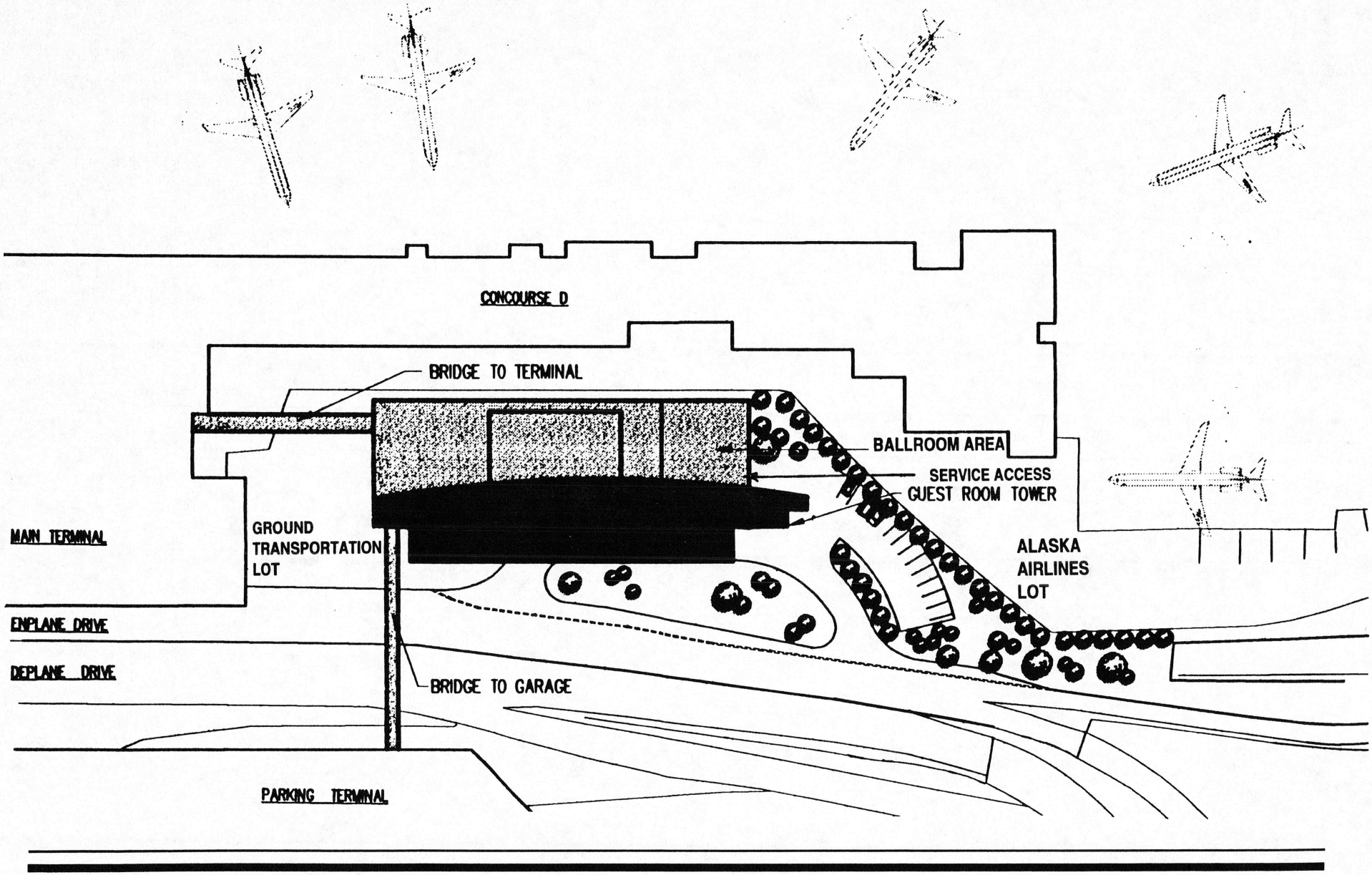
In addition to the proposed action and the No Action alternative, this EIS analyzes a smaller scale hotel at the proposed location for purposes of comparison. It was developed without regard to whether it constitutes a "reasonable alternative" as that term is used in SEPA Chapter 197-11 WAC. Rather, it is offered to allow an assessment of the relative impacts of a smaller facility.

2.3.1 Proposed Action - Preferred (Hotel at the United Bldg. Site)

2.3.1.1 General

The proposed action consists of a 16-story, 384 room hotel containing 10,000 square feet of meeting room/banquet space. The facility would be built on the present site of the United Airlines Building fronting on the enplane (upper/ticketing level) drive of the main terminal. Overhead pedestrian skybridges would connect the hotel to the main terminal and to the sixth floor of the parking garage (see Figure 2.1). The hotel lobby and 15 short term loading spaces for parking would be accessed from the arrival drive. Up to 70 spaces in the parking garage would be designated for hotel parking. Valet service could be available at both the hotel entrance and the sixth floor of the garage. Any additional parking demands for the hotel would be accommodated as available by unassigned space in the garage or off-site parking lots. Other elements of the preferred alternative include:

- Widening per previous scheduling of both approach ramps to the enplane drive by one lane each for a total of two new lanes;
- Providing a 600-foot long drop lane for the hotel as part of the ramp widening;
- Building to a maximum height of 150 feet (elevation 578) to stay within FAA requirements;
- Employment of a full time equivalent staff of 218;
- Parking in remote lots and use of shuttle bus service for hotel employees;
- Limitation of service deliveries to vans during periods of heavy airport usage, with any large deliveries requiring semi-trailers restricted to lower use evening hours;
- Placement of signage on the north access road and internal loop drives directing arriving hotel guests and visitors to the parking garage for access to the hotel.



Site Plan

Figure 2.1

No Scale

The 77,000 square foot site would be committed by long-term lease to a private hotel operator. The private hotel operator would construct and operate the hotel and the associated banquet facilities. The Port of Seattle would be responsible for site preparation including selected utility relocations, the skybridges, widening of the enplane (upper/ticketing level) drive, and provision of basic fire and police response.

It is expected that the hotel would have special user characteristics due to its location and direct connection to the terminal. In particular, approximately 75% of the hotel guests are expected to 'walk-in' from the terminal. These would be predominantly people on short business trips, travellers who have missed or canceled connections, or travellers with connections requiring a stop-over. The hotel would also serve travellers with early morning flights who may wish to arrive the night before. The meeting rooms and banquet facilities would be used by residents and businesses located in the greater Seattle area. It is anticipated that approximately 80% of the ballroom patrons would be local and would drive to the hotel to attend functions in the meeting rooms/banquet facilities.

2.3.1.2 Construction

The hotel would be under construction for 18 months and be built in one phase. The following describes the likely construction program associated with the new hotel at Sea-Tac. Certain aspects are variable and dependent on final design and contractor options.

Area Affected

The construction area will occupy the land between the existing enplane (upper/ticketing level) drive, the north face of the main terminal, the east side of the "D" concourse, and the Alaska Airlines ground equipment service parking lot (see Figure 2.1). The ground transportation lot (area between the terminal and existing United Airlines Building) will only be used intermittently for staging. Additionally, a service road connection to Air Cargo Drive will be considered to facilitate construction access. After construction is complete, surface parking for ground transportation and Alaska Airlines equipment could be restored.

Timing

Project timing involves three distinct activities:

Site Preparation - Site preparation includes those activities that occur after United Airlines removes their structure (United Airlines activity is not part of this action). Specific activities that will occur include backfill with structural grade fill of any depressions left by United demolition, removal of any hard surfaces in the footprint of new hotel, utility relocations as necessary to serve the new hotel site, construction of the service access road linking the site to Air Cargo Road (if deemed desirable) and installation of any required security fencing. Duration for site preparation would be in the range of 4-6 months and would occur after demolition of the United Airlines Building.

Hotel Construction - Hotel construction would include the activities of foundation placement (assumed to be auger cast piles to till layer) and all building and surface improvements needed to achieve a finished facility. Duration for hotel construction would be approximately eighteen months and would immediately follow site preparation.

Ramp Widening - Ramp widening includes all activities necessary to add two additional lanes to the ramps leading to the enplane (upper/ticketing level) drive. Widening could occur from the point where the ramps merge to the north edge of the main terminal. Additional widening in the form of a 'drop lane' serving the hotel arrival/entrance activities would occur in the last 600 feet prior to the north end of the main terminal (essentially the entire area in front of the hotel site). Ramp widening would occur simultaneously with hotel construction.

Excavation

There will be a minimum of excavation associated with the hotel construction. The hotel will not have any floor levels below grade.

Security

The construction site will be secured from public access. The site lies outside of the Airport Operations Area (AOA), a restricted portion of the Airport.

Access

General construction access could either be provided through a security gate onto the Airport Operation Area (AOA) (requiring guards and escorts) or by a temporary road extending to the site from a location between the northern service tunnel entrance and the fuel farm. Under most circumstances, construction access would not be via the terminal drives. One exception would be delivery of certain construction materials that would arrive on semitrailers. They would access the site from the new 'drop lane' constructed as part of a widened enplane drive and would be encouraged to schedule deliveries during non-peak airport operation periods.

2.3.2 Smaller Scale Hotel

The smaller scale hotel alternative is based on a hotel of 268 rooms and 5,000 square feet of banquet/meeting space. The hotel would be 12 floors in height and require approximately 50 dedicated parking spaces in the parking garage. The hotel would occupy the same footprint as the proposed action and have the same pedestrian bridge connections to the parking garage and main terminal.

Other elements of the smaller scale hotel would be the same as those of the proposed action including:

- Widening per previous scheduling of both approach ramps leading to the enplane drive by one lane each for a total of two new lanes;
- Providing a 600-foot long droplane for the hotel as part of the ramp widening;
- Parking in remote lots and use of shuttle bus service for hotel employees;
- Limitation of service deliveries to vans during periods of heavy airport usage and

- Placement of signage on the north access road and internal loop drives directing arriving hotel guests and visitors to the parking garage for access to the hotel.

Operation characteristics of the smaller hotel would be similar to those of the preferred alternative.

2.3.3 No Action

Under the No Action Alternative, the site would continue to be used as it is currently for some undetermined time into the future. It is presently used for United Airlines administrative offices and has limited surface parking for airport operations. The United Airlines Building is on a year-to-year lease and could be removed at either the Port's or United Airlines discretion at any time within provisions of the underlying lease. The No Action Alternative does not preclude the Port from pursuing a project similar to the proposed action at some time in the future given the existence of favorable market conditions and a workable site.

2.4 COMPARISON OF THE ENVIRONMENTAL IMPACTS OF THE ALTERNATIVES

2.4.1 Proposed Action

The only potential significant adverse environmental impact associated with the proposed action results from traffic and parking requirements of the hotel. Traffic impacts could represent up to 2% of peak period volumes on the enplane (upper/ticketing level) drive. Parking demand for the hotel could represent up to 4% of garage capacity during peak periods in August, October and the Thanksgiving and Christmas holiday season.

2.4.2 Smaller Scale Hotel

The smaller scale hotel would have similar impacts to the proposed action but to a lesser degree. Traffic impacts could represent up to 1.5% of the peak volumes on the upper level (ticketing) drive and parking demand could represent up to 2.4% of the garage capacity during peak periods.

2.4.3 No Action

There are no potential significant adverse environmental impacts associated with the no action alternative. However, impacts of redevelopment of this site at a later time may be more or less significant due to cumulative impacts depending on the timing of other airport projects.

SECTION 3. AFFECTED ENVIRONMENT, SIGNIFICANT IMPACTS, MITIGATION MEASURES, UNAVOIDABLE ADVERSE IMPACTS

3. AFFECTED ENVIRONMENT, SIGNIFICANT IMPACTS, MITIGATION MEASURES, UNAVOIDABLE ADVERSE IMPACTS

3.1 INTRODUCTION

Issues of concern identified by the Port or mentioned during the scoping process included air quality, traffic, aesthetics, soils (contamination), water quality, noise, utilities, public services and land use. Each of these issues was evaluated to determine if, in fact, potential significant adverse environmental impacts could be expected. The only area where such impacts were identified was traffic and transportation. Detailed analysis of traffic impacts is discussed below along with an overview of evaluations undertaken on other potential impacts. The Appendices section contains further information on those issues (i.e. air quality, soils, public services, aesthetics, utilities) where additional detailed analysis was necessary to determine if any significant adverse environmental impacts would result from the project. The detailed analysis did not result in identification of any significant adverse environmental impact associated with these issues.

The potential issue of noise was determined to be addressed during the design phase. The proposed hotel would not cause a significant adverse environmental impact on noise levels. In the case of interior noise impacts on hotel guests, design codes would require adequate noise insulation to prevent any adverse noise intrusion into the building. In the case of water quality, the project site is currently paved and the proposed project would not increase runoff from the site. Runoff from the project would be subject to current development regulations which address water quality and quantity.

3.2. AIR QUALITY

An air quality sampling station was set up on the proposed site (attached to the United Airlines Building). The sampler provided continuous data on carbon monoxide (CO) levels during a period from December 1, 1994 through January 31, 1995. A portion of the sampling period was characterized by several days of an atmospheric inversion and high operations and traffic activity at the airport due to holiday travel. Sampling of CO was chosen because CO is emitted in the largest quantity by transportation sources for which an ambient air standard exists.

Modelling of possible impacts based on the sampling data and increased traffic resulting from the hotel indicated that there would not be violations of either the 1 hour or 8 hour CO standards. Appendix A - Air Quality contains detailed information on the sampling and modelling effort. Based on this analysis, it was concluded that the proposed action would not have a significant adverse environmental impact on air quality.

3.3 EARTH

A review of soil and geotechnical information was undertaken for the proposed site. Soil logs generated for various projects near the hotel site were obtained and reviewed. Information was available from construction of the upper level drive, the extension of "D" concourse, and the removal of the United Airlines Hangar. From these logs, it was possible to determine that contamination

from the United Airlines Hangar and old fill placed in a ravine that existed at this location prior to the airfield had been removed and did not affect the hotel site. Appendix B - Earth contains detailed information on soil and geotechnical issues. Based on the analysis, it was concluded that the proposed action would not have a significant adverse, environmental impact on soil or sub-surface conditions.

3.4 LAND USE

RCW 14.08.030 and RCW 14.08.120(4) enable the Port of Seattle to make land available for, and pursue development of airport facilities for the comfort and accommodation of air travellers. The proposed hotel is also an acceptable use on this site from the Federal Aviation Administration regulatory perspective because it meets all necessary height limits and has the required separation from airport operations areas. The proposed hotel is consistent with existing surrounding uses and is a permitted use on airport land by the City of SeaTac under existing zoning. With the above noted consistency with existing codes and regulations, it was determined that the proposed action would not have significant adverse environmental impacts on land use. The proposed action was not subjected to further land use analysis.

3.5 TRANSPORTATION AND TRAFFIC

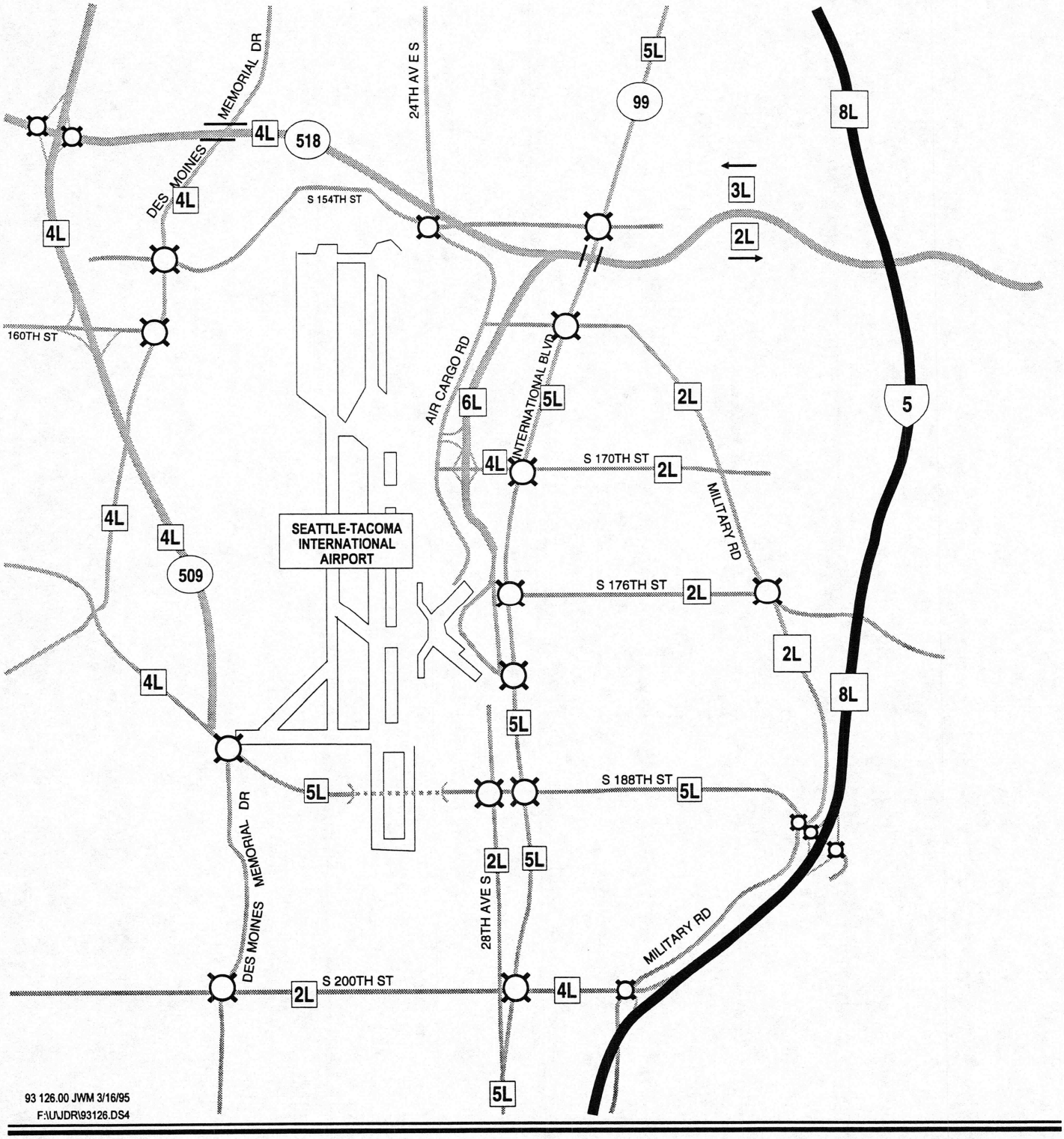
3.5.1 Affected Environment

The proposed hotel would affect traffic access and circulation volumes in the immediate airport vicinity. It would also impact parking demand at the airport and in its vicinity. To a minor degree, it may also impact traffic safety in the airport vicinity. This section documents existing conditions for these elements of the affected environment, and future (2000) conditions without the project.

3.5.1.1 Existing Conditions

The existing arterial street system serving Sea-Tac Airport and its vicinity is illustrated on Figure 3.1. Primary airport access is provided by its 6-lane divided access expressway from the SR-518 freeway. SR-518 is an east-west freeway extending from I-405 at I-5 to the north-south SR-509 freeway from downtown Seattle to the City of SeaTac. The airport north access expressway south of its S.170th Street interchange accommodates nearly 70 percent of all airport terminal traffic access volumes.

Secondary access to the Sea-Tac Airport terminal is provided from International Boulevard (SR-99). International Boulevard is currently a 5-lane principal arterial street through the City of SeaTac. The Sea-Tac Airport terminal access is currently located at about S. 180th Street. South 170th Street also provides local access to the airport terminal drives, to its air cargo facility area, and to off-site parking facilities north of the terminal. Airport access from I-5 south and from the Kent valley area is provided via S. 188th Street and the SR-99 access point; S. 200th Street provides alternate airport south access from I-5 via SR-99.



4L - NUMBER OF LANES

SIGNALIZED INTERSECTION

No Scale

Existing Arterial System

Figure 3.1

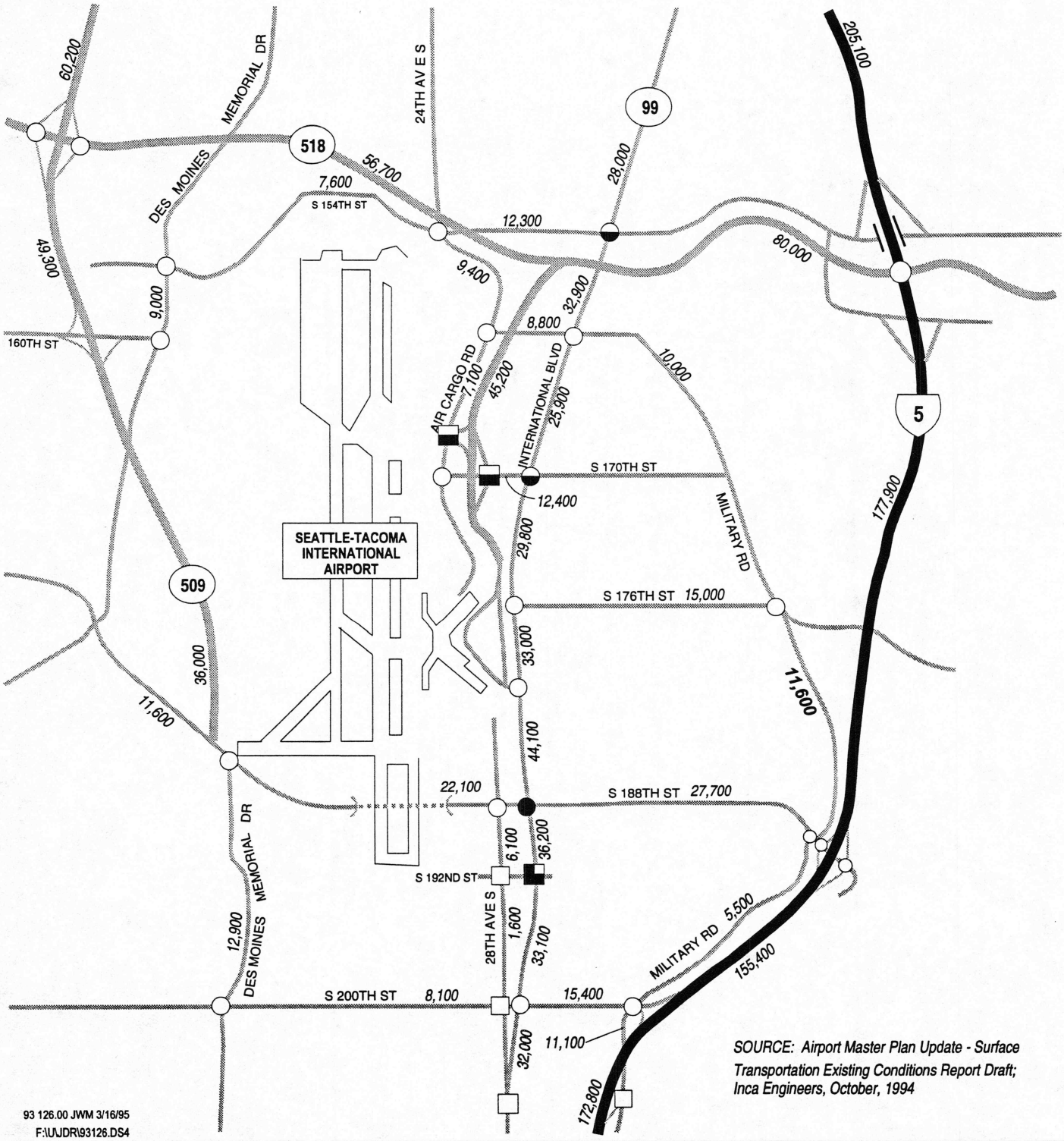
1994 Traffic Volumes. Current *average annual daily traffic volumes (AADT)* in the airport vicinity are shown on Figure 3.2. Shown also on that figure are weekday pm peak hour intersection levels of service on the vicinity arterial system. The highest hourly traffic volumes of the day on the off-airport transportation system occur between 3 and 6 pm, and range from 8 to 9 percent of the total daily traffic volumes. During the weekday PM peak hour, most intersections are operating at level of service (LOS) C or better, including the recently improved terminal access intersection with SR-99 at S. 180th Street. Two intersections along International Boulevard (S. 192nd Street and S. 188th Street) are operating at LOS E or F. The airport north access freeway and its ramps to/from SR-518 operate at LOS C or better during all hours of the day.

Figure 3.3 shows 1994 *August average day traffic volumes (ADT)* on the airport terminal drives and access system. August represents the peak month of the year for air passenger traffic volumes at Sea-Tac Airport. August air passenger activity is about 30 percent greater than during the average month of the year. Figure 3.4 shows the 1994 August average day airport peak hour traffic volumes on the airport terminal drives and access routes. The peak hour of airport traffic activity occurs between 12 and 1 pm when about 7.5% of the total day airport traffic activity occurs. The traffic volumes were developed from information provided in a report titled: "Seattle-Tacoma International Airport, Preliminary Traffic Study, Master Plan Update Impact Study Alternatives", The P&D Aviation Team, January 30, 1995.

Figure 3.5 illustrates hourly variation of traffic activity on the terminal drives. It is based upon traffic counts collected on the terminal drives during the first five weekdays of August, 1994. The peak activity period for the airport is between 11am and 1pm, with heavy traffic activity on both the upper and the lower drives. Enplaning peak hours of impact on the upper terminal drive occur between 6am and 7am (the highest peak of the day on either of the drives), and between 11am and noon. The major deplaning traffic activity peaks occur between noon and 1pm, and between 9pm and 11pm. It should be noted that the afternoon low of airport terminal traffic activity occurs during the 4-6 pm peak period for non-airport traffic activity in the airport vicinity.

Terminal Access System Operations. There are two major congestion locations along the upper terminal drive. These are associated with the Delta and American Airlines access at the center of the enplaning drive, and with the Alaska and United Airlines access at the north end of the enplaning drive. The peak enplane traffic congestion times occur between 6 and 7 am, and between 11 am and 12 noon. Traffic congestion at the Alaska/United terminal access point could affect traffic operations for the proposed hotel, which would be located immediately north of this congestion point on the upper terminal drive.

Figure 3.4 shows 'volume/capacity' (v/c) ratios at selected locations on the terminal access system during the 12 - 1 pm peak hour on an August average day (P&D Aviation Team January 30, 1995 report). A v/c ratio of 1.0 indicates traffic volumes equal capacity. For smooth operations, a v/c ratio of 0.9 or less is desirable. The upper drive currently exceeds capacity during the enplane traffic peaks. Other locations approaching congestion during the peak hour are: The single-lane north approach ramp to the upper drive, the access ramp to the garage metered parking entrance, and the northbound 'weave' section on the return/exit drive east of the garage.



SOURCE: Airport Master Plan Update - Surface Transportation Existing Conditions Report Draft; Inca Engineers, October, 1994

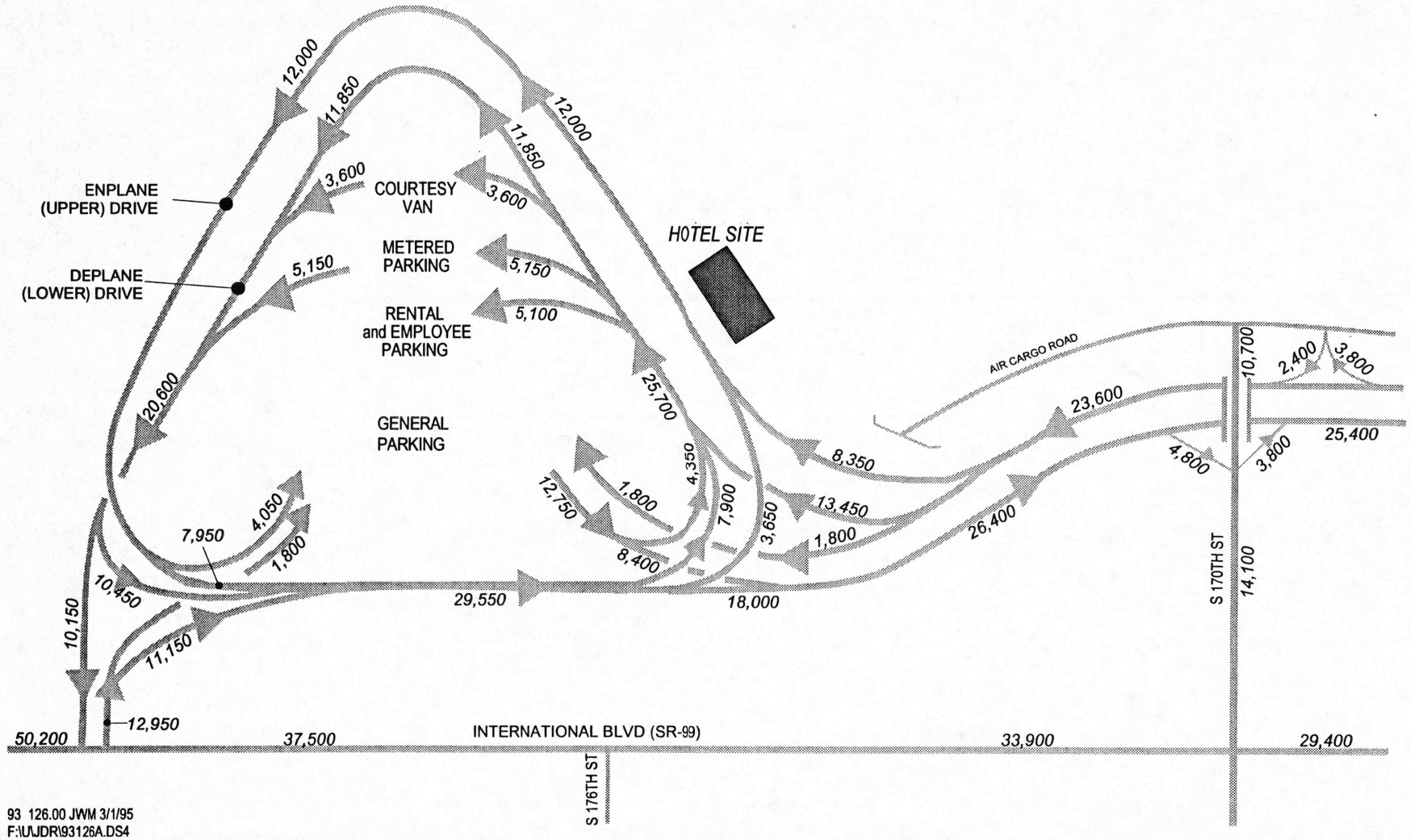
No Scale

PM PEAK HOUR LEVEL OF SERVICE

UNSIGNALIZED	SIGNALIZED	
□	○	LOS A-C (LITTLE OR NO DELAY)
▭	◔	LOS D (SOME TRAFFIC DELAYS)
▬	◕	LOS E (LONG TRAFFIC DELAYS)
■	●	LOS F (VERY LONG TRAFFIC DELAYS)

1994 Average Annual Day Traffic Volumes

Figure 3.2

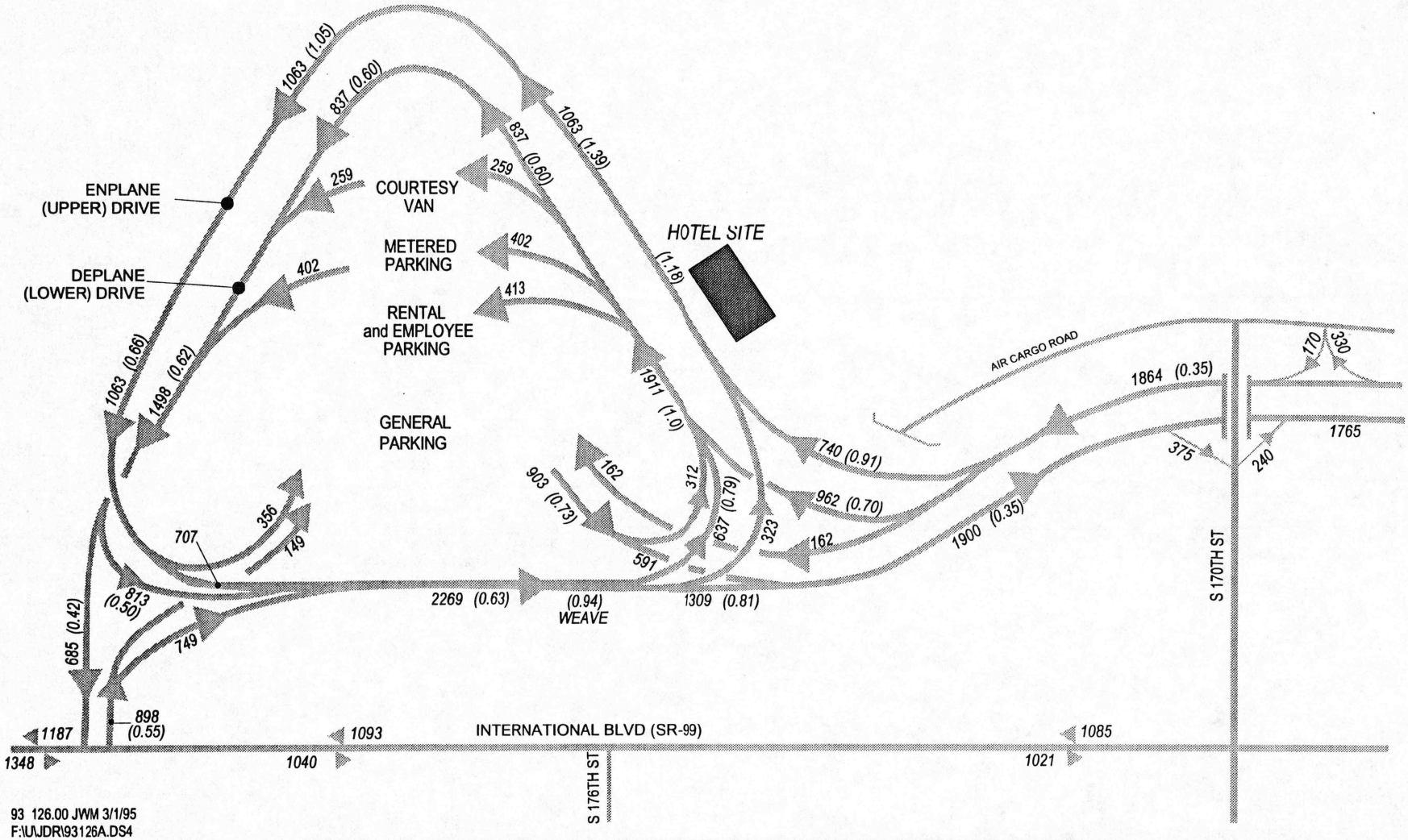


Source: "Preliminary Traffic Study - Master Plan Update Impact Study Alternatives", The P&D Aviation Team, January 30, 1995

No Scale

1994 August Average Day 24-Hour Traffic Volumes

Figure 3.3



XXX - 12 -1 PM Peak Hour Traffic Volumes

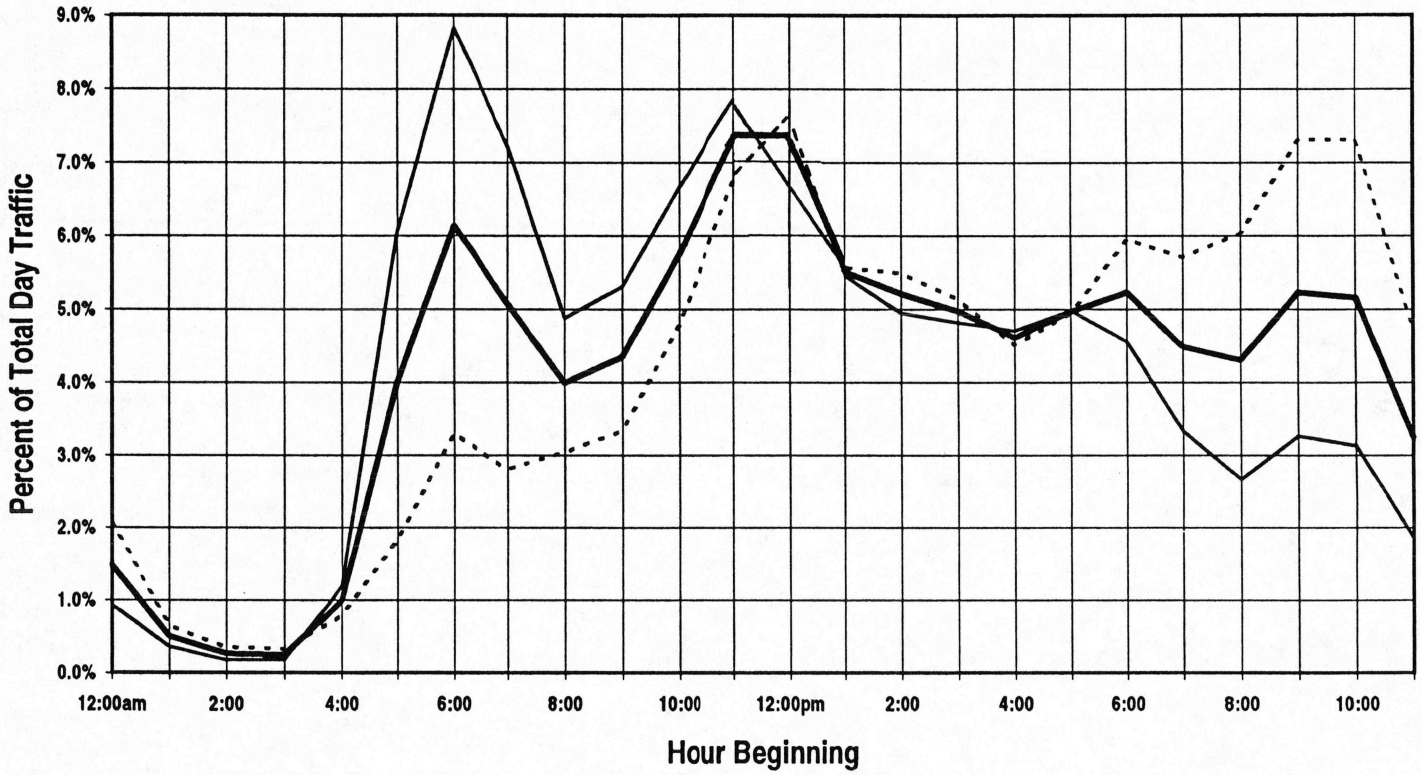
(X.XX) - Volumes/Capacity Ratio

Source: "Preliminary Traffic Study - Master Plan Update Impact Study Alternatives", The P&D Aviation Team, January 30, 1995

No Scale

1994 August Average Day
12 PM to 1PM Airport Peak Hour

Figure 3.4



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Lower Deplane Drive

Upper Enplane Drive

Upper and Lower Combined

August 1994 Terminal Drive
Hourly Traffic Variation

Figure 3.5

An August 1992 study of vehicle dwell times on the terminal frontage drives (Port of Seattle, October 1992) found that on the upper drive between 11am and 1pm the average private vehicle 'dwells' for about 4.5 minutes on the approximate 1,700 feet of terminal drive distance. The average transit vehicle averages 3.9 minutes of dwell time. These dwell times represent overall average speeds of about 5 mph (for air quality analysis purposes). The lower drive dwell times were 4.1 and 2.6 minutes respectively during this same peak period of the day during August. This study was conducted the month prior to opening of the 3rd floor courtesy vehicle lane through the parking garage. About 22 percent of all vehicles on the drives were courtesy vehicles, which due to their size added an even greater percentage of total drive congestion. During August 1994, an average of 2,800 courtesy vehicles per day passed through the 3rd floor courtesy vehicle lanes. Vehicle dwell times on the drives were likely reduced as a result of the rerouting of courtesy vans.

Parking. The Sea-Tac Airport main parking garage provides approximately 9,400 parking spaces. Approximately 1,000 spaces are allocated for rental car parking, 400 spaces for employee parking, 1,000 spaces for metered short-term express parking (3rd floor), and 7,000 spaces for general user parking.

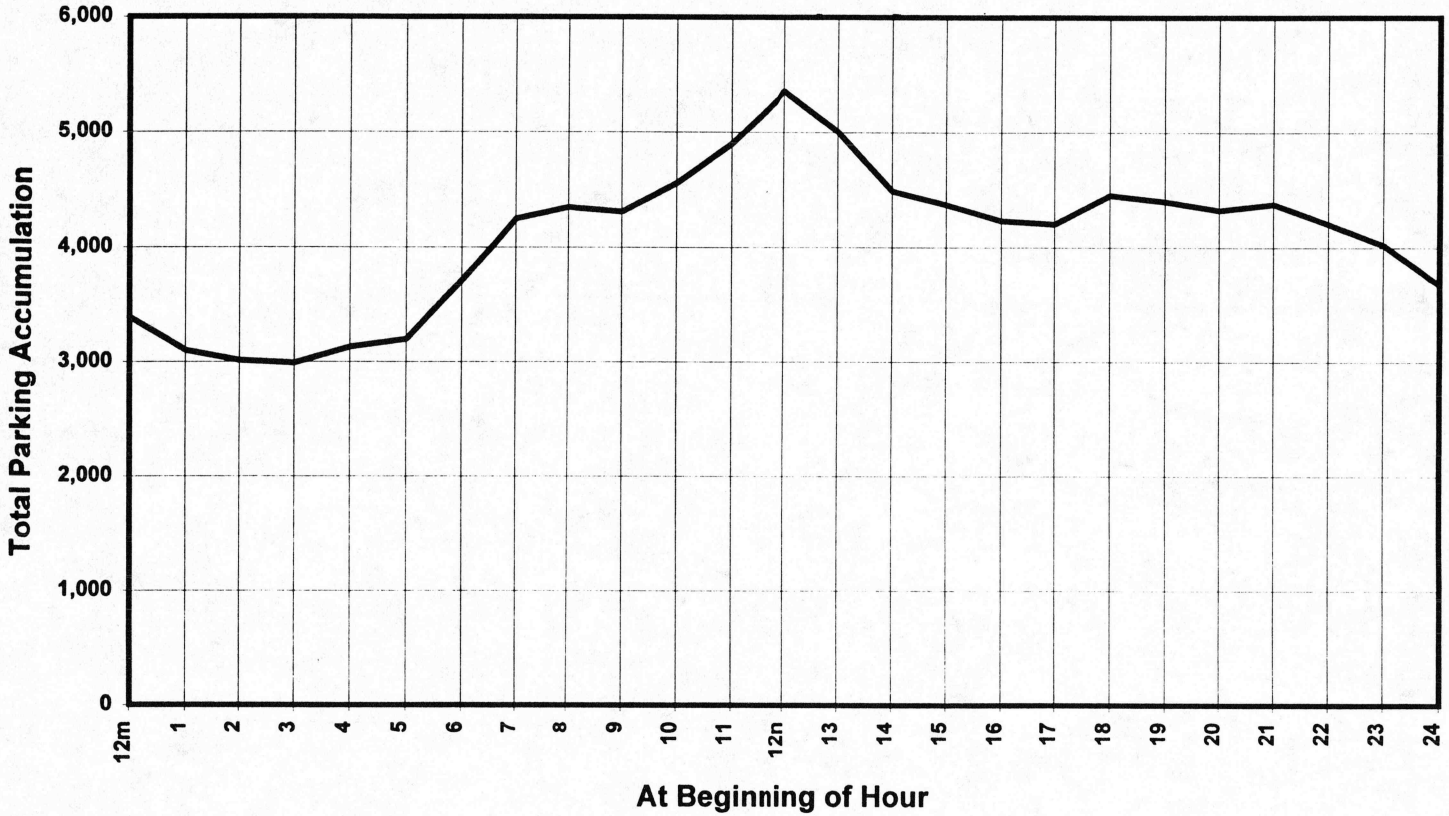
Both air passenger traffic and parking demand vary widely during the year. The peak demand period of the year is during August when peak personal vacation travel adds to normal business travel. Total seasonal variation in parking demand varies from 77% of an annual average month in January to 140% during August, as can be seen in Table 3.1. Not all peak days occur during peak months, however, as there can be peak days during non-peak months.

Table 3.1
1993 Average Daily Parking Garage Entries By Month (Both Long-term & Metered)

Month	Entering Vehicles	% of Avg Month
Jan	8,000	77%
Feb	7,100	69%
Mar	8,300	81%
Apr	9,100	88%
May	9,100	88%
Jun	12,200	118%
Jul	13,200	128%
Aug	**14,400**	**140%**
Sep	11,000	106%
Oct	9,700	94%
Nov	9,900	96%
Dec	11,900	115%

During August 1994 an average day total of 17,900 vehicles entered the parking garage (see Figure 3.3). Of these entering vehicles, 44% were associated with the general (long-term) parking areas, 28% were associated with the short-term (metered) parking deck, and 28% were associated with rental car and employee parking. Day by day traffic counts during August 1994 showed that Saturday traffic and parking characteristics are similar to those on weekdays.

Figure 3.6 shows parking accumulation (occupancy) of the 8,400 non-rental car terminal garage parking spaces on Saturday, August 20, 1994 -- a peak day of August. An overnight occupancy low of 3,000 parking spaces occurred between 2 and 3 am; a rapid increase to about 4,400 spaces occurred during the early morning hours; and then a gradual buildup occurred to a peak utilization of 5,400 parking spaces at 12 noon. After noon, parking occupancy dropped rapidly to about 4,500 occupied spaces at 2 pm; and parking occupancy stayed above 4,000 until 11 pm. The maximum parking period occurs between 11 am and 1 pm -- coincident with the maximum terminal drive traffic activity. For comparison, a peak August weekday (August 25, 1994) saw the noon hour peak at 6547 vehicles (compared to 5400). These accumulations are exceeded during the Thanksgiving and Christmas holiday periods and occasionally in October.



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Terminal Garage Parking Accumulation
Saturday - August 20, 1994

Source: Port of Seattle

Figure 3.6

The Port of Seattle currently provides about 3,600 employee parking spaces on or near the airport, for which it has issued about 8,200 parking permits. Employees are transported to the terminal on shuttle buses using Air Cargo Road. In addition, there are an estimated 11,200 privately operated off-airport parking spaces used by long-term air passengers. The off-airport parking areas are connected to the airport by van shuttle services. The average van trip between off-site parking lots and the airport terminal carries 1.8 passengers. Hotel courtesy vans average 1.25 passengers per trip.

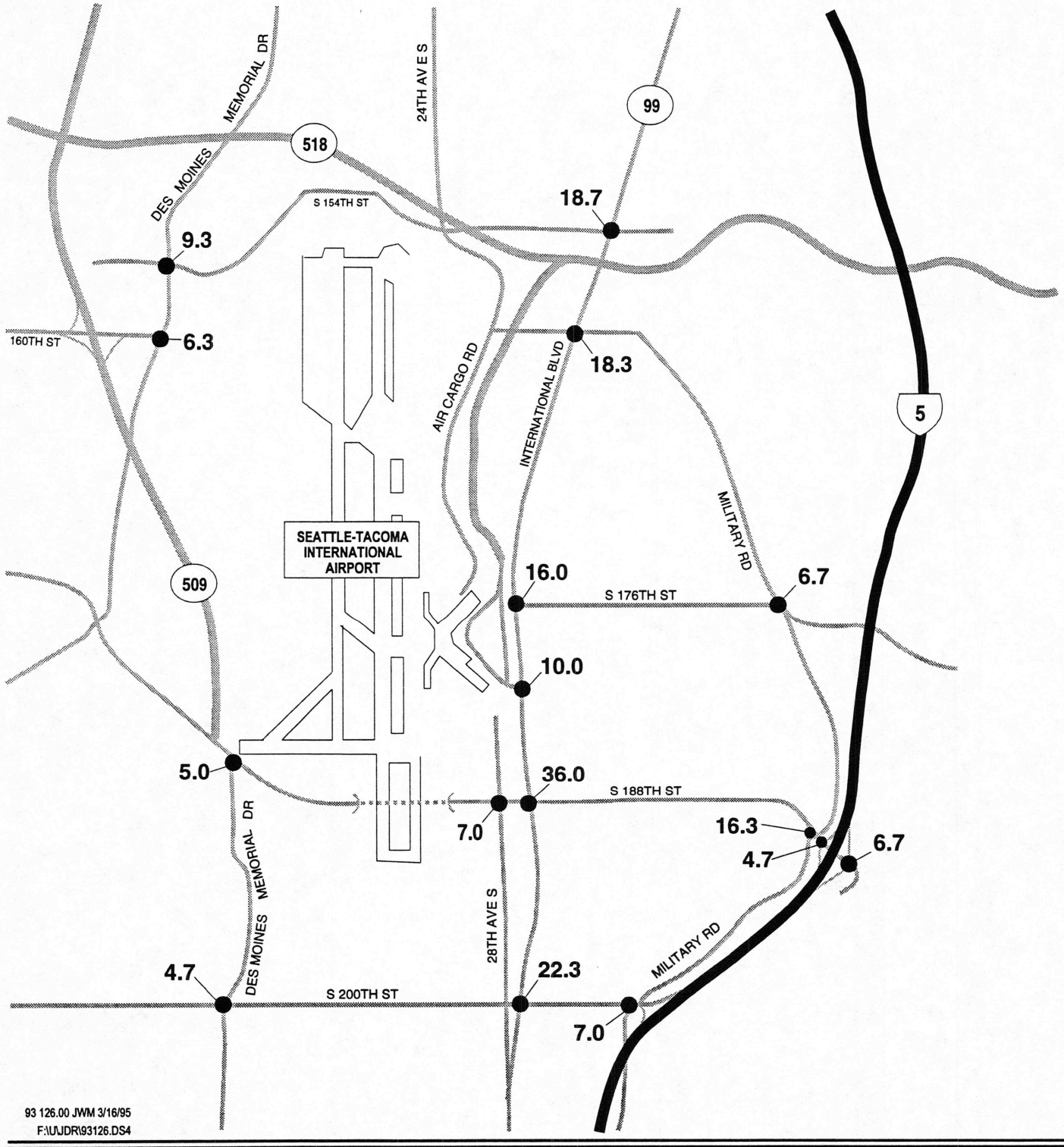
Public transit. The airport is served by numerous public and private transportation services to/from all parts of the region.

Accidents. Figure 3.7 illustrates the average annual accident history at airport vicinity arterial street intersections for the 3-year period from 1988 thru 1990. The highest numbers of accidents occurred along International Boulevard between S 154th and S 200th Streets. This section of International Boulevard experiences the highest traffic volumes and congestion levels. The intersection with the highest number of reported accidents was at S 188th Street, with most accidents due to left-turn and rear-end collisions. The accident rates in terms of accidents per million entering vehicles are not excessively high according to generally accepted safety standards.

3.5.1.2 Applicable Plans and Policies

Planned Off-Airport Ground Transportation Improvements. A number of Transportation Improvement Projects are planned in the airport vicinity for implementation between 1994 and 2000 (City of SeaTac and The TRANSPO Group, Inc., 1991). Descriptions of these street and intersection improvement projects are as follows:

- 28th/24th Avenue South (City of SeaTac): Construction of a 5-lane urban arterial, including bike lanes and sidewalks, between S 188th Street and S 216th Street.
- S 192nd Street & 28th/24th Avenue S (City of SeaTac): Install traffic signal.
- S 200th Street & 28th/24th Avenue S (City of SeaTac): Install traffic signal.
- International Boulevard/State Route 99 (City of SeaTac): Widen roadway per evolving plan, and install curbs and sidewalks and associated intersection improvements from S 152nd Street to S 216th Street.
- S 176th Street (City of SeaTac): Widen roadway to 5 lanes between International Boulevard (SR-99) and 32nd Avenue S and 34th Avenue S.
- S 200th Street (City of SeaTac): Widen roadway to 5 lanes with sidewalks and intersection improvements from International Boulevard to Des Moines Memorial Drive S.
- S 188th Street/International Boulevard (City of SeaTac): Widen S 188th Street to extend eastbound right-turn lane west of the 28th Avenue S intersection.



10.0 - AVERAGE ANNUAL ACCIDENTS (1988-1990)

SOURCE: City of SEATAC Comprehensive Transportation Plan, The TRANSPO Group, 1991

No Scale

Historical Intersection Accident Rates

Figure 3.7

- International Boulevard (SR-99)/S 154th Street (City of SeaTac): Modify intersection to improve traffic operations.

- Military Road/S 200th Street/Southbound I-5 Ramps (City of SeaTac): Widen I-5 off-ramp to provide a left-turn lane; reconstruct the west leg to provide three approach lanes; modify traffic signal.

- Military Road/Northbound I-5 Ramps (City of SeaTac): Install traffic signal.

- S 170th Street/Northbound Airport Expressway Ramps (City of SeaTac): Install traffic signal.

- Air Cargo Road/Southbound Airport Expressway Ramps (City of SeaTac): Install traffic signal.

- S 154th Street/24th Avenue S/Perimeter Road (City of SeaTac): Modify intersection to provide left and thru-right turn lanes on all approaches; modify traffic signal.

- Des Moines Memorial Drive S/S 188th Street (City of SeaTac): Modify west leg to provide a right-turn lane and a bicycle facility; modify south leg to provide double left-turn lanes.

- Des Moines Memorial Drive S/S 200th Street (City of SeaTac): Widen intersection to provide left-turn lanes on the north and south approaches, and a right-turn lane on the east approach; modify traffic signal.

- International Boulevard/S 160th Street (City of SeaTac): Widen intersection to provide left, thru, and thru-right turn lanes on all approaches.

- Interstate 5 (WSDOT): construct HOV lanes and truck climbing lanes from Pierce County line to Tukwila, including modification of the I-5/I-405/SR-518 interchange.

Planned Airport Ground Transportation Improvements. The Port of Seattle has a number of planned improvements for the ground access and parking systems. It should be noted that any listing of such improvements is subject to change as a result of the Airport Master Plan Update process that is currently in progress. However, the final updated master plan is expected to include, as a minimum, the following improvements:

- Widen the access ramps to the enplane (upper/ticketing) drive by two lanes.

- Widen the lower terminal drive to add an additional (6th) traffic lane.

- Provide access from the enplane (upper) drive to a second floor of metered parking in the main terminal parking structure.

- Expand the overall parking capacity of the main terminal parking structure.

3.5.1.3 Future Conditions Without Project

The proposed hotel is expected to be completed in 1997, and in full operation by 1998. The year 2000 was selected as the future year in which to make traffic and parking impact comparisons because it is a year for which regional traffic forecasts have been prepared. It is assumed that the above-noted on and off-site ground transportation improvements will occur, whether or not the proposed hotel project is constructed.

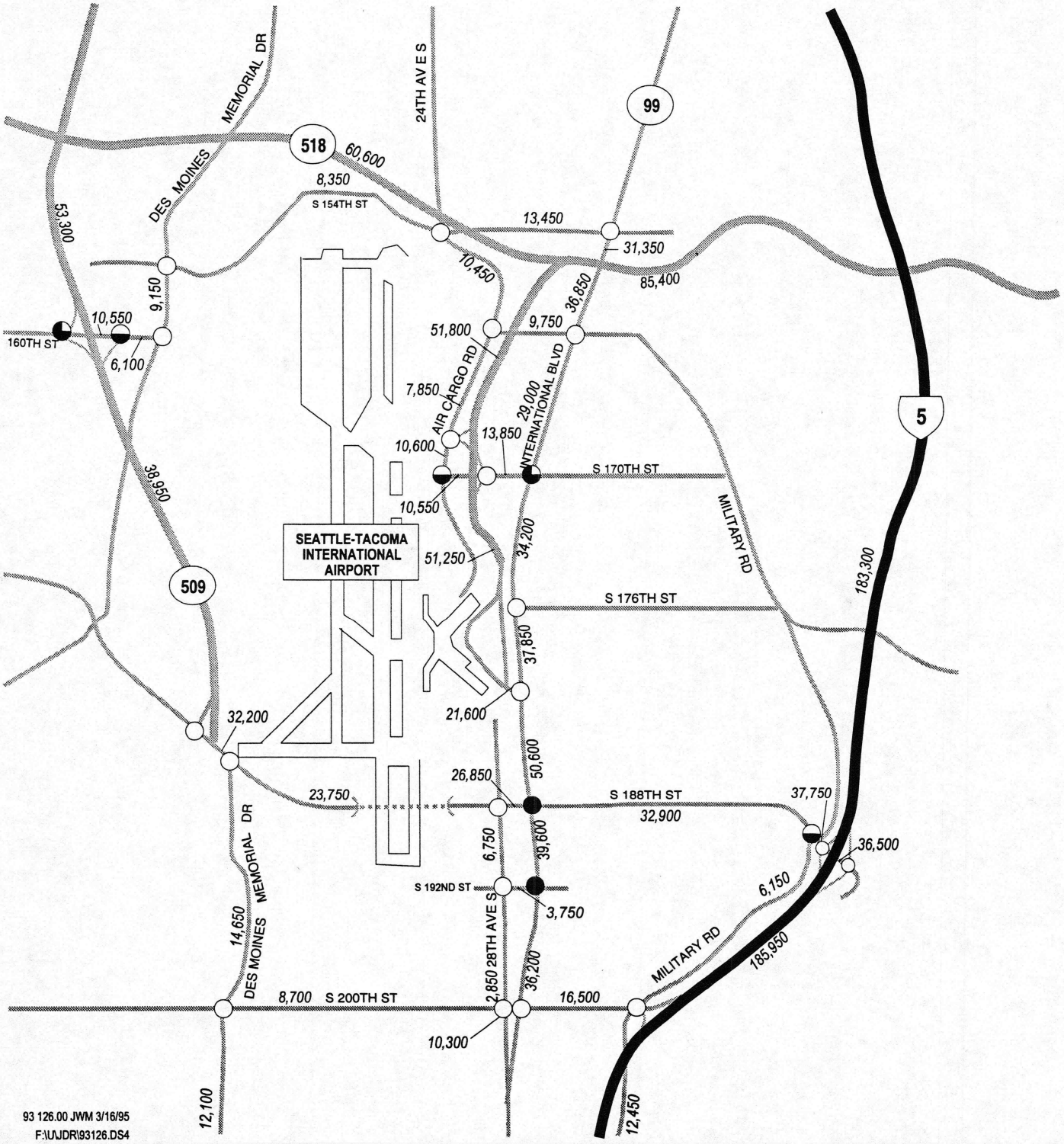
2000 Traffic Estimates. Year 2000 average annual day traffic estimates for the greater SeaTac vicinity are shown on Figure 3.8. These estimates were prepared by Inca Engineers and will be part of the *Airport Master Plan* Update, currently in progress. Shown also on Figure 3.8 are estimated 2000 PM peak hour intersection levels of service, assuming the street and intersection improvements listed in Section 3.5.1.2 are completed. Three intersections along International Boulevard (S 170th Street, S 188th Street, and S 192nd Street) are anticipated to operate at LOS E or F during the 2000 weekday PM peak hour. All other intersections in the Sea-Tac Airport vicinity are estimated to operate at LOS D or better.

Estimated 2000 August average day traffic volumes on the terminal drive system are shown on Figure 3.9. Figure 3.10 shows estimated 2000 airport peak hour (12 noon to 1 pm) traffic estimates on the terminal drive system (The P&D Aviation Team, January 30, 1995).

Terminal Access System Operations. Figure 3.10 also shows volume/capacity (v/c) ratios at selected locations on the terminal access system during the 12 - 1 pm peak hour on an August average day in year 2000 (P&D Aviation Team January 30, 1995 report). These estimates assume that the terminal drive improvements listed in Section 3.5.1.2 are in place by 2000. The north access ramps to both the upper and lower terminal drives would be operating at LOS C or better during the 2000 airport peaks, with the planned improvements. However, peak hour traffic demand on the upper drive could far exceed capacity at the Delta/American and Alaska/ United loading sectors. The Alaska/United overloads could cause long traffic queues upstream along the north access ramp, if not alleviated by traffic control measures. If the backups cannot be eliminated, they would need to be contained in the new right-lane of the approach ramp to allow other airline traffic to bypass the traffic queue. The northbound 'weave' section on the drive system east of the parking garage could slightly exceed capacity during the airport peak hour.

The off-airport intersections along S.170th Street and International Boulevard north of S.188th Street are estimated to all operate at LOS D or better during the airport peak hour in year 2000, but with the intersection of S.170th/International Boulevard operating at LOS E (v/c ratio - 0.94). The north and south airport access routes would operate at LOS C or better.

Parking. Assuming no changes in parking policies and pricing (beyond Consumer Price Index) occur between 1995 and 2000, parking demand at the central terminal garage and at all off-airport parking locations is estimated to increase by about 20 percent, consistent with the projected growth



No Scale

- LOS A-C (LITTLE OR NO DELAY)
- LOS D (SOME TRAFFIC DELAYS)
- LOS E (LONG TRAFFIC DELAYS)
- LOS F (VERY LONG TRAFFIC DELAYS)

2000 Average Annual Day Traffic Volumes

Figure 3.8

in terminal drive traffic. The terminal garage hourly parking demand for an August day in 2000 is anticipated to be similar to that shown previously in Figure 3.6. The noon parking demand peak is estimated to reach about 6,400 of the 8,400 non-rental car parking spaces. It is assumed that comparable increases in rental car and short-term metered parking demand will occur. Planned terminal garage expansions could be in place by 2000 to offset parking demand increases. It is unknown at this time how private enterprise will respond to the increased off-airport parking demands.

The 20% increase in parking demand at the terminal garage could be accommodated by the existing structure during all periods of the year, except during the Thanksgiving and Christmas holiday periods and occasional weekday peaks in October.

3.5.2 Construction and Operation Impacts

3.5.2.1 Proposed Action

Transportation Relationships. The proposed hotel project would be located on-site at Sea-Tac Airport. It would provide 384 rooms, 10,000 square feet of meeting space with maximum seating capacity of 870 persons, and a 3,600 square feet restaurant (150 seats) and lounge (50 seats). Over 70% of its overnight guests are expected to be commercial air travelers, 15% would be business groups, and 15% would be non-commercial travelers with short layovers and missed, delayed, or canceled flights. The average stay is expected to be 1.2 nights.

The hotel would be accessed from the upper terminal drive north of the United drop-off zone. It would have a separate drop-off/pick-up lane plus 15 short-term parking spaces. The majority of hotel access would be via the main terminal parking garage and a covered pedestrian overcrossing from the 6th floor which would connect directly into the main lobby area of the hotel. A block of 70 parking spaces (equivalent to 100 spaces if valet parked) would be reserved for overnight hotel guest use only; all other day guests would share parking garage space with all other airport visitors and air passengers. Service vehicle access would be via the upper terminal drive and would be limited to delivery vans during those hours of high airport usage.

The market studies estimate that 75% of the overnight guests would arrive from the airport concourse, mostly requiring no ground transportation. The other 25% would be local guests, of which 25% are estimated to arrive via dropoff modes (taxi, bus, courtesy van), and 75% would arrive via private automobile requiring parking. The restaurant and lounge are expected to predominantly serve hotel guests (80%) and walk-in customers from the concourse (15%). Only 5% of the customers would be drive-in trade.

Conversely, the meeting rooms are expected to predominantly serve off-airport meeting and banquet attendees (80%). Nearly all of these attendees would arrive by private auto at an estimated 2.0 persons per car, and the cars would be parked in the terminal parking garage. The other 20% of the attendees would be drawn from the hotel overnight guests (10%), and walk-ins from the airport concourse (10%).

The 'high season' for hotel use would be from mid-April through September when room occupancy could average up to 95% on Sunday through Wednesday evenings. The 'shoulder season' would be mid-January through mid-April, and the 'low season' would be October through mid-January. Average annual room occupancy is estimated at 78% by 2000.

The hotel would employ about 218 employees. About two-thirds (150) of the employees would be on-site between 7am and 4pm; the other one-third would be food and beverage employees working from 11am to 8pm, and night staff. All except about 10 key staff would park in off-site employee lots and be shuttled to/from the hotel. The key staff would park in the terminal parking garage.

Traffic Generation. Traffic and parking generation estimates were prepared by four function groups: (1) Hotel overnight guests, (2) Restaurant/lounge activity, (3) Meeting and banquet guests, and (4) Employees. If this was a typical suburban hotel unrelated to the airport, it would be estimated to generate 8.8 vehicle trips per occupied room, of which about 10% would occur during the afternoon commuter peak hour (Institute of Transportation Engineers).

A breakdown of trips by the four activity groups would be as follows, assuming full occupancy of 384 rooms:

Trip Generation for Typical Suburban Hotel with Meeting Facilities:

Function Group	AWDT*	PM Pk Hr
Guest Rooms	1,300	60/30
Restaurant/Lounge	400	20/10
Function Rooms	1,250	70/50
Employee Trips	350	20/60
Totals	**3,300**	**170/150** (In/Out)

Trip Generation for Proposed Hotel (at 100% Occupancy):

Function Group	Adj Factor	AWDT	PM Pk Hr
Guest Rooms	0.25	325	15/ 7
Courtesy Trips Eliminated[1]		-325	-15/7
Restaurant/Lounge	0.10	50	2/ 1
Function Rooms	0.80	1,000	55/40
Subtotal - On-site Trips		1,050	57/41
Employee Trips[2]	1.00	350	20/60
Total Including Off-site Trips		**1,400**	**77/101**

1. The 75% of hotel guests from the concourse would require courtesy van transportation to/from an off-site hotel: 384 rooms/1.2 avg stay x 2 (to and from) at 2 rooms per van = 325 van trips per day.
2. Trips to/from off-site parking lot = 350; employees will be shuttled to/from the hotel via Air Cargo Road and its tunnel into the garage.

* AWDT= Average Weekday Traffic

Total hotel traffic impacts on the airport terminal access system, assuming full occupancy and full use of the function rooms, is estimated at 1,050 trips per day (625 in/625 out), and about 100 trips during the PM commuter peak hour. The vast majority of the hotel generated trips would be associated with the function (banquet/meeting) rooms. Considering the function room traffic surcharges before and after noon luncheons and evening banquets, additional peaks of about 100 vehicle trips could occur between 11am and noon (inbound), 1:30pm to 2:30pm (outbound), 5pm and 6pm (inbound), and 9pm to 10pm (outbound). A combined in/out peak of about 100 vehicles would occur between 7am and 8am.

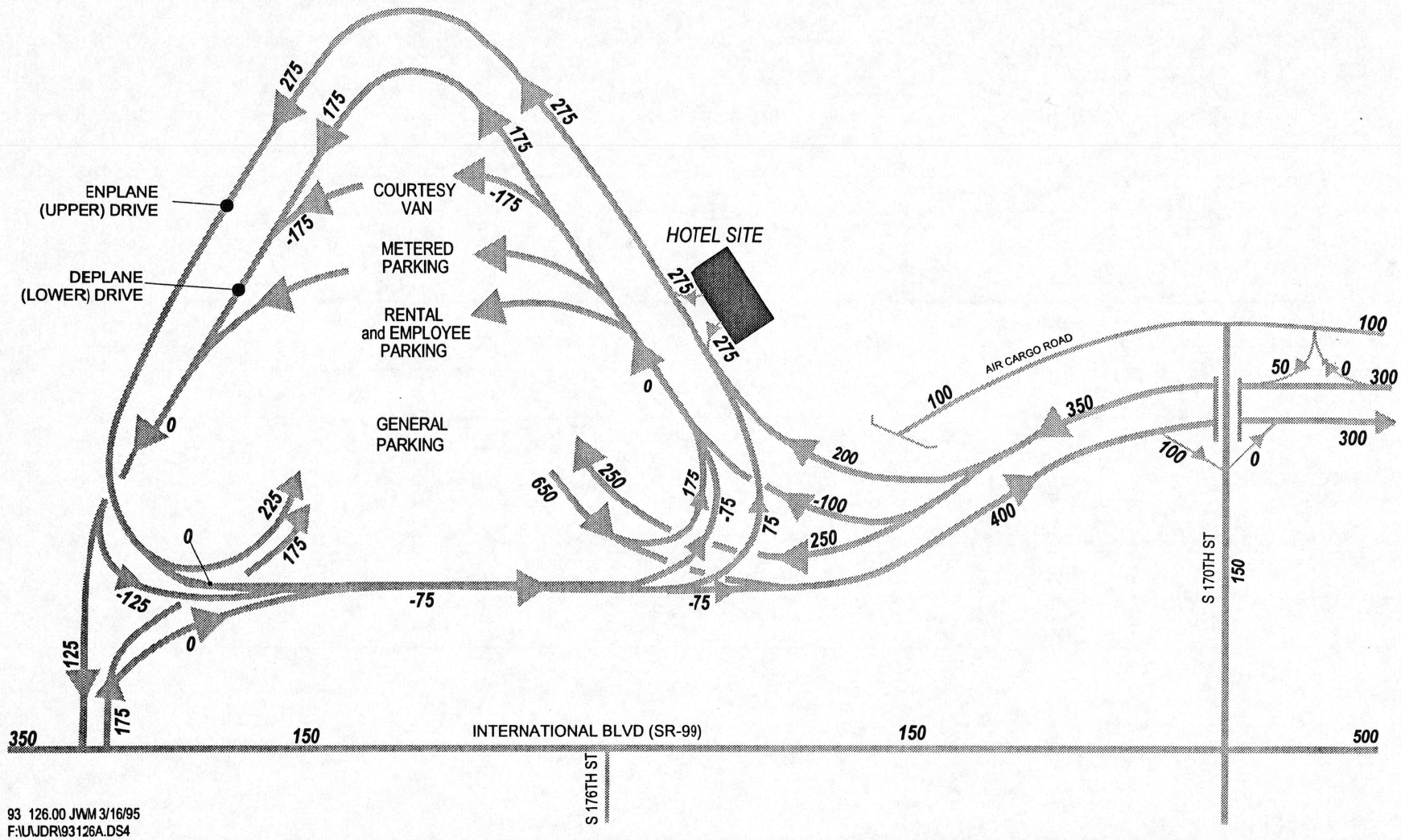
The 25 percent of the hotel rooms attracting off-site trips would be offset by a reduction of courtesy van trips for the 75 percent of the hotel guests to/from the concourse who would otherwise travel to/from off-site hotels. However, this exchange results in increases on some parts of the drive and parking system, and reductions on other parts of the system. Overall, the number of hotel rooms would have little net effect on the airport terminal access and drive systems.

It is estimated that 67% of all off-site hotel guests and visitors would drive directly to a parking location on the 6th floor of the main garage, and access the hotel by the pedestrian skybridge. The other 33% would be dropped-off at the enplane drive level, with the vehicles recirculating out of the airport, or into the garage. Figure 3.11 shows the total daily hotel traffic impact on the airport access and terminal drive system on a peak August weekday.

About 10% of these trips would occur each during the 7-8 am enplane drive peak hour, during the 11-12am airport peak on both drives, and during the PM commuter peak hour. During the critical enplane peak hours, the hotel at peak operation would add about 28 trips to the 1,325 air passenger peak hour trip demand on the upper drive system.

Parking Generation. Hotel parking demand is estimated as follows:

	Peak Parking Spaces Needed
(1) Hotel Overnight Guests (384 room modules):	
75% arrive from airport concourse	None
7% arrive via drop-off vehicle	None
18% arrive in private vehicles	69
(2) Restaurant/Lounge Patrons (75% occupancy of 200 seats):	
80% hotel guests	None
15% concourse walk-in	None
5% by auto @ 1.5/vehicle	4
(3a) Ballroom (Maximum use = 90% of 450 seats):	
20% hotel guests and walk-in from concourse	None
80% drive-in @ 2.0 per car	162
(3b) Meeting Rooms (Maximum use = 75% of 420 seats):	
20% hotel guests and walk-in from concourse	None
80% drive-in @ 2.0 per car	125



No Scale

±XXX - August Average Weekday Project Traffic Impacts

NOTE: About 10% of these total daily trips would occur during each of the hotel peak hours: 7-8AM, 11-12AM, 2-3PM, 5-6PM, 9-10PM.

August Average Weekday Traffic Impacts - Proposed Action

Figure 3.11

(4) Employees:

10 park on-site in garage	10
20% carpool with another, or use transit	None
80% drive and park in off-site employee lot	165 Off-site

Not all parking would be needed at all times of the day. Hotel guest parking peaks overnight, and varies at lesser amounts during the day. Restaurant/lounge parking needs are negligible. Most of the of on-site parking would be used by meeting and banquet guests. The hotel operator estimates that only about 20 percent of the hotel meeting facilities would be utilized during most of the day. However, on peak days, banquet functions could max at both mid-day luncheon functions as well as late day dinner functions.

Table 3.2 shows an hour by hour estimate of peak parking demands for a peak day with 100% room occupancy and maximum mid-day and evening functions. The most critical parking demand period would be between noon and 2pm when total airport parking demand reaches its peak. Hotel associated demands on the main parking garage could reach up to 4 percent of its 8,000 total available general parking spaces. Peak hotel parking demand would occur between 7pm and 10pm with maximum evening functions. However, the parking garage has considerable unused space during this period of the weekday. Hotel functions would be rare on weekends and holidays when non-commercial use of the parking garage often peaks.

Figure 3.12 shows estimated August 2000 average day parking accumulation demands for the main terminal parking garage, excluding rental car parking. The black band shows the portion of this total demand that would be related to the proposed hotel project with maximum occupancy and function room uses. The peak demand period occurs between 11 am and 1 pm, with a maximum parking accumulation that is within the existing garage supply of 8,400 spaces. A key consideration in on-airport parking management will be the management of this noon parking demand peak. These peaks occur in August, occasionally on October weekdays and during the Thanksgiving and Christmas holidays.

Off-site employee parking would represent 3.5% of the current POS supplied off-site employee parking supply. This represents about a one-year period of growth in off-site employee parking demand.

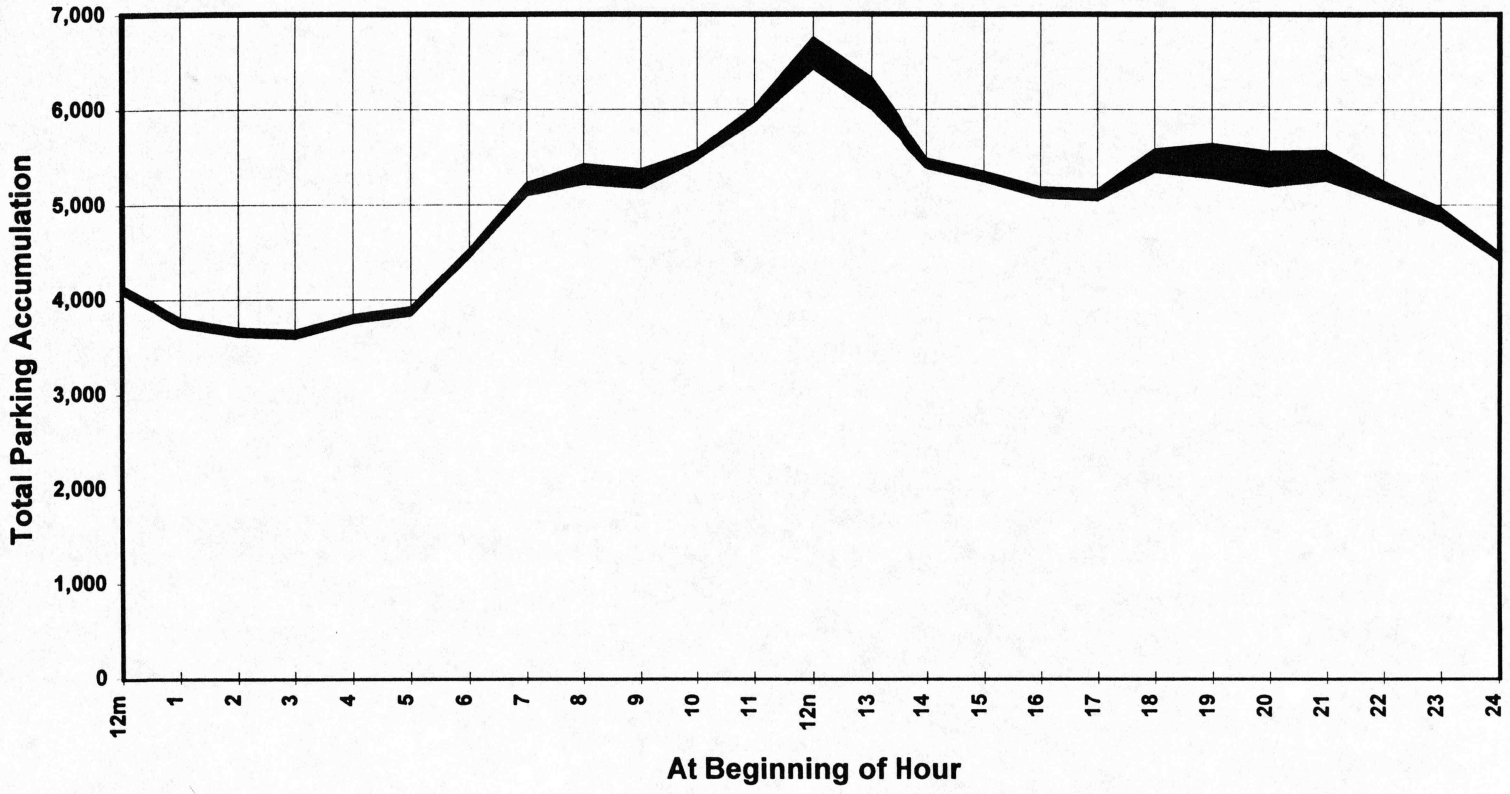
Operation Impacts. By comparing Figure 3.11 (Hotel peak average weekday traffic impacts) with Figure 3.9 (2000 non-project August weekday traffic on the airport terminal access system), it can be noted that the proposed action would result in about a 2 percent traffic increase on the upper drive system, and about a 1 percent traffic increase on the lower drive system. Such impacts are less than the day-to-day traffic volume fluctuations on the terminal drive system. There would be no further growth in hotel traffic beyond that shown for the year 2000 as the hotel would be operating at target occupancy levels by that time.

Hotel access from the upper drive would occur immediately upstream from one of the two major traffic bottlenecks on the upper drive system -- that associated with the United Airline drop-off zone.

Table 3.2 Proposed Hotel - Peak Day Parking Demand by Hour of Day

Hour Beginning	Guest Rooms	Exec Empls	Restr & Lounge	Function Rooms	Total Garage	Employee (Off-Site)	Total Parking
6am	69	8	2	0	79	60	139
7am	59	8	3	58	128	110	238
8am	45	8	4	146	203	110	313
9am	38	8	2	146	194	110	304
10am	31	8	1	58	98	110	208
11am	24	8	2	116	150	150	300
12pm	21	8	3	290	**322**	150	**472**
1pm	21	8	4	290	**323**	150	**473**
2pm	24	8	3	58	93	150	243
3pm	28	8	1	58	95	150	245
4pm	35	8	1	58	102	100	202
5pm	41	8	1	58	108	60	168
6pm	48	8	2	175	233	60	293
7pm	55	8	3	290	**356**	40	396
8pm	62	8	3	290	**363**	40	403
9pm	66	8	2	234	**310**	20	330
10pm	69	8	1	116	194	10	204
11pm	69	8	1	58	136	10	146
12pm	69	8	0	0	77	10	87

Source: *Shared Parking* , Urban Land Institute, 1983; Westin Hotels & Resorts.



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Terminal Parking

Hotel Parking

Terminal Garage Parking Accumulation
August 2000
With Hotel at Maximum Function

Figure 3.12

This could result in delays for hotel traffic exiting its drive-thru lane, which must weave across United drop-off traffic to reach the thru traffic lanes. Such delays would mostly occur during the 7-8 am and the 11am to 2pm peak hours during peak months of the year. POS policies will focus upon relieving this congestion point, since it is critical to the overall operation of the upper drive system. Hotel traffic would be impacted by this congestion point, but would not appreciably add to the cause of the congestion.

The POS plans to widen the north access ingress ramps to the upper terminal drive by two lanes by 1998. This will provide additional capacity input to the upper terminal drive. Hotel entering and exiting traffic (2% of the ramp volume) would cause minimal traffic disruption to this ramp operation during most periods of the day. However, during periods of peak traffic, this area could still be expected to experience congestion.

Construction Impacts. Construction vehicle access will be provided via Air Cargo Road from the Airport North Access Expressway and its S 170th Street interchange. These vehicles would be routed either through a security gate onto the AOA (Airport Operations Area), requiring guards and escorts, or via a temporary road between the northern service tunnel entrance and the fuel farm. Construction access would not be via the terminal drives. The planned widening of the enplane drive approach ramps would be coordinated with construction of the hotel and completed in time for hotel opening.

Construction employees would be directed to park in designated off-site contractor employee parking areas, and be shuttled to the construction site.

3.5.2.2 Alternative 1 - Smaller Scale Hotel

Transportation Relationships. Alternative 1 is to construct a smaller hotel with about 268 rooms, and 5,000 square feet (half the amount of space in the proposed action) of meeting space. The 'ballroom' meeting area would be eliminated. Employees would be reduced by about 25 percent. All other functional relationships relative to ground-side transportation would remain similar to the proposed action.

Traffic Generation. The reduction in number of rooms would result in no change from the proposed action. Off-site guest transportation needs are off-set by the reduction of courtesy van trips that on-site guests would otherwise require. Halving the on-site meeting/banquet facilities would halve the off-site traffic activity associated with the function rooms as compared to the proposed action on a maximum activity day. Overall, peak volumes on the upper drive associated with the smaller scale alternative would be reduced one-half percent, from 2% to 1 1/2/ %.

Parking Generation. This alternative would reduce on-site peak parking needs compared to the proposed action from 4% to 2 1/2% of garage capacity. Off-site employee parking would be reduced by about 25 percent.

Operation Impacts. Traffic impacts under full operation under this alternative would be about 65 percent of the peak August day traffic volumes shown on Figure 3.11 for the proposed action.

Construction Impacts. Construction vehicle and employee access and parking would be the same as for the proposed action.

3.5.2.3 No Action

The No Action Alternative would result in traffic and parking operations as described in section 3.5.1.3 - *Future Conditions Without Project.* There would be no construction impacts.

3.5.3 Mitigation Measures

3.5.3.1 Proposed Action

Mitigation measures during the construction phase include:

During construction, a site construction access route via Air Cargo Road would be established to eliminate construction vehicle use of the terminal drive system.

Construction employees would park in employee parking lots and be shuttled to and from the construction site.

During operation, the proposed project would have a relatively minor impact on traffic volumes on the airport access and terminal drive system. The enplane drive ramps would be widened by two lanes by the POS.

Traffic control devises such as hotel access lane demarcation, lane striping and roadway geometry would be incorporated into the approach ramps.

The project would provide a traffic 'pullout' lane from the terminal enplane drive system to accommodate short-term hotel vehicular access needs. During the morning and noon enplane drive peaks for United Airlines, vehicles accessing the hotel would need to queue in the terminal backup. Vehicles exiting the hotel would need to maneuver through the United terminal queues in a manner similar to all other vehicles associated with the United operations. The hotel would add about 28 peak hour trips to the 1,325 airport terminal trips during these peak hours during August in year 2000.

If required once improvements are in, additional traffic control officers could be provided at this location to assist traffic flow.

A primary hotel access would be via a pedestrian skybridge from the sixth floor of the main terminal garage. Signing to the hotel would direct motorists to the parking garage, to minimize vehicular access via the terminal enplane drive. A block of 70 of the 8,400 non-rental car parking garage spaces would be designated on its sixth floor for exclusive hotel use. Valets may be provided to optimize the use of these spaces by both hotel guest as well as function room user vehicles (accommodating up to 100 vehicles).

The proposed action could generate use of up to 323 garage and 150 off-site employee parking spaces during its noon peak and evening parking demand periods. The added hotel parking demand on the main terminal parking garage could be accommodated during most hours of the day, and would add to garage revenues. However, the hotel and the POS would need to monitor closely the 11 am to 1 pm parking garage peak during August, certain weekdays in October and the Thanksgiving and Christmas holiday seasonal peaks. If terminal garage expansions and/or parking pricing policies should lag parking garage demand, the hotel may need to limit noon banquet activities during these seasonal peak periods. Steps suggested by the hotel operator to address the hotel's potential impact to road and parking infrastructure includes:

- Limit hotel operator associates parking to off-site locations, and encourage through existing corporate policy employee trip reduction measures.

- Market the hotel to frequent business travelers who will be arriving at the hotel on foot from the main terminal.

- Attempt to minimize large business meetings taking place at the hotel during the peak usage times of the parking garage, by marketing the easy access to parking at non-peak demand times.

- Work closely and cooperate with the Port of Seattle garage operators to understand in advance peak garage demands.

- When possible, move group business that might create traffic inconvenience at the airport to the hotel operator's downtown location, while shifting downtown business to the hotel at non-peak parking and traffic demand periods.

3.5.3.2 Alternative 1 - Smaller Scale Hotel

The differential in rooms provided in the proposed action versus the Smaller Scale Hotel alternative would have a negligible impact on traffic and parking. Reducing the 'function room' space by half would have a significant impact on reducing hotel generated traffic and parking. On the other hand, this reduction would have minimal impact on overall traffic circulation and parking impacts in the terminal vicinity due to the absolute number of vehicles involved.

3.5.3.3 No Action

The No Action alternative would require no mitigation.

3.5.4 Unavoidable Adverse Impacts

The proposed project would add a 2% traffic increase to the Sea-Tac terminal enplane drive, and about a 1% traffic increase to the lower deplane drive. These impacts are equivalent to an expected 3 to 6-month increase in the projected traffic increases on the terminal drive system. The project

would address these impacts along its frontage by a 'pullout drive' system; however, it would provide no other terminal drive capacity improvements.

The hotel project would increase parking demand in the main Sea-Tac terminal parking garage, and on nearby off-site employee parking facilities. However, this impact would be significant only during the 11am to 1 pm period of maximum use of on-airport parking facilities.

3.6 AESTHETICS AND URBAN DESIGN

The airport environs were analyzed for potential views that could be impacted by the development of the proposed hotel. The analysis included photo documentation of key views and the computer simulation of height and bulk features of the proposed hotel superimposed on the site of the existing United Airlines building. While the hotel will undoubtedly be seen as a new landmark at Sea-Tac International Airport because of its size and prominent location, it did not significantly block any existing views. Due to Port of Seattle and FAA concerns about reflection off of building facades at the airport, the hotel will be constructed of non-reflective materials. The issue of aesthetics was not subject to further analysis based on the lack of any identified significant adverse environmental impacts.

Appendix C contains documentation of views and building massing used in this determination.

3.7 PUBLIC SERVICES AND UTILITIES

A review of utility requirements and potential public service (police, fire, emergency medical) impacts was undertaken for the proposed hotel. The hotel site is fully served by existing utilities although it will be necessary to provide new service connections to the hotel structure. No capacity limitations were identified for the required utilities.

Similarly, the site is fully accessible by police, fire and emergency medical services. The Port of Seattle Fire Department provides basic coverage to the site and is supported by a mutual aid agreement with surrounding local fire districts. The Port of Seattle Police Department provides police protection services at the site and operates a 911 service on Port property. The Port of Seattle has letters of agreement in place with all surrounding law enforcement agencies for mutual aid assistance during emergencies. The Port of Seattle Fire Department, King County Paramedics and private carriers provide emergency medical services in the project area.

Since no significant, adverse environmental impacts to either utility systems or public service coverage were identified in the analysis, no further evaluation of utilities or public services was conducted. Information on specific utilities and public services is contained in Appendix D.

REFERENCES

REFERENCES

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Federal Agencies

Federal Aviation Administration
U.S. Army Corps of Engineers
U.S. Bureau of Indian Affairs
U.S. Fish and Wildlife Service
U.S. Environmental Protection Agency

Indian Nations

Duwamish Tribe
Muckelshoot Tribe
Suquamish Tribe

State Agencies

Department of Archaeology and Historic Preservation
Department of Ecology
Department of Fisheries
Department of Natural Resources Division of Aquatic Lands
Department of Natural Resources SEPA Center
Department of Transportation
Department of Wildlife

Regional Agencies

Municipality of Metropolitan Seattle Environmental Planning
Puget Sound Air Pollution Control Agency
Puget Sound Regional Council
Regional Transit Authority

King County

Building and Land Development
Environmental Division
Public Works Department
Roads Department
Seattle-King County Department of Public Health

King County Branch Libraries

Boulevard Park
Burien
Des Moines
Foster
SeaTac
Tukwila
White Center

Local Agencies

City of Burien City Manager
City of Burien Mayor
City of Des Moines City Manager
City of Des Moines City Manager
City of Federal Way City Manager
City of Federal Way Mayor
City of Normandy Park City Manager
City of Normandy Park Mayor
City of Tukwila City Manager
City of Tukwila Mayor
City of SeaTac City Manager
City of SeaTac Mayor
City of SeaTac Land Use Division
City of SeaTac Planning Director
Midway Sewer District
Seattle-King County Economic Development Council
Seattle Citizens Bureau
Seattle City Light
Seattle Fire Department
Seattle Public Library Government Publications

Others

Airline Station Managers
Interested organizations and residents
League of Women Voters
Southwest King County Lodging Association
Southwest King County Chamber of Commerce
Trout Unlimited
University of Washington Government Publications

APPENDICES

APPENDIX A - AIR QUALITY

APPENDIX B - EARTH

APPENDIX C - LAND USE/AESTHETICS & URBAN DESIGN

APPENDIX D - PUBLIC SERVICES AND UTILITIES

APPENDIX A
AIR QUALITY

SUMMARY

This report describes the carbon monoxide monitoring study and qualitative assessment conducted by McCulley, Frick, & Gilman, Inc. to evaluate potential air quality impacts related to the proposed hotel at Sea-Tac International Airport. The study focused on air quality in the immediate vicinity of the hotel, which is proposed to be constructed on the site of an existing United Airlines Office Building.

The project site is adjacent to the upper level, enplaning traffic driveway and would be affected primarily by emissions from ground transportation sources in the immediate vicinity. To a lesser degree the site also could be affected by emissions from aircraft operations and from emissions from other (i.e., non-local) ground transportation sources in the area.

The traffic analysis indicates the proposed hotel complex would have little affect on traffic in the area; although the project would increase traffic in some areas, it would reduce traffic in other areas. Based on the conclusion in the traffic analysis that the facility would have a minor effect (2% increase) on traffic volumes, the expected air quality impacts from the proposed hotel would be minimal. On the other hand, because the location of the proposed facility is near a congested roadway in an area that may be affected by emissions from aircraft and ground transportation sources, there was a concern about potential effects of carbon monoxide (CO) concentrations on guests and employees *inside* the hotel. For this reason a CO monitoring study was conducted at the project site from December-January 1994/1995. This monitoring program documented very low ambient concentrations of CO.

1. Affected Environment

1.1 Climate

The general meteorological conditions of the Puget Sound area are typical of a marine climate, with prevailing air currents flowing from the Pacific Ocean. The relatively cool summers, mild winters, and wet weather characteristic of a marine climate are enhanced by the presence of Puget Sound. In addition, the Cascade Range to the east serves as a partial barrier to the temperature extremes of the continental climate of eastern Washington.

Two major meteorological patterns dominate local weather. In late spring, an eastern Pacific high pressure region (or "ridge") is located off the Washington and Oregon coasts. This ridge forces Pacific storms well north of Washington, resulting in dry, stable weather conditions in Puget Sound. The dry season and temperatures peak toward the end of July and beginning of August. Winds are

relatively light and are frequently from the north and northwest during summer. Local wind regimes such as the upslope-downslope daily flows in mountainous terrain and the onshore-offshore breeze along shorelines are more noticeable than in winter, largely because regional weather is relatively mild and because of increased sunshine.

During winter, a relatively stationary low pressure region often develops in the Aleutian Islands, and regularly sends Pacific storms through British Columbia and Puget Sound. This pattern is responsible for the cloudy, rainy winters for which Puget Sound is noted. Winds are generally from the south but are strongly influenced by local terrain.

Due to the low solar heating of the land in winter, nighttime inversions often last until late in the day and, on occasion, for several days. It is during these very stable atmospheric conditions that monitoring instruments measure high concentrations of those air pollutants emitted at ground level, because little vertical dispersion occurs. Such ground-level emitted pollutants include CO from motor vehicles and particulate matter from wood stoves. This meteorological stability and resulting pollutant concentrations may be worse in areas of uneven terrain such as river valleys, because of the additional restriction on air flow by valley walls.

Meteorological conditions during the air quality monitoring program that was conducted as part of this study are discussed in a later section.

1.2 Air Quality Regulatory Overview

Three agencies have jurisdiction over the ambient air quality in the transportation improvement area: the U.S. Environmental Protection Agency (EPA), the Washington Department of Ecology (Ecology), and the Puget Sound Air Pollution Control Agency (PSAPCA). These agencies establish regulations that govern both the concentrations of pollutants in the outdoor air and contaminant emissions from air pollution sources. Although their regulations are similar in stringency, each agency has established its own standards. Unless the state or local jurisdiction has adopted more stringent standards, the EPA standards apply. Table 1 displays the outdoor, or "ambient" air quality standards that apply in the project area.

Some of the pollutants listed in Table 1 are subject to both "primary" and "secondary" federal standards. Primary standards are designed to protect human health with an adequate margin of safety. Secondary standards are established to protect the public welfare from any known or anticipated adverse effects associated with these pollutants, such as soiling, corrosion, or damage to vegetation.

Ecology and PSAPCA maintain a network of air quality monitoring stations throughout the Puget Sound area. In general, these stations are located where there may be air quality problems, and so are usually in or near urban areas or close to specific large air pollution sources. Other stations are located in remote areas to provide an indication of regional air pollution levels.

Table 1. Ambient Air Quality Standards

POLLUTANT	NATIONAL PRIMARY	NATIONAL SECONDARY	WASHINGTON STATE	PSAPCA
Total Suspended Particulate Matter (TSP)				
Annual Geometric Mean ($\mu g/m^3$)			60[a]	60[a]
24-hour Average ($\mu g/m^3$)			150[b]	150[b]
Inhalable Particulate Matter (PM10)				
Annual Arithmetic Mean ($\mu g/m^3$)	50	50	50	50
24-hour Average ($\mu g/m^3$)	150[c]	150[c]	150[c]	150[c]
Sulfur Dioxide (SO_2)				
Annual Average (ppm)	0.03[a]		0.02[a]	0.02[a]
30-day Average (ppm)				0.04[a]
24-hour Average (ppm)	0.14[b]		0.10[b]	0.10[a]
3-hour Average (ppm)		0.50[b]		
1-hour Average (ppm)			0.25[d]	0.25[d]
1-hour Average (ppm)			0.40[b]	0.40[a]
5-minute Average(ppm)				1.0[e]
Carbon Monoxide (CO)				
8-hour Average (ppm)	9[b]		9[b]	9[b]
1-hour Average (ppm)	35[b]		35[b]	35[b]
Ozone (O_3)				
1-hour Average (ppm)	0.12[c]	0.12[c]	0.12[c]	0.12[c]
Nitrogen Dioxide (NO_2)				
Annual Average (ppm)	0.05[a]	0.05[a]	0.05[a]	0.05[a]
Lead (Pb)				
Quarterly Average ($\mu g/m^3$)	1.5[a]	1.5[a]		1.5[a]

$\mu g/m^3$ = micrograms per cubic meter; **ppm** = parts per million

[a] Never to be exceeded

[b] Not to be exceeded more than once per year

[c] Standard attained when expected number of days per year with maximum hourly average above this limit is equal to or less than one.

[d] Not to be exceeded more than twice in seven days

[e] Not to be exceeded more than once in eight hours

Based on monitoring information collected over a period of years, the state (Ecology) and federal (EPA) agencies designate regions as being "attainment" or "non-attainment" areas for particular air pollutants. Attainment status is therefore a measure of whether air quality in an area complies with the federal health-based ambient air quality standards displayed in Table 1.

Although the attainment status of the area is an important indication of the regional air quality, measurements in the immediate vicinity are more accurate indications of whether concentrations of air pollutants are higher or lower than ambient air quality standards set to protect human health and welfare. In the case of transportation projects, the air pollutant of major concern is carbon monoxide, because it is the pollutant emitted in the largest quantity by transportation sources for which an ambient air standard exists. The monitoring study conducted as part of this analysis therefore focused on ambient concentrations of CO at the project site.

Other pollutants generated by fuel burning include the ozone precursors, hydrocarbons and nitrogen oxides. Fine particulate matter (PM_{10}) also is emitted in vehicle exhaust and generated by tire action on pavement (or unpaved areas), but the amounts of PM_{10} generated by individual vehicles are small compared with other sources (e.g., a wood-burning stove). Sulfur oxides and nitrogen dioxide also are both emitted by space heating and motor vehicles, but concentrations of these pollutants are generally not high except near large industrial facilities.

1.3 Existing Air Quality

1.3.1 Ozone

Ozone is a highly reactive form of oxygen created by sunlight-activated chemical transformations of nitrogen oxides and volatile organic compounds (hydrocarbons) in the atmosphere. Unlike carbon monoxide concentrations which tend to occur very close to the emission source(s), ozone problems tend to be regional in nature because the atmospheric chemical reactions which produce ozone occur over a period of time. During the lag time between emission and ozone formation, ozone precursors can be transported far from their sources. Transportation sources are one of a number of sources which produce the precursors to ozone.

During the summer of 1990, ozone concentrations exceeded the 0.12 ppm ambient standard several times at monitors in both Enumclaw and Lake Sammamish State Park. Consequently EPA designated all of Snohomish, King, and Pierce Counties as non-attainment for ozone. In late 1992 the ozone non-attainment area was reduced in size, but still includes all of Pierce County, all except a small portion in the northeast corner of King County, and the western portion of Snohomish County (Federal Register/Vol 57, No. 230, 11/30/92, page 56777).

PSAPCA and Ecology are currently studying recent ambient air quality monitoring and meteorological data to begin the process of petitioning the EPA for ozone attainment redesignation. There were no recorded ozone exceedances at Ecology monitoring stations in the Puget Sound region in 1991, 1992, or 1993 (PSAPCA 1994). During July 1994, however, ozone concentrations

exceeded the allowable limit twice at the Enumclaw monitor, and once at the Pack Forest station (Schneider 1994). Because the ozone standard allows concentrations at each monitoring site to exceed the limit up to three times in three years, the ozone standard has not been violated since 1990. Two or more maximum hourly ozone concentrations above 0.12 ppm at the Enumclaw monitor in the next two years would cause the standard to be violated. This would very likely extend the non-attainment status of the area.

This designation requires the state to develop a State Implementation Plan (SIP) to reduce emissions and bring ozone concentrations back into attainment. The existing SIP is presently being considered for revisions which may require further efforts to reduce ozone-precursor emissions (hydrocarbons and oxides of nitrogen) from all sources including transportation, as well as requiring emissions reductions from some large industrial sources. Although the project area is included in the ozone non-attainment area, the non-attainment status has no direct implications for the proposed Sea-Tac hotel project.

1.3.2 Fine Particulate Matter (PM10)

Total suspended particulate (TSP) is the "total" amount of particulate matter in the ambient air including particles up to about 75 micrometers in diameter. Until 1987 there were federal, state, and local regulations limiting TSP. In 1987 the federal TSP standards were replaced with standards based on the fraction of the total particulate less than or equal to about 10 micrometers in diameter (PM10). This is the important size fraction of particulate matter in terms of potential human health impacts, because particles this size can be inhaled deeply into the human lung.

PM10 is generated by industrial activities and operations, fuel combustion sources like residential wood burning, motor vehicle engines and tires, and other sources. Such sources occasionally cause high PM10 levels in the Puget Sound region, and several areas in Seattle and Tacoma have been declared non-attainment areas because PM10 concentrations sometimes exceed health standards. The project area is not included in an existing PM10 non-attainment area.

There are no direct monitoring data for PM10 specifically in the project area. Although there are some sources of PM10 including aircraft and motor vehicle exhaust, the wide spatial distribution and low emission rates of these engines lead to the conclusion that PM10 concentrations are likely below the limits set by the health standards most of the year. During prolonged periods of stagnant meteorological conditions, however, it is possible that PM10 emissions from vehicles, residential solid-fuel space heating, and other sources in the area could elevate PM10 concentrations beyond the established health standards.

1.3.3 Carbon Monoxide (CO)

Carbon monoxide is the product of incomplete combustion, and it is generated by transportation sources and other fuel-burning activities like residential space heating, especially heating with solid fuels like coal or wood. Carbon monoxide (CO) is usually the pollutant of greatest concern related

to transportation sources because it is the pollutant emitted in the greatest quantity for which short-term health standards exist. Short-term standards (as opposed to annual average standards) are often the controlling, or most restrictive air pollution standards. There are two air quality standards for carbon monoxide: a 1-hour average standard of 35 parts per million (ppm) and an 8-hour average standard of 9 ppm. The 8-hour standard is usually the most restrictive, and it is considered to be exceeded when the 8-hour average CO concentration reaches or exceeds 9.5 ppm. Both standards may be exceeded once each year without violating air pollution rules.

Unlike ozone, carbon monoxide is a pollutant whose impact is usually very localized. The highest ambient concentrations of carbon monoxide usually occur near congested roadways and intersections during periods of low temperatures, light winds, and stable atmospheric conditions. Because the impact occurs so close to the source, it is not possible to extrapolate carbon monoxide concentrations from regional data or distant monitors.

1.3.3.1 CO Monitoring Study

To provide an indication of existing CO levels in the project area, a carbon monoxide monitoring program was conducted from December 1994 through January 1995. This program measured CO levels at the project site, with the monitoring sensor placed to collect CO from a position overlooking the enplaning driveway (the upper drive) that passes the entry of the project site.

The CO monitoring study was conducted during the period of the year when CO levels would be expected to be highest, with cold temperatures and relatively stable atmospheric conditions. The airport houses a National Weather Service Station where meteorological conditions are routinely recorded. Measured meteorological conditions during the month of December were examined to determine the representativeness of the meteorology during the sampling period (meteorological data for January, 1995 were not available as of the present writing). The most important meteorological factors for determination of air quality are average wind speed and ambient temperature. During the month of December, 1994, wind speeds were slightly higher than average, around 10.5 miles per hour (mph). The long-term average wind speeds for the month of December are 9.8 mph. The higher wind speeds would be expected to result in slightly lower CO concentrations than might have occurred in a normal year. Average temperatures for the month were slightly higher than normal. The average high temperature for December, 1994, was 46.5°F, while the normal high for Sea-Tac is 45.4°F. Similarly, the average daily low for December, 1994, was 36.9°F, while the normal low for December is 35.5°F. As with the wind speeds, higher temperatures would be expected to result in slightly lower concentrations of CO. Both of these effects would be expected to be very minor in terms of overall effect on CO concentrations. The measured CO concentrations can be expected to be representative of concentrations at the proposed hotel location.

The CO monitoring study used a Thermal Electron Model 48 Non-dispersive Infrared (NDIR) continuous monitoring system. Data were tabulated based on 15-minute averaging times, and were later used to calculate 1-hour and running 8-hour CO averages. The results of the CO monitoring study are displayed in Figure 1 through Figure 4.

As shown in these figures, both 1-hour and 8-hour CO levels during the measurement period were far below the levels allowed by the ambient air quality standards. The highest 1-hour concentration during the study was 6 ppm, and occurred on December 21, 1994. Six ppm is only 17% of the level allowed by the 35-ppm 1-hour standard. The highest 8-hour level during the measurements occurred on December 12, and at 4.4 ppm, was less than 49% of the level allowed by the 9-ppm 8-hour standard. The highest 1-hour and 8-hour average CO levels during January 1995 were 4.8 and 3.3 ppm, respectively. These measured existing carbon monoxide concentrations at the project site are well within the levels allowed by the state and federal health standards.

Based on the CO measurements it is possible to examine the diurnal variation of hourly CO concentrations during the monitoring. A summary is displayed in Figure 5. As shown in this graph, during December 1994 average hourly CO concentrations fluctuated in a pattern similar to periods of heaviest ground transportation activities. Concentrations reached the lowest levels during the hours of 2-3 a.m., and began building between 4 and 5 a.m. to produce a peak about 7 a.m. Levels then declined for several hours and then peaked again between 1 and 2 p.m. Levels then dropped slightly and then rose to the highest peak of the day between 5 and 7 p.m. This pattern is consistent with the conclusion that ground transportation vehicle sources caused most of the CO measured during December 1994. Diurnal CO fluctuations during January 1995 were similar, but less clear due to weather conditions.

1.3.4 Air Toxics Monitoring Summary

In addition to the "criteria" air pollutants, listed in Table 1, there are a host of other contaminants in the air for which standards have not been set. These contaminants are referred to collectively as "air toxics". Air toxics have been of interest at Sea-Tac Airport in the past because aircraft engines are known to emit small quantities of unburned or partially burned hydrocarbons. A sampling program was undertaken during the late fall and early winter of 1993 to measure concentrations of air toxic species. Specific interest was focused on benzene, carbonyl compounds and formaldehyde.

In the absence of standards for these chemical species, it is difficult to evaluate the measured concentrations. There are screening criteria for evaluation of proposed new stationary industrial sources, such as power plants or smelters, but measurements of air toxic concentrations in urban areas throughout the United States regularly exceed screening levels, and the criteria are not applicable to the Sea-Tac Airport. Measured concentrations of air toxics at Sea-Tac Airport were within the ranges of measured values at other urban areas.

It is possible to infer the sources responsible for measured air toxic concentrations by calculating ratios of concentration for different species, called "signature ratios". For the Sea-Tac study, the signature ratios suggested the primary contributors to concentration were automobiles, not aircraft. Concentrations of air toxics are not expected to be of major significance to the hotel project, since the hotel would not generate a significant quantity of these emissions. The only issue of significance is whether users of the hotel would be exposed to high concentrations of air toxics. Based on the

sampling program it is concluded that concentrations of air toxics in the airport vicinity are not significantly different from those in any major urban area, such as downtown Seattle.

2. IMPACTS

2.1 Impacts During Construction

Construction would require the use of heavy trucks and smaller equipment such as generators and compressors. These engines would emit air pollutants that would slightly degrade local air quality, but their emissions and resulting concentrations would be far outweighed by emissions from traffic normally in and around the project area.

Some phases of construction would cause odors detectible to some people near the project site. This would be particularly true during paving operations using asphalt. The construction contractor(s) would have to comply with the PSAPCA regulations requiring the best available control measures to control the emissions of odor-bearing air contaminates. Such odors from paving operations would be short-term.

Construction equipment and material hauling can affect traffic flow in a project area. Given the presence of heavy traffic during some periods of the day, haul traffic would have the least affect on other traffic and would minimize indirect increases in traffic-related emissions if scheduled during off-peak times.

2.2 Operational Impacts

The primary air quality impacts associated with the proposed project would stem from emissions from ground transportation vehicles to and from the facility. The traffic analysis for this project indicates the project would result in a 2% increase in peak hour traffic. While the hotel would attract some additional off site traffic mainly as a result of the meeting facilities, it would reduce traffic to and from the site to reach overnight lodging, and would reduce the need for some visitors to use ground transportation. The traffic analysis projects that traffic related to the proposed hotel would comprise less than 1% of the daily in-bound traffic in the year 2000, which suggests the project has a very small potential to affect air quality in the area. With this magnitude of change in ground transportation source activities as a result of the hotel, pollutant emissions essentially would be unaffected by traffic related to the proposed project.

There are several factors which will influence air quality in the future at Sea-Tac airport. First, growth in airport use in the future will result in more vehicle traffic which will tend to increase emissions. However, over the same period of time, the average emission rates from motor vehicles will be decreasing due to the gradual replacement of older, more polluting vehicles with newer models. The growth in traffic may result in some additional congestion, which would in turn result in additional emissions, since slower-moving vehicles tend to produce more emissions per mile

traveled than fast moving vehicles. However, improvements in the roadways and increased use of public transportation the future may tend to reduce congestion in the future.

The CO monitoring program demonstrated that CO levels with existing traffic are far below the levels allowed by the respective 1-hour and 8-hour standards. The traffic analysis projects an increase of approximately 5,750 inbound vehicles per day between 1994 and 2000. The hotel contribution to this total would be around 525 vehicles. Using existing traffic volumes from the transportation analysis, the increase in traffic is on the order of 22%. As noted above, however, this 22% increase is not reflective of the increase in vehicle-generated emissions. The replacement of older vehicles would reduce emissions per trip. This is especially true in areas that require vehicle inspection and maintenance (I/M), as does most of the Puget Sound region. The continuation of this I/M requirement by state and local air quality rules is intended to ensure that the region continues to make progress toward attaining the ambient air quality standards. In this instance, the expected decline in vehicle emission rates between 1994 and 2000 are displayed graphically in Figure 6. As shown, CO emission rates are expected to continue to decline at an overall rate of about -27%. So while total daily in-bound traffic at the airport is expected to increase about 22% between 1994 and 2000, vehicle emission rates are expected to decline about 27%. This suggests that traffic will have a decreasing influence on air quality.

The above analysis does not consider the effect of increased congestion and the lowering of average vehicle speed, which would tend to increase emissions slightly. However, a number of airport improvements are planned which would reduce congestion and improve overall vehicular speed. The overall conclusion of the air quality investigation is that emissions from vehicular traffic at Sea-Tac Airport would be expected to remain the same in the coming years and the air quality should remain at present levels. The monitoring has demonstrated that air quality presently is well below allowable levels and could even tolerate a significant increase in emissions before approaching an ambient air quality standard.

The low level of emissions produced by the hotel traffic itself would have a negligible effect on air quality in the airport vicinity. Occupants of the hotel would be exposed to air quality similar to any urban area with significant traffic volume, such as downtown Seattle or Bellevue.

Based on the above analysis, it was concluded that the proposed action would not have a significant adverse impact on air quality at Sea-Tac or environs.

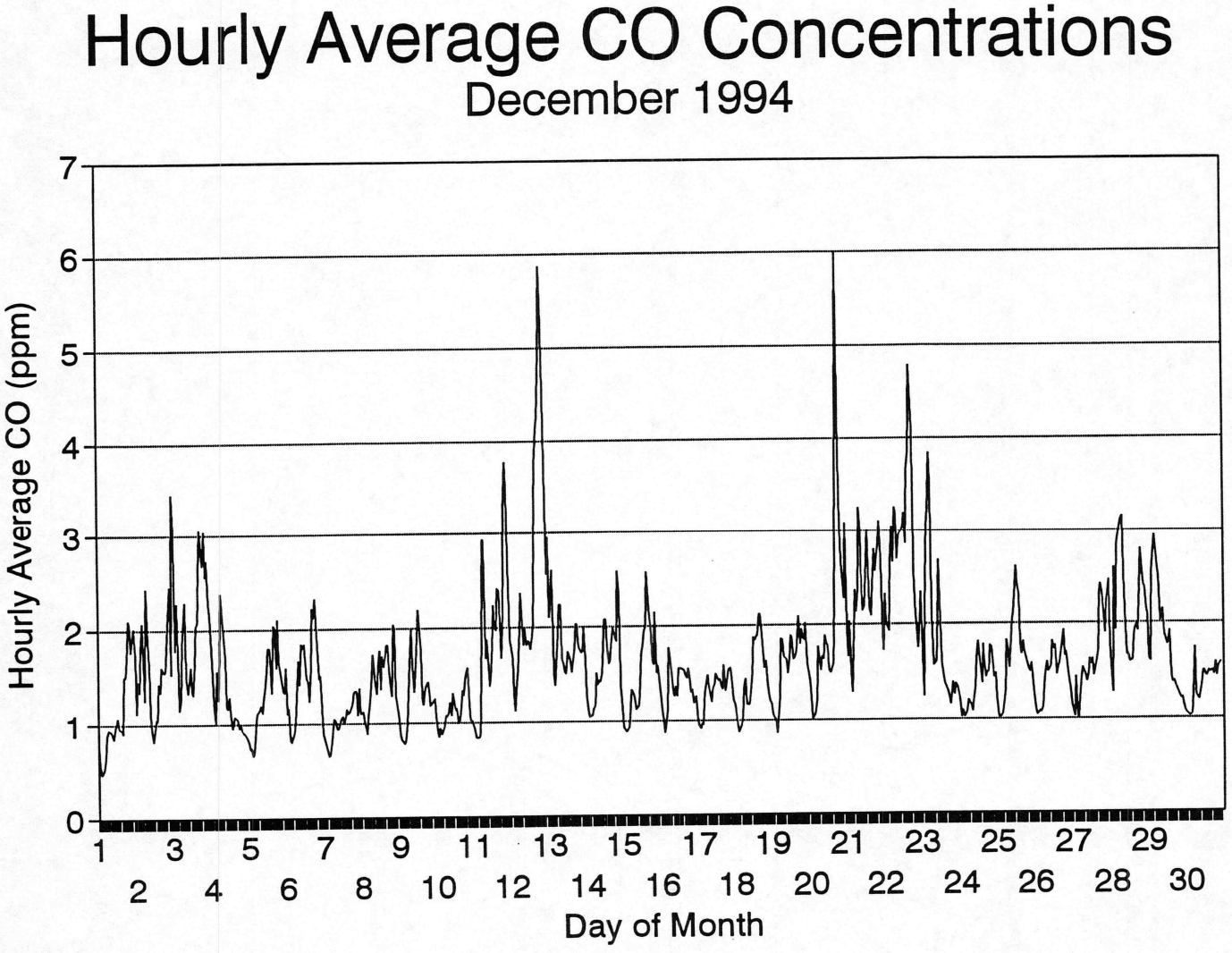


Figure 1. December 1994 Hourly Average CO Concentrations

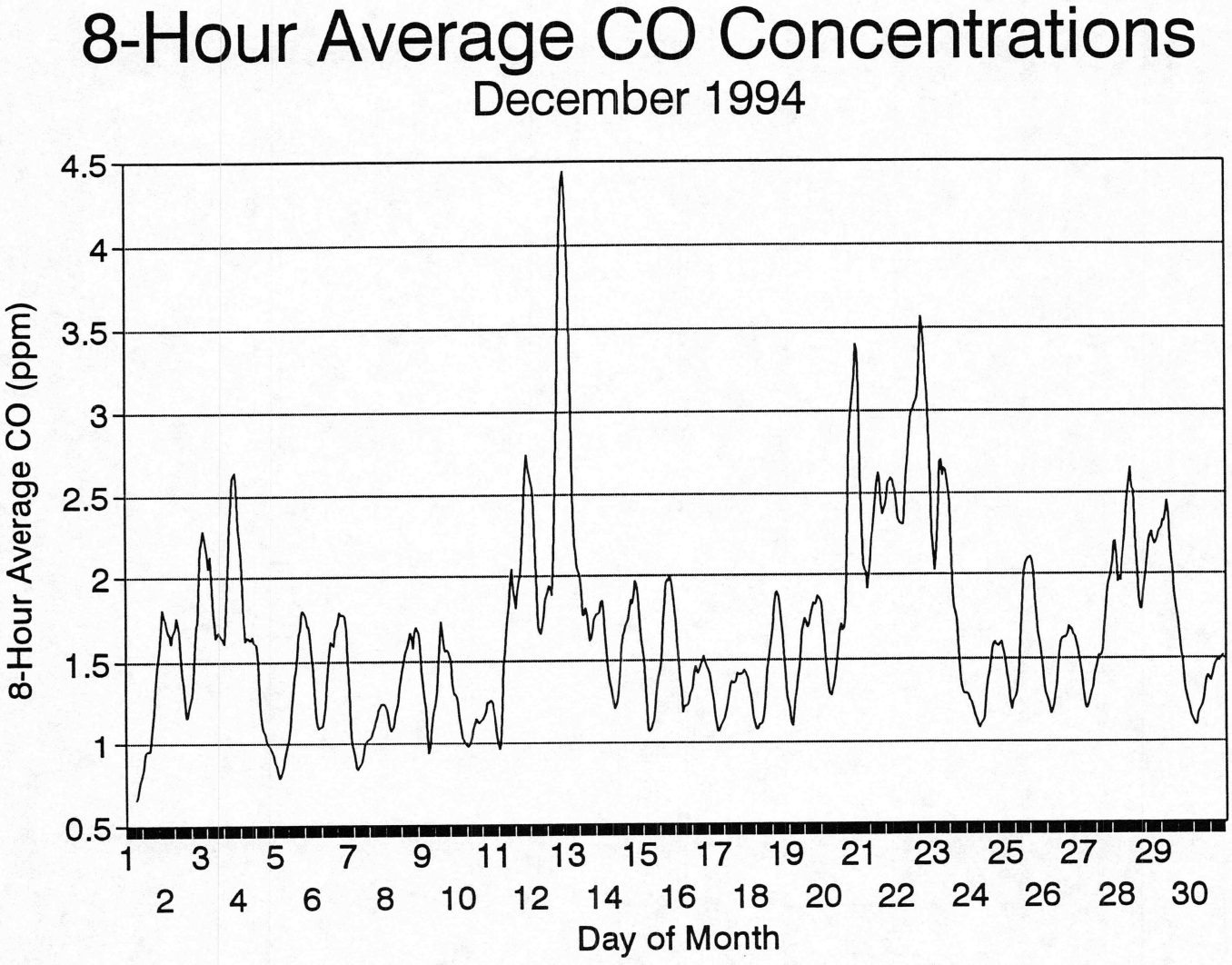


Figure 2. December 1994 Running 8-Hour Average CO Concentrations

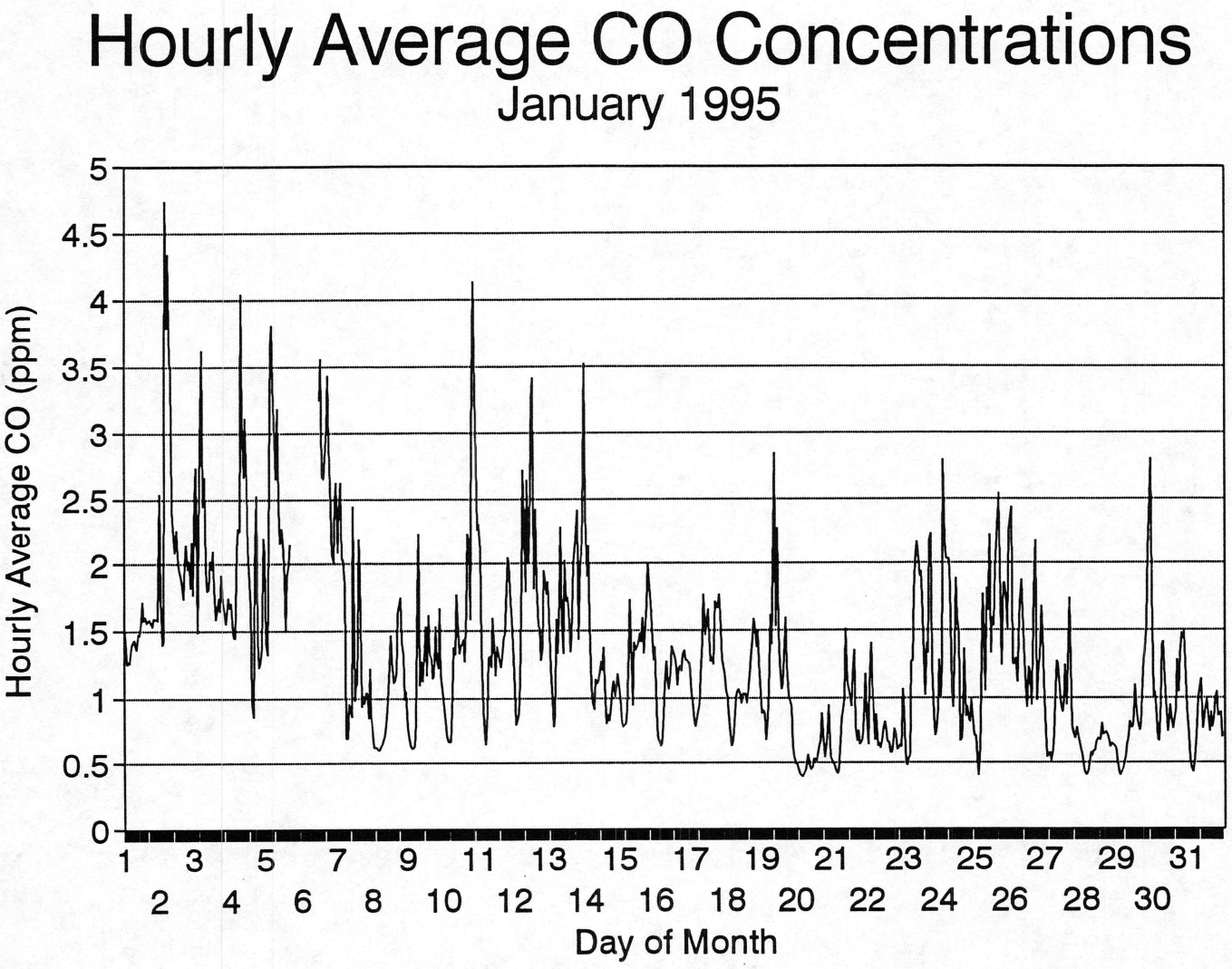


Figure 3. January 1995 Hourly Average CO Concentrations

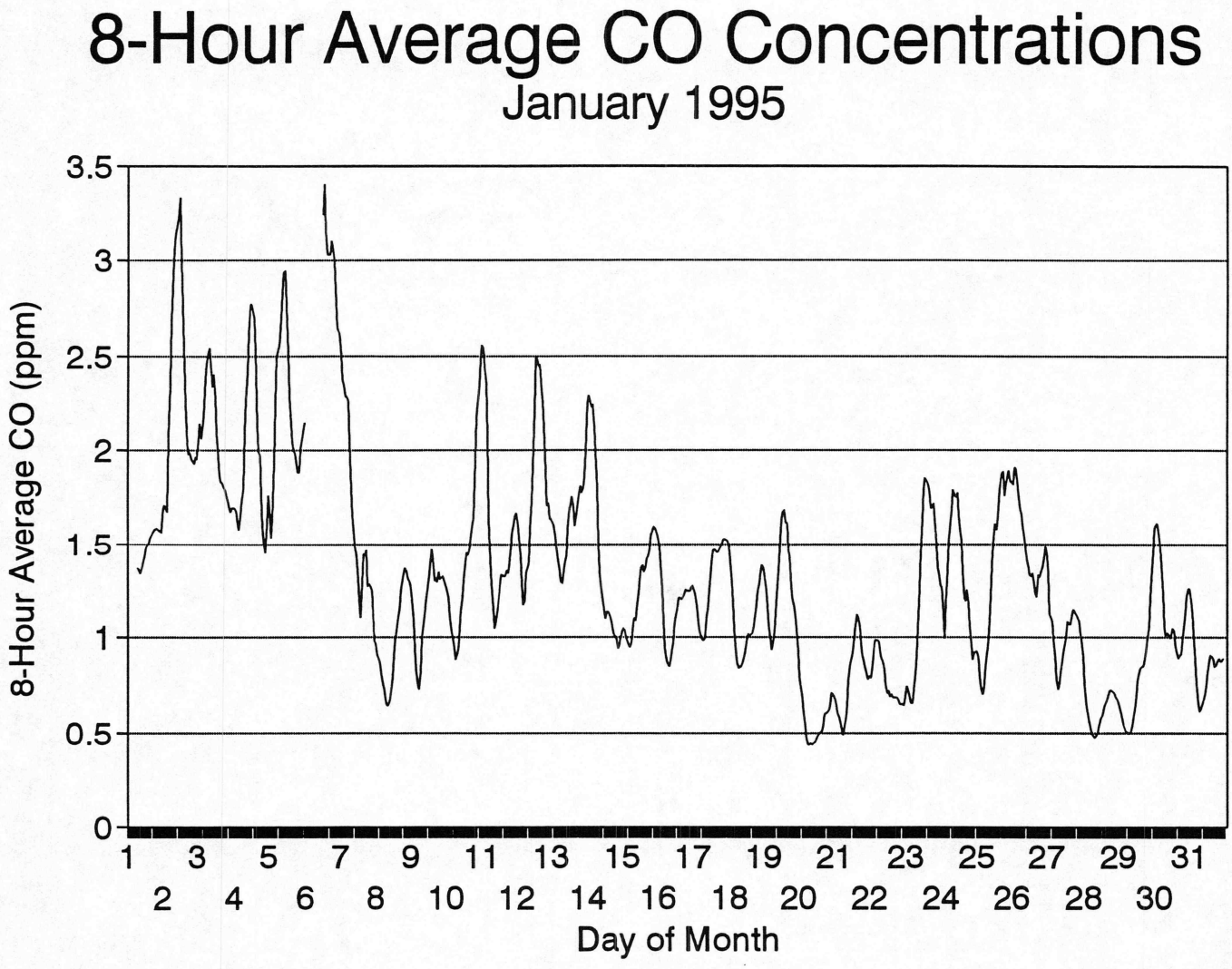


Figure 4. January 1995 Running 8-Hour Average CO Concentrations

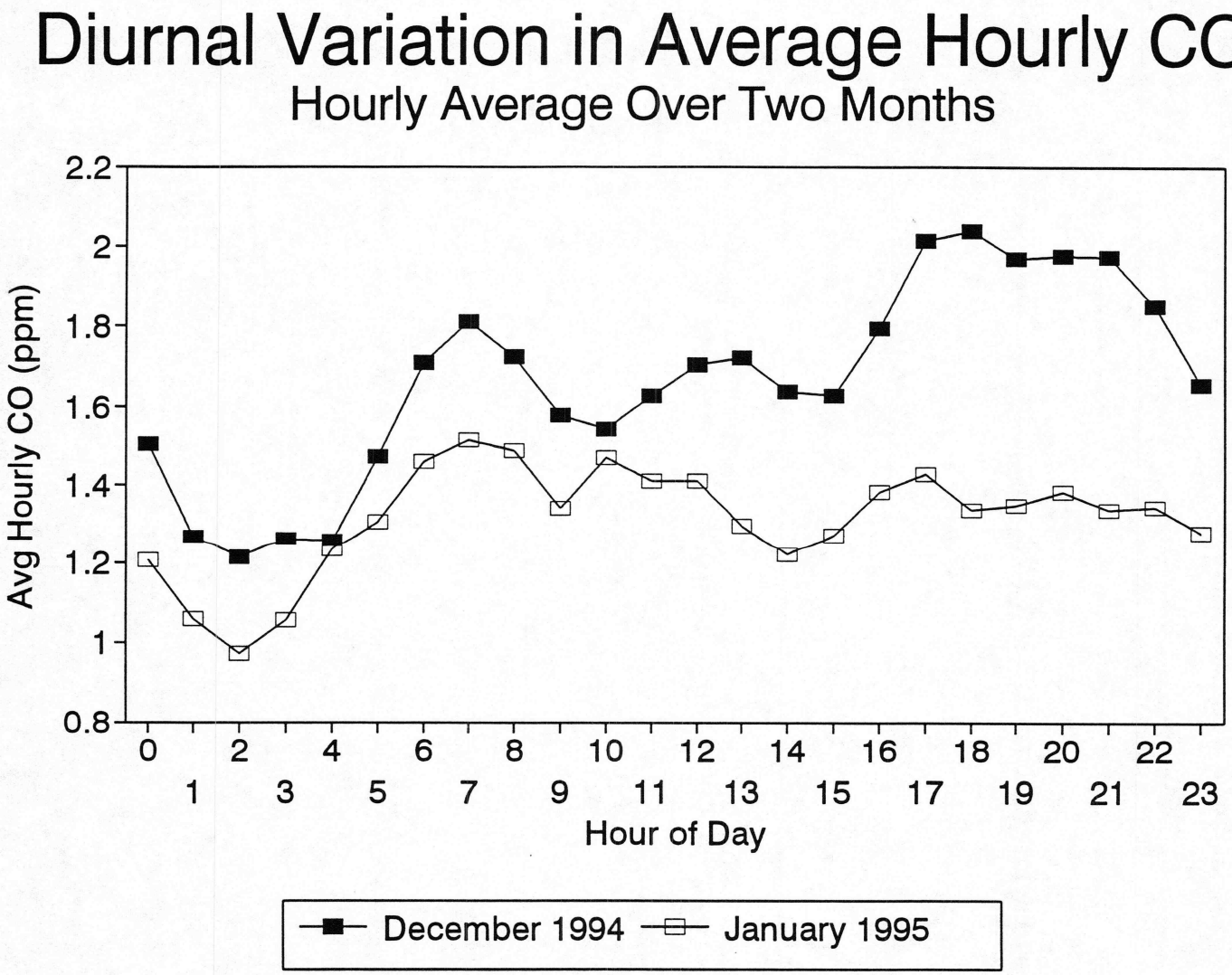


Figure 5. Diurnal Variations in Hourly CO Concentrations

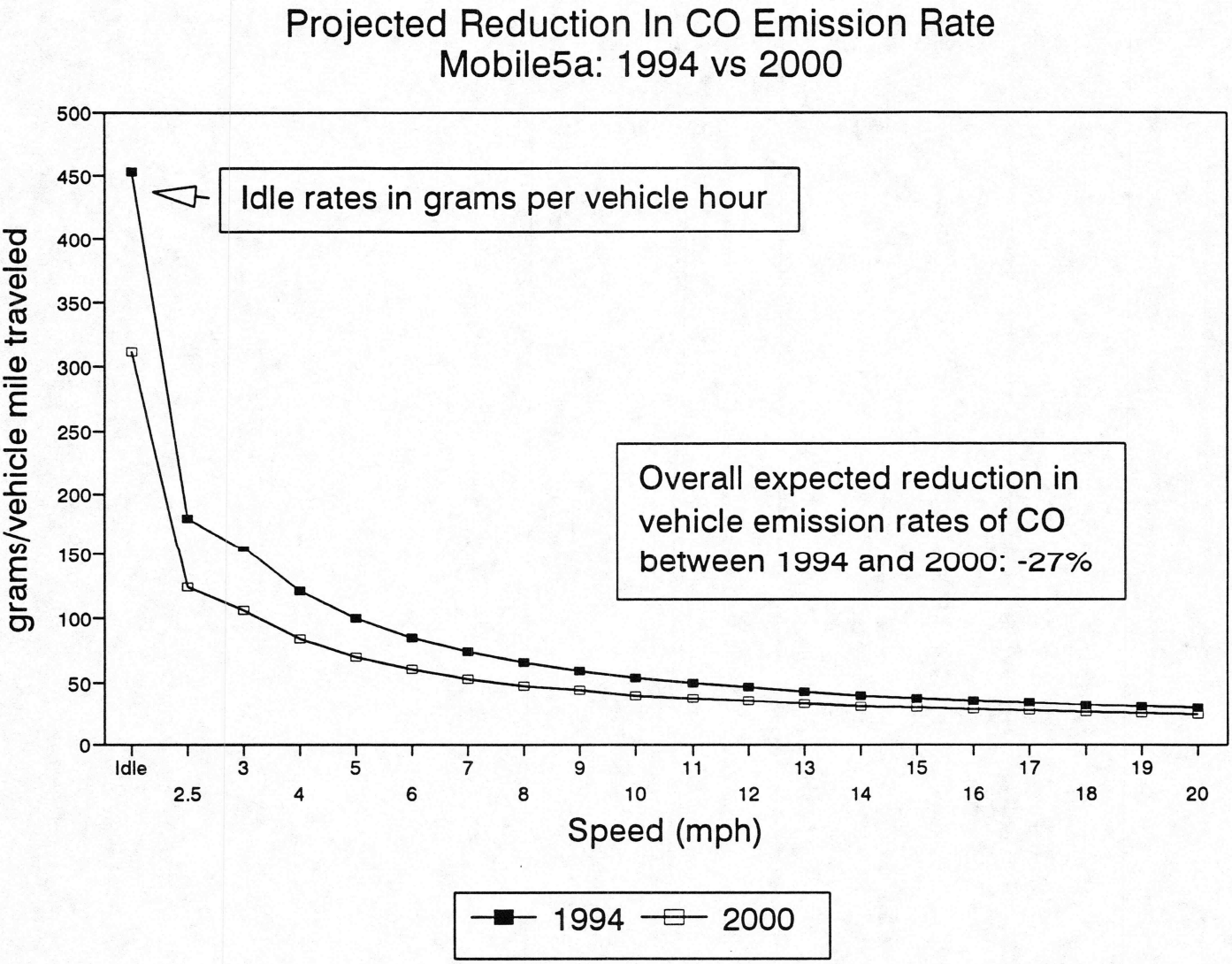


Figure 6. Current and Future Ground Vehicle Emission Rates

References

Puget Sound Air Pollution Control Agency (PSAPCA). 1994. *1993 Air Quality Data Summary*: for the Counties King, Kitsap, Pierce, and Snohomish. 100 Union Street, Seattle WA 98101-2038. September 1994.

Schneider, Doug. August 1994. Personal Communications. SIP Planning Unit Supervisor, Washington Department of Ecology.

APPENDIX B
EARTH

1. Introduction

This Appendix section provides background geotechnical information regarding the hotel site which will be situated between Concourse D and the Enplane Drive. The site is shown in relation to existing features on Figure 1.

2. Affected Environment

Impacts on this element of the environment are those that will result from the condition of the soil in place, excavated or backfilled. In place considerations include assessment of soil contamination potential and the ability of the soil to support a multi-story structure of the height contemplated.

2.1 Geology

The surficial geology of the site is, to a large extent, the result of the advances of continental glaciers into the Puget Sound region. The soils deposited during the advance of the glacial ice mass were overridden and consolidated to form a very compact soil, referred to as glacial till and glacial outwash. The till consists of an unsorted mixture of silt, sand and gravel, with occasional cobbles and boulders. The outwash consists of clean sand or sand-gravel mixtures. No bedrock is exposed on the site, and is estimated to be at a depth of about 1,200 to 1,600 feet below the surface in this vicinity.

The project area is located on the Des Moines drift plain, an elongated north-south plateau capped by glacial sediments, predominately till. The surface of the plain in the airport area was characterized by rolling terrain and relatively poor drainage with a number of small to moderate size lakes and ponds. Small ravines and drainage swales were common before the original airport development.

2.2 Site History

The Seattle-Tacoma International Airport site was developed in the late 1940s. During development, the undulating terrain was levelled and fill was placed in low areas and swales. The area in the vicinity of the proposed hotel site was one of those filled in the early airport construction. In 1949, a United Airlines (UAL) hangar was constructed adjacent to the northeast portion of the site now planned for hotel construction. Other structures near the hangar were also constructed, including the UAL building which now exists on the proposed hotel site. The UAL hangar was demolished in mid-1990, as part of the Concourse D expansion project. During the soils investigation and project construction, contaminated soil constituents were detected. The detected contamination triggered a soil remediation program. Excavations were conducted to remove five underground storage tanks

and all soils having contamination levels higher than the MTCA cleanup levels. The excavation reached a maximum depth of approximately 28 feet and extended into the northeast end of the proposed hotel site. The excavation was backfilled with imported fill materials after tests on soil samples obtained from the bottom and side walls of the excavation indicated that the contamination levels of the remaining soils were below the MTCA cleanup levels.

2.3 Site Conditions

2.3.1 Surface Conditions

A large part of the proposed hotel site is occupied by the existing UAL building. The rest of the area is covered with pavement. The surface is relatively flat. There is an existing retaining wall at the southwest end of the proposed hotel site. This wall is approximately 15 feet in height. A parking and vehicle staging area exists in front of the wall at the grade of the adjacent Deplane Drive.

2.3.2 Subsurface Conditions

The subsurface conditions were characterized based on geotechnical studies conducted in the immediate vicinity by Dames & Moore in 1968, 1969 and 1990, and subsequent borings and monitoring wells drilled by others. Figure 1 shows the location of borings and one monitoring well completed in the immediate vicinity of the site. Subsurface soil profiles are shown in Figures 2 and 3. The logs of the borings and monitoring well are presented in Figures 4 to 14.

Other than in the area already excavated and backfilled, the site is covered by about 10 to 18 feet of fill. This fill is believed to have been placed during the original airport development. The material is non-uniform in terms of density, compactness and strength as illustrated by the penetration resistances disclosed in obtaining soil samples. The northeast portion of the site has up to 28 feet of fill which was placed in 1991 after the removal of the underground storage tanks near the former UAL hangar and the contaminated soils under the hangar. This fill material was sand imported from a Boeing construction project north of the airport and was compacted by vibratory compactors during placement.

The fill materials are underlain by dense glacial till which is in turn underlain by dense glacially compacted outwash sand.

2.3.3 Soil Contamination

Soil contaminants, including total petroleum hydrocarbons (TPH), tetrachloroethene (PCE), trichloroethene (TCE), methylene chloride, and xylenes were detected at the UAL hangar site during the construction of the Concourse D expansion. The concentrations of these compounds exceeded the MTCA proposed cleanup levels at certain locations.

The detected contamination resulted in a soil cleanup program which was monitored by Converse Consultants NW in 1991. The limits of the excavation within and near the proposed hotel site are shown in Figure 1. Underground storage Tanks 1 to 4 and Tank 7 were removed. Tanks 5 and 6 were not located by excavation and were assumed to have been removed previously or never existed. Within the excavation, soils having contamination higher than the MTCA cleanup levels were removed. The maximum depth of the excavation within the hotel site was about 28 feet. Details of the cleanup program are presented in a report dated November 13, 1991 by Converse Consultants NW. The excavation was backfilled with imported fill materials after soil samples obtained from the bottom and side walls of the excavation indicated that contamination in the remaining soils was not detected or was well below the MTCA cleanup levels.

Based on the available information, the spreading of contamination from the UAL hangar site to the proposed hotel site at concentrations above MTCA cleanup levels is not likely. This conclusion is based on the remediation accomplished at the former hangar site and the results of tests on the side wall of the excavation toward the hotel site. Test results on the final sidewall show that the contaminant constituents were either non-detectable or were well below MTCA cleanup levels.

2.3.4 Groundwater Conditions

Three groundwater monitoring wells were installed in the area immediately northeast of the hotel site in 1990 for aquifer monitoring (Kennedy/Jenks/Chilton, January 1991). These wells were completed in the shallowest aquifer. The groundwater was found at a depth about 90 feet below the ground surface. Groundwater elevations in these wells indicate a westerly groundwater flow direction with a gradient of 0.0012 ft/ft in the aquifer beneath Concourse D.

Volatile organic compounds (VOC) with concentration levels higher than the MTCA proposed cleanup levels were detected from the water samples obtained from monitoring well MW-2. (Kennedy/Jenks/Chilton, 1991).

No remedial actions other than the excavation of the contaminated soils were taken. However, water quality was monitored continuously. The most recent monitoring results indicate no contamination found in the groundwater (Converse Consultants NW, August 1994).

3. Impact Assessment

3.1 Construction and Operation Impacts

Soil borings have been drilled previously by Dames & Moore and others within or close to the planned hotel site. Most of these borings were located near the northeast end of the site, where a United Airlines hangar previously existed. Based on this information the proposed project is not expected to result in significant adverse environmental impacts to soils. Boring locations, subsurface cross sections, pertinent boring logs are shown in Figure 1-14. A bibliography of all data reviewed is contained in the reference section to this Appendix.

3.2 Proposed Action

3.2.1 Soil Contamination

Contamination of subsoils in the northeast portion of the proposed hotel site were found by Dames & Moore in 1990 during their geotechnical investigation and site contamination assessment study for the expansion of Concourse D. The contamination is believed to be the result of spillages of petroleum products and solvents used in aircraft fueling and maintenance activities at and adjacent to the former United Airlines hangar. After the hangar was demolished in September 1990, an assessment of soil contaminants within and around the hangar area was made by Kennedy/Jenks/Chilton, and the need for remediation was established. The contamination was remediated by excavation in 1991 and Converse Consultants NW were retained to monitor the work. During the remediation, soil samples were taken from the bottom and side walls of the excavation for analytical tests. The test results indicate that the excavation, when completed to a maximum depth of approximately 28 feet, had effectively removed all soils having contamination above MTCA cleanup levels. Part of the excavation completed in 1991 extended into the northeast area of the proposed hotel site. The excavated area was backfilled to grade with clean, uncontaminated soil.

A remaining building occupied by United Airlines still covers a portion of the proposed hotel site. This building has been used as a flight kitchen and office facility. It contains some possible sources of minor contamination such as a hydraulic lift, elevator and workshop. Any soil contamination from such sources, if it exists, is not expected to be significant and should be very localized. United Airlines will conduct a soil contamination assessment of their building site once the building is demolished.

3.2.2 Foundation Support

Based on the available subsurface information in the vicinity of the hotel site, it appears that the site is covered by about 15 to 20 feet of fill soils. The fill is predominantly sand but exhibits variable compactness and density. The fill is underlain by compact glacial soils consisting of till and outwash sand. The glacial soils exhibit high strength and low compressibility, and should be used for foundation support of the hotel. A high-rise structure of the type planned should not be supported on the fill soils.

The lowest floor of the hotel is expected to be at or near the existing site surface grade. Because of the variable density and compactness of the fill soils, drilled augercast piles extending into the dense glacial till are indicated for foundation support of the hotel structure. These elements may be supported directly on the glacial till soils.

3.2.3 Earthwork/Foundation Construction

Earthwork construction, such as soil excavation, backfilling and compaction, will be minimized by the avoidance of deep excavation for basements or parking levels below grade. Impacts related to

noise and dust under such conditions will be minimal and will not have an adverse environmental impact. Traffic impacts are discussed in a separate section of this report.

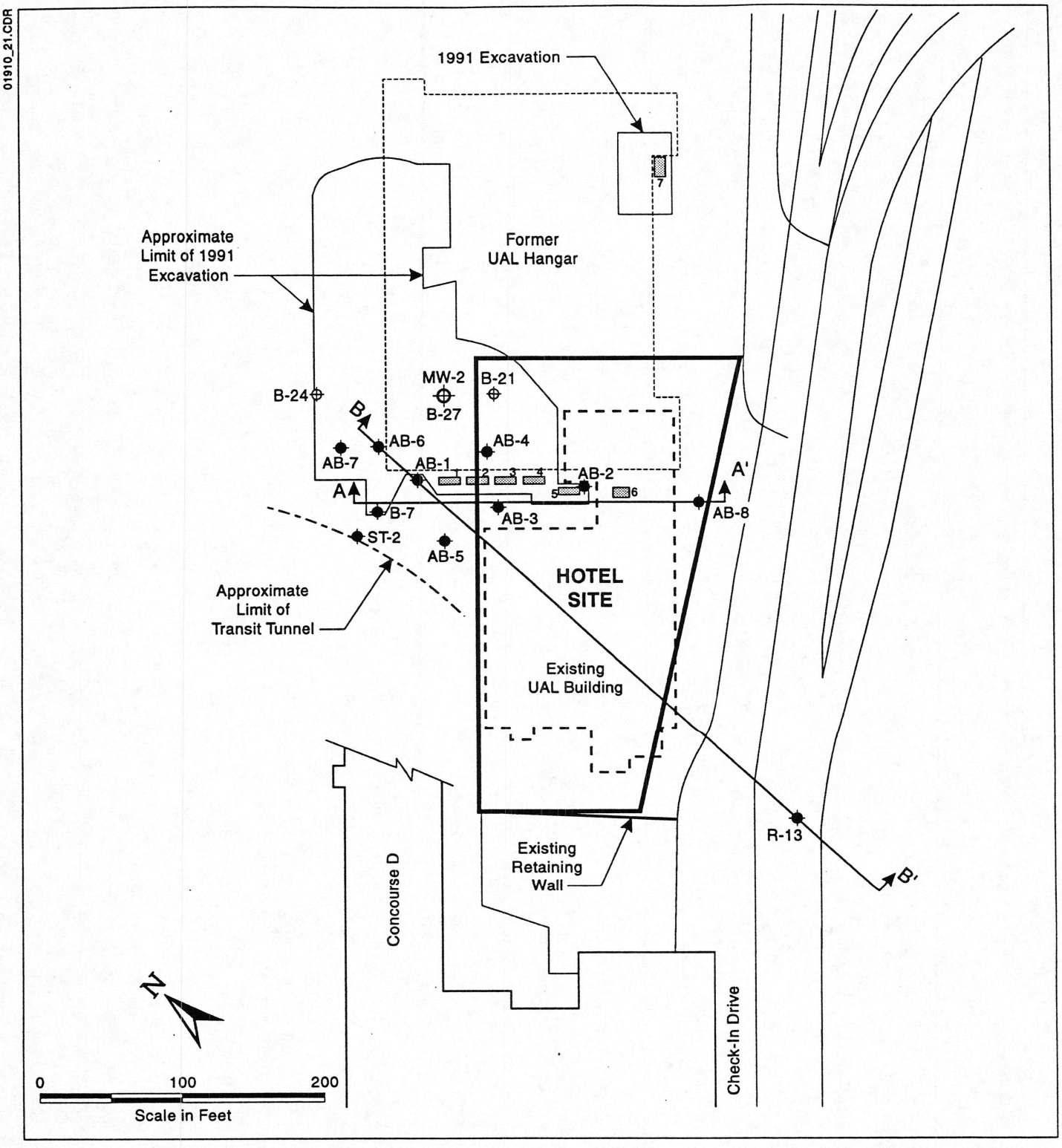
It should be noted that in the event of a decision to construct basement or parking levels below grade, support of the structure can be accomplished by the use of spread footings founded in the compact, dense glacial till soils. While such a design would result in a greater amount of excavation and subsurface construction, the construction operations would not be unusual and would not result in adverse environmental impacts to construction operations. Some additional construction traffic would occur during the period of site excavation.

3.3 Smaller Scale Hotel

Assuming similar excavation and foundation construction considerations, the earth-related impacts will be the same as for the Proposed Action.

3.4 No-Action Alternative

There will be no earth-related impacts attributable to the No-Action Alternative.

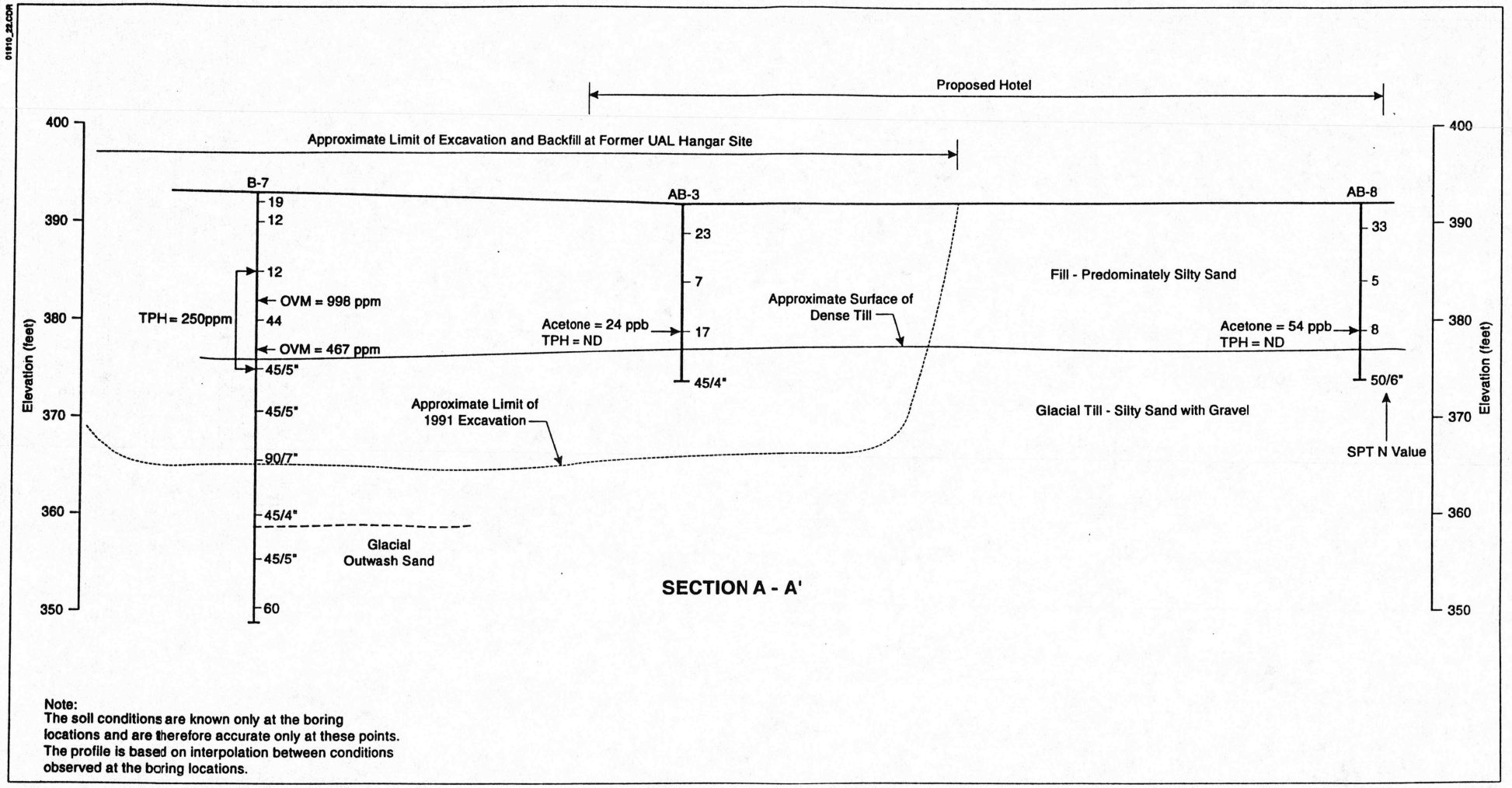


LEGEND:

- Dames & Moore borings
- Borings by others
- Monitoring well by others
- Underground storage tanks

DAMES & MOORE

SITE PLAN
FIGURE 1



Note:
The soil conditions are known only at the boring locations and are therefore accurate only at these points. The profile is based on interpolation between conditions observed at the boring locations.

0 20 40
Horizontal Scale in Feet

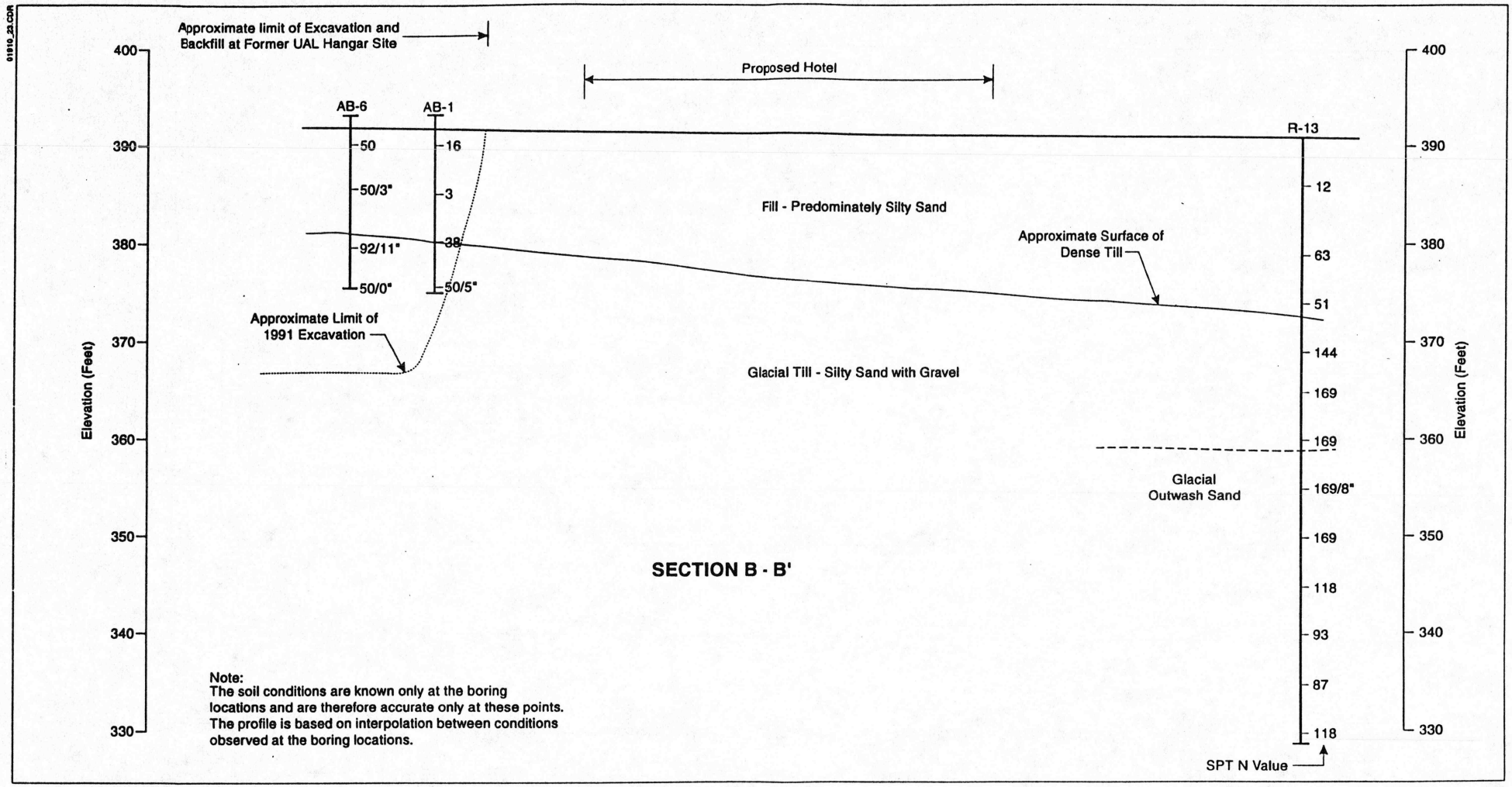
0 10 20
Vertical Scale in Feet

Key:

TPH = Total Petroleum Hydrocarbons
ND = Non-Detected
OVM = Organic Vapor Monitor
N = Standard penetration resistance in blows per foot or as otherwise noted

DAMES & MOORE

SOIL PROFILE
FIGURE 2



0 40 80
Horizontal Scale in Feet

0 10 20
Vertical Scale in Feet

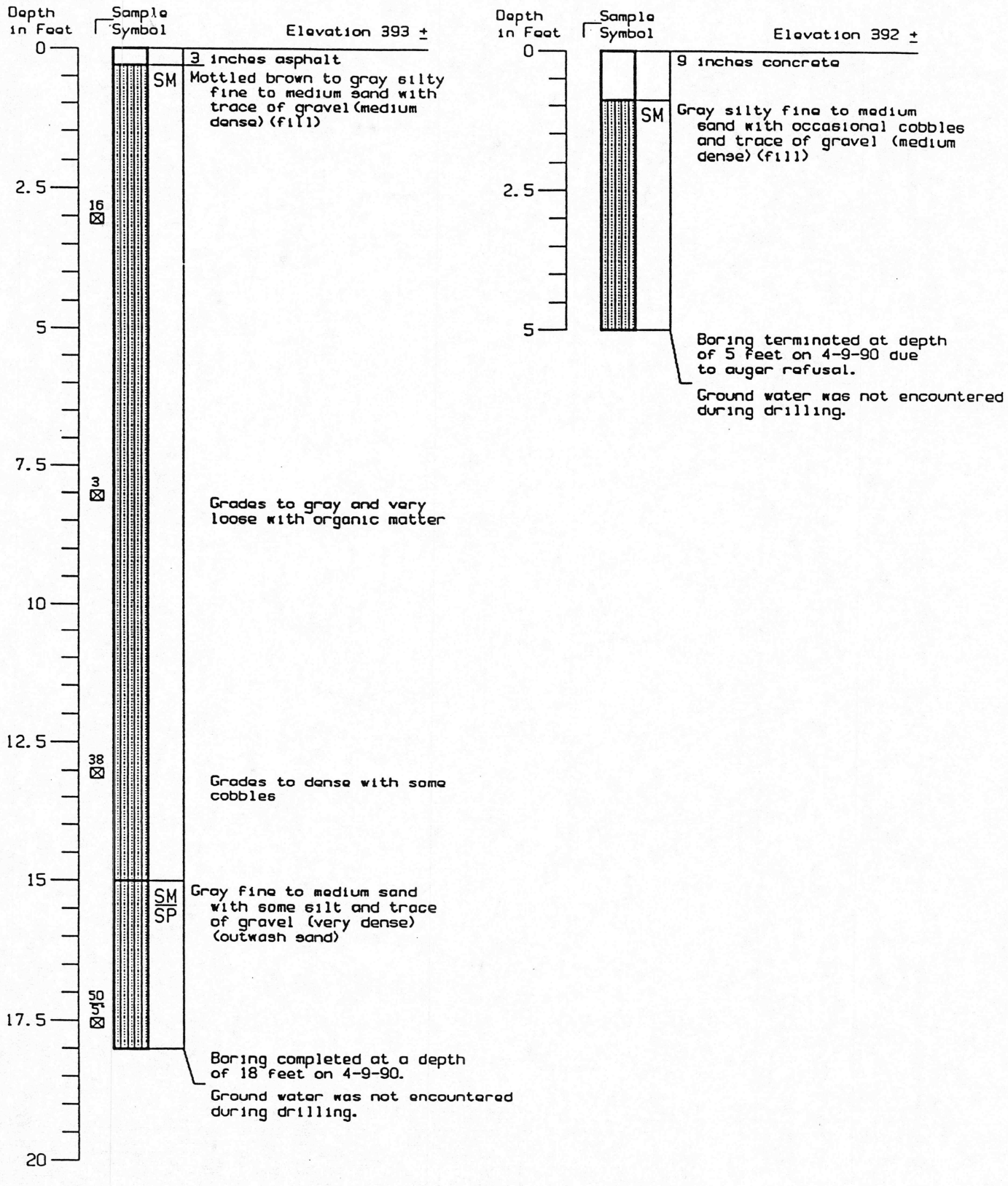
Key:

N = Standard penetration resistance in blows per foot or as otherwise noted

DAMES & MOORE

SOIL PROFILE

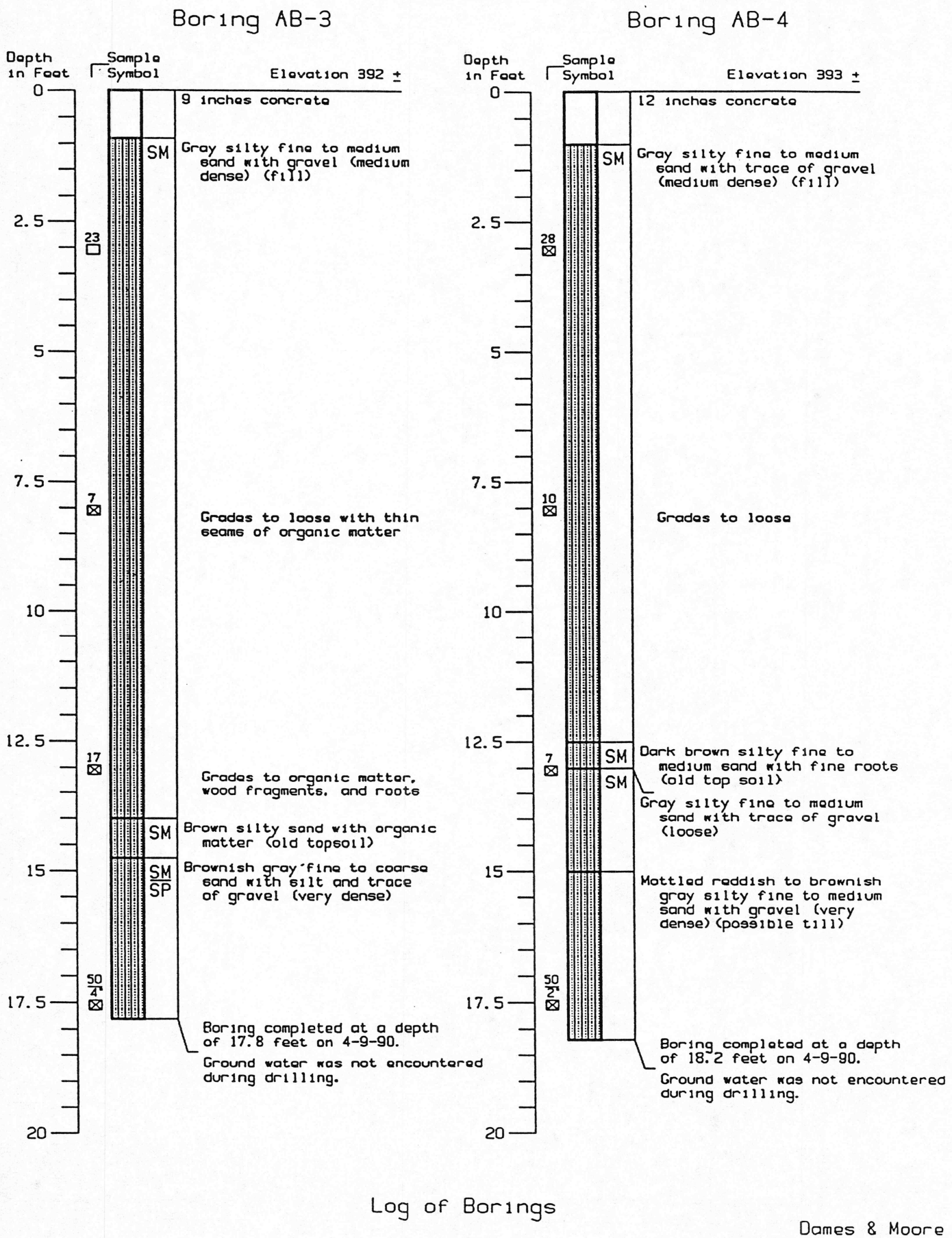
FIGURE 3



Log of Borings

Dames & Moore

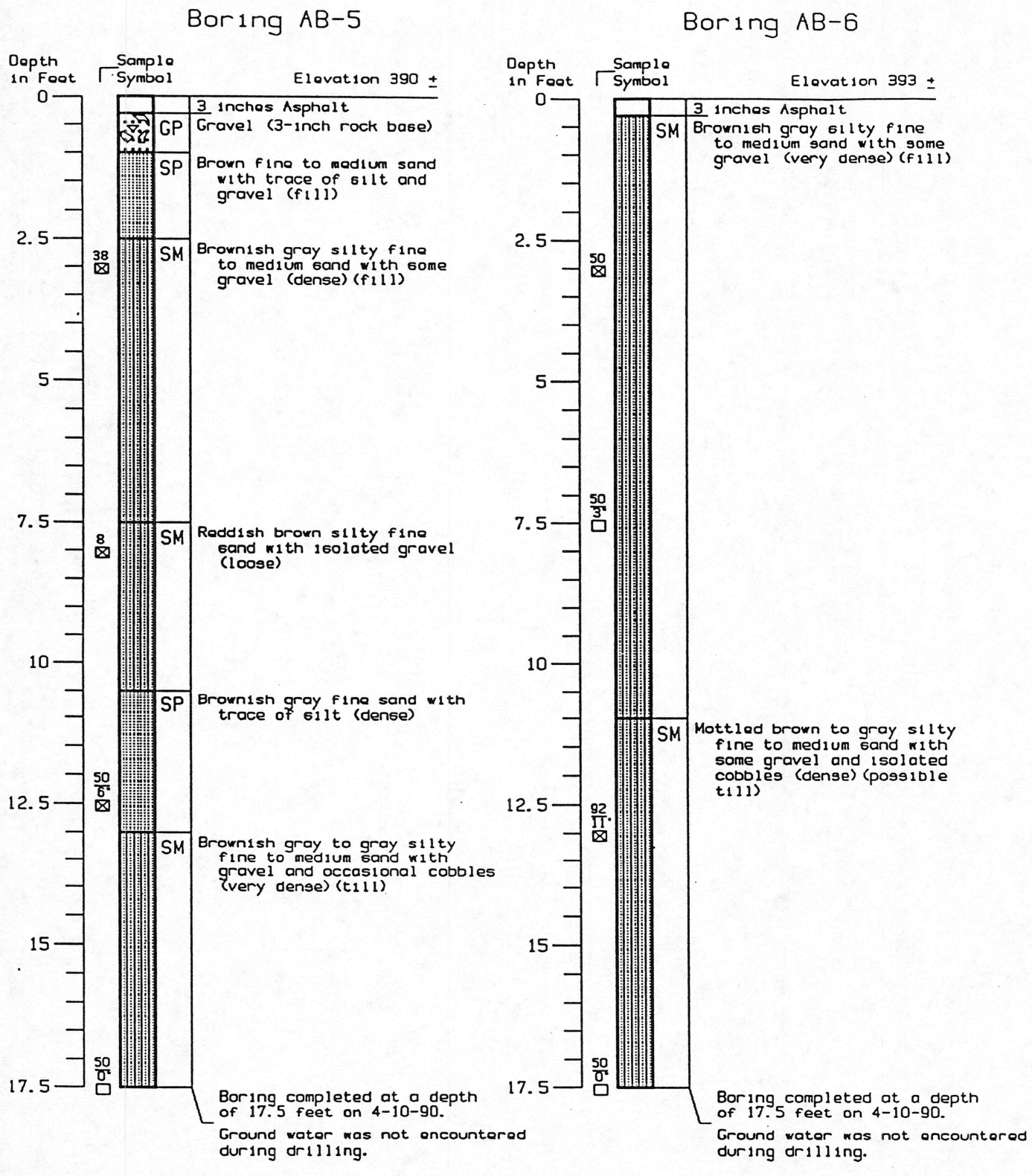
Figure 4



Log of Borings

Dames & Moore

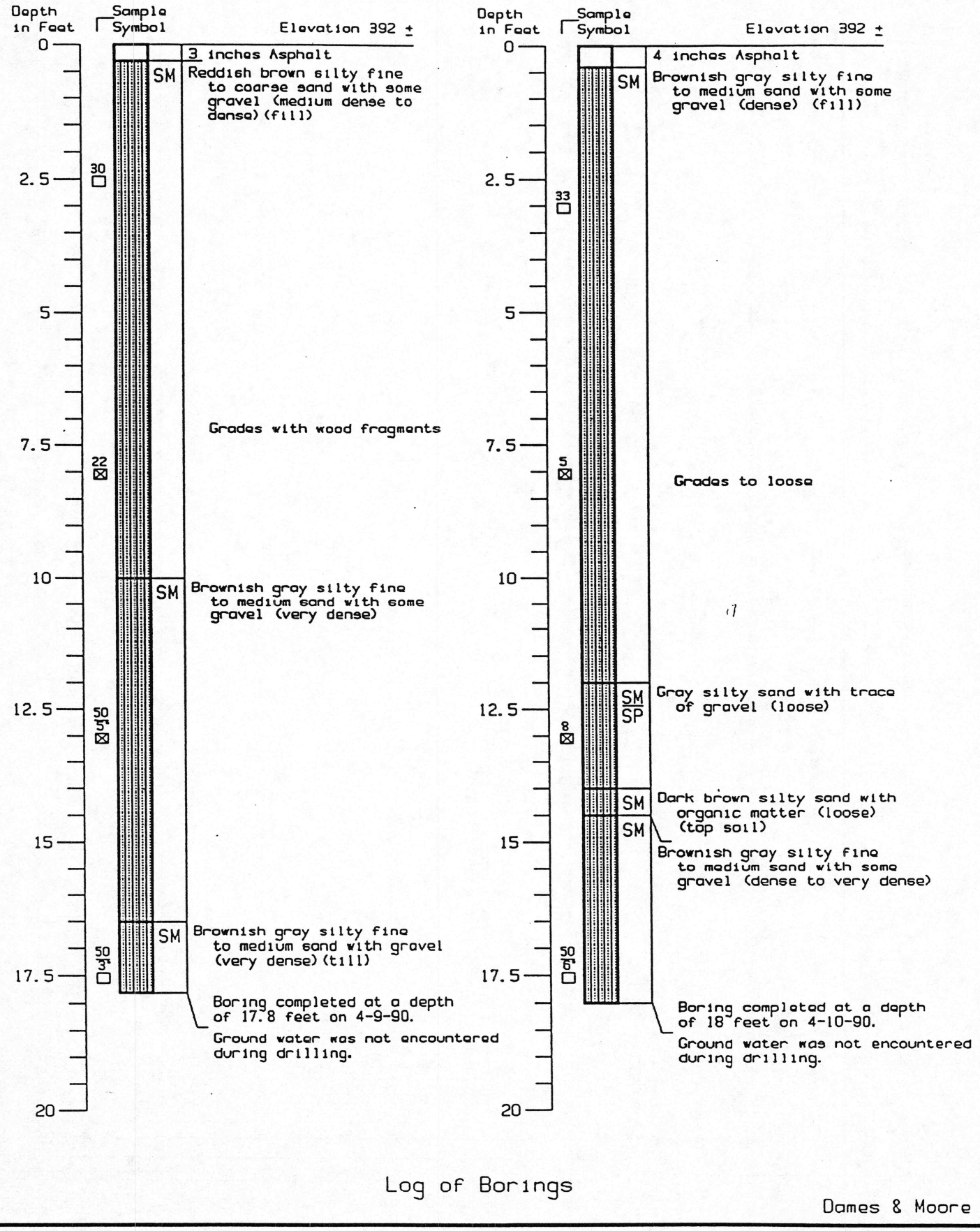
Figure 5



Log of Borings

Dames & Moore

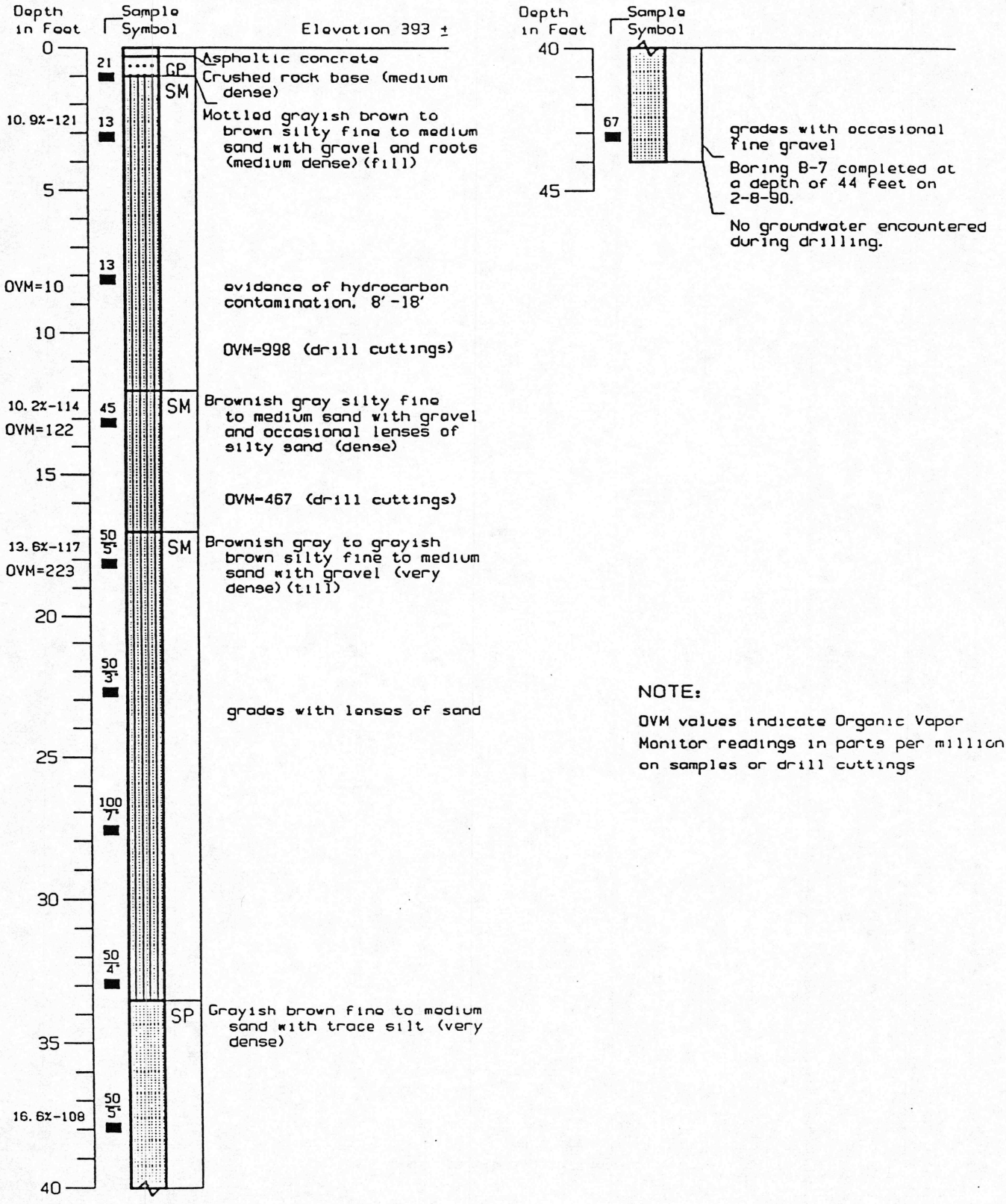
Figure 6



Log of Borings

Dames & Moore

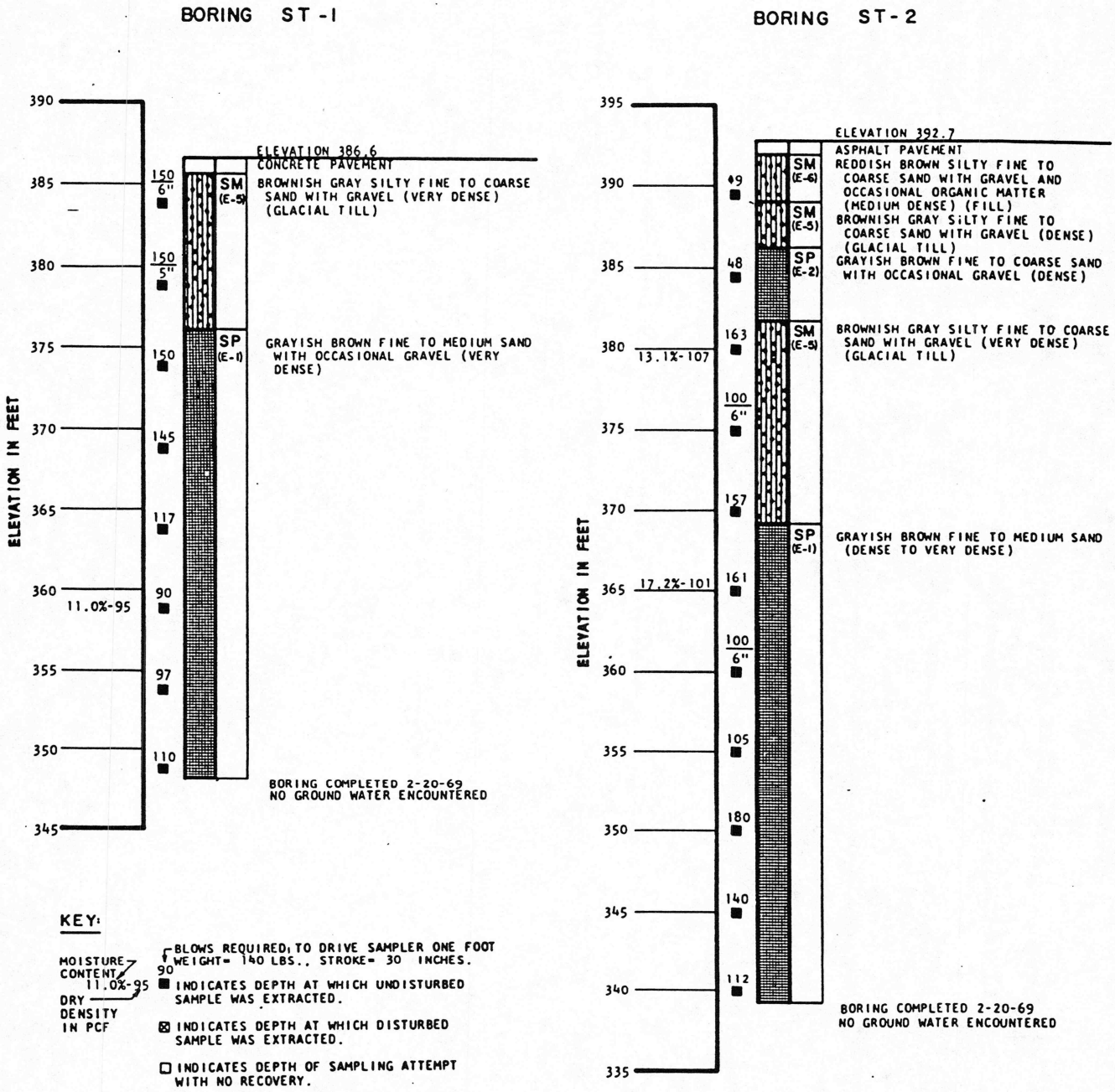
Figure 7



Log of Borings

Dames & Moore

Figure 8



LOG OF BORINGS

DAMES & MOORE

Figure 10

Boring & Well Construction Log

Kennedy/Jenks/Chilton

BORING LOCATION: N. OF N. CORNER OF TRAILER ON S.W. SIDE	**Boring/Well Name** B-21
DRILLING COMPANY: McGARRETT DRILLING INC. — DRILLER: McCLANAHAN	**Project Name** UAL HANGAR
DRILLING METHOD: HOLLOW STEM AUGER — DRILL BIT(S) SIZE: 4" I.D.	**Project Number** 906027.05
ISOLATION CASING: N.A. — FROM — TO — FT.	ELEVATION AND DATUM: NOT MEASURED — TOTAL DEPTH: 27.5 FT
BLANK CASING: N.A. — FROM — TO — FT.	DATE STARTED: 10/26/90 — DATE COMPLETED: 10/26/90
PERFORATED CASING: N.A. — FROM — TO — FT.	STATIC WATER ELEVATION: NOT ENCOUNTERED
SIZE AND TYPE OF FILTER PACK: N.A. — FROM — TO — FT.	LOGGED BY: J.M. LEE
SEAL: BENTONITE CHIPS — FROM 0 TO 27.5 FT.	SAMPLING METHODS: 2"O.D. SPLIT SPOON — WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE ____ FT.
GROUT: N.A. — FROM — TO — FT.	

Depth	Borehole Mon. OVA Reading	Borehole Mon. Hnu Reading	Samples Recovery (Feet)	Samples Penetration Resist (Blows/6 in.)	Samples Type	Well Construction	USCS Log	Lithology	Sample Description and Drilling Remarks
0									
	0.8		0.6	6 11 18					Silty Sand—olive gray, fine sand with few medium grains, 20–30% silt, 0–10% fine gravel up to 1/8", moist to wet, no odor
5									
	2.1		0.9	14 18 111					dark yellowish brown, fine to coarse sand, 10–20% silt, 5–15% fine coarse to subrounded gravel up to 1-1/2", moist, no odor
10									Rough drilling from 10' due to gravel
	3.2		1.0	30 54			sm		
15									
	2.6		0.2	50/3"					10–30% silt, 10–40% fine to coarse gravel up to 3", moist, no odor
20									Very hard drilling from 20' due to gravel
	0.4		0.5	50/3"					
25									
	0.4		0.5	100					
30									
35									

Figure 11

Boring & Well Construction Log

Kennedy/Jenks/Chilton

BORING LOCATION	N.W. SIDE ON WEST CORNER
DRILLING COMPANY	McGARRETT DRILLING INC.
DRILLER	McCLANAHAN
DRILLING METHOD	HOLLOW STEM AUGER
DRILL BIT(S) SIZE:	4" I.D.
ISOLATION CASING	N.A. FROM — TO — FT.
BLANK CASING	N.A. FROM — TO — FT.
PERFORATED CASING	N.A. FROM — TO — FT.
SIZE AND TYPE OF FILTER PACK	N.A. FROM — TO — FT.
SEAL	BENTONITE CHIPS FROM 0 TO 28.0 FT.
GROUT	N.A. FROM — TO — FT.

Boring/Well Name B-24
Project Name UAL HANGAR
Project Number 906027.05

ELEVATION AND DATUM: NOT MEASURED	TOTAL DEPTH: 28.0 FT
DATE STARTED: 10/29/90	DATE COMPLETED: 10/29/90
STATIC WATER ELEVATION: NOT ENCOUNTERED	
LOGGED BY: J.M. LEE	
SAMPLING METHODS: 2"O.D. SPLIT SPOON	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE ____ FT.

Depth	BOREHOLE MON. OVA Reading	BOREHOLE MON. Hnu Reading	SAMPLES Recovery (Feet)	SAMPLES Penetration Resist (Blows/6 in.)	SAMPLES Type	WELL CONSTRUCTION	USCS Log	Lithology	SAMPLE DESCRIPTION and DRILLING REMARKS
	13 8		1.0	18 11 13					Silty Sand—olive gray, fine to medium sand, 5–15% fine angular gravel up to 1/8", moist, no odor
5									moderate yellowish brown, 30–45% silt, moist to wet, no odor
	0.5		0.7	17 50/3"					dark yellowish brown, fine sand, 10–20% silt, 5–15% fine angular gravel up to 1/2", moist, no odor
10									
	1		1.1	3 50/4"			sm		
15									
	5		0 1.0	50/5" N.V.					Silty Sand with Gravel—dark yellowish brown, fine sand, 20–30% silt, 15–25% coarse rounded gravel up to 4", moist, no odor
20									
	0.7		0.2	55 60/3"					some medium to coarse sand grains, fine gravel
25									
	5.5		0.7						
30									
35									

N.V.– Not valid since auger was pulled up to obtain sample

Figure 12

Boring & Well Construction Log

Kennedy/Jenks/Chilton

BORING LOCATION	N.W. OF B-21 AND EAST OF B-22
DRILLING COMPANY	McGARRETT DRILLING INC.
DRILLER	McCLANAHAN
DRILLING METHOD	HOLLOW STEM AUGER
DRILL BIT(S) SIZE:	4" I.D.
ISOLATION CASING	N.A. FROM — TO — FT.
BLANK CASING	N.A. FROM — TO — FT.
PERFORATED CASING	N.A. FROM — TO — FT.
SIZE AND TYPE OF FILTER PACK	N.A. FROM — TO — FT.
SEAL	BENTONITE CHIPS FROM 0 TO 33.5 FT.
GROUT	N.A. FROM — TO — FT.

Boring/Well Name B-27
Project Name UAL HANGAR
Project Number 906027.05

ELEVATION AND DATUM: NOT MEASURED	TOTAL DEPTH: 33.5 FT
DATE STARTED: 11/6/90	DATE COMPLETED: 11/8/90
STATIC WATER ELEVATION: NOT ENCOUNTERED	
LOGGED BY: J.M. LEE	
SAMPLING METHODS: 2"O.D. SPLIT SPOON	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE ____ FT.

Depth	Borehole Mon. OVA Reading	Borehole Mon. Hnu Reading	Samples Recovery (Feet)	Samples Penetration Resist (Blows/6 in.)	Samples Type	Well Construction	USCS Log	Lithology	Sample Description and Drilling Remarks
									Silty Sand—dark yellowish brown, fine sand with few medium grains, 20–30% silt, 0–10% fine to medium angular to rounded gravel up to 1", moist, moderate hydrocarbon odor. (from 2 to 2-1/2 feet, stained olive gray)
	11 7.5		1.0	10 12 15					
5									Silty Sand with Gravel—moderate yellowish brown, fine to medium sand with few coarse grains, 15–25% fine angular to rounded gravel up to 1/2", moist, strong hydrocarbon odor
	450		1.1	14 6 6					
10									
	>1000		1.3	25 85					
15							sm		Silty Sand—dark yellowish brown, fine sand with few coarse grains, 0–10% fine to coarse rounded gravel up to 2", 15–25% silt, moist, strong hydrocarbon odor
	300		0.4	12 47/5"					
20									Silty Sand with with Gravel—dark yellowish brown, fine sand with few medium to coarse grains, 20–30% silt, 20–35% fine to coarse rounded gravel up to 2", moist, slight hydrocarbon odor
	2		1.0	30 50 50/3"					
25									
	1		0.3	21 3/5"					15–25% silt, moist, no odor
30									
	1.8 2.8		1.5	28 49 51					Poorly Graded Sand—dark yellowish brown, medium sand with few fine and coarse grains, 0–5% silt, moist, no odor
35									

Figure 13

Boring & Well Construction Log

Kennedy/Jenks/Chilton

BORING LOCATION	ADJACENT TO B-27		
DRILLING COMPANY	McGARRETT DRILLING INC.	DRILLER	McCLANAHAN
DRILLING METHOD	HOLLOW STEM AUGER	DRILL BIT(S) SIZE:	6" I.D.
ISOLATION CASING	N.A.	FROM — TO —	FT.
BLANK CASING	4" SCH. 40 PVC	FROM -2 TO 78	FT.
PERFORATED CASING	20 SLOT 4" SCH 40 PVC	FROM 78 TO 98	FT.
SIZE AND TYPE OF FILTER PACK	8-12 SILICA SAND	FROM 75 TO 93	FT.
SEAL	BENTONITE CHIPS AND POWDER	FROM 1 TO 75	FT.
GROUT	CONCRETE	FROM 0 TO 1	FT.

Boring/Well Name MW-2
Project Name UAL HANGAR
Project Number 906027.05

ELEVATION AND DATUM: T.O.C. 394.35 FT MSL	TOTAL DEPTH: 1.5 ft
DATE STARTED: 11/13/90	DATE COMPLETED: 11/14/90
STATIC WATER ELEVATION: 303.69 FT MSL 12/5/90	
LOGGED BY: J.M. LEE	
SAMPLING METHODS: 2"O.D. SPLIT SPOON	WELL COMPLETION: SURFACE HOUSING; STAND PIPE 2.3 FT.

Depth	OVA Reading	Hnu Reading	Recovery (Feet)	Penetration Resist (Blows/6 in.)	Type	USCS Log	Lithology	SAMPLE DESCRIPTION and DRILLING REMARKS
		35	0.7	7 8 10				Silty Sand—dark yellowish brown, fine sand with few medium to coarse grains, 10-20% silt, 5-15% fine rounded gravel up to 3/4", moist, strong hydrocarbon odor
5		300	0.2	63				moderate brown, 35-45% silt, 0-10% rounded gravel up to 2", strong hydrocarbon odor
10		370	1.2	25 31 51				dark yellowish brown, 20-30% silt, 0-5% fine subrounded gravel up to 1/4", strong hydrocarbon odor
15		380	0.8	22 88		sm		Silty Sand with Gravel —dark yellowish brown, fine to medium sand, 15-25% silt, 15-25% fine to coarse rounded gravel up to 3", moderate hydrocarbon odor
20		20	0.6	19 50/2"				some coarse sand grains, slight hydrocarbon odor
25		1.5	1.2	5 38 52				Silty Sand—dark yellowish brown, fine sand with few medium to coarse grains, 10-20% silt, 0-10% fine to coarse rounded gravel up to 1-1/2", moist, no odor
30		0.5	1.3	17 30 30		sp		Poorly Graded Sand —dark yellowish brown, fine to medium sand, 0-5% silt, 0-5% fine rounded gravel up to 1/2", moist, no odor
35								

Figure 14a

Boring & Well Construction Log

Kennedy/Jenks/Chilton

Project Name UAL HANGAR **Project Number** 906027.05 **Boring/Well Name** MW-2

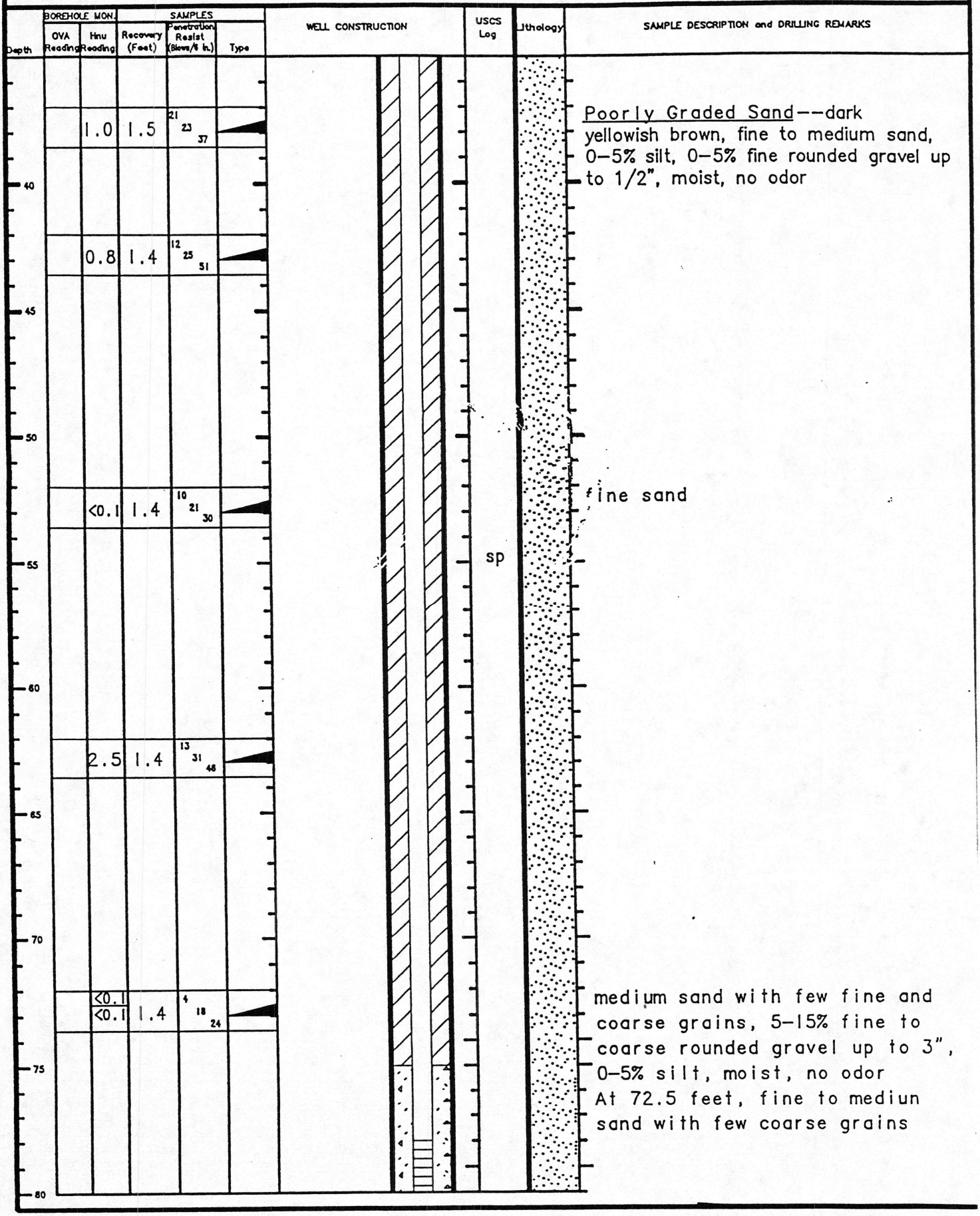


Figure 14b

Boring & Well Construction Log

Kennedy/Jenks/Chilton

Project Name UAL HANGAR **Project Number** 906027.05 **Boring/Well Name** MW-2

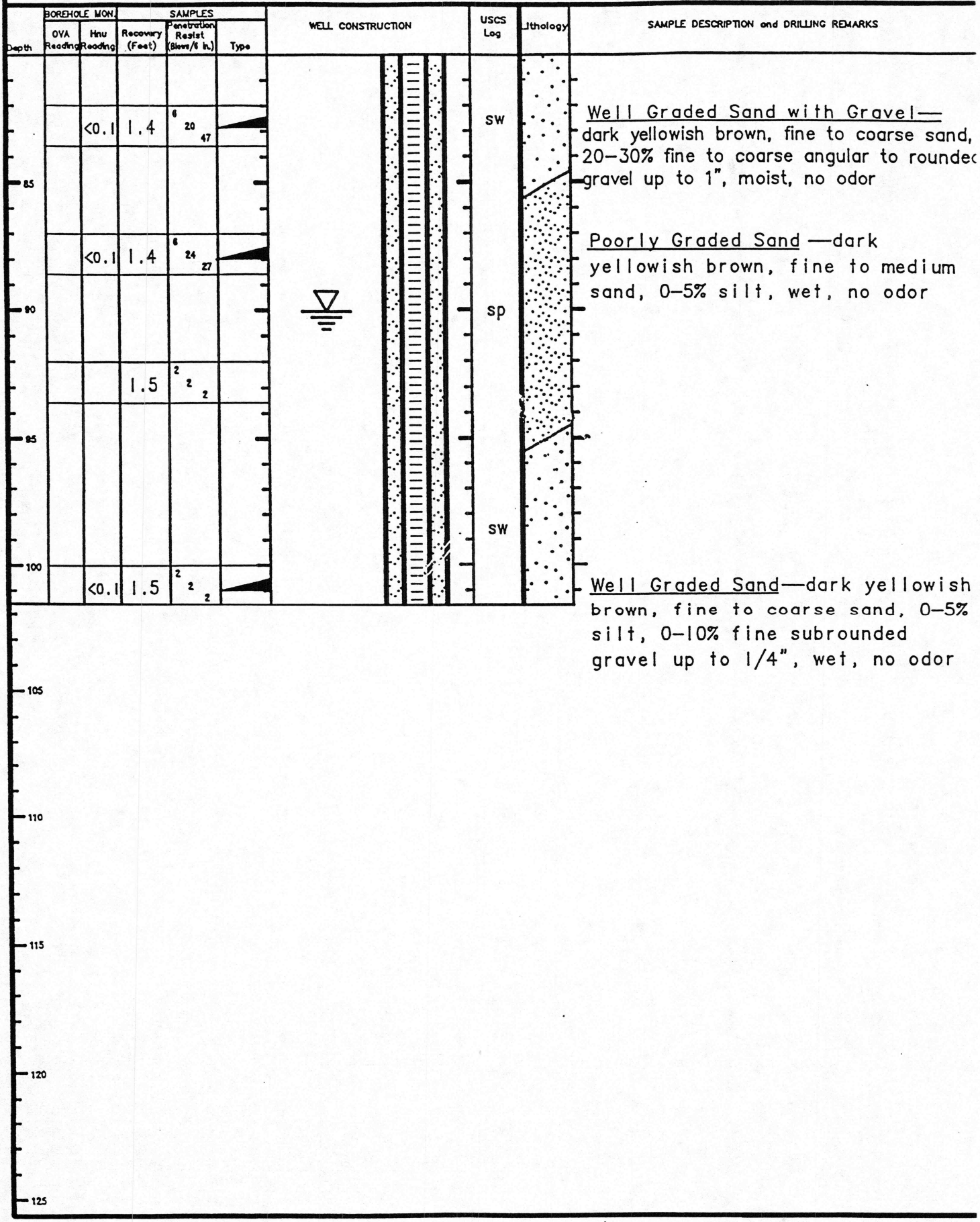


Figure 14c

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Converse Consultants NW, "Groundwater RI Work Plan, Seattle-Tacoma International Airport, Concourse D, Groundwater Remedial Investigation/Feasibility Study," June 24, 1992.

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Dames & Moore, "Report of Soils Investigation, Terminal Area Roadway Development, Seattle Tacoma International Airport," March 27, 1968.

Dames & Moore, "Report of Site Investigations, Satellite Transit Tunnels, Seattle-Tacoma International Airport," April 9, 1969.

Dames & Moore, "Report of Geotechnical Investigation, Sea-Tac Concourse Improvements Project, Seattle-Tacoma International Airport," March 12, 1990.

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Dames & Moore, Discussion with Mr. Paul Agid of the Port of Seattle on November 29, 1994.

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Kennedy/Jenks/Chilton, "Focused Feasibility Study, Former United Airlines Hangar," March 11, 1991.

APPENDIX C
LAND USE/AESTHETICS & URBAN DESIGN

1. Affected Environment

Sea-Tac Airport sits on a large plateau. Because the land rises to the east, development of the hotel may alter some territorial views, but would have no substantial impact on distant views to the Olympic Mountains. On the other side of the airport the land slopes down and away to the west. The hotel would only be visible from Port property. Residents and businesses on this side of the airport will experience no visual impacts from the project.

Views in the City of SeaTac are directly related to the topography. Public corridors and sites within the City of SeaTac offer views to the airport and the project site. Views from rights-of-way and public spaces are influenced by topography, landscaping and existing development. The pattern of streets, buildings and vegetation all contribute to views and visibility.

The proposed hotel site represents an opportunity to create a viable visual focus at the airport. This new development will replace an existing office building of utilitarian design, circa 1950. The existing structure rises 57' from the airplane apron and 51' from Enplane Drive, and is not of any aesthetic significance. No connection is provided to public functions at the airport. Although the proposed hotel is taller than the existing building, it is of similar mass and compatible with the scale of the airport. There would be no impact on pedestrian facilities or open space. With shadows cast mostly on the air side of the of the main terminal, Enplane Drive and other public airport functions will not experience any significant additional shade.

2. View Impacts

Upper floors of the proposed hotel would be visible from many viewpoints throughout the area. However most of these views are partially or semi-blocked due to existing development. Moreover, this project would enhance views directly to the site by replacing the existing building with a contemporary landmark.

This analysis evaluates three alternatives. The no action alternative represents no change in views. The proposed action is the hotel rising 150' plus mechanical space while Alternative 1 is a smaller scale hotel option rising approximately 125' plus mechanical space. The analysis provides three photographs for each viewpoint illustrated.
These are:

- Existing Conditions
- Proposed Action
- Alternative 1 - Smaller Scale Hotel

The viewpoints selected for analysis are taken from public rights-of-way or other public spaces from which the proposed hotel would be most noticeable. Five viewpoints were selected to illustrate the potential project within the existing setting with specific concern for impacts on distant and territorial views. Each photograph is taken using a 55 millimeter lens to replicate the view of people driving or standing at the viewpoint. A Key Map (Figure # C-1) is provided to depict the viewpoints within the City of SeaTac. These viewpoints include:

- South - Arriving the Airport on North Access Road off of SR 518
- West - Arriving the Main Terminal at the convergence of Enplane Drive and Check-in Return Drive
- West - S. 176th Street, two views east of International Boulevard
- North - International Boulevard at Bow Lake
- East - Across the airport from Airplane Park

The method used in the following figures is a computer generated image over existing view photographs that illustrates the height and mass of the proposed hotel and indicates built or natural features that would be obscured.

View #1. South - Arriving the Airport on North Access Road. (Figure #'s C-2,3,4)
Auto/Transit traffic traveling to the airport on the North Access Road will have a direct view of the hotel rising above Concourse D. No pedestrian movement system exists along the North Access Road. The addition of the Hotel would provide a landmark at the airport and would not block any territorial or distant views to special landscape features such as mountains or water.

View #2. West - Arriving the Main Terminal on Check-in Return Drive/Enplane Drive. (Figure #'s C-5,6,7)
Vehicles dropping passengers off at the Main Terminal for ticketing and check-in utilize this route and would have a virtually unobstructed view to the hotel. An existing landscape strip blocks much of the current building. Any floor level above the height of the existing building (57' from grade) would be fully visible. The pedestrian bridge linking the parking garage to the hotel (left of the middle in the photograph) becomes more prominent closer to the terminal. Although the hotel would fill much of the immediate views from the roads, no territorial or distant views would be impacted.

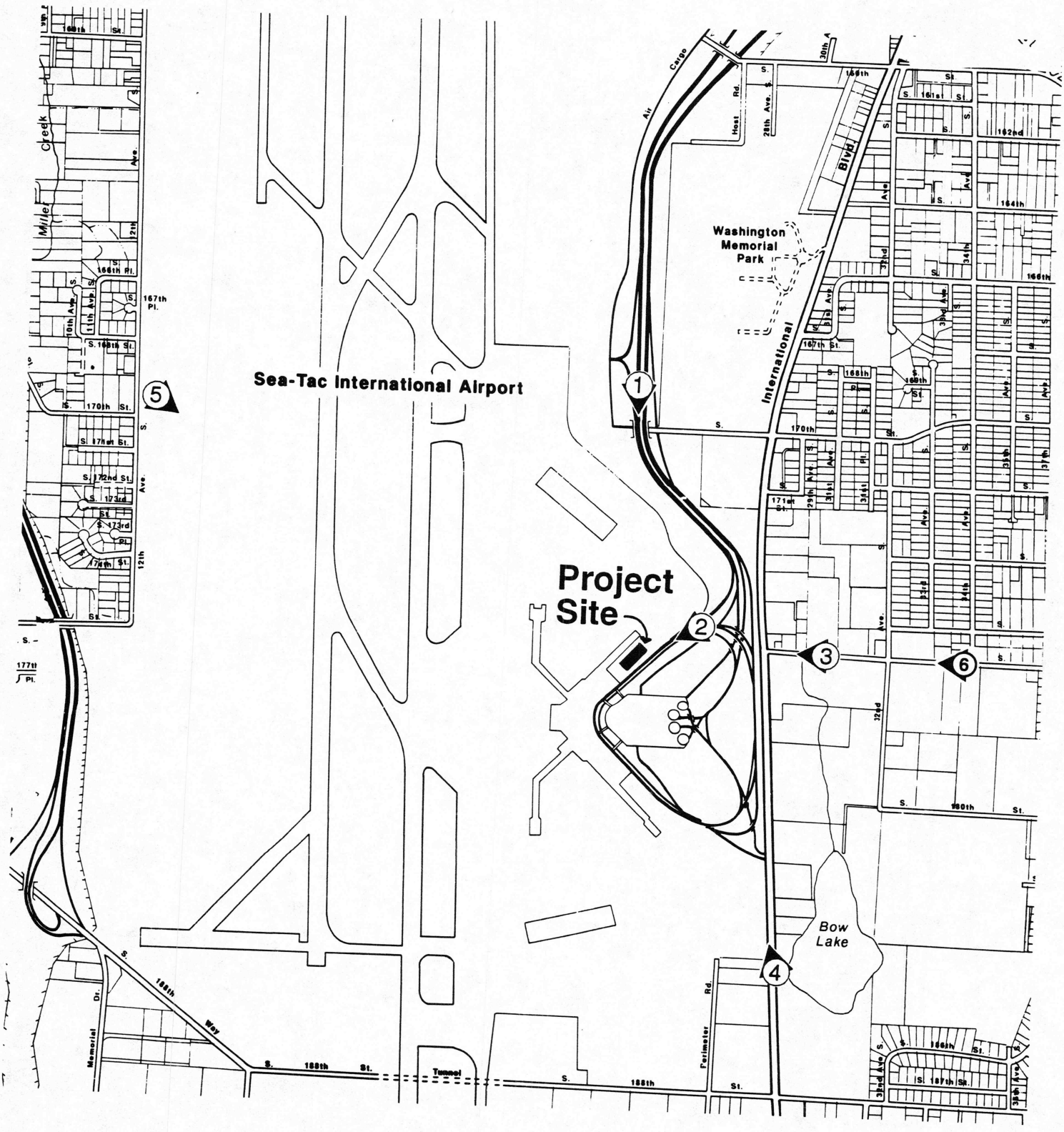
View #3. West - Midway up the S. 176th Street hill. (Figure #'s C-8,9,10)
The South 176th Street corridor focuses directly to the hotel site. The topography of the area begins below the grade of the airport at the intersection of International Boulevard to crest approximately 1,600' to the east. The photo depicts one of the most visible views to the hotel in the existing right-of-way. The proposed development creates a new visual terminus with imagable character. This photo mimics the setting that pedestrians and motorized traffic will see when looking beyond the clutter of existing powerlines and power poles.

View #4. North - International Boulevard at Bow Lake. (Figure #'s C-11,12,13)
The proposed hotel becomes visible over the landscape berm of the airport, but because of the distance involved, it blends into the skyline. The Sea-Tac Office Towers are at the right of the photograph and the flags at the southern airport entrance are located just right-of-center.

View #5. East - View from Airplane Park. (Figure #'s C-14,15,16)
The park, located on Port of Seattle property at the east side of the airport provides the public an opportunity to watch airplanes take-off and land during daytime hours. Development of the proposed hotel has no impact on territorial views or plane watching activities as the site sits behind D Concourse. A hotel as illustrated would visually set against the Cascade Mountain range much like the Sea-Tac Office Towers.

View #6. West - Top of the S. 176th St. hill (Figure #'s C-17,18,19)
On a clear day the 176th St. corridor affords views to the southern end of the Olympic mountain range. When viewed from the top of the S. 176th St. hill, the proposed hotel will impede a portion of the distant views to the Olympics. The impact on view is reduced as 176th St. drops in elevation to meet International Boulevard (as seen in View #3).

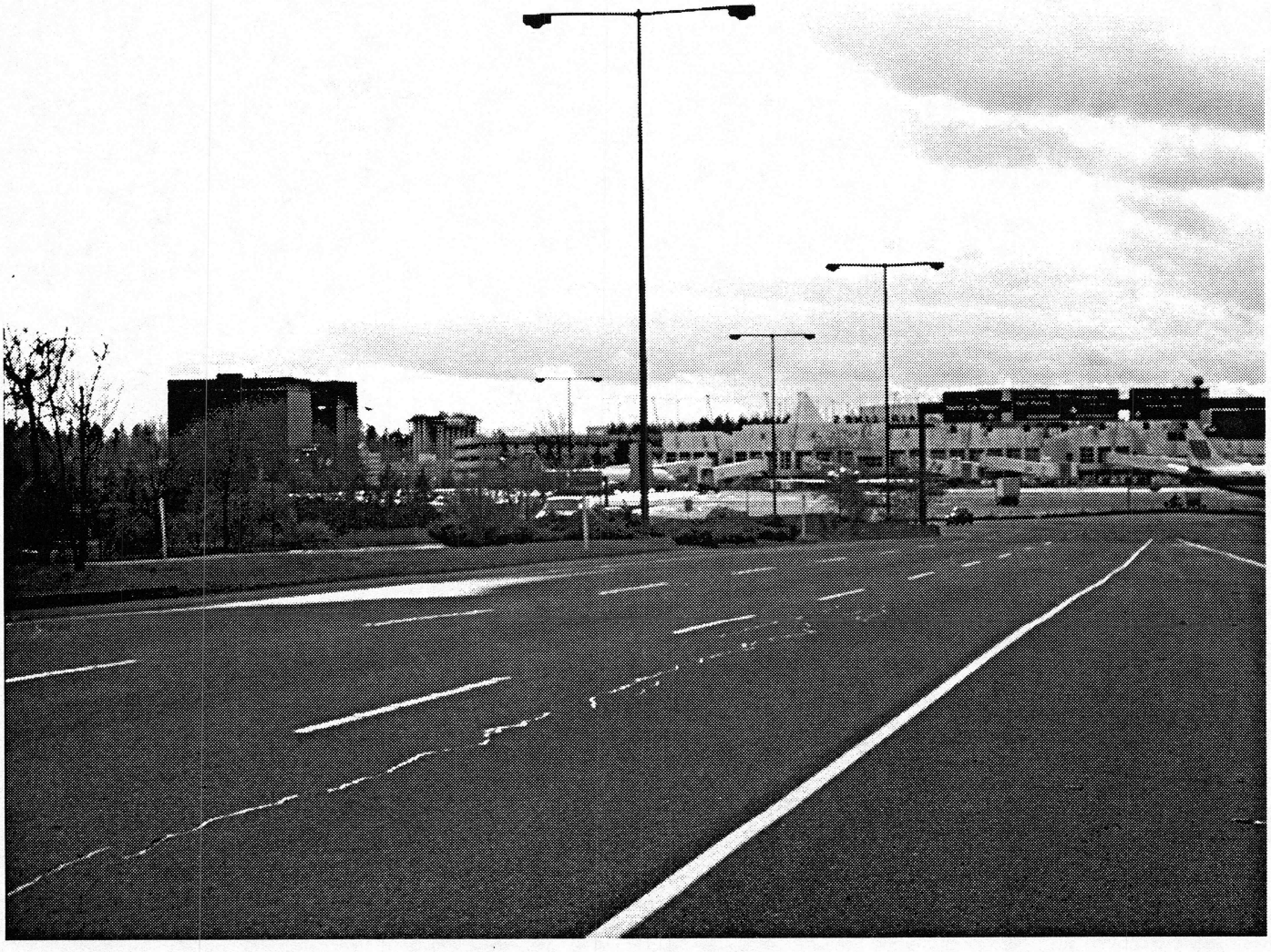
As an addition to Sea-Tac International Airport, the hotel would provide a focus with a strong visual presence and public identity. The proposed project is not expected to have a significant adverse environmental impact on views or aesthetics and therefore will not require mitigation.



No Scale

Viewpoints

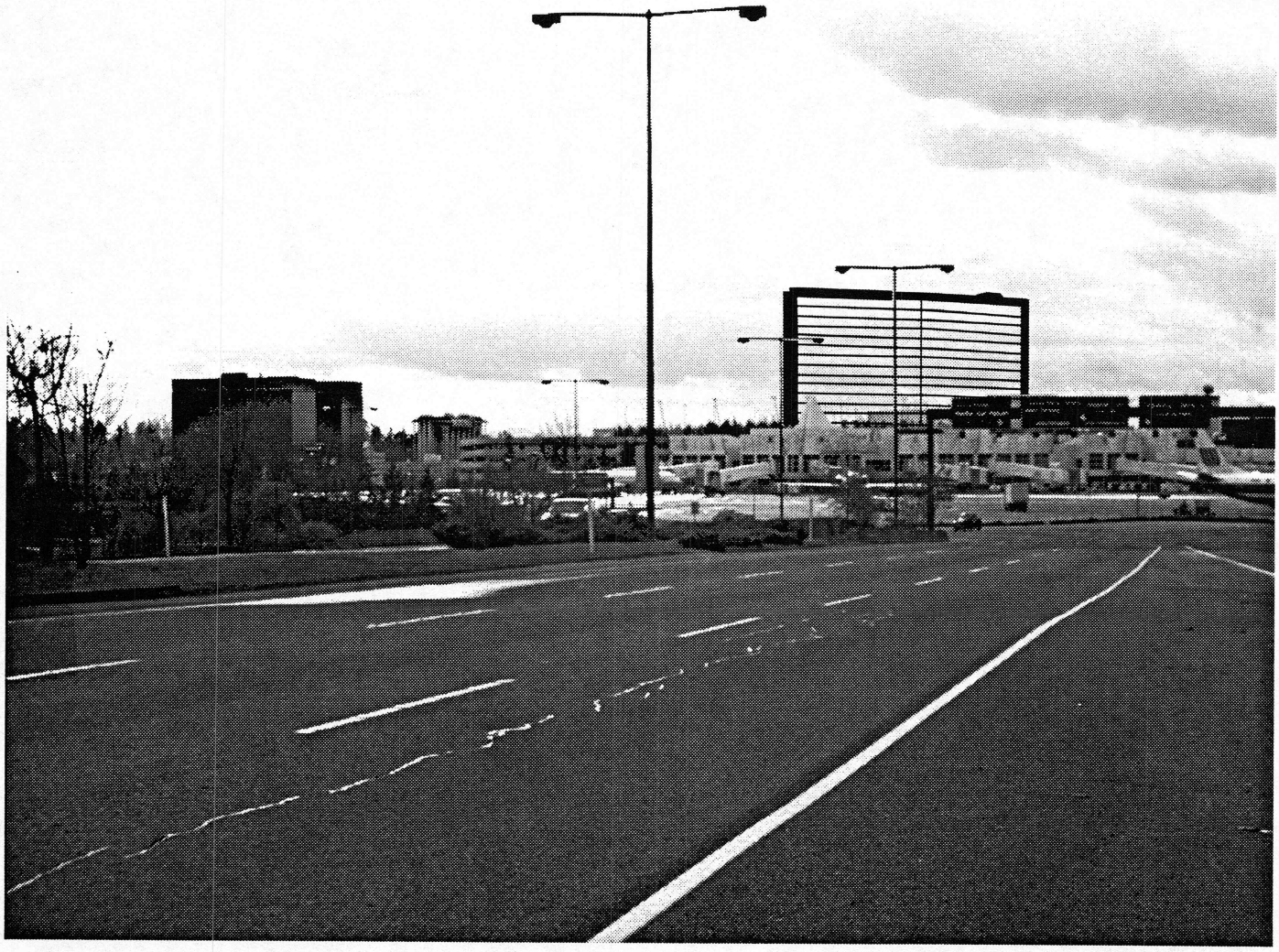
Figure C1



North Access Road

Viewpoint 1- Existing

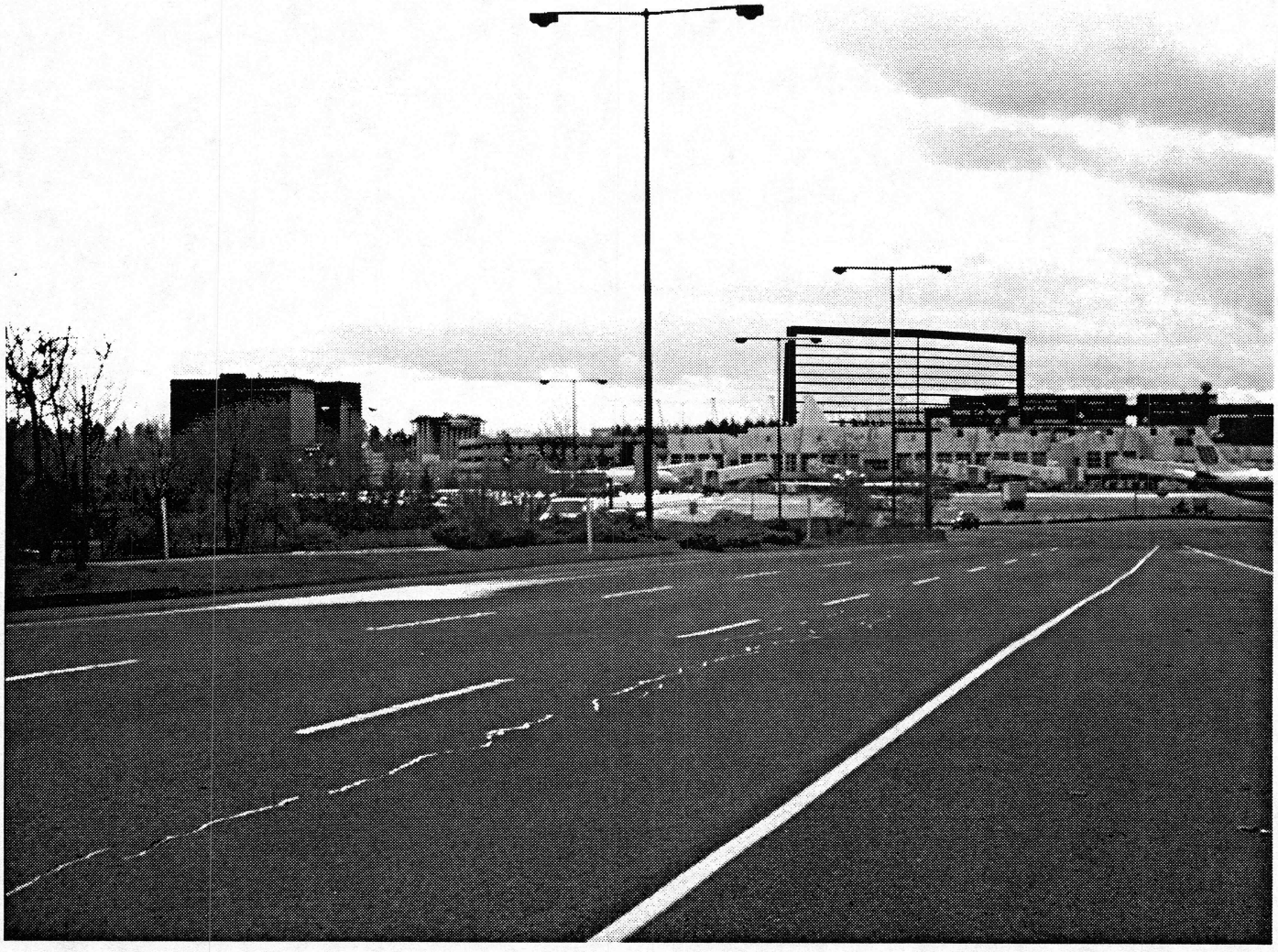
Figure C 2



North Access Road

Viewpoint 1- Proposed Action

Figure C 3



North Access Road

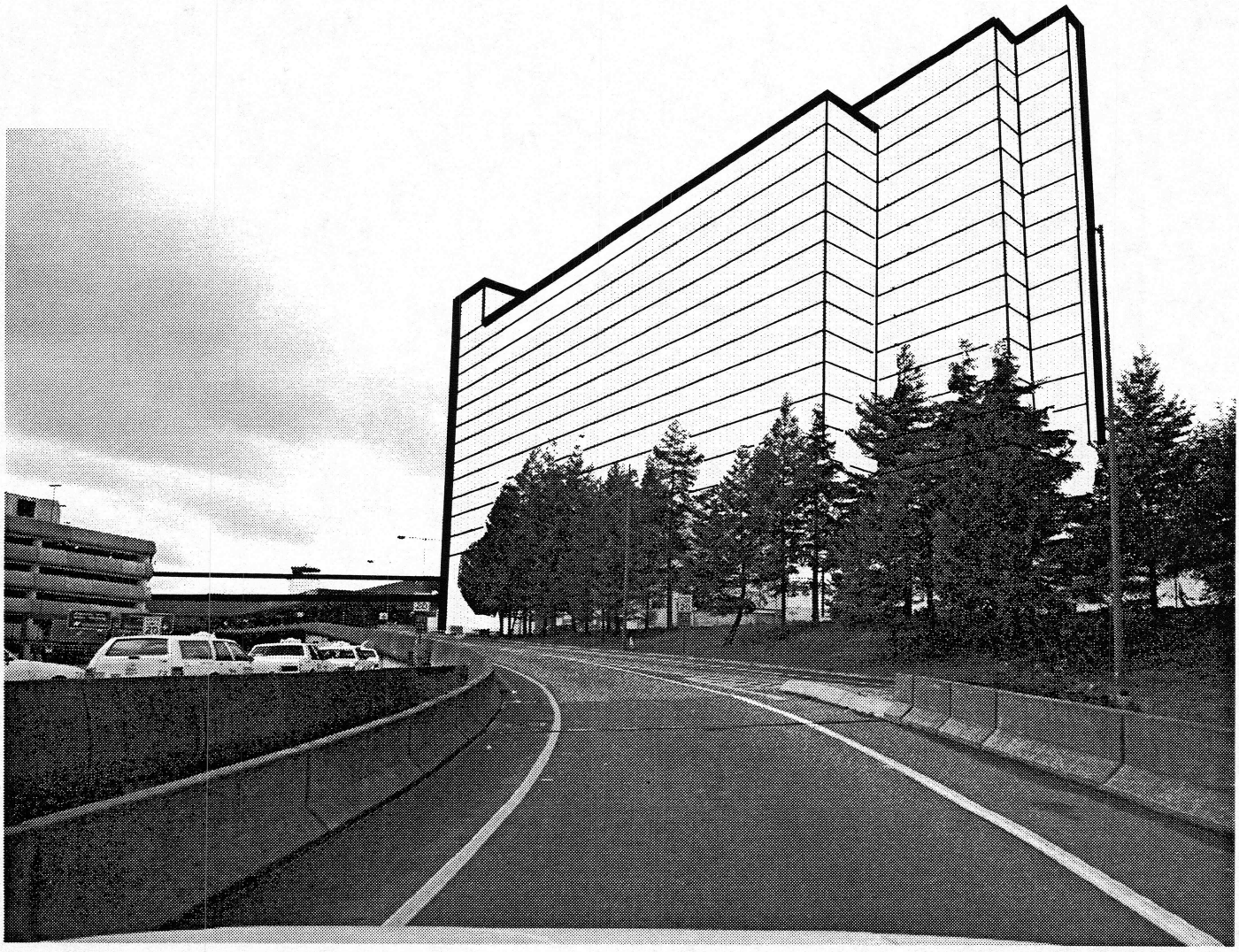
Viewpoint 1 - Smaller Hotel

Figure C 4

Enplane Drive

Viewpoint 2- Existing

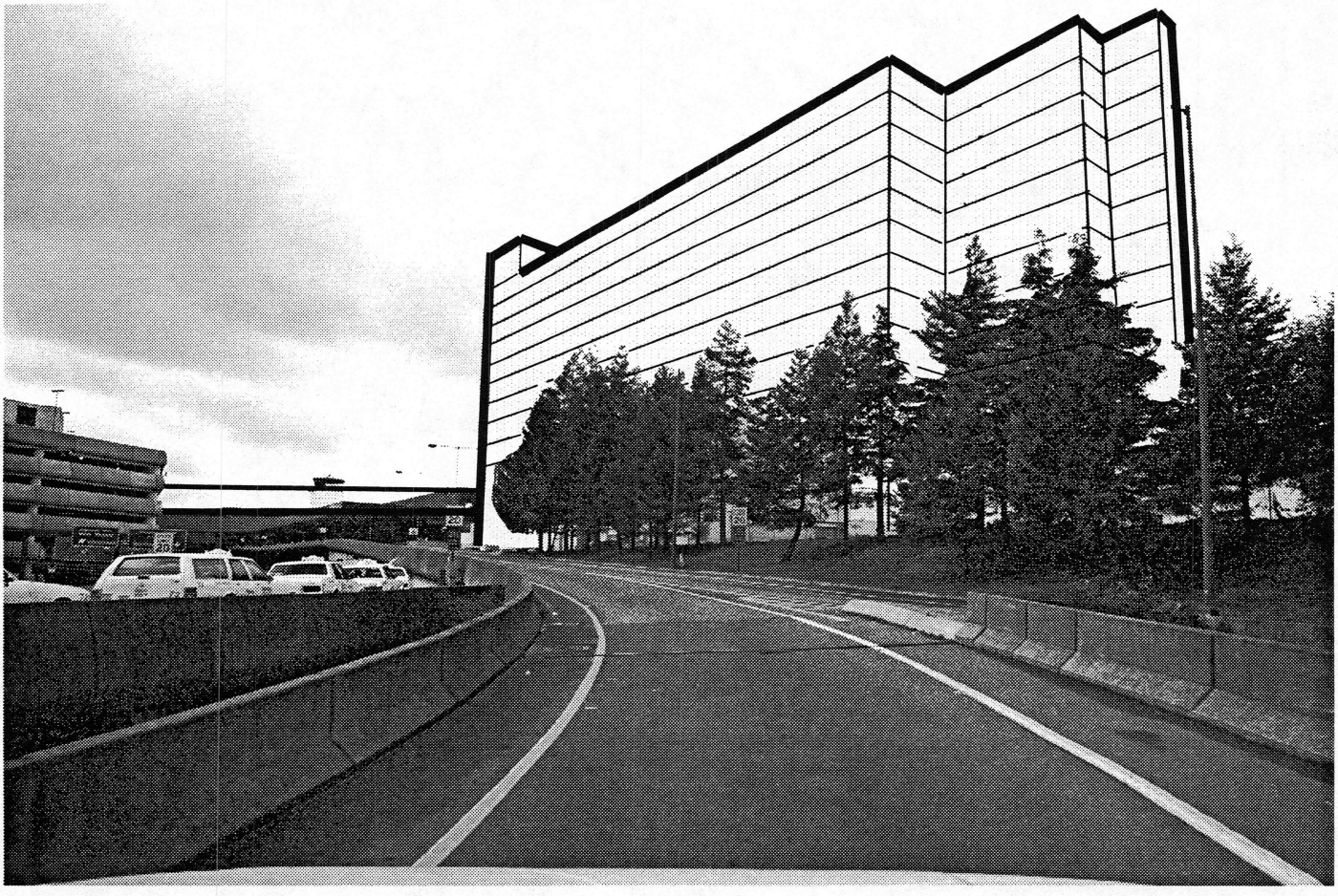
Figure C 5



Enplane Drive

Viewpoint 2- Proposed Action

Figure C 6



Enplane Drive

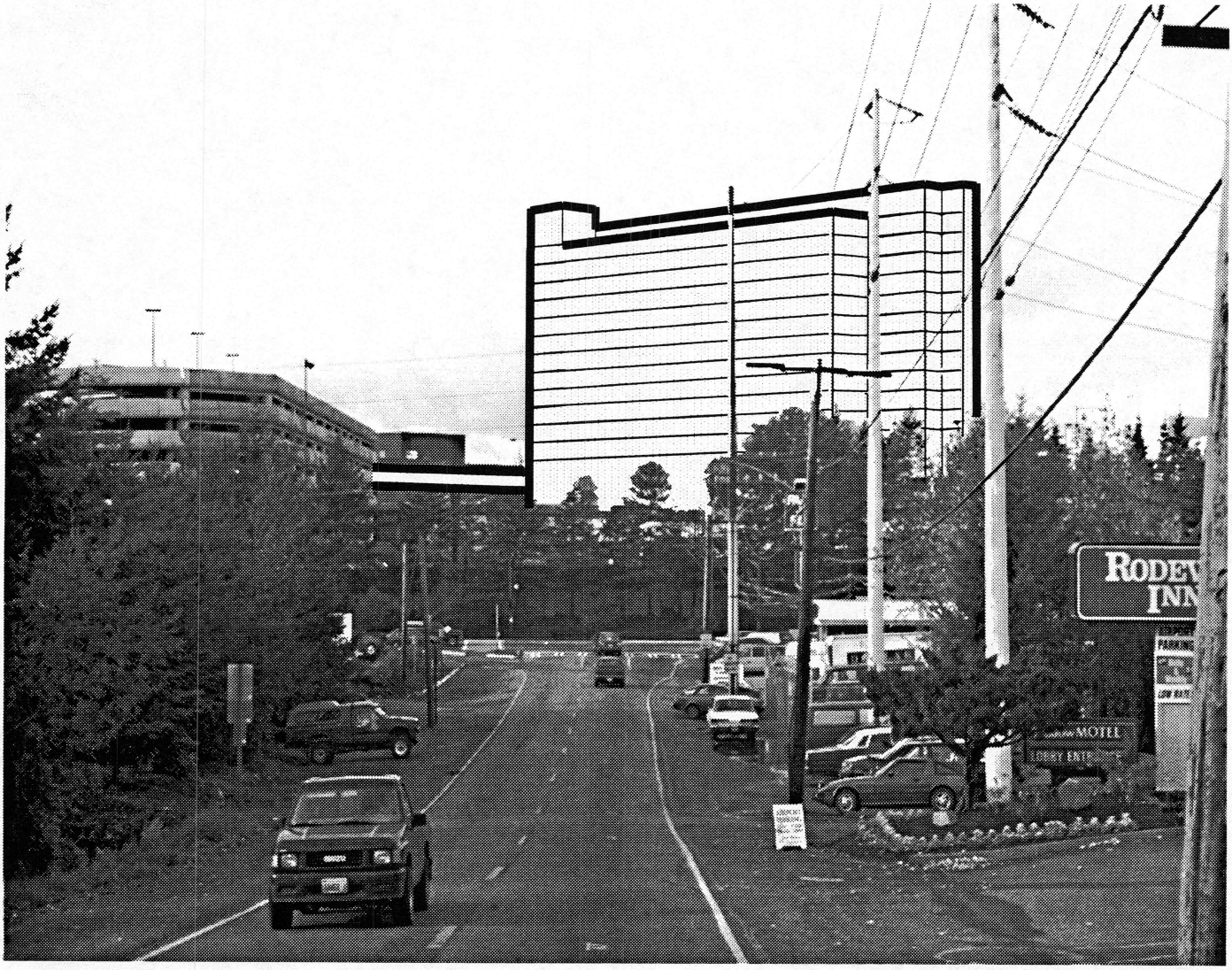
Viewpoint 2 - Smaller Hotel

Figure C 7

176th Street

Viewpoint 3- Existing

Figure C 8



176th Street

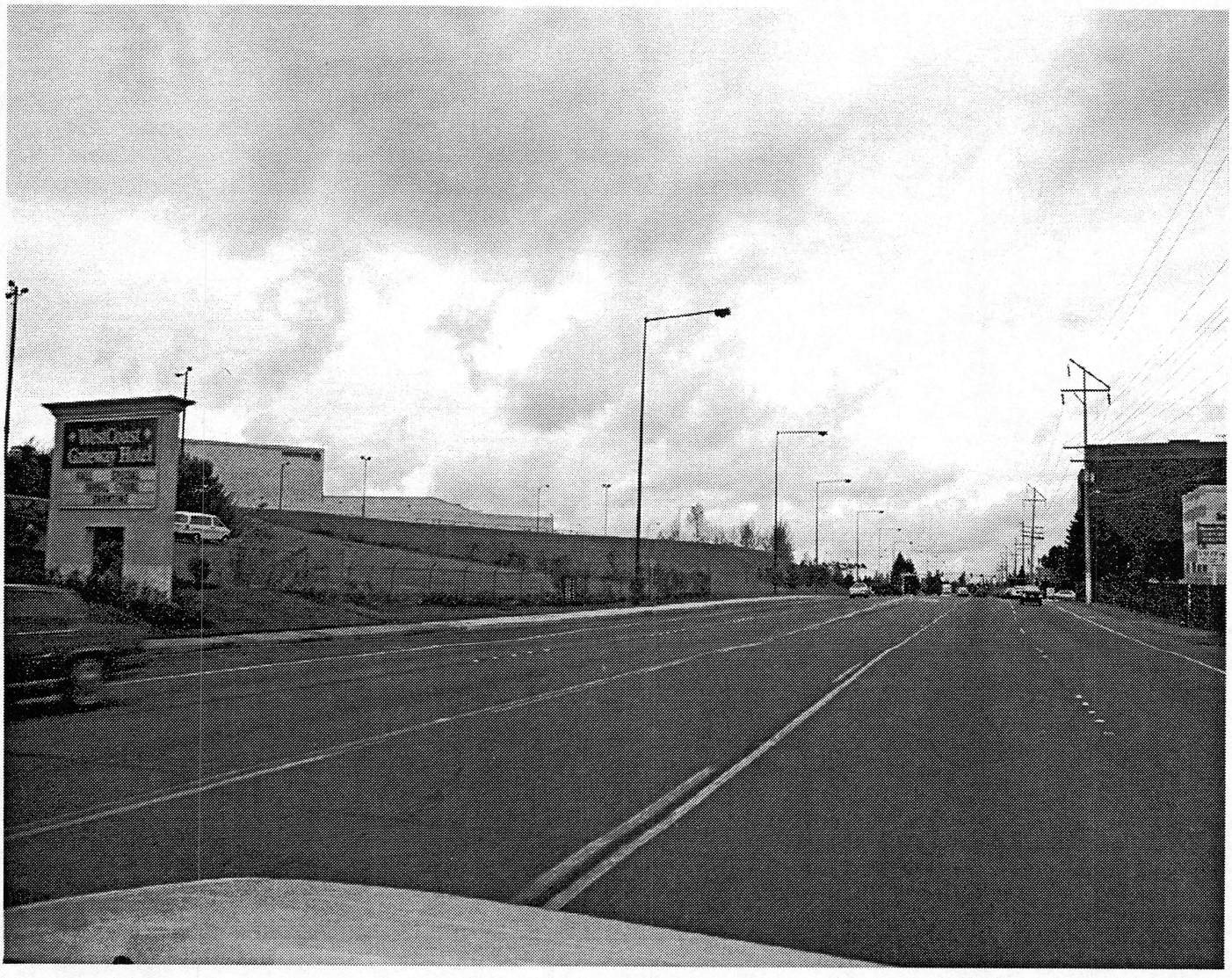
Viewpoint 3 - Proposed Action

Figure C 9

176th Street

Viewpoint 3 - Smaller Hotel

Figure C 10



International Boulevard @ Bow Lake

Viewpoint 4 - Existing

Figure C 11

International Boulevard @ Bow Lake

Viewpoint 4 - Proposed Action

Figure C 12

International Boulevard @ Bow Lake

Viewpoint 4 - Smaller Hotel

Figure C 13

Airport Park

Viewpoint 5 - Existing

Figure C 14

Airport Park

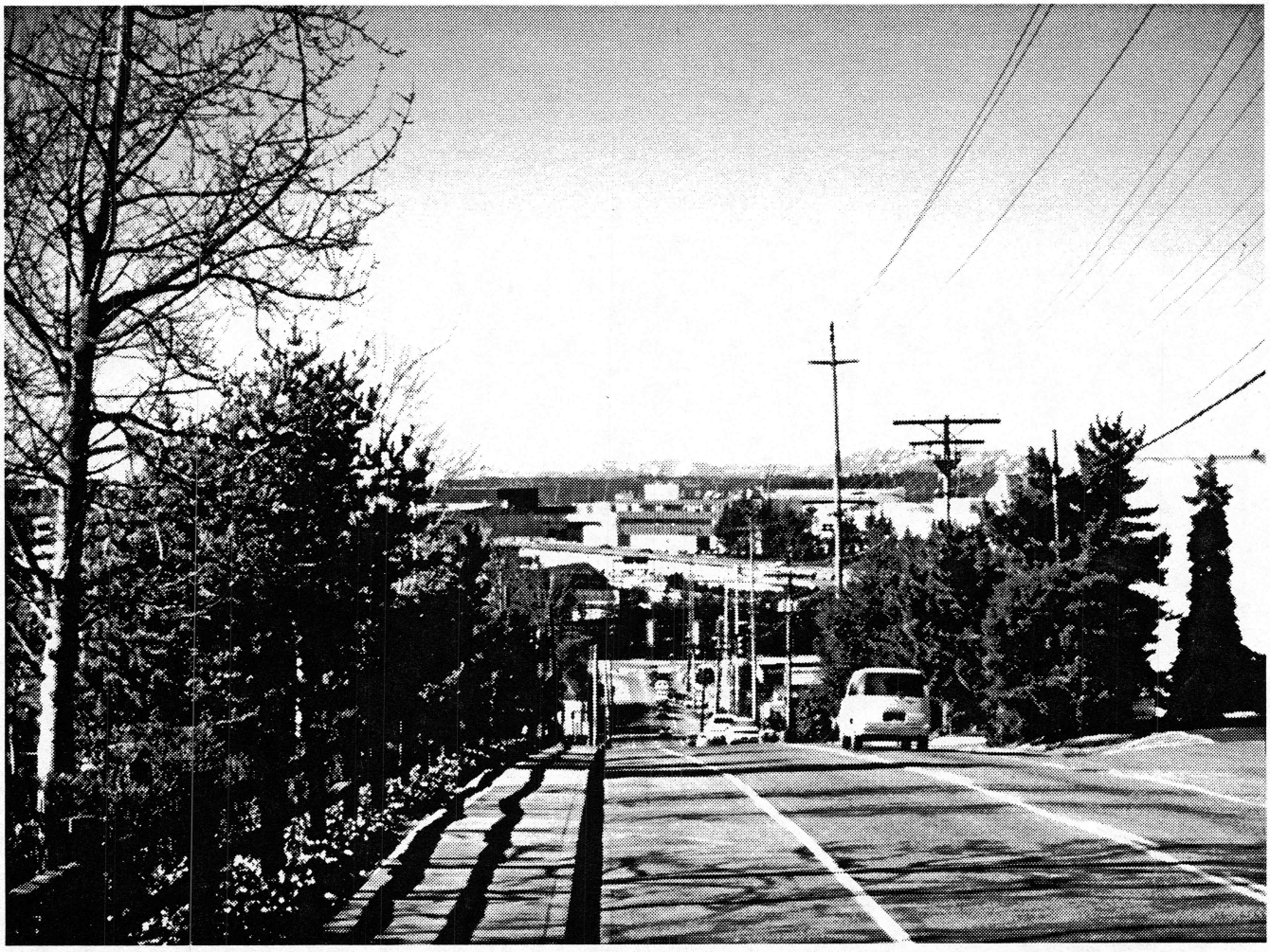
Viewpoint 5 - Proposed Action

Figure C 15

Airport Park

Viewpoint 5 - Smaller Hotel

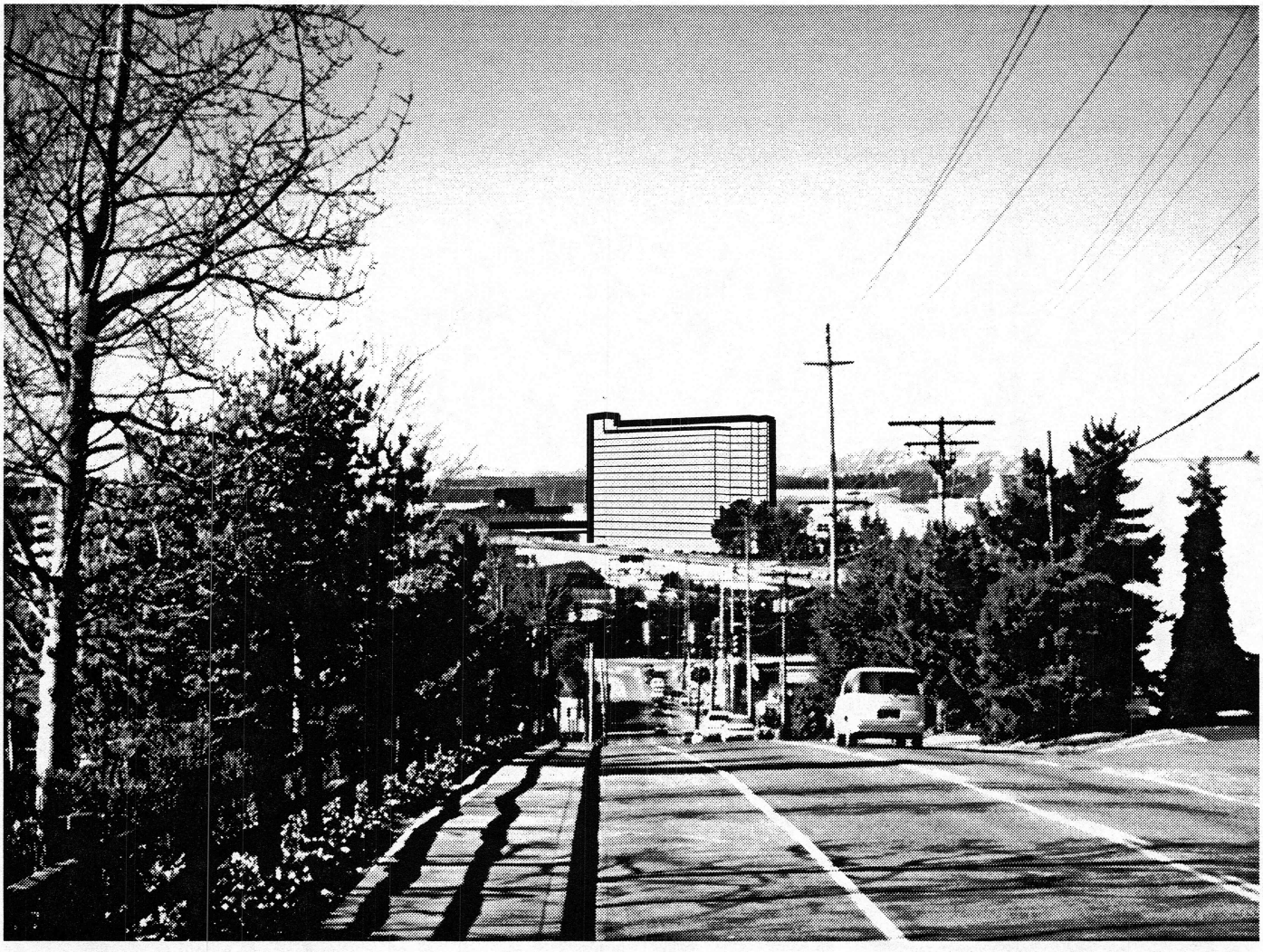
Figure C 16



176th Street top of hill

Viewpoint 6 - Existing

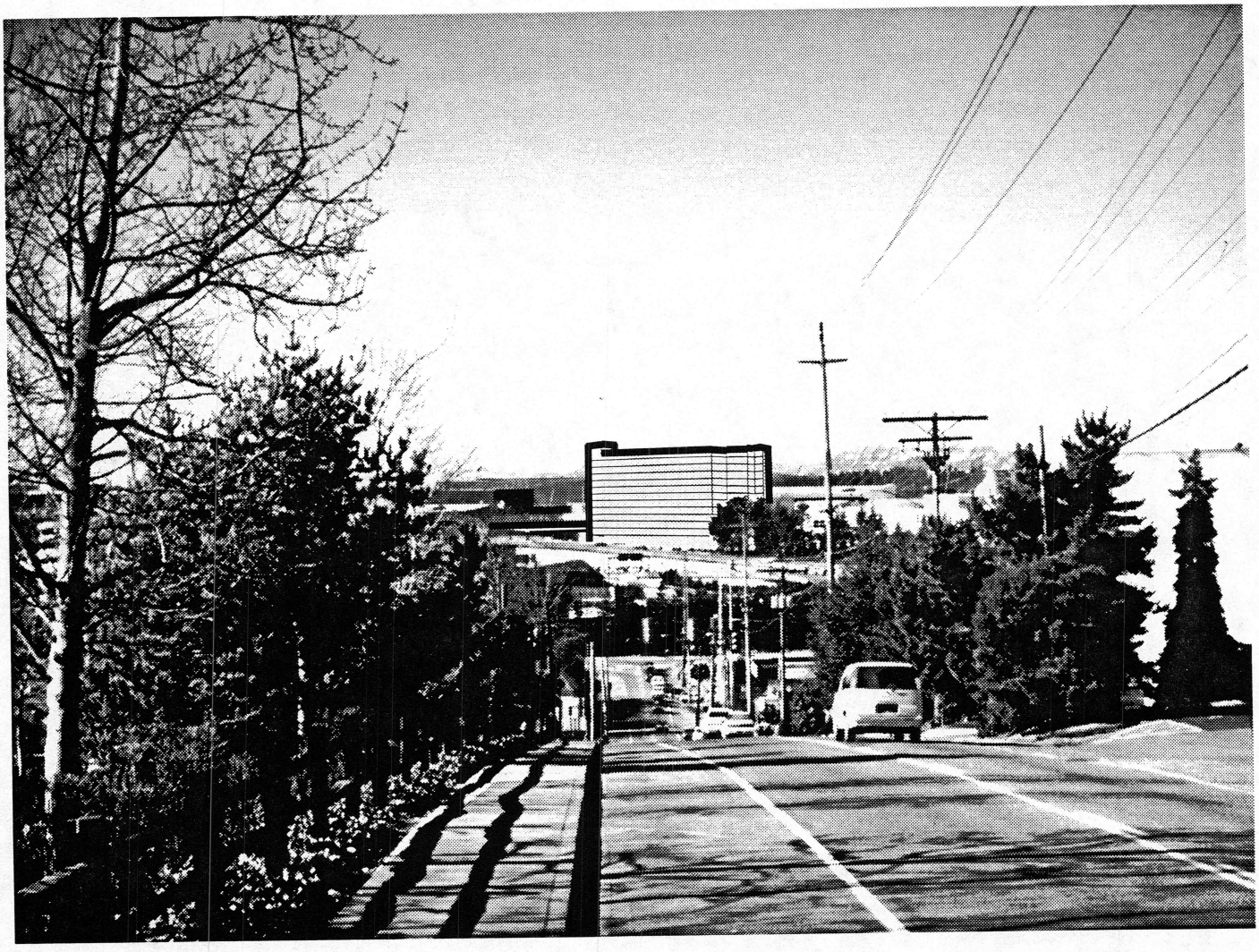
Figure C 17



176th Street top of hill

Viewpoint 6 - Proposed Action

Figure C 18



176th Street top of hill

Viewpoint 6 - Smaller Hotel

Figure C 19

APPENDIX D
PUBLIC SERVICES AND UTILITIES

1. Utilities

1.1 Introduction

This section presents a preliminary evaluation of existing and required capacities of civil, mechanical, and electrical utilities serving the area at the north end of the Terminal which has been identified as the location for a future hotel building.

Available information for each utility was compiled from the review of previous reports and discussions with Port of Seattle (POS) staff. Some information was taken directly from the Terminal Development Plan to describe overall airport facilities.

From the compiled information, existing capacities were evaluated and estimated demands for a hotel building were calculated for each utility.

1.2 Existing Capabilities

Civil - Existing Capabilities

Domestic Water - The existing water system for the Seattle-Tacoma International Airport is a high volume-low pressure system owned and operated by the Port of Seattle (POS). Water for the system is supplied by a 60-inch main, owned by the City of Seattle. Water is pumped by a 1,200 gpm jockey pump into a 300,000 gallon reservoir. According to POS staff, initial system pressures at the airport generally vary from 60-75 psi for domestic service.

The capacity of the Airport's water system is adequate to serve the proposed hotel. Service to the site will be from a looped 16-inch diameter line immediately east of the site.

Fire Sprinkler System - The existing sprinkler system is fed by the same 60-inch line that supplies the domestic water system. A combined domestic water and fire distribution main, as described above, loops around the airport.

There are eight existing fire pumps in the pump station located near the 300,000 gallon reservoir. All eight fire pumps are rated at 2600 gpm at 150 psi. This rating is adequate to meet potential fire demands.

Sanitary Sewer - The sewage collection system for the Seattle-Tacoma Airport is owned by the Port of Seattle. The existing site and the main airport terminal buildings discharge to the west into the collection sewer ranging in size from 12-inch to 21 -inch at the downstream end. There is an existing 12-inch diameter line on the easterly edge of the site.

According to POS staff, the 12-inch sewer adjacent to the site may be near or at capacity with the existing sewage demands.

Flows from the terminal areas are treated at the Midway Sewer District treatment plant. According to Midway Sewer District, treatment plant capacity exists for the proposed hotel.

Industrial Waste - The industrial waste system collects drainage from the car wash, fueling garage, hangars, aircraft parking and maintenance areas. Collected drainage is treated at the industrial waste treatment plant located at the south end of the airfield, and discharges to the Puget Sound in a shared outfall with the Midway Sewer District.

Storm Sewers - The storm sewer system is owned and operated by the Port of Seattle. The proposed site for the hotel is occupied by the United Airlines office building and the remainder is paved parking. Drainage from the site discharges to the west into a 12-inch storm sewer. The on-site storm sewer is in good condition and apparently has adequate capacity for present conveyance demands. The flows from the site enter into the Des Moines Creek system. The Des Moines Creek basin is approximately 3,700 acres including most of the Sea-Tac terminal area. Flows enter the system on Pacific Highway South and flow south to the east branch of Des Moines Creek, through Tyee Pond and ultimately discharges to Puget Sound just north of the Des Moines Marina.

Mechanical/Electrical - Existing Capabilities

Heating Systems - There are three existing 30,000 pounds per hour boilers for a total capacity of 90,000 pounds per hour. They are located in the central plant. According to POS personnel, total airport demand averages approximately 40,000 pounds per hour.

Cooling Systems - A new 2,000-ton chiller was recently installed and three 200-ton chillers were removed. Total capacity is 5,620 tons. According to Consulting Design Incorporated, the demand at completion of the 1992 concourse expansions was estimated to be 5,107 tons leaving 513 tons of limited reserve capacity.

Natural Gas - There is an existing six-inch intermediate pressure gas distribution main owned by the Washington Natural Gas Company which currently supplies the airport. It is apparently in good condition and has adequate capacity.

Electrical - There are presently two Puget Power substations, at the north and south ends of the airport. Each substation consists of two 600 amp, 12kv feeders and switching equipment that feeds the POS owned transformers and distribution equipment. Load balance between the north and south substations is coordinated closely by POS and Puget Power. Currently, load shifting occurs between substations because one substation cannot carry the entire load.

Usable capacity of the system is 37,500 kva. The airport substations were built 30 years ago and have been upgraded and enhanced with new equipment since then. Power is available to the proposed hotel site with some routing and switching modifications to the existing system.

Communications - The airport telephone system is fed from the Cherry Central office to the US West facility in the main Terminal Building via cable along Air Cargo Road. Currently there is no alternate path or redundancy.

1.3 Required Capabilities

Civil - Required Capabilities and Improvements

Domestic Water - Hotel building peak demand for water service is estimated to be 300 gpm. Conceptually, this is equivalent to a six-inch water service.

The capability of the POS water distribution system is adequate to supply the proposed 16-story hotel.

Approximately 800 lineal feet of 16-inch water main which connects to the primary distribution loop and serves the proposed site is available for connection. The replacement of this pipe may be required depending on its condition but is not currently contemplated. The capacity, however, of the existing POS distribution system, including this 16-inch water main, appears to be adequate for projected water quantity demands.

Fire Sprinkler - Using Insurance Service Office (ISO) criteria, conceptual fire demands for a Type I fire resistive building were estimated to be 2500 to 3500 gpm at 20 psi minimum static pressure. The required capacity is available when two of the eight existing fire pumps are activated.

Sanitary Sewer - Peak sewage demand for the hotel building is conceptually estimated to be 435,000 gpd. Conceptual demand was calculated based upon Water Pollution Control Federation criteria of 1.3 gallons per day per square foot, and was confirmed as approximately equal to peak domestic water demands. An existing 12-inch sanitary sewer main is available for connection. Although POS staff have not observed capacity problems to date, the capability of the existing 12-inch sewer to handle the demands of the proposed hotel building are dependent upon sewage demands from further development upstream up to 145th street and Air Cargo Road and from other airport expansions. The hotel building will increase the demand on the system, as will other planned airport expansions. A meter is planned to monitor available capacity in the line. If additional capacity is required a parallel line or larger replacement line of approximately 2,000 feet would be constructed.

Industrial Waste - The proposed hotel building would not impact this system.

Storm System- The proposed project would not increase stormwater runoff because most of the site is covered by the existing United Airlines Building and the remainder is paved. An airport wide study of stormwater collection treatment and disposal is currently being prepared and will include recommendations for the stormwater system at the project site.

Mechanical/Electrical - Required Capabilities and Improvements

Heating Systems - Heating load for the hotel building was conceptually estimated to be 6,000 MBH (one thousand BTU per hour) peak input. Conceptual demand was calculated based upon approximately 13.5 BTU per hour per square foot of output power required. An independent heating system would be installed at the project site.

Cooling Systems - Cooling load for the hotel building was conceptually estimated to be 600 tons. Conceptual demand was calculated based upon approximately 650 tons per square foot. This is equivalent to two 400-ton chillers with reserve capacity. Distribution systems and other appurtenances would also be required.

An independent cooling system would be provided at the site and sized to be project specific.

Natural Gas - Natural gas demand is estimated at 10,000 cubic feet per hour. According to the Washington Natural Gas Company, the 6-inch intermediate pressure gas main has adequate capacity to handle this demand. A new service line to the building would be needed.

Electrical - Electrical demands for a hotel building were conceptually estimated for 480V/277V, 3-phase connection to be a 3100 kva and 4000 amp service. This was estimated assuming the kitchens will be served by gas.

Electrical power would be provided with approximately 450 feet of new feeder from the nearest manhole in the tunnel service drive. Power would be provided from the south substation through new switching equipment and transformers.

Puget Power has in their long range plans the provision of a transmission substation at the Port. Transmission mains to the new substation would need to be constructed. However, the proposed hotel can be served by the current system capacity.

Communications - The Port is working with US West to develop a cable management program. US West has pulled a new fiber optic cable under the runway from the Cherry Central office. When connected, the system will have an alternate path and some redundancy.

Telephone - POS is currently working with US West to provide adequate capacities and efficient distribution to the airport telephone system.

Conclusion

The existing public utilities are generally available to the site and capacities to serve the proposal are available with normally expected system extensions and minor improvements. No significant impacts on utilities have been identified.

The ramp widening will have no demand on the utilities' capacities. However, depending on final design, some utilities may require relocations.

2. Public Services

2.1 Introduction

This section summarizes the current level of police, fire and emergency medical services provided at Sea-Tac airport by the Port of Seattle. Included in the summary is a discussion of impacts the proposed hotel might have on these services.

2.2 Police

The Port of Seattle Police Department currently provides police protection services at the site. Since the hotel site would be under the Port's jurisdiction, the Port of Seattle Police Department would provide police protection services during construction and after completion.

The Port of Seattle Police Department is based at Sea-Tac International Airport, Main Terminal building. The Police Communications Center provides radio dispatch and receives all 911 calls coming in from Airport areas.

The department supports a staff of 87 fully commissioned officers, 57 of whom are assigned regular patrol duties. A minimum of 5 officers are assigned to patrol duties in and around the airport during a 24-hour period. Typically, several will be in patrol cars while officers on foot control drive traffic and respond to incidents in the airport terminal buildings. Average response time to terminal checkpoint alarms is two minutes or less. Response times to the hotel could be somewhat higher, but well within community standards, dependent upon design access routes, personnel strength, priority of calls, and other variables. Data is not available on which to base projections of police calls for service from the hotel. Additional data will be gathered, however, it is anticipated that additional staff may be required in the areas of investigation, drive traffic control, response to crimes and service calls. (Kubik 1995).

The hotel phone system is expected to incorporate a "911 Interpreter" device so hotel phones could interface with the county-wide 911 phone system, which for the airport area is serviced by the Port Police Communications Center. Without such 911 interface, timely and effective police, fire and emergency medical aid response to calls from the hotel would be difficult. State legislation is pending which would require installation of 911 interpreters for all commercial PBX phone systems.

The Port of Seattle has "letters of agreement" with King County and all other surrounding law enforcement agencies for mutual aid assistance during emergencies. King County Police provide contractual service to the City of SeaTac from Southwest Precinct 4, located west of the airport in Burien.

2.3 Fire

The Port of Seattle Fire Department (under the Port's Aviation Division) and other King County Zone #4 fire departments currently provide fire protection services at the proposed hotel site. The Port is responsible for providing fire protection services on Port-owned properties. The Port of Seattle Fire Department would assume incident command responsibilities for fire protection services at the site since the hotel site is within its jurisdiction.

The Port of Seattle Fire Department maintains one full-time fire station at the airport. The station is located approximately one-quarter mile north of the site (north of the North Satellite Building). The estimated response time to the site (worst case scenario) is 2 to 3 minutes. Long-term planning for the airport projects development of a second fire station at approximately the same location around the year 2014. Table 1 illustrates existing fire fighting and emergency response vehicles operated by the Aviation Division.

The Port of Seattle has entered into a County-wide mutual aid agreement and has automatic response with local fire districts in Zone #4. These include FPD 26 (Des Moines), FPD 24 (Angle Lake), Burien, Tukwila and Federal Way. All of Zone #4 fire departments employ full-time, 24-hour staffing of their emergency response equipment.

With the exception of a ladder truck, the Port of Seattle Fire Department has adequate fire fighting capacity to serve the hotel site. The nearest ladder companies are in Tukwila, Burien and Federal Way and all provide mutual aid assistance to the Port of Seattle. The average response time for fire fighting equipment to reach the Sea-Tac airport site is 5½ minutes (Wieland 1995 personal communication). No further increase of fire fighting staff would be necessary to cover the addition of a hotel at Sea-Tac airport. (Barrett 1995).

2.4 Emergency Medical Services

The Port of Seattle Fire Department, King County Paramedics, and private carriers provide emergency medical services in the project area. In general, the fire department's medical aid unit is the first unit dispatched in a medical emergency. Fire department aid units are staffed with three certified Emergency Medical Technicians capable of giving life support assistance. The emergency dispatcher (or the fire department aid unit in contact with the dispatcher) may request a paramedic unit depending on the degree of the emergency. This determination can be made either before or after the fire department aid unit arrives at the scene.

Several paramedic units serve the area. These include: Medic Unit No. 4 located at approximately South 154th Street and Highway 99 (which generally serves the SeaTac area); Medic Unit No. 5, located at Valley General Hospital in Renton; and Medic Unit No. 6 and No. 8 located in south King County.

Transportation to area hospitals is typically done by medic units although this depends on the seriousness of the accident. If the accident does not warrant medical unit transportation, then a private carrier is contacted (this enables medical unit vehicles to remain in service).

Incidents involving emergency medical response teams would increase with the hotel. However, this increase is not anticipated to pose a significant impact. Adequate emergency response personnel and facilities exist in the area and could easily serve the occupants and visitors at the hotel. The Disaster Plan, currently in place for evacuation and rescue in the event of a major catastrophe such as an earthquake or toxic spill, would be amended to include the hotel.

A detailed construction schedule including provisions for emergency access to the hotel could be planned prior to construction in conjunction with the Port of Seattle and surrounding police and fire departments.

Table 1. Port of Seattle Fire Department Response Vehicle Information

Call Sign	Type of Vehicle	Capacities	Discharge Rate
Command 700	Ford Van	Mobile Com. Post	N/A
Aid 731	Aid Unit	N/A	N/A
Eng 711	Structural Pumper	500 gal. water	2000 gpm
Trk 762	CFR (Crash Fire Rescue)	3000 gal. water 400 gal. AFFF 700 lbs. Dry Chem	1800 gpm
Trk 764	CFR	3000 gal. water 400 gal. AFFF	1800 gpm
Trk 765	CFR	3000 gal. water 400 gal. AFFF	1800 gpm
Air 732	Aid Unit (Reserve)	N/A	N/A
Eng 712	Struct. Pumper (Reserve)	270 gal. water	1500 gpm
Trk 763	CFR (Reserve)	3000 gal. water 400 gal. AFFF	1800 gpm
Haz-Mat 777	Ford Truck	Haz-Mat Mitigation Supplies & Research Center	N/A
Support 778	International Tractor Trailer	Large cache of Medical Supplies	N/A

NOTES:
Minimum standard structural response is 1 engine and 1 aid car with 2 Lieutenants and 6 fire fighters, and a Duty Chief.

Additional alarms are made up from Fire Zone #4 automatic mutual aid.

1st Alarm - 3 Engines, 1 Ladder, 1 Aid, 1 Chief
2nd Alarm - 3 Engines, 1 Ladder, 1 Aid, 1 Chief
3rd Alarm - 3 Engines, 1 Ladder, 1 Aid, 1 Chief
4th and 5th Alarms are Task Forces and Strike Teams from other King County Fire Departments

Minimum CFR response is 1 command van, 1 aid unit, 1 engine, 3 CFR trucks, and Duty Chief. Total minimum is 4 officers and 10 fire fighters.

Initial discharge capacity of the CFR response is 7500 gallons of water, 1000 gallons of AFFF (aqueous Film Forming Foam) and 700 lbs. of dry chemical agent.