Fairchild

Camera and Instrument Corporation

Puyallup, Washington

February, 1981

Applicant:

Leavitt Land Associates
NuPacific Company
Beim and James Properties II
301 – 116th Avenue S.E., Suite 570
Bellevue, Washington 98004

Pursuant to:
Washington State Environmental Policy Act of 1971
Chapter 43.21C.RCW

Benkendorf · Evans Ltd.
620 S.W. Fifth Avenue
Portland, Oregon 97204
(503) 226-0068

The Transpo Group
23 148th S.E.
Bellevue, Washington 98004
(206) 641-3881

David Evans & Associates, Inc.
301 116th Avenue S.E., Suite 170
Bellevue, Washington 98004
(206) 455-3571

Towne, Richards & Chaudiere, Inc.
105 N.E. 56th Street
Seattle, Washington 98105
(206) 523-3350

Tabletop Computations
3805 S.E. Knapp
Portland, Oregon 97202
(503) 771-2129

Puyallup Science Park

Puyallup, Washington

February, 1981

Applicant:

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TABLE OF CONTENTS

TABLES

EXHIBITS

I. INTRODUCTION

Action Sponsor

The City of Puyallup has been requested by Leavitt Land Associates, NuPacific Company, and Beim and James Properties II to grant the necessary approvals for development of 100 acres of land within the city limits into a Science Park. The property is located on 39th Avenue, S.E., east of South Meridian. See Exhibits 1, 2 and 3.

Lead Agency

Puyallup Planning Department
Contact Person: Bruce Uhl
218 W. Pioneer
Puyallup, Washington 98371
Telephone (206) 848-2396

Authors and Principal Contributors

This Environmental Impact Statement has been prepared by:

Benkendorf • Evans Ltd.
620 S.W. Fifth Avenue
Portland, Oregon 97204

With the assistance of the following:

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(206) 641-3881

Cost of the Environmental Impact Statement

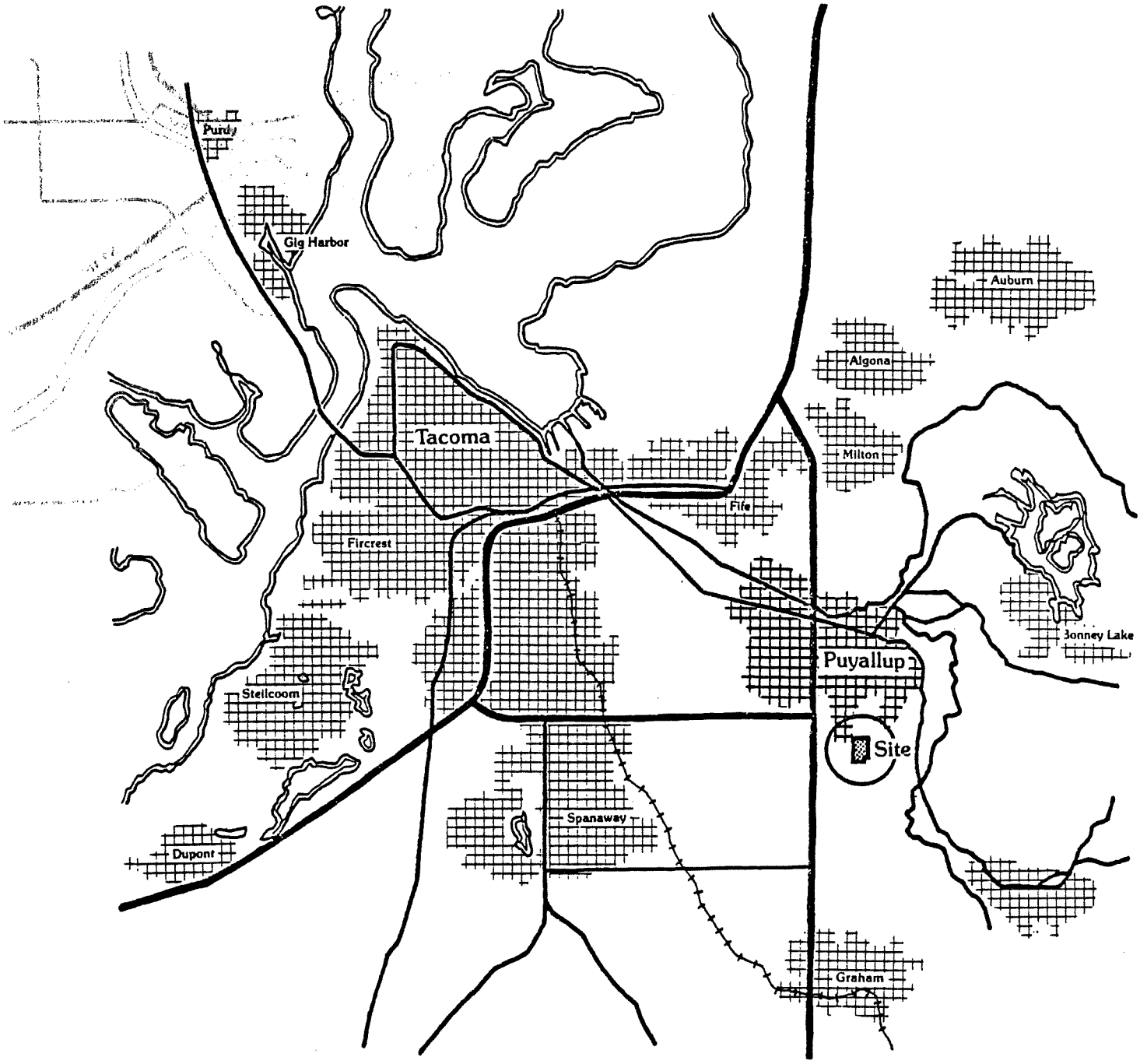
Copies of this Environmental Impact Statement are available for purchase at the Puyallup Planning Department, 218 West Pioneer, Puyallup, for the cost of $10.00 a copy.

Date of Issue

Draft Environmental Impact Statement: December 23, 1980
Final Environmental Impact Statement: February 23, 1981

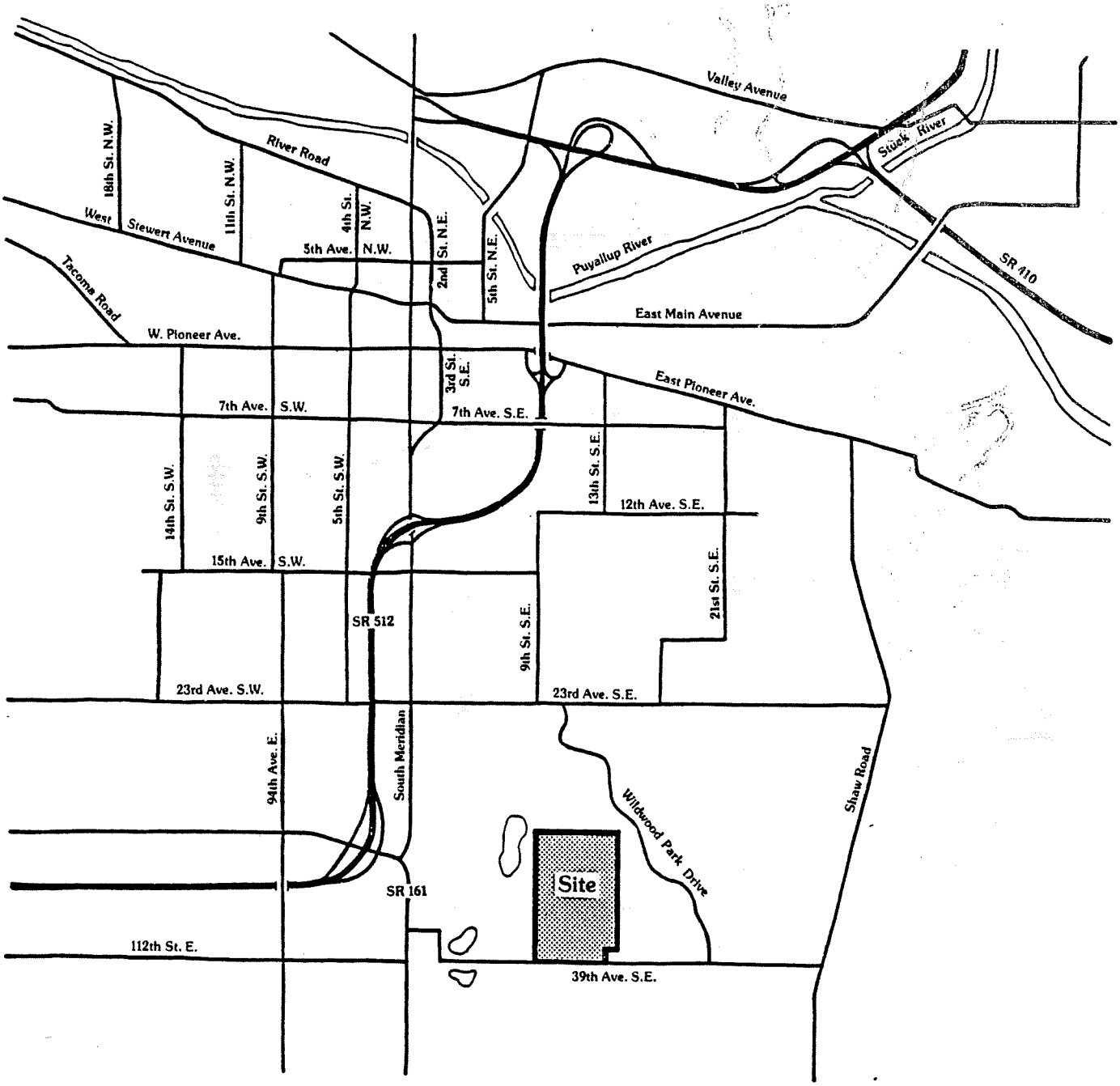
Review Period

The Draft Environmental Impact Statement was listed in the SEPA Register and transmitted December 23 1980 for a 35 day review period to those agencies and organizations cited in the Distribution List of this document. The review period officially expired on January 27, 1981.



Region

Exhibit 1



Legend

Property Boundary

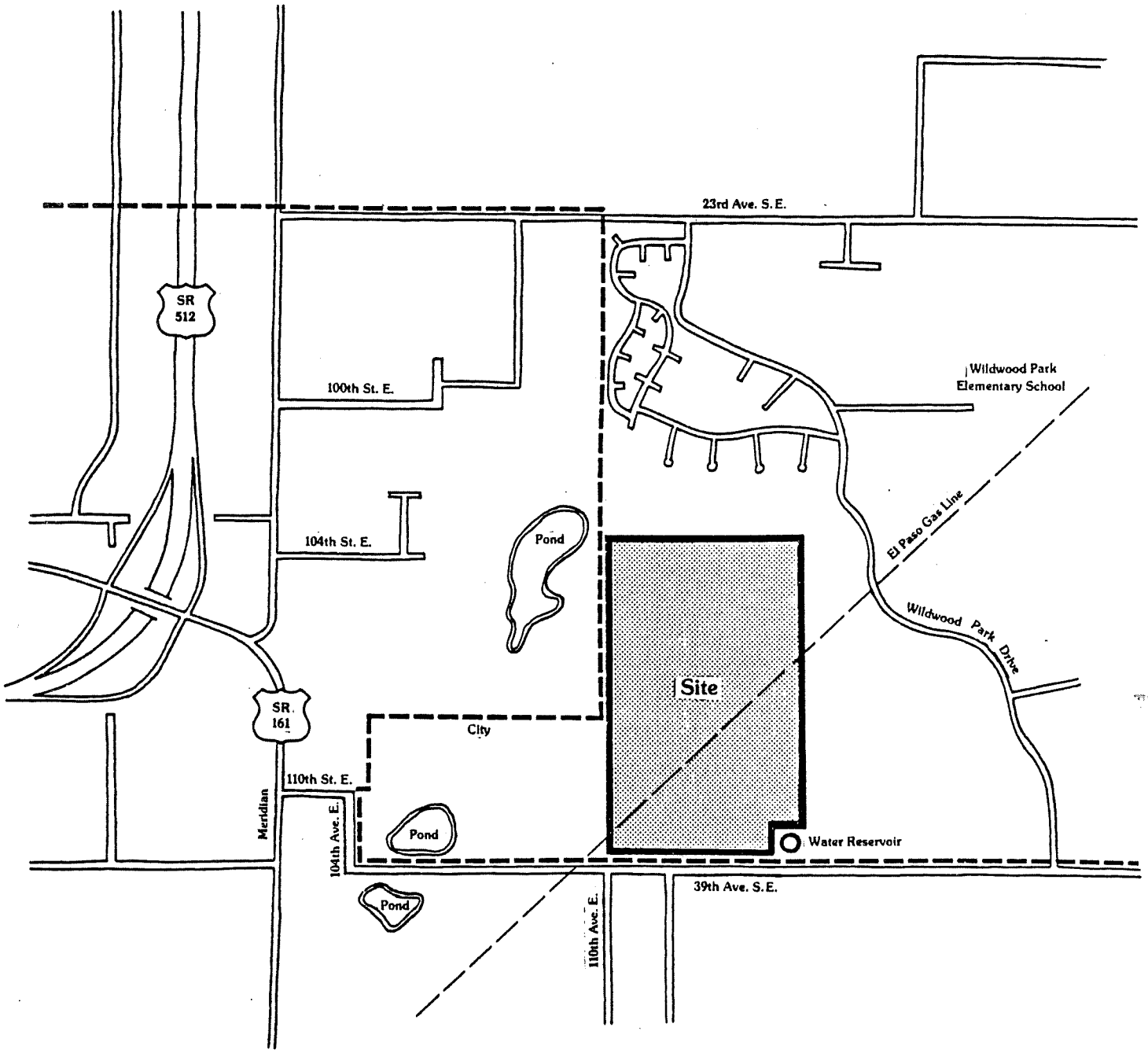
North

0 1500 3000

Approximate Scale 1" = 3000'

City

Exhibit 2



Legend

Property Boundary

City Limits

North

0 660 1320

Approximate Scale 1" = 1320'

Vicinity

Exhibit 3

The Transpo Group
23 - 148th Avenue S.E.
Bellevue, Washington 98002

Governmental Approval, Licences and Permits Required

1. Reclassification of zone from RS-1 to I-Industrial District.

2. Site plan approval.

3. Sewage system approval.

4. Street and storm drainage approval.

5. Water system approval.

6. Building permits.

7. Forest Practice Permit.

8. Waste Discharge Permit.

Location of EIS Background Data

Background data used in the preparation of this environmental impact statement is available for inspection during normal office hours at one or more of the following locations:

Benkendorf • Evans Ltd.
620 S.W. Fifth Avenue
Portland, Oregon 97204
(503) 226-0068

David Evans & Associates
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II. DISTRIBUTION LIST

Federal Agencies:

U.S. Environmental Protection Agency
Environmental Evaluation Branch
Region 10X
1200 6th Avenue
Seattle, Washington 98101

U.S. Department of Housing and Urban Development
Environmental Section
Arcade Plaza Building
Seattle, Washington 98104
Attention: Mr. Dick Moore

U.S. Department of the Interior
Heritage Conservation and Recreation Service
915 Second Avenue - Room 990
Seattle, Washington 98174

U.S. Department of Commerce
1700 West Lake Avenue North
Seattle, Washington 98109

State Agencies:

Washington Department of Ecology
c/o Mr. Dennis Lundblad
345 General Administration Building
P.O. Box 829
Olympia, Washington 98504

Washington Department of Game
Attention: Mr. Gene Dziedzic
600 North Capitol Way
Olympia, Washington 98501

Washington Department of Social and Health Services
P.O. Box 1788
Olympia, Washington 98504

Washington Department of Transportation
Attention: Ron Matilla
Office of Planning and Research
Highway Administration Building
Olympia, Washington 98504

Washington Parks and Recreation Commission
Research and Planning Division
Attention: Mr. William A. Bush
P.O. Box 1128
Olympia, Washington 98504

Washington Department of Natural Resources
Attention: Mr. Bob Hoyser
28328 Southeast 448th Street
Enumclaw, Washington 98022

Office of Archaeology and Historic Preservation
Attention: Ms. G.N. Welch
Deputy State Historic Preservation Officer
111 West 21st Avenue
Olympia, Washington 98504

Washington Department of Commerce and Economic Development
General Administration Building
Olympia, Washington 98504

Washington Department of Emergency Services
4220 East Martin Way
Olympia, Washington 98504

Inter-Agency Committee for Outdoor Recreation
4800 Capitol Boulevard
Tumwater, Washington 98504

Planning and Community Affairs Agency
400 Capitol Center Building
Olympia, Washington 98504

Washington State Energy Office
400 East Union Avenue
Olympia, Washington 98504

Office of Financial Management
101 House Office Building
Olympia, Washington 98504

Office of the Governor
Legislative Building
Olympia, Washington 98504

Regional Agencies:

Puget Sound Council of Governments
Grand Central On the Park
216 1st Avenue South
Seattle, Washington 98104

Puget Sound Air Pollution Control Agency
Attention: Mr. James Pearson
Senior Engineer
P.O. Box 7863
Seattle, Washington 98105

City and County Agencies:

Puyallup Police Department
311 West Pioneer
Puyallup, Washington 98371

Puyallup Fire Department
311 West Pioneer
Puyallup, Washington 98371

Puyallup Public Library
324 Meridian Street
Puyallup, Washington 98371

Puyallup School District #3
Attention: Dr. Sam Peach
109 East Pioneer
Puyallup, Washington 98371

Tacoma-Pierce County Department of Health
Environmental Health Division
3632 Pacific Avenue
Tacoma, Washington 98405

Pierce County Public Works Department
Attention: Mr. William R. Thornton
Director
Room 1033 - County-City Building
Tacoma, Washington 98402

Pierce County Conservation District
9408 - 112th East
Puyallup, Washington 98371

Pierce County Fire Prevention Bureau
Attention: Mr. Dale Jones
Fire Marshal
2401 South 35th Street
Tacoma, Washington 98409

Pierce County Planning
2401 South 35th Street
Tacoma, Washington 98409

Pierce County Department of Community Development
Pierce County Annex
2401 South 35th Street
Tacoma, Washington 98409

Pierce County Library
2256 Tacoma Avenue South
Tacoma, Washington 98409

Private Organizations and Interested Parties:

Washington Natural Gas Company
3130 South 38th
Tacoma, Washington 98408

N.W. Pipeline Company
22821 Redmond-Fall City Road
Redmond, Washington 98052
Attention: Leon Bevel

Pacific Northwest Bell Telephone Company
1313 Broadway Plaza
Tacoma, Washington 98402

Puget Sound Power and Light Company
1417 Milwaukee Northeast
Puyallup, Washington 98371
Attention: Mr. Dale Easley

Fruitland Mutual Water Company
11309 94th Avenue E.
Puyallup, Washington 98371

League of Women Voters
Attention: Mrs. Thelmagene Collings
315 South 11th Street
Tacoma, Washington 98402

Tahoma Audubon Society
4011 Alameda West
Tacoma, Washington 98466

The Puyallup Valley Chamber of Commerce
2823 East Main
Puyallup, Washington 98371

Washington Environmental Council
107 South Main
Seattle, Washington 98104

Cable T.V. Puget Sound
2316 South State
Tacoma, Washington 98405

Manorwood Home Owners Association
2716 Manorwood Drive
Puyallup, Washington 98371

Newspapers:

Tacoma News Tribune
1950 South State
P.O. Box 1100
Tacoma, Washington 98411

Pierce County Herald
822 East Main
Puyallup, Washington 98371

III. SUMMARY

A. The Proposal

The purpose of this proposal to rezone property is to provide a suitable site for the development of a high technology manufacturer of solid state memory integrated circuits. The manufacturing processes that will be located in the facility are:

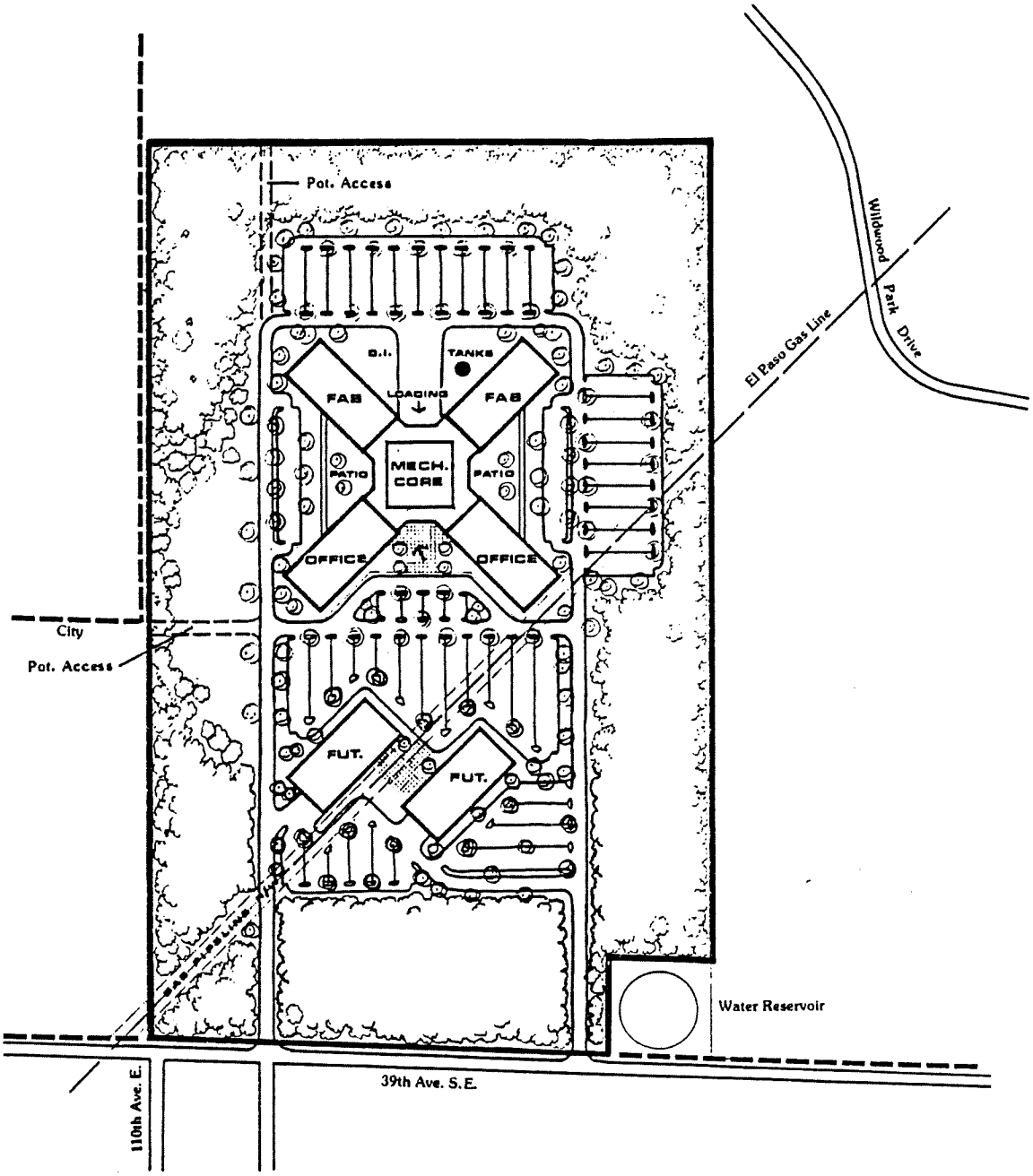
1. Wafer fabrication for integrated circuit chips.
2. Assembly of the integrated circuit chips on a frame and packaging.
3. Electrical testing and finishing of the integrated circuit components for customer distribution.

Six additional operations will be on site to support the manufacturing processes. These include:

1. Computer-aided design of the circuits.
2. Engineering.
3. Administration.
4. Marketing.
5. Quality Assurance.
6. Production Control.

A Conceptual Site Plan (Exhibit 4) has been prepared and is submitted for the purposes of indicating the general scale of development planned and its suitability for this specific site.

The site was selected in Puyallup/Pierce County by the intended user for eight major reasons after a one year investigation of 30 communities in the United States.



Legend

- Property Boundary
- City Limits
- Nitrogen Manufacturing Plant

North

0 250 500

Approximate Scale 1" = 500'

Conceptual Development Plan

Exhibit 4

1. Quality of life in the Puget Sound Region.
2. Proximity to a highly-rated engineering university, University of Washington.
3. Proximity to SeaTac International Airport.
4. The existence of supporting technical services in the region.
5. Favorable local and state tax structures.
6. Favorable (lower) cost of existing energy and close proximity to future energy sources.
7. Comparably lower cost of living.
8. Comparably lower cost of housing.

In summary, the purpose of this document is to serve as the basis for the presentation and evaluation of an application to the City of Puyallup for a zone change.

The application is a request for a zone change from RS-1, Single Family Residential District, to I - Industrial.

B. Direct and Indirect Impacts

1. Earth

Construction on the site will result in some short-term disturbance of the soil and an increase in erosion. The repositioning of the overburden to other parts of the site for fill and berming purposes will also occur and vegetation will be reestablished.

2. Air

During construction, a minor increase in the total suspended particulate (TSP) may occur, and minor increases of volatile organic compounds (VOC) emissions may result after complete buildout and full employment is attained. However, the VOC emission level for this site and related traffic is less than .3% of the estimated regional rate. Emissions from the planned stacks are estimated to be very low and will most likely not be visible.

3. Hydrology and Drainage

After full development, approximately 35% of the site may contain impervious surfaces. Runoff to the natural sources will increase and significant on-site retention is likely to occur. Suspended solids in the runoff may increase during and immediately after construction, and small amounts of road oil will mix with the runoff.

4. Vegetation

With most of the development occurring in the central portion of the site, approximately 35% of the site vegetation area will be converted to buildings, roads and parking areas.

5. Wildlife

Displacement of wildlife will occur during construction and site development will remove 35 acres of dense shrub and intermediate deciduous trees. Most larger animals will be removed from the site entirely. Additional noise from construction, traffic and operating processes will likely affect more sensitive species.

6. Noise

Significant noise impacts could occur in quiet residential areas west and north of the site if new major roads are developed through these areas to carry project traffic. Noise increases of about 15-19 dB would occur 50 feet from these roads.

There would be slight or moderate noise impacts along 39th Avenue S.E. (112th Street E.), with noise increases of 1-3 dB in L_{dn}. The effect would mainly be an increase in sleep interference due to noise at the 11:30 p.m. shift change. Noise impacts could occur due to stationary equipment and truck traffic on-site.

7. Light and Glare

Development will add light to an area which previously had no light or glare sources on-site. The proposed lighting type will add a somewhat unnatural yellow light to the vicinity. Some temporary moving light and glare may be added by vehicles operating at various hours, and light from parking areas may encroach on the natural buffer areas.

8. Land Use

Although the site is surrounded by open undeveloped land on three sides (north, east and west), the area is planned for future residential development.

9. Natural Resources

Approximately 35 acres of resource area on the site will be converted to developed area. This wildlife and natural vegetation area will be lost from the local inventory of resource areas.

10. Population and Employment

There will be a direct new population impact of approximately 4,158 - 5,395 people in Pierce and King Counties. The induced population impact for AAM 1410 (includes Puyallup) is projected to range from a low of 1,467 to a high of 1,903 people.

A total of 3,000 new direct jobs and a high of 678 indirect jobs will be generated as a result of this proposal over the next ten years. Approximately 1,875 employees are expected to be recruited from the local labor market.

11. Housing

Two impacts related to housing will occur. The first is the removal of 100 acres of land designated for low density residential purposes. The second impact is the requirement for new housing units. Assuming one housing unit per employee, 581 to 636 units will be required over the next ten years in AAM 1410. A total of 1,648 to 1,803 units will be required in Pierce and King Counties.

12. Tax Impact

The total capital investment expected on site by 1984 is $77,000,000. Assuming the mileage rate remains constant, $1,240,952 in taxes will be paid by the user to the city, county, school, port and state.

13. Transportation

In 1983, 1,260 daily trips will be added to the street network. By 1990, at the completion of Phase V, 6,300 daily trips will be added to the street network. 1983 impact will be focused on S.R. 161 with increased congestion at intersections with 110th S.E. and Meridian Street. Adverse impact in 1990 will be similarly concentrated on S.R. 161, but traffic growth with or without the project will use and exceed all available capacity at intersections along that route.

14. Public Services

No major direct impacts anticipated.

15. Utilities and Energy

Preliminary estimates indicate that the Science Park will require average daily water flows of 550 GPM by the end of 1983, 1,110 GPM by the end of 1984, and 1,390 GPM by the end of 1990. In order to meet the anticipated water use, connection to the Tacoma water system and a storage capability of 700,000 gallons would be required.

Waste water flows from the Science Park are estimated to increase from a rate of 0.9 MGD in 1983 to 2.3 MGD in 1990. Of the existing sewer lines between the site and the wastewater treatment facility, the line on 23rd

Avenue S.E. just has sufficient capacity to serve flows from the site in 1983; the trunk line to 19th Street and West Pioneer lift station could temporarily handle 1983 estimated flows; the sewage lift station at 19th St. and West Pioneer could handle 1983 flows but would require enlargement to handle greater flows after that time; and the gravity trunk line from the 19th St. and West Pioneer lift station to the treatment facility could handle estimated flows through 1990. All other lines could not handle estimated flows even in 1983. An engineering report must be prepared to determine the type of waste and the effect of wastewater on a proposed treatment facility designed to serve the City of Puyallup. There are two alternative methods of handling wastewater, the selection of which is dependent on the findings of the required engineering report.

16. Aesthetics

Proposed development will remove natural vegetation and will result in a leveling of the topography where structures and parking areas will be placed. The development of the project will convert an undeveloped, somewhat abused landscape into a developed and well maintained site.

17. Archaeological/Historical

There are no identified archaeological or historical sites on the property.

18. Human Health

The use of approximately 25 different chemicals in the manufacturing process may increase the risk of hazard to human health and safety, especially because some of the chemicals are either flammable liquids or acids. Some gases are also involved in the manufacturing process. Impacts in the event of accident only, on human health and safety have been identified with several of the liquids, acids and gases.

C. Alternatives

Four courses of action have been identified as alternatives for development of the site. They are as follows:

1. Single Family Residential District - 300 Units

This alternative, though it would be more consistent with current plans for the area, would result in a more intensive use of the land and several associated adverse impacts: an increase in impervious surfaces, a loss of potential open space amenities, greater demand for public services and a significantly greater loss of vegetation and wildlife habitat. The demand on utilities, however, would be less: approximately 0.1 mgd for sewage and 0.15 mgd for water.

2. Residential Buffer District

This alternative would result in the same adverse impacts as for the single family alternative, but impacts which would be more severe. The traffic impact for this alternative would also be greater than for the proposed use. Population, site coverage, runoff, traffic volumes, air pollutant emissions and demand for public services would all be greater than for either the proposed use or the single family alternative. The total impact of the potential additional units from this alternative on the Puyallup area housing market would be signficant.

3. No Action

The "no action" alternative would retain the site in its present undeveloped condition. The alternative would result in a potential loss of at least $77 million in local

tax base and an ultimate employment of 3,000 persons. There would be no adverse environmental impacts.

4. Development of Another Site

After an intensive site search, the proposed user chose this site, rejecting all others in the Puget Sound Region for six reasons. The intensity of the study revealed that other sites are unsuitable for one or more of the six reasons. To not develop on this site could result in a significant economic loss to the region as a whole, and, more specifically, to the city of Puyallup.

D. Mitigating Measures

1. Earth

As much use as possible will be made of the natural topography of the site to reduce grading and excavation. After repositioning of the earth material, surfacing and revegetation will occur as soon as possible to reduce erosion. Siltation will be minimized by detention/retention facilities which will also serve to control pollution and drainage from the site.

2. Air

Good operational techniques, utilization of RACT (reasonably available control technology) on equipment, and sensible and practical disposal processes will reduce impacts during construction. More fuel efficient automobiles and equipment, improved traffic control, and carpooling and increased use of mass transit will lead to improved air quality. In the manufacturing process, use of scrubbers on the stacks and processes within enclosed structures will prevent adverse impacts.

3. Hydrology and Drainage

Disturbed areas will be reestablished and revegetated or surfaced as soon after construction as practically possible. Storm drainage systems including retention/detention facilities will control runoff and siltation, and oil restrictors and grease traps will help to maintain water quality of drainage and runoff from the site.

4. Vegetation

Because development will occur in the central portion of the site, the great majority of the mature climax growth will remain undisturbed to constitute portions of the buffer areas. In addition, other plant materials will be added to the site, not only in the buffer areas but in the developed areas as well to provide accent and decor around the buildings and shade for the parking areas. During construction, protective measures will be taken. Finally, a long-term landscape management plan will be developed which will retain and maintain the natural character of the area and provide nesting, cover and feeding areas for all types of birds and small wildlife.

5. Wildlife

Preservation of the natural vegetation in the buffer areas and additional plantings will provide habitation areas for small wildlife. Some species, especially birds, may also be able to adapt to life in the development area as well as the buffers. Generally, most wildlife already in existence on the site is considered to have adapted to the nearby human activities and should be capable of making the necessary additional adjustment.

6. Noise

Significant traffic noise impacts can be mitigated by using the existing roads to carry project traffic. (Residences near the site entrance could still be significantly impacted.) Noise impacts from nighttime truck traffic can be mitigated by limiting this traffic to daytime hours, if possible. Noise from stationary on-site equipment (such as the nitrogen manufacturing plant and

cooling towers) should be evaluated and controlled in project design. Temporary construction noise cannot be effectively mitigated.

7. Light and Glare

The added light in the exterior areas will offer more coverage with less intensity and fewer fixtures. Screen plantings will protect surrounding properties from light and glare, and the more sparsely vegetated areas will be enhanced in order to decrease the impact of light on adjacent land uses. This will also reduce the vegetative impact on wildlife living in the buffer areas.

8. Land Use

Recent experiences in other locations have shown that this type of high technology industrial operation where all functions and storage of material take place within enclosed structures is very compatible with adjacent residential uses. This compatibility will be enhanced by the buffer areas and the location of 39th Avenue S.E. on the south side of the property. Because this industrial site will be developed first, adjacent residential areas can be planned to accommodate and complement the industrial use of this land.

9. Natural Resources

Additional plantings in the buffer area and around the buildings and parking areas will provide habitation areas for displaced wildlife. Large growth timber will be retained in the buffer areas and a long term management plan will help maintain and improve the quality of the undeveloped natural areas.

10. Population and Employment

No mitigation of the minor population increase is proposed with the exception of phasing the relocation over a four year period. The 300 residential units now proposed for the site could be accommodated by increasing the density on the adjacent undeveloped land on the perimeter of the site.

11. Housing

No mitigation is proposed.

12. Tax Impact

No mitigation is proposed.

13. Transportation and Circulation

Two major actions are proposed to mitigate the traffic impact. First, the development of transit service to the site will be undertaken coupled with the encouragement of ridesharing, priority parking and a vanpool program. Street improvements to meet Phase I (1983) and Phase V (1990) traffic demand have been identified as follows:

PHASE I

1. Widen S.R. 161 to two lanes each direction with left turn pockets through the 110th and the Meridian intersections, plus a new signal at the 110th St. E. intersection. A cost of $555,000 is estimated for these total improvements.

2. The city has identified the need for construction of a four-lane roadway from the site to the 110th St. E./SR 161 intersection. The exact route of this connection will be dependent on the development plans for intervening property. The improvements could occur along the existing 112th to 110th alignment if that route was deemed most appropriate. Alternatively, a curving alignment north of 112th St. E. could be developed, eliminating the existing right-angle turns.

   The estimated costs for this four-lane connection is $711,000 to $853,000, depending upon final alignments.

PHASE V

1. The 1990 requirements of project and non-project traffic may place demands upon the transportation systems that necessitate a second connector from the site to SR 161 or S. Meridian St. This connection is dependent upon development plans for adjacent properties and WSDOT plans for SR 161; but is anticipated as an east-west route north of 110th, possibly connecting east Wildwood Park Drive. This ultimate improvement may be postponed if non-project traffic growth is less robust than anticipated and if car pooling, van pooling, mass transit and other transportation methods meet the site demands as they develop over the next eight years. The northerly connection route (Wildwood Park to Meridian) is estimated to cost around $1.0 million.

Sources of funding to complete these improvements are:

1. State and Federal grants or loans.
2. Job creation grants and loans.
3. Limited Improvement Districts (L.I.D.).
4. General obligation bonds.
5. Developer contribution.

14. Public Services

No direct mitigating measures are anticipated. Funds from greatly expanded tax revenues will be available after 1983 to expand police and fire services in the city.

15. Utilities and Energy

To mitigate construction of a supply line to the City of Tacoma, a booster station connection to the existing reservoir, additional storage capability, and improvements to wastewater transmission lines, sources of funds are being investigated and include Federal and State grants and loans, revenue bonds, general obligation bonds and local improvement districts. Potential repayment sources are user fees, surcharges, and allocation of property taxes generated by site improvements. The cost of wastewater treatment will not be available until the required engineering report has been prepared.

A new substation will be constructed on the site and Puget Sound Power and Light Company may consider a contract for interruptible power service.

16. Aesthetics

The planned buffer will significantly eliminate or reduce any views of the building. The severe pipeline clearing will be blended into the landscape as a result of the development of this site.

17. Archaeological/Historical

If at any time during site preparation activities, archaeological materials are unearthed, work will be suspended and the Office of Archaeology and Historic Preservation will be contacted.

18. Human Health

An extensive safety and training program is employed to reduce risks and prevent accidents. All exhausted air is washed with scrubbers, and fluoride and solvent wastes are collected and removed by a certified private contractor.

E. Impacts Not Mitigated

Adverse impacts which cannot be completely mitigated if the proposed development concept is implemented are as follows:

1. Phyical Environment

a. Earth

- o Alteration of existing soil profiles due to excavation for building foundations and regrading for accessways and parking areas.
- o Increased erosion potential.

b. Air

- o Short-term changes in particulate levels during construction phases.
- o Increased vehicle air pollutant emissions. VOC levels may reach 1319 tons per day by 1990.

c. Hydrology and Drainage

- o Increased quantities of surface water runoff due to increased impervious surface areas.
- o Some contaminants in the surface water runoff will enter the storm drainage system and possibly the ground water system.
- o Less runoff will be available for recharging subsurface aquifers.

d. Vegetation

- o Removal of natural vegetation from construction areas; 55% of the site will be retained as open space with native vegetation and/or landscaping.

e. Wildlife

- o Loss of habitat for most resident and transient animal species.

f. Noise

- o Slight to moderate increases in traffic noise, noise impacts on residences near the site entrance, the introduction of some industrial noise, and temporary construction noise are considered unavoidable.

g. Light and Glare

- o Increased levels of internal and external illumination.

- o Increased reflective surface areas.

h. Land Use

- o Reduction in the amount of land available for residential uses.

i. Natural Resources

- o None.

2. Human Environment

a. Population and Employment

- o None

b. Housing

- o Increased demand for existing available housing.

c. Tax Impact

- o None.

d. Transportation

- o Approximately 6,300 vehicle trips per day will be generated.
- o Increased congestion will occur on Meridian Avenue principally north of 110th Street east and on 39th Avenue west of Wildwood Park Drive.

e. Public Service

- o None.

f. Utilities and Energy

- o Increased demand on existing energy sources.
- o Increased demand on sewerage treatment facilities.

g. Aesthetics

- o Change of the aesthetic quality from undeveloped to developed.

h. Archaeological/Historical

- None.

i. Human Health

- None.

IV. DESCRIPTION OF PROPOSAL

NAME: Puyallup Science Park

SPONSOR: Leavitt Land Associates, NuPacific Company, Beim & James Properties II.

LOCATION: North of 39th Avenue East, approximately ½ mile east of Meridian Road.

A. Comprehensive Plan and Zoning Classification

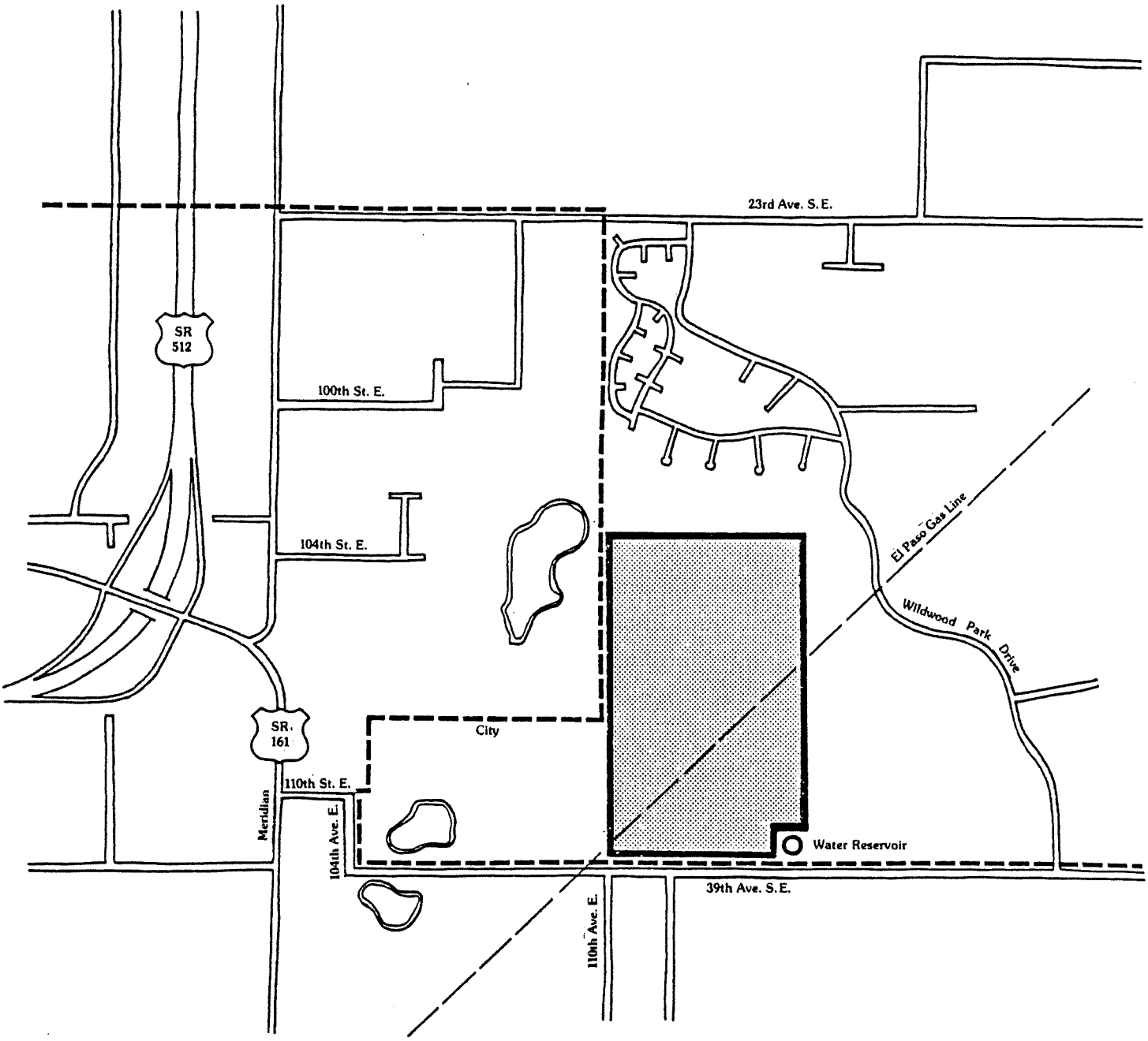
1. Comprehensive Plan

The site is currently designated Residential on the City's Interim Comprehensive Plan which was completed in April, 1978. See Exhibit 5. The plan has not been adopted by the City Council.

Puyallup's Comprehensive Plan includes the goals identified by the Planning Commission. It discusses the city's past and describes optimal land use and development concepts for the future development of the city. The plan includes policy statements on land use, transportation, utilities, and government, among others. It also includes specific sections on transportation, housing and plan implementation.

Revisions and finalization of the comprehensive plan are being prepared by a consultant. The "Policies Element" of the plan was completed in May, 1980 and has been used as the basis for assessing the compatibility of the proposal with the City's draft policies for Industrial Development.

The city of Puyallup does not presently have an industrial base to help generate revenues that other cities of its size have. The Industrial Policy Statements indi-



Legend

- Property Boundary
- City Limits
- Single Family Residential

North

0 660 1320

Approximate Scale 1" = 1320'

Puyallup Plan Designation

Exhibit 5

cate that the City is seeking to integrate land uses and create local employment opportunities by incorporating industrial land uses into the community. Activities sought include processing, handling, manufacturing, assembling, fabrication, storage, and research and development of technological services. The goal is to "assure the best possible pattern of industrial land uses."

The industrial policy statements are presented below and are followed by a "Response" that indicates the compliance of this proposal with the policy.

INDUSTRIAL AREAS SHALL BE ENCOURAGED TO DEVELOP PRIMARILY ON LARGE LEVEL SITES THEREBY ALLOWING THE HIGHEST POTENTIAL USE PER ACRE OF LAND.

RESPONSE: The site selected for this proposal is generally level with minor localized topography and a slope range between 7-8%, which will not adversely impact the development of the site nor reduce its potential for industrial use. The size of the site will allow for full-scale development in an efficient manner without crowding and leaving space for buffering, landscaping, and future expansion.

TO PROTECT RESIDENTIAL AREAS FROM INDUSTRIAL TRAFFIC, INDUSTRIAL AREAS SHALL BE LOCATED NEAR OR ADJACENT TO MAJOR ARTERIAL ACCESS.

RESPONSE: The site is within approximately one-half mile of State Route 161-Meridian Road which provides direct four-way access to and from the SR-512 freeway. Traffic moving between the site and Meridian Road does pass through or is adjacent to some developed residential areas. However, the impact on a developed residential

area by any potential noise, dust or odor created by traffic moving to or from the site will be significantly reduced by the distance between the residential area and the traffic routes.

INDUSTRIAL AREAS SHALL BE LOCATED WHERE THEY CAN BE ADEQUATELY SERVED BY NECESSARY MAJOR UTILITY LINES, SUCH AS ELECTRIC POWER SUBSTATIONS AND TRANSMISSION LINES, TRUNK SEWER LINES, TRUNK WATER LINES, AND TRUNK GAS LINES.

RESPONSE: Because major development has already occurred in the general vicinity, major utilities are currently accessible for extension to the site. Extension of lines to provide hook-ups to the site will be provided as described in section VI., F., Utilities. Major service lines are generally within one-quarter mile of the site.

LAND USE TYPES OTHER THAN INDUSTRIAL OR INDUSTRIALLY RELATED USES SHOULD BE DISCOURAGED FROM INDUSTRIAL AREAS, WITH THE EXCEPTION OF SUCH CONVENIENCE USES AS BANKS, POST OFFICES, AND RESTAURANTS.

RESPONSE: The proposed use of the site will be a non-polluting labor intensive activity where all activities will occur within enclosed structures. This reduces the potential impacts on surrounding uses and will not interfere with virtually any type of development on land adjacent to the site. While the proposed use of the site is for an identified industrial purpose, no off-site land uses are suggested for the surrounding area because the proposed use will be compatible with all types of development.

MANY INDUSTRIAL USES GENERATE HEAVY TRAFFIC NOISE, SMOKE, OR OTHER NUISANCES AND SHOULD BE LOCATED TO PROVIDE AN ADEQUATE BUFFER SUCH AS LIGHT INDUSTRIAL AREAS, COMMERCIAL AREAS OR OPEN SPACES TO ADJOINING LAND USE TYPES.

RESPONSE: Traditional problems of heavy traffic noise, smoke and other nuisances associated with industrial uses will be minimal or non-existent on this site because of the nature of the proposed operation. The site is currently surrounded by open space; a street (39th Avenue East) serves as the southern boundary of the property. Proposed site plans call for a clustering of the structures in the center of the property, with significant landscaped buffer areas on all sides. Therefore, all property lines will be protected and the integrity of adjacent properties will be preserved.

STREET IMPROVEMENT WIDTHS WITHIN INDUSTRIAL AREAS SHOULD BE AT LEAST FORTY-EIGHT FEET WIDE THEREBY ADEQUATELY PROVIDING SUFFICIENT AREA TO ACCOMMODATE INDUSTRIAL TRUCK TRAFFIC AND MOVEMENT. ROAD DEVELOPMENT STANDARDS FOR SUCH ROADS SHALL BE ESTABLISHED.

RESPONSE: Streets within the site will be private but will meet normally accepted standards for automobile and truck movements.

DUE TO THE LARGE ROOF AND PAVED PARKING AREAS WITHIN INDUSTRIAL AREAS, STORM DRAINAGE SHALL BE AN INTEGRAL PART OF ALL INDUSTRIAL AREA DEVELOPMENT.

RESPONSE: All on-site storm drainage from roof and paved parking areas will be calculated and engineered to prevent any encroachment or adverse impact on sur-

rounding lands. The proposed drainage plan will comply with any and all standards of the City and may be integrated with any future development in the area.

THE ADEQUACY OF FIRE PROTECTION WITHIN THE INDUSTRIAL AREAS MUST BE OF MAJOR CONSIDERATION IN INDUSTRIAL DEVELOPMENT.

RESPONSE: The design of the structures will incorporate the latest fire and life safety standards to provide the greatest possible degree of protection. Because the nearest fire station is less than one mile from the site, overall fire protection capability is very good and the adequacy of fire protection in the general area will not be impaired by industrial use of the site.

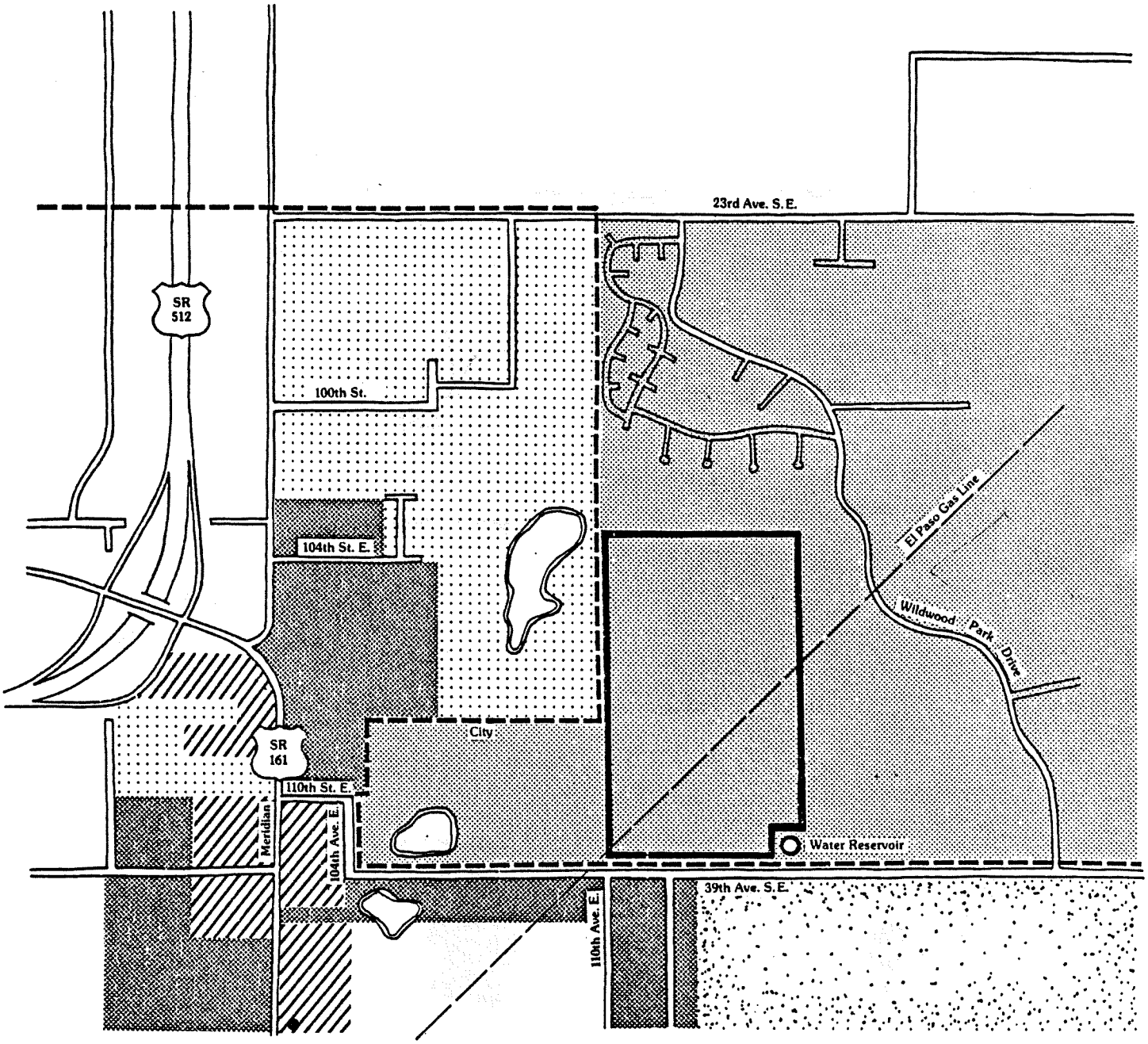
Continued growth in the South Puyallup area will require upgrading the water system and connection to the Tacoma water system as an additional source of supply. Water system upgrading will allow a long-term fire protection resource for the proposed development.

EXISTING INDUSTRIAL AREAS NOT MEETING THE ABOVE SHOULD BE IMPROVED OR GRADUALLY ELIMINATED TO PREVENT A BLIGHTING INFLUENCE ON SURROUNDING LAND USES AND ON OTHER INDUSTRY.

RESPONSE: Because the proposal is for new industrial development, this policy does not apply.

2. Zoning Classifications

The site is presently zoned RS-1, Residential Single Family District. See Exhibit 6. The intent is to change the zoning classification to I, Industrial. See Exhibit



Legend

- Property Boundary
- City Limits
- RS-1 Single Family Residential
- SR-9 Suburban Residential
- SA-9.6 Suburban Agricultural
- C-2 Community Commercial District
- G General Use

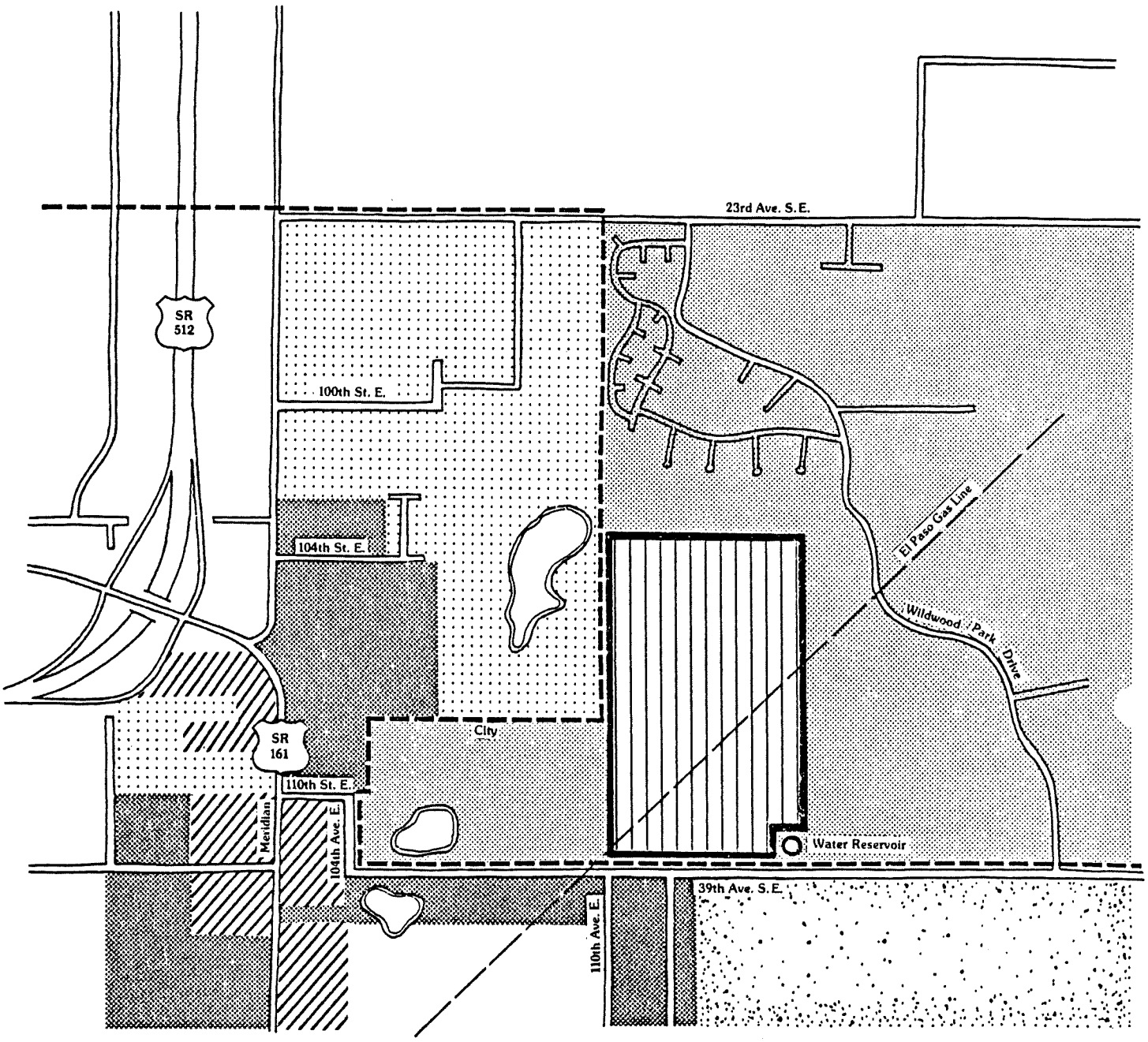
North

0 660 1320

Approximate Scale 1" = 1320'

City and County Zoning Designations

Exhibit 6



Legend

- Property Boundary
- City Limits
- RS-1 Single Family Residential
- SR-9 Suburban Residential
- SA-9.6 Suburban Agricultural
- C-2 Community Commercial District
- G General Use
- I Industrial

North

0 660 1320

Approximate Scale 1" = 1320'

Proposed Land Use Zone

Exhibit 7

7. A description of the zone from the Puyallup Zoning Ordinance adopted July 17, 1972 is in the Appendix.

All of the land around the site is zoned RS-1, Single Family. RS-1 permits single family dwellings and non-commercial gardens and greenhouses. The minimum lot size is 10,000 square feet. The maximum lot coverage is 30% and the maximum building height permitted is 25 feet.

B. Construction Phases and Physical and Engineering Aspects

The physical and engineering characteristics of the proposal are discussed in Section III A.

Construction on the site is expected to begin between April and June, 1981, assuming all regulatory permits are received. Based on that construction start, the first phase of the development would be ready for occupancy in June, 1982.

The ten-year development program is expected to be constructed in five major phases. The phasing program is outlined in Table 1. Parking requirements by phase are presented in Table 2.

Table 1

Construction Phases 1981 - 1990

Phase	Year	Building Use	Building Area Square Feet
I	1981-83	Fabrication & Mechanical Core	150,000
II	1984	Fabrication	90,000
III	1985	Office	90,000
IV	1986	Office	90,000
V	1990	Research & Development	100,000
			520,000

Table 2

Parking Requirements by Phase

Phase	Number of Buildings or Additions	No. of Parking Spaces
I	2 *	410
II	1	410
III	1	410
IV	1	410
V	2	460
	7	2100

* No parking has been provided for the mechancial core in these calculations.

V. THE PHYSICAL ENVIRONMENT

A. Earth

1. Existing Conditions

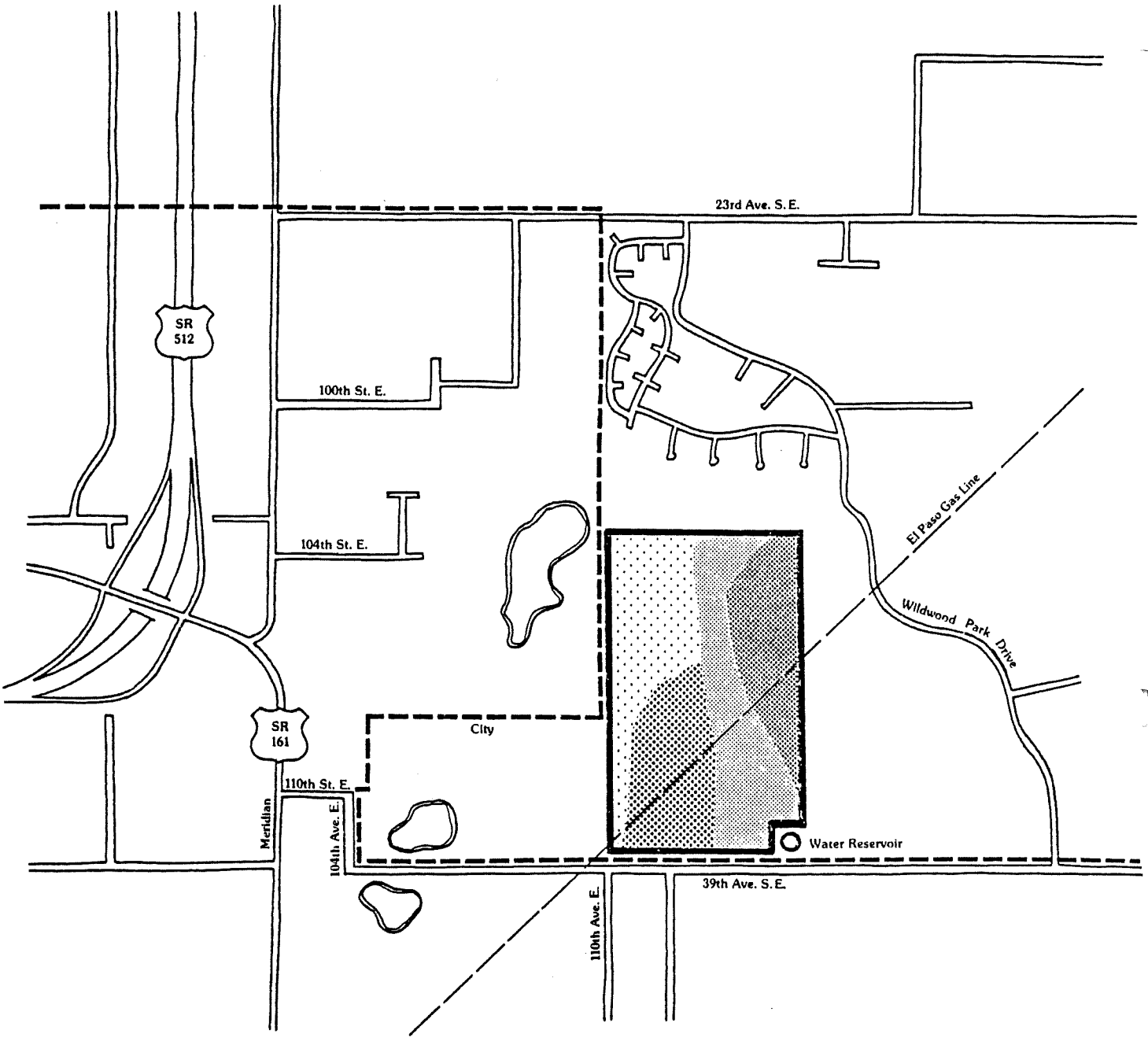
a. Geology

About 15,000 years ago the Pleistocene period created the geology of the Pierce County uplands area. The scouring effects of glaciers as they receded up the Puyallup River Valley caused the surficial geology underlying the site. The materials underlying the site vary from a fine sandy glacial outwash to a gravelly glacial outwash. The substratum is well-drained due to the porous nature of the materials.

b. Soils

Exhibit 8 shows the types of soils contained within the site as defined by the Soil Conservation Service (SCC).

The Kapowsin Series are formed in glacial till under conifers and are moderately well-drained soils. The substratum to a depth of 60 inches is compact glacial till that is cemented in places, especially the upper part. In a typical profile, the surface layer is dark brown gravelly loam to a depth of 7 inches. The subsoil, between 7 and 25 inches, is dark brown gravelly loam and brown loam. A water table is perched above the very slowly permeable, weakly cemented and compact substratum during the rainy season.



Legend

- Property Boundary
- City Limits
- Everett Gravelly Sandy Loam, 0-6%
- Indianola Loamy Sand, 6-15%
- Kapowsin Gravelly Loam, 0-6%
- Kapowsin Gravelly Loam, 6-15%

North

0 660 1320

Approximate Scale 1" = 1320'

Soils

Exhibit 8

The Everett Series is somewhat excessively drained and formed in gravelly glacial outwash under conifers. It has a gravelly sandy loam subsoil and at a depth of about 2 feet a loose gravelly sand substratum. This soil is one of the most desirable for home and industrial sites. Permeability is rapid and surface water runoff is slow.

The Indianola Series is also excessively drained. It is formed in sandy glacial outwash. The vegetation is conifers. A typical surface layer is composed of dark brown loamy sand to a depth of 7 inches. The underlying material to a depth of 60 inches is a dark yellowish brown, brown or olive brown sand. Permeability is rapid, surface runoff is medium and erosion hazard is moderate. Soil characteristics are indicated in Table 3.

2. Impact

The construction of a Science Park will result in negligible impact upon the surficial geology. Construction activities will result in local disturbance of soils and repositioning of soils where necessary to accommodate the building structures, roadways and parking areas. Construction activity will cause short-term increases in erosion potential.

The extent and amount of earthwork activity will be studied in depth as part of the design phase of the project. The onsite materials are suitable for use as embankments and backfill at proper moisture levels.

Temporary increases in erosion potential can be anticipated until drainage systems are installed and vegetation is reestablished.

Table 3

Soil Characteristics

Soils & Engineering Properties	Everett Soils Series	Indianola Soils Series	Kapowsin Soils Series
Depth to high water table	>6.0 feet	>6.0 feet	1.5 - 2.5 feet
USDA texture	Gravelly sandy loam	Loamy sand	Gravelly loam
Permeability	6-20 in./hr. (Depth 0-8 in.)	6-20 in./hr. (Depth 0-7 in.)	0.6-2.0 in./hr. (Depth 0-25 in.)
	6-20 in./hr. (Depth 8-19 in.)	>6 in./hr. (Depth 7-78 in.)	> 0.06 in./hr. (Depth 25-60 in.)
	>20 in./hr. (Depth 19-60 in.)	-	-
Soil Reaction, pH	5.6 - 6.0	5.6 - 6.5	5.1 - 6.0
Shrink-Swell Potential	Low	Low	Low
Risk of Corrosion (uncoated steel)	Moderate	Low to Moderate	Moderate

3. Mitigating Measures

In order to reduce the effects of soil erosion, earthwork will occur during the dry season only and the exposed earth will be surfaced or revegetated as soon as possible after grading. The access roads, parking areas and buildings will be located to take into consideration the natural topography of the site, thereby minimizing excessive grading.

By the incorporation of a temporary erosion control and sedimentation plan, any adverse impact due to siltation will be kept to a minimum. Siltation and erosion control devices include temporary siltation basins, siltation fences and hay bales secured at appropriate locations during the construction phase.

Permanent detention/retention facilities will be installed. These facilities will also function as siltation control devices prior to discharge to avoid erosion and pollution to downstream natural drainage ways. The on-site storm drainage system will be designed to remove petroleum products and sediment from the collected surface drainage.

B. Air

1. Existing Conditions

a. Air Quality

The proposed project site is located within the non-attainment area of the Puget Sound Intrastate Air Quality Control Region which encompasses the counties of Pierce, King and Snohomish. The non-attainment designation means that the Environmental Protection Agency has identified the area through monitoring as one not meeting national ambient air quality standards for total suspended particles, carbon monoxide and hydrocarbons, now referred to as VOC (volatile organic compounds). These pollutants are generally associated with automobile emissions.

Sampling stations in the vicinity are primarily operated by two agencies. The State of Washington Department of Ecology operates the Lakewood Primary Air Mass Station (PAMS) and the Mt. Tahoma High School Station in Tacoma. Both stations at Sumner Junior High School and Fife Senior High School are operated by the Puget Sound Air Pollution Control Agency. Data from all of the above stations have been included in this report (see Table 4). Although the standards are noted in Table 4, Table 5 contains both the National and State of Washington Ambient Air Quality Standards.

Table 4

SUMMARY OF POLLUTANT CONCENTRATIONS

Lakewood Primary Air Mass Station

Pollutant	1975	1976	1977	1978	1979	Standard
Particulate matter (ug/m^3)	25	40	43	43	41	60
Carbon Monoxide - 1 Hour Maximum (ppm)	10	10	-	-		35
Carbon Monoxide - 8 Hour Maximum (ppm)	7	8	-	-		9
Oxidants - 1 Hour (ppm)	0.09	0.07	0.10	-		0.12
Sulfur Dioxide - Annual (ppm)	0.01	0.01	0.01	0.01	0.01	0.02
Sulfur Dioxide - 24 Hours (ppm)	0.09	0.04	0.03	0.03	0.03	0.10
Sulfur Dioxide - 1 Hour (ppm)	0.13	0.22	0.12	0.09	0.18	0.40
Coefficient of Haze (Maximum)					3.7	
Coefficient of Haze) (24 Hour Max.)					1.7	

Fife Senior High School

Pollutant	1974	1975	1976	1977	1978	1979	Standard
Particulate matter (ug/m^3)	44	33	48	51	53	56	60

Sumner Junior High School

	1978	1979	Standard
Particulated Matter (ug/m^3)	44	48	60
Oxidant - 1 Hour (ppm)	0.15	0.16	0.12
Sulfur Dioxide - Annual (ppm)	0.00	-	0.02
Sulfur Dioxide - 24 Hours (ppm)	0.02	-	0.10
Sulfur Dioxide - 1 Hour (ppm)	0.05	-	0.40
Coefficient of Haze (maximum)		2.5	
Coefficient of Haze (24 Hour Maximum)		1.7	
Ozone (Days exceeding .12 ppm)		2	.12
Ozone (Days exceeding .16 ppm)		1	.12

Table 5
1979
AMBIENT AIR QUALITY STANDARDS *

POLLUTANT	NATIONAL Primary ug/m^3	NATIONAL Secondary ug/m^3	WASHINGTON STATE ug/m^3
TOTAL SUSPENDED PARTICULATES			
Annual Geometric Mean	75	60[a]	60
24-Hour Average	260	150	150
SULFUR OXIDES (SO_2)			
Annual Average	80(0.03 ppm)		0.02 ppm
24-Hour Average	365(0.14 ppm)		0.10 ppm
3-Hour Average		1300(0.50 ppm)	
1-Hour Average			0.40 ppm[b]
CARBON MONOXIDE			
8-Hour Average	10 mg/m^3(9 ppm)	10 mg/m^3(9 ppm)	9 ppm(10 mg/m^3)
1-Hour Average	40 mg/m^3(35 ppm)	40 mg/m^3(35 ppm)	35 ppm(40 mg/m^3)
PHOTOCHEMICAL OXIDANTS			
1-Hour Average	235(.12 ppm)	235(.12 ppm)	.08 ppm(160)[c]
NITROGEN DIOXIDE			
Annual Average	100(0.05 ppm)	100(0.05 ppm)	0.05 ppm(100)
HYDROCARBONS (Non-Methane)			
3-Hour Average	160(0.24 ppm)[d]	160(0.24 ppm)[d]	0.24 ppm(160)[e]

NOTE: (1) ppm ≡ parts per million
(2) mg/m^3 = milligrams per cubic meter
(3) ug/m^3 = micrograms per cubic meter
(4) Annual standards never to be exceeded, short-term standards not to be exceeded more than once per year unless noted.

a - This is not a standard, rather it is to be used as a guide in assessing whether implementation plans will achieve the 24-Hour Standard.

b - 0.25 ppm not to be exceeded more than two times in any 7 consecutive days.

c - Applies only 10 a.m. - 4 p.m. PST from April 1 through October 31. Standard changed to 0.12 ppm as of Feb. 27, 1980.

d - This is not a standard, rather it is to be used as a guide in devising implementation plans to achieve the oxidant standard.

e - Applies only 6 a.m. - 9 a.m. PST from April 1 through October 31.

* Reprint Washington State Air Monitoring Data for 1979 - June 1980 - Page 4.

As of 1979 the immediate vicinity of the proposed project is not in violation of ambient air quality standards for sulphur dioxide, TSP, or carbon monoxide. There is no data available for carbon monoxide levels because winds generally disperse them before any concentrations can be recorded. However, as seen in Table 4 ozone or VOC is present in excess of the .12 ppm (parts per million) standards. Ozone is actually only one component of a complex mixture of photochemical air pollution that is produced by the combination of hydro-carbons and nitrogen oxide in the presence of sunlight. Ozone is generally present in higher concentrations to the south of urban centers in the non-attainment area due to summer north and northeasterly winds. Eye, nose, and throat irritation and minor headaches are associated with high levels of ozone.

b. Climate

The proposed Puyallup Science Park site is located just south of Puyallup in the Puget Sound lowlands. The typical Pacific Coast climate has both moderate temperatures and precipitation. Table 6 contains summary climatological data.

The mean average temperature is 50°F, with summer highs around 74°F and winter temperatures ranging between 36°F and 46°F. Extreme temperatures rarely exceed a low of 10°F or a high of 90°F.

Table 6

1979 CLIMATOLOGICAL SUMMARY *

1979 Monthly Totals and Averages Followed by
Station's Long Term Norm for Comparison (1979/Norm)

Seattle (Sea-Tac Airport)

	Average Temp. °F	Precip. inches	Average Wind speed MPH	Average No. Days Wind speed Exceeds 12 MPH	Average No. Days Wind speed Less than 5 MPH	% Possible Sunshine
JAN	37.8/38.2	2.25/5.79	8.3/10.3	3	0	45/21
FEB	42.3/42.3	5.32/4.19	9.4/9.9	4	1	14/41
MAR	49.3/44.1	1.55/3.61	9.6/10.2	6	0	61/49
APR	50.8/48.7	0.81/2.46	9.0/10.2	6	2	52/52
MAY	57.2/54.9	0.88/1.70	9.0/9.8	1	0	57/59
JUNE	62.5/59.8	0.46/1.53	8.1/9.2	1	2	73/55
JULY	67.4/64.5	0.73/0.71	70./8.4	0	0	84/67
AUG	64.0/64.5	1.02/10.8	6.6/8.0	0	4	59/62
SEPT	62.5/59.6	2.07/1.99	7.8/8.3	0	4	50/61
OCT	54.2/52.2	3.38/3.91	7.8/8.9	4	7	43/41
NOV	43.9/44.6	1.94/5.94	8.1/9.3	5	4	28/28
DEC	44.1/40.5	11.85/5.94	10.4/10.0	10	3	15/17
ANNUAL	53.0/51.1	32.26/38.79	8.1/9.3	40	7	48/46

* Adapted from Washington State Air Monitoring Data for 1979 June, 1980 - p. 19.

Precipitation averages 40.27 inches a year, with the heaviest rainfalls occurring in December. The rains occur from October through April and occasionally during the summer months. Snowfall averages approximately six (6) inches per year. In 1979 precipitation in the month of December was 50% above normal.

Winds predominantly move from the south-southwest with average velocities of 8 m.p.h. Southerly winds measure 45% of the winter months and 20% during the summer months. The lightest winds generally occur in the late winter months. In March of 1979 velocities were below normal. It is during these periods that a meteorological situation termed inversion is created. When this occurs, warm air traps cool air closer to the earth's surface and prevents circulation, thus creating conditions for poor air quality. Inversions do occur in summer and fall months for short periods of time, usually dispersing with afternoon winds. Winter inversions last for several days and compound air pollutants and emissions. Hourly average surface winds and frequencies of occurrence for 1979 are delineated in Table 7.

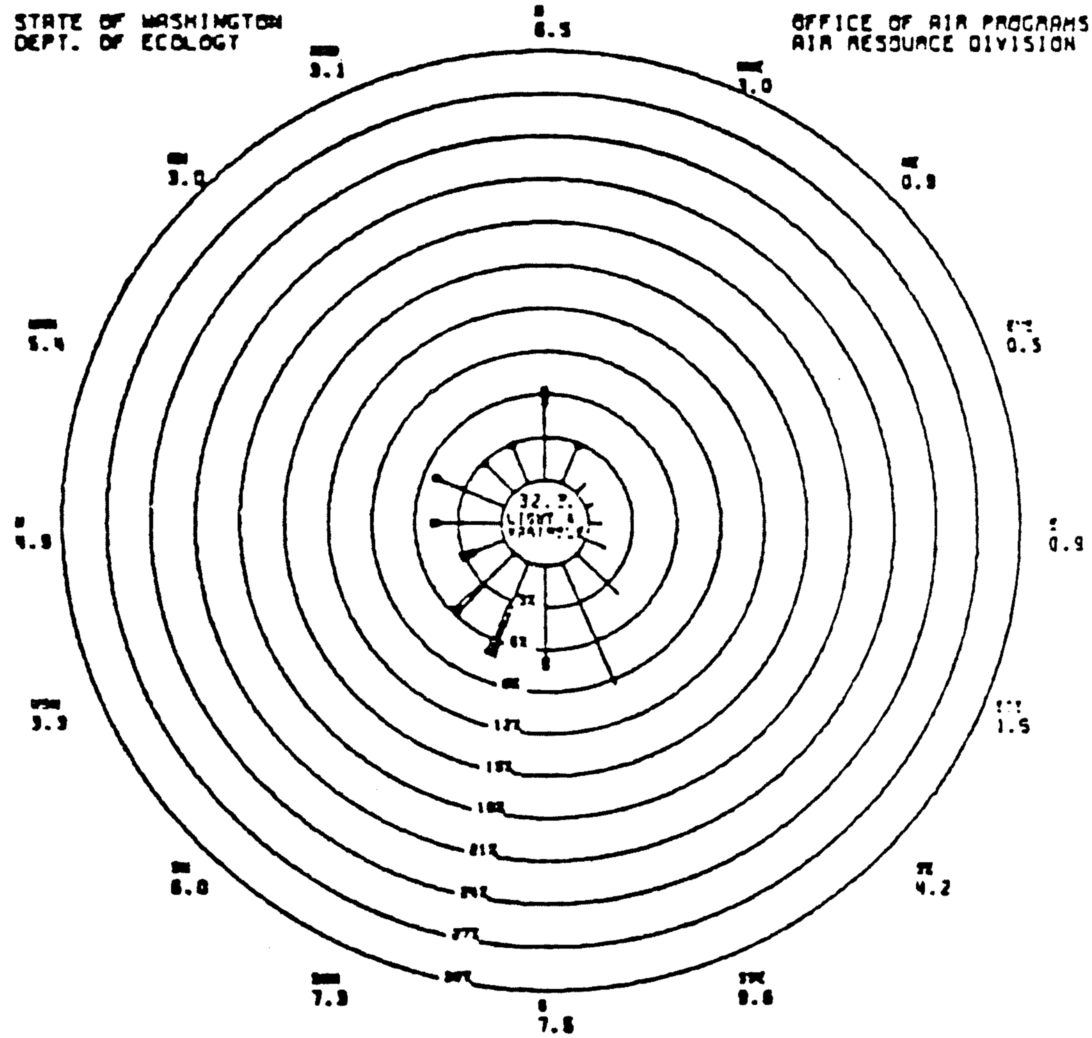
c. Odors

None exist.

TABLE 7

STATE OF WASHINGTON
DEPT. OF ECOLOGY

OFFICE OF AIR PROGRAMS
AIR RESOURCE DIVISION



HOURLY AVERAGE SURFACE WINDS (MPH)

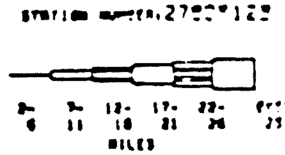
PERCENTAGE FREQUENCY OF OCCURRENCE

STATION LOCATION: SUMNER, JR. HIGH SCHOOL

INCLUSIVE DATES: 1/ 1/78 THRU 12/31/78

TOTAL OBSERVATIONS: 8001 PERCENT DATA RECOVERY: 91.3

STATION NUMBER: 27[illegible]12[illegible]



2. Impact

a. Construction

It can be expected that a short-term increase in the TSP will be experienced on the site during certain phases of construction, particularly during the summer months. An insignificant increase in carbon monoxide and VOC from construction vehicles can be expected.

b. Automobile Emissions

According to the traffic studies done for the proposed project, an estimated 2.1 daily trips to and from the site will be generated per employee at full build out. This includes deliveries, visitations, and business trips by management and sales people.

Using the above projection, the following table relates vehicle trips to project phasing:

Table 8

Projected Vehicle Trips by Phase

Year	Phase	Employees	Projected Trip
1981	Phase I	10	21
1982	Phase I	300	630
1983	Phase I	600	1260
1984	Phase II	1000	2100
1985	Phase III	1500	3150
1986	Phase IV	2000	4200
1990	Phase V	3000	6300

Accordingly, the following table relates the vehicle trips to work shifts. There is no expected seasonal variation.

Table 9
Vehicle Trips by Work Shift

		1st Shift		2nd Shift		3rd Shift			
Yr.	Phase	Emp.	Home-Work Trips*	Emp.	Home-Work Trips*	Emp.	Home-Work Trips*	Other Home-Work Trips	Total Trips**
1981	I	10	8	-	-	-	-	5	21
1982	I	135	114	105	89	60	51	122	630
1983	I	270	229	210	178	120	102	242	1260
1984	II	450	381	350	297	200	169	406	2100
1985	III	675	572	525	445	300	254	608	3150
1986	IV	900	763	700	593	400	339	810	4200
1990	V	1350	1144	1050	890	600	508	1216	6300

* One way, either home-to-work or work-to-home.

** Includes both ways for home-work trips.

Approximately 33.5% of the cars will approach and leave the site vicinity from the north, and 31.9% will come and go from the west for a total of 65.4% per cent of all projected trips. It is estimated that these trips will utilize the freeway (SR-512).

The location of the proposed project in a non-attainment area for VOC demands that the impact of automobile emissions be addressed. The EPA has developed standard acceptable emissions called Mobile 1 Emissions Factors which can be used to assess the impact. These standards are based on the following criteria: 1.) An average of all types and model

vehicles 2.) A 20% cold start factor 3.) A 27.3% hot start factor 4.) A mix of vehicles: 63% autos, 16% light trucks (Class 1), 16% light trucks (Class II), 2½% heavy trucks, and 2½% diesel trucks.

In 1985, at a temperature of 50°F and an average speed of 19.6 mph, 4.2 grams/mile of VOC are expected emitted per vehicle. Utilizing this data the following can be calculated.

An average trip length of one (1) mile would generate 3150 trip miles. At 4.2 grams/mile emitted, a total of 13,230 grams/day or .01458 tons/day would be emitted. In 1990 at full build out, 0.02916 tons/day of VOC will be emitted into the immediate project area. This one-trip mile, which reflects travel to and from the freeway and represents 65% of all the trips to and from the site, can be increased to ten (10) miles to reflect travel to nearby residences. The emissions of VOC in tons per day would then be 0.1458 for 1985 and 0.2916 for 1990.

The 1980 regional rate, or Mobile I Emission Factors based on emission inventories completed by the Puget Sound Air Pollution Control Agency for the non-attainment area, is 212.326 tons per day. At the present rate of growth, considering a higher mix of newer cars and the enforcement of new standards, the 1985 projected annual rate is 197 tons per day. The 1990 rate is 92.4 tons per day. For the region as a whole, the impact appears to be minor.

Further investigation indicates that if the 100-acre project site were developed as a single family

residential area with three units per acre, approximately 300 units could be built. Using standard traffic generation data, it can be said that for this type of development 10 trips per unit would be generated. The total 3000 trips per day would compare closely to the 1985 projected trips of the proposed science park (3150). Thus, the impact of the proposed development is consistent with planned growth in the project vicinity up to the year 1985. By 1990, however, project trips are estimated to grow to a total of 6,300. Regionally, the VOC levels are not significant through the year 1990.

c. Odors

Many odoriferous chemicals will be used in the manufacturing processes. A complete list of the chemicals and a discussion of their use is contained in the section entitled Human Health, Section VI. H., page 165.

The chemicals are stored inside the building and all odors emanating from their use will be vented to air scrubbers prior to release to the outside through stacks discussed in the following section. The impact of their use on the site and the immediate vicinity is insignificant.

d. Manufacturing Processes

The manufacturing processes associated in the proposed facility (to be operated in a similar manner as the plant in San Jose) are the following:

1. Wafer Fabrication (manufacturing of integrated circuit (IC) chips on a silicon wafer).

2. Assembly and packaging of IC chips on a frame.

3. Electrical test and finishing of IC packages for customer distribution.

All exhausted air from process stations is captured and cleaned/washed by directing it through air scrubbers similar to those manufactured by Ceilcote/Safeco and will be similar to scrubbers used at the company's semi-conduct plant at San Jose, California. In October 1980, the plant emissions in San Jose were tested for gas composition, opacity and dust grainloading. (The complete report is located in Appendix 3). Two runs were made to collect data on the plant.

The test results state that "levels of particulate grainloading and metals concentration" are "very low" and "are probably too low to cause a plume (visible emission) at the stack". In addition a semi-quantitative spectrographic analysis was also performed and resulted in the finding that residues from metals were too small to weigh accurately. A complete report on the test is also contained in the Appendix.

No incineration of any material is planned on the site.

3. Mitigating Measures

a. Construction

Good operational techniques, such as watering down exposed areas during the summer months, can minimize any increase in the total suspended particles.

Fugitive emissions resulting from the operation of construction vehicles can be minimized if the equipment utilizes RACT (reasonably available control technology) and complies with the standards set by the EPA and the State of Washington Air Pollution Regulations (with the scheduled compliance dates of July 1, 1981 and December 31, 1982).

Further mitigations include the following: 1.) All equipment not in use can and should be shut down 2.) Proper maintenance of machinery to ensure efficient operation should be implemented 3.) On-site burning kept to a minimum and done only at those times which are meteorologically best in order to avoid additional concentrations being trapped in the atmosphere. In addition, on-site burning could be limited to only those materials which when oxidized do not produce an unpleasant odor, excessive opacity, or a hazardous chemical. These items should be disposed of at proper disposal sites.

b. Automobile Emissions

The mitigations discussed in Section VI. C. on traffic can be considered for automobile emissions. Decreasing the incidence of congested intersections and slow-moving traffic could help minimize the impact on air quality.

Carpooling and increased mass transit could also help mitigate the impact along with general consumer awareness of efficient maintenance of vehicles to decrease emissions.

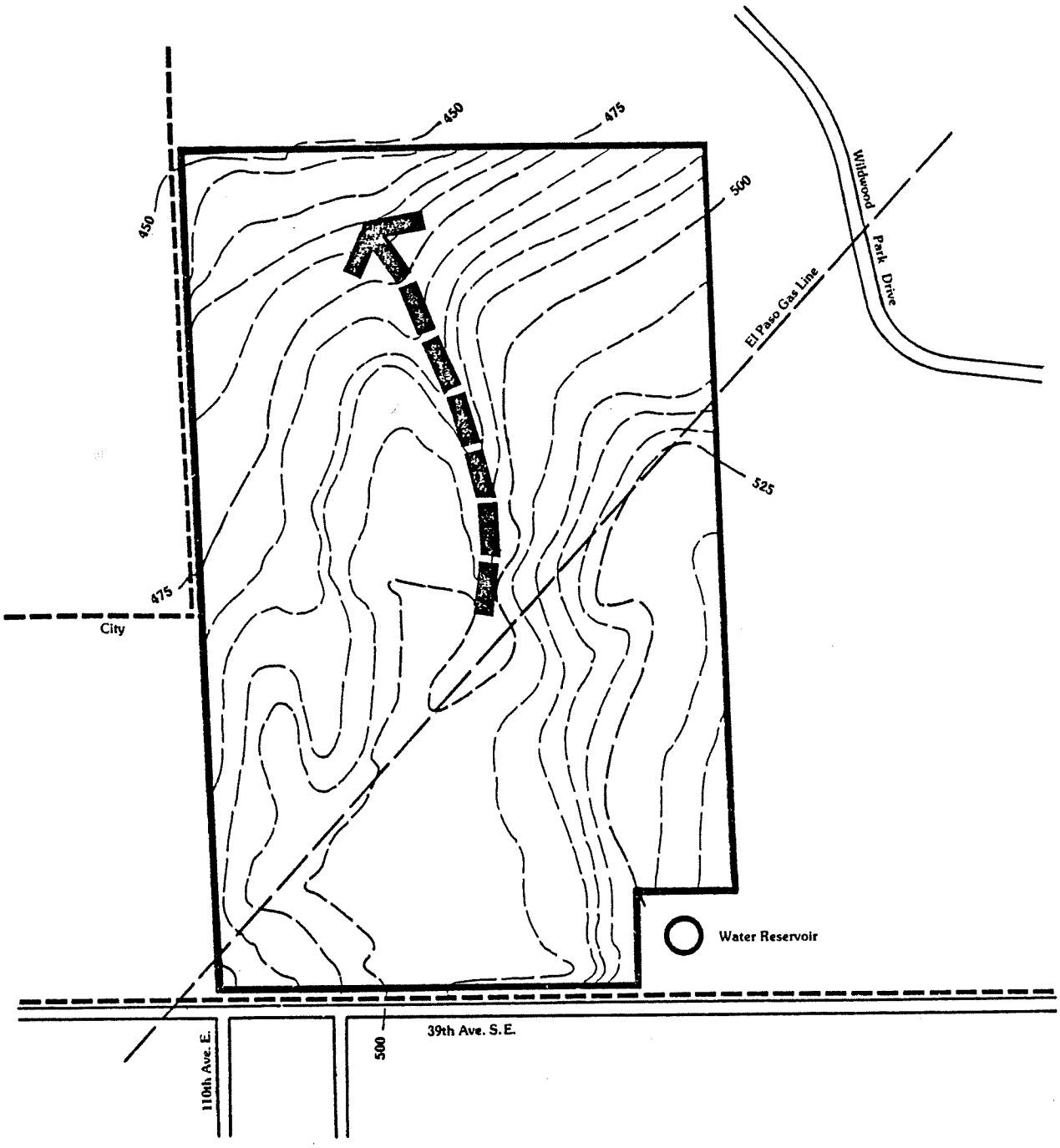
C. Hydrology and Drainage

1. Existing Conditions

The site is presently undeveloped with predominantly wooded areas except for an open pasture on the western portion of the site. The ground topography slopes in a westerly and northwesterly direction with an average slope of three (3) per cent. Storm runoff from the site flows overland in a westerly/northwesterly direction to an off-site natural drainage course which outlets into Bradley Lake located approximately 300 feet west of the northwest corner of the site. The lake is man-made and privately owned. It is mildly euthrophic and dimictic, which is typical of most lakes in western Washington. The drainage course drains from the lake northerly to the low lands of the Puyallup Valley. The subsurface water table varies from 1.5 to 2.5 for the Kapowsin soils to greater than 6.0 feet for the Everett and Indianola soils. The site is not within a designated flood plain. See Exhibit 9.

2. Impact

Development of the Science Park will increase the total impervious area and volume of storm runoff. It is estimated that a development of this nature will contain approximately 35 per cent impervious surfaces. The surface water will be collected in catchbasins and storm drainage systems. The affects of runoff flow increases will be controlled by retention/detention facilities sized and metered to detain that volume of runoff greater than the natural occurring flow. Delayed discharge from the retention ponds will increase the duration of peak flows but will not exceed the existing natural peak rate.



Legend

- Property Boundary
- City Limits
- Direction of Flow
- 5' Contour Interval

North

0 250 500

Approximate Scale 1" = 500'

Drainage & Topography

Exhibit 9

Initial construction activities may temporarily accelerate the suspended solids in the runoff until the detention facilities stabilize. Small amounts of road oils from the parking and road surfaces will be washed into the drainage system.

3. Mitigating Measures

Storm drainage system designs will be based on the latest standards and specifications of the City of Puyallup. Runoff from the site cannot occur at a rate greater than currently exists.

Temporary erosion and sediment control will be provided as necessary during the initial construction phases. Disturbed areas will be reseeded or surfaced soon after construction. Siltation fences or hay bales located at appropriate discharge points will minimize siltation during peak runoff.

Permanent drainage facilities will consist of retention/detention basins for runoff control and settling. Oil restrictors and grease traps will be utilized to improve water quality. These provisions will mitigate the affects of increased flows at lower elevations and will also mitigate the impact on water quality.

D. Vegetation

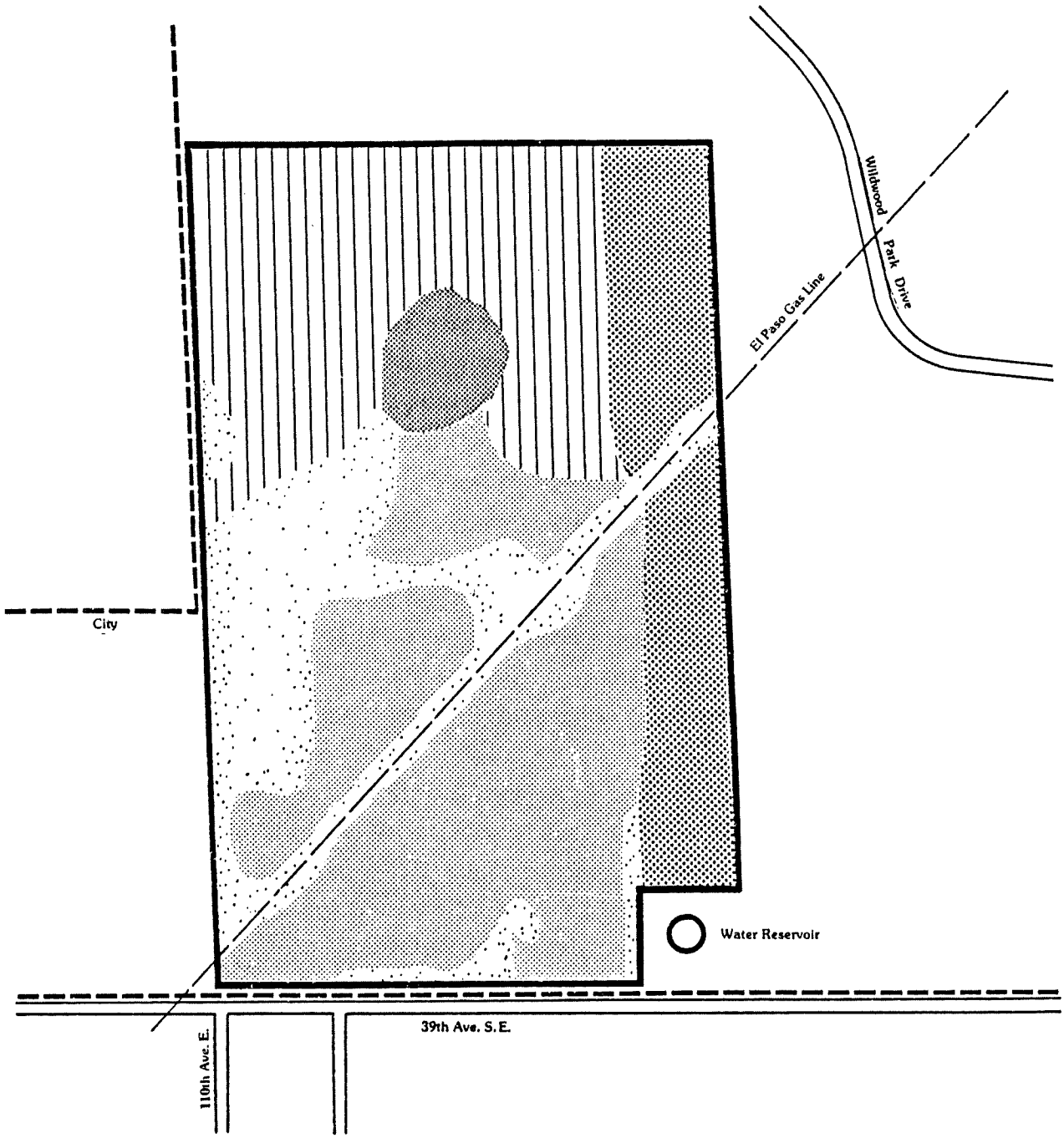
1. Existing Conditions

The proposed project site is vegetated by a variety of plant and plant associations typical of areas in the Pacific Northwest that have been logged. There are three major types of associations present: open pasture covered with various grasses, stands of conifers dominated by Douglas fir (Pseudotsuga menziesii), and mixed deciduous areas dominated by red alder (Alnus rubra). The site is primarily vegetated with the latter association. See Exhibit 10.

Native grasses vegetate the open pasture land on approximately 10 acres in the western part of the site and are presently supporting domestic horses.

The central and southern sections of the 100 acres consist of dense shrub communities dominated by Alnus rubra. The shrub communities are of the Salal-Huckleberry (Gaultheria shallon-vaccinium var.) type. Other shrubs present are thimbleberry (Rubus parviflorus), blackberry (rubus var.), and an occasional clumping of Scotch broom (Cytisus scoparius). Cottonwood (Populous trichocarpa) is also present.

The eastern border of the site is characterized by a continuous stand of conifers dominated by Douglas fir (Pseudotsuga menziesii). The species is long-lived and generally associated with varying mixtures of spruce (Picea var.) and hemlock (Tsuga var.). Presently, the latter two species are only found in the very northeastern corner of the site.



Legend

- Property Boundary
- City Limits
- Native Grasses
- Alder/Salal Association
- Mixed Deciduous
- Fir/Hemlock/Spruce Association
- Cedars/Maples

North

0 250 500

Approximate Scale 1" = 500'

Vegetation

Exhibit 10

Understory growth consists mostly of sword ferns (Polystichum munitum) and Salal (Gaultheria shallon) with various other shrub types. These species in association indicate a relatively wet site. The shrubs help sustain mature growth of the larger trees. Many various herbs are also found on the site.

A mixed deciduous community with occasional conifers is found in the northwest part of the site. It is here that maples (Acer macrophyllum - Bigleaf maple) and an occasional Western red cedar (Thuja plicata) are found. The cedars have been limbed and only the top growth of their crowns remain, providing a striking contrast to the surrounding growth.

The most significant species on the site is alder, a hardwood. The species is significant because of its abundant reproduction, rapid growth, and ability occasionally to overtake conifer regeneration and thus retain a prominent position in succession. Although alder is a short lived species, replacement by others is often slow due to the dense understory typically associated with it. The Bigleaf maple (Acer macrophylum) does have the ability initially to replace alder to make way for the larger dominant conifers in future years, particularly hemlocks and firs which are more tolerant than spruces.

The alder has the additional characteristic of improving soils as it fixes nitrogen and affects nutrient cycling, soil chemistry and microbiology.

For a complete list of known or suspected plant species on the site see Appendix 4.

At the present time some of the vegetation shows signs of stress. There is also indication that areas have been cleared in the center of thick stands of conifers, leaving many trees once protected by communal growth open to the elements and resulting in significant foliage occurring only in the top third of growth. There is also evidence of occasional tree cutting on the site.

There are no known rare or endangered plant species on the site.

2. Impact

Most of the development on the site will occur in the central portion. Approximately 45.7 acres will be converted from primary and intermediate vegetation to buildings, roads and parking areas. This represents a loss of 45.7% of the 100-acre site. Very little mature climax growth (fir/spruce/hemlock) will be disturbed. Most of the mature growth will remain within the wide buffer around the site.

In examining the proposed site plan, additional plant materials will be planted in the western pasture lands to ensure a continuous buffer. It can be assumed from the drawings that landscape materials will be introduced to the site to accent the building and provide shade in parking areas.

3. Mitigating Measures

The varied vegetation on the site is primarily responsible for its character. Stands of growth on the site can be considered a valuable natural resource that provides a habitat for wildlife, visual amenities, and a contribution to the ecological balance of the environment. In order to reduce the impact of the proposed development the following mitigations are suggested:

a. Indigenous climax conifer species be planted in open areas of the planned buffer zone to insure a continuous year-round screening of the site.

b. Landscaping around the buildings and parking lot reflect the existing natural character of the site and consist of species that provide food and cover for small animal and bird species and not be of the type that may seed into natural areas and be competitive with species there.

c. During the construction period all major vegetation be saved utilizing reasonable construction techniques. This would include any trees that are healthy and well-formed and have an average trunk diameter of 12" or more.

In addition, it is suggested that through the specific site design process major clumps of indigenous materials be identified and incorporated into the site plan wherever possible.

d. A long-term management plan be developed for the naturally vegetated areas that are to remain unimproved or semi-improved to ensure healthy future growth.

e. Any peripheral areas damaged in the construction process to the point that topsoil and shallow rooted vegetation have been removed and only gravelly soil remains be restored to support new growth.

E. Wildlife

1. Existing Conditions

The partially wooded site provides wildlife habitat for a variety of birds, small fur bearing mammals, reptiles and insects. A portion of the site is presently occupied by domestic horses. Some typical animal species known or suspected to be on the site include the following: moles, squirrels, field mice and rabbits. Typical bird species include sparrows, robins, owls, grouse, jays, and pheasants. Reptiles may include frogs, snakes and salamanders.

There are no known rare, protected, endangered or threatened species on the site and no known migration corridors cross the site. For a complete listing of identified and suspected wildlife species see Appendix 5.

At the present time there are several wood stock fences on the site that control the movement of the horses.

2. Impact

The development of the site will remove 45.70% of existing vegetated and wildlife habitat areas. A substantial portion to be removed consists of dense shrub areas and intermediate deciduous trees.

The natural buffer zone, with a minimum of 75 feet and consisting in part of mature growth (conifers), will provide winter cover for many animal species. The mixture of plant species to be retained should balance wildlife

needs. There will be some displacement of species during the construction period and beyond. At full buildout most of the species will have been displaced to the buffer zone and surrounding habitat areas in the vicinity.

Most of the bird and small animal species will be able to return to portions of the developed site to reside in landscaped areas and to the buffer zone.

A portion of the site presently supports domestic horses and has evidences of prior disturbances (the El Paso gas line) which may have already displaced any larger animal species. The remaining wildlife can be considered to have adapted to nearby human activities.

Increased noise of construction, traffic, and manufacturing processes will disturb the more sensitive species, but the majority of species on the site are known to be capable of co-existing with such development. They would include most of the birds, small reptiles, and small fur-bearing mammals.

3. Mitigating Measures

Additional plantings in the buffer zone area, and the management thereof, will help balance the habitat lost to the proposed development and minimize impact. The selection of plant species which provide food and cover for the improved areas will also minimize the impacts.

F. NOISE

1. EXISTING NOISE CONDITIONS

The project site is located in a relatively quiet rural area where surrounding properties are zoned for single-family residential use. Existing noise-sensitive properties include the Parkwood residential area just north of the site and single-family residences south of the site along 39th Avenue S.E. (112th Street E.). Future residential development is considered possible on land adjoining the site on all sides. Traffic was found to be the only significant existing noise source.

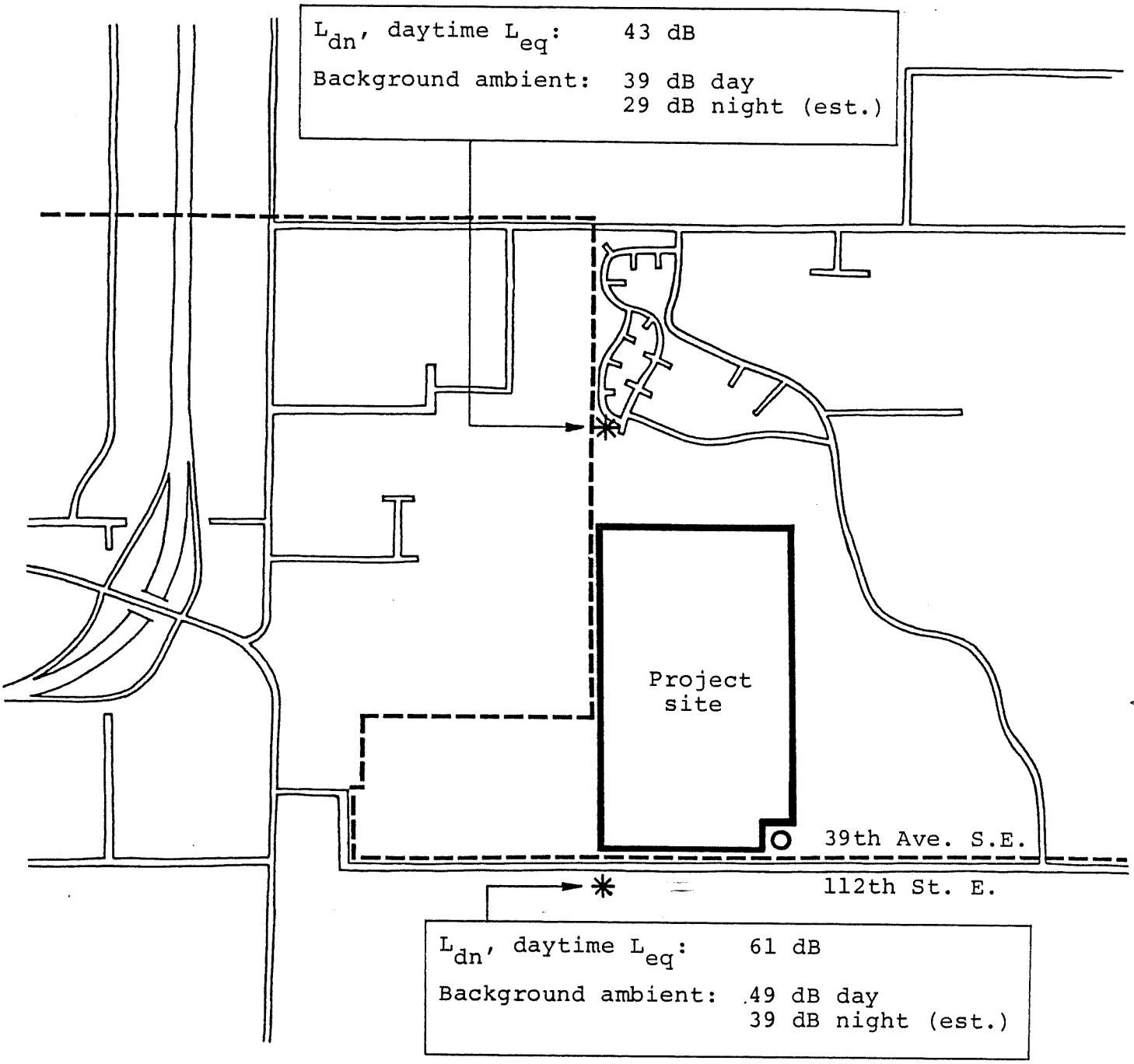
Existing noise levels were measured at two locations near the site (see Exhibit 11). The measurements were made during daytime on a weekday using a precision (ANSI S1.4-1971 Type 1) recording and analysis system. The following A-weighted noise descriptors were used.*

a. Equivalent sound level, L_{eq}, is an energy average of the fluctuating noise.

b. Day-night sound level, L_{dn}, is the L_{eq} over 24 hours with a 10 dB penalty applied to the 10:00 p.m. - 7:00 a.m. hours of greater noise sensitivity. In rural areas, L_{dn} is approximately equal to the daytime L_{eq}. (This was assumed in the study.)

c. Background ambient level, as indicated by the statistical L_{90} level, is the residual noise in the absence of local noise events.

* Units are dB, sometimes symbolized dBA or dB(A).



Existing Noise Levels

Exhibit 11

L_{dn} and daytime L_{eq} above 55 dB are considered by EPA to cause noise impacts in residential areas.

Existing noise levels were found to be as follows:

a. Parkwood residential area (considered representative of residential areas near the site, but not on major arterials):

   L_{dn}, daytime L_{eq}: 43 dB
   Background ambient: 39 dB daytime
   29 dB nighttime (est.)

b. Residential site 50 feet south of 39th Avenue S.E. (112th Street E.), with significant traffic noise:

   L_{dn}, daytime L_{eq}: 61 dB
   Background ambient: 49 dB daytime
   39 dB nighttime (est.)

The Parkwood residential area and other properties adjoining the site on the north, east and west are very quiet and sensitive to noise from the site. Residences along 39th Avenue S.E. (112th Street E.) are impacted by existing traffic noise, which diminishes by about 4.5 dB per doubling of distance from the street. At present, residences within 120 feet of the street are considered impacted.

2. NOISE IMPACTS OF PROPOSED PROJECT

The project would increase traffic noise and would cause temporary noise impacts during constructon. On-site noise sources or activities are potential causes of noise impacts which can be mitigated through proper design.

The site is surrounded by noise-sensitive land use. Properties to the north, east and west are noise-sensitive because of their existing or possible future residential land use and low existing noise levels. Properties along 39th Avenue S.E. (112th Street E.) are presently impacted by traffic noise. However, residences near this street would be sensitive to increases in traffic noise. Future traffic noise increases would also increase the area of impacted residential land.

Noise increases of less than 5 dB are considered slight impacts, 5-10 dB significant impacts, and over 10 dB very serious impacts.* A day-night sound level, L_{dn}, above 55 dB is considered to have adverse impact on residential land use. Noise from within the site is subject to State of Washington WAC 173-60 noise limitations of 60 dB during daytime hours of 7:00 a.m. - 10:00 p.m., and 50 dB during nighttime hours of 10:00 p.m. - 7:00 a.m., plus exceedance adjustments for short-duration noise. Off-site traffic noise is exempt from these WAC limitations.

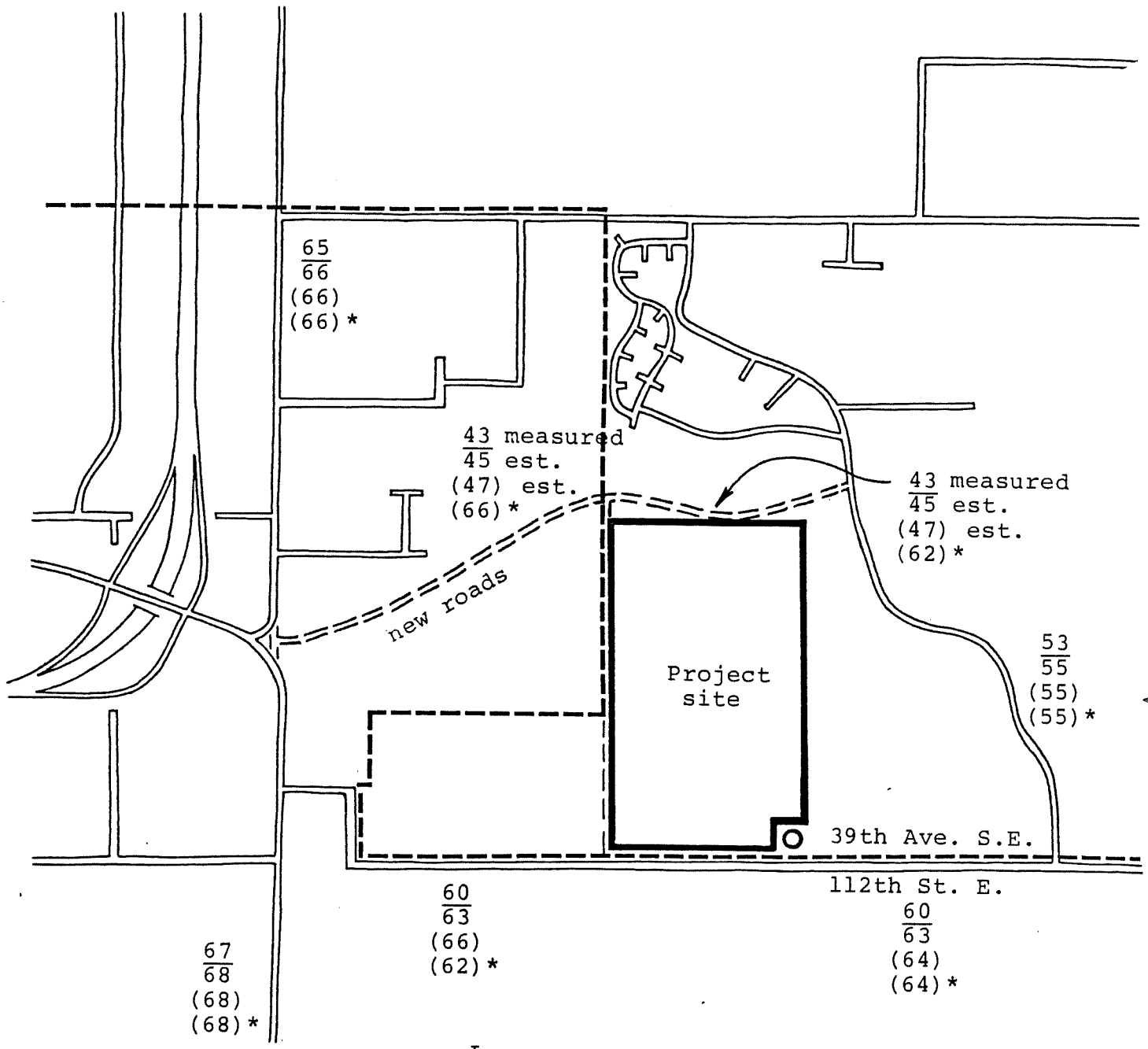
Traffic noise levels were computed for existing traffic and 1990 projected traffic without and with

* EPA Region X noise guidelines

the project. The noise levels were computed using the FHWA-RD-77-108 methodology. Truck percentages were assumed to be two percent medium trucks and one percent heavy trucks, based on classification counts made during the existing condition noise measurements. Ten percent of daily traffic was assumed to occur at night for non-project traffic and 22 percent for project traffic. Setback distances to the L_{dn} 55 dB noise impact contours were also calculated. Results of the calculations are shown in Exhibit 12 and Table 10.

The traffic noise impacts of the project would be slight or moderate if existing roads are used to carry project traffic. L_{dn} would only increase by 1-3 dB along 39th Avenue S.E. (112th Street E.). However, there would be a period of high traffic volume during the 11:30 p.m. shift change when 1650 vehicles would enter or leave the facility. During this period there would be increased sleep interference at residences near the street. Residences near the site entrance could be significantly impacted because of the additional noise of accelerating vehicles during the nighttime shift change.

Significant or very serious noise impacts could occur in quiet residential areas north and west of the site if new major roads are developed through these areas to carry project traffic. Noise increases of about 15-19 dB could occur within 50 feet of the new roads. An L_{dn} of 55 dB would be exceeded within about 165-315 feet of these roads. Small noise decreases on other roads would not offset these new impacts.



Key:

L_{dn}	Condition
XX	1980 existing
XX	1990 without project
(XX)	1990 with project
(XX)*	1990 with project plus new roads

Computed Ldn Noise Levels at 50′ Set Back From Arterials

Exhibit 12

TABLE 10

COMPUTED NOISE LEVELS AND NOISE IMPACT SETBACK FROM ARTERIALS

Street	Condition	L_{dn} @ 50' setback, dB	L_{dn} increase due to project, dB	Setback to L_{dn} 55 dB, ft
39th SE (112th E) west of project	1980	60		120
	1990(1)	63		195
	1990(2)	66	3	315
	1990(3)	62	-	165
39th SE (112th E) east of project	1980	60		120
	1990(1)	63		195
	1990(2)	64	1	230
	1990(3)	64	1	230
Wildwood Park Dr.	1980	53		35
	1990(1)	55		50
	1990(2)	55	<1	50
	1990(3)	55	<1	50
SR 161 north of project	1980	65		270
	1990(1)	66		315
	1990(2)	66	<1	315
	1990(3)	66	<1	315
SR 161 south of project	1980	67		370
	1990(1)	68		430
	1990(2)	68	<1	430
	1990(3)	68	<1	430
Possible new road west of site	1980	43*		-
	1990(1)	45**		-
	1990(2)	47**		-
	1990(3)	66	19	315
Possible new road north of site	1980	43*		-
	1990(1)	45**		-
	1990(2)	47**		-
	1990(3)	62	15	270

(1) without project
(2) with project
(3) with project plus new roads
* measurement
** estimate

The project would include a nitrogen manufacturing plant and cooling tower, which the developer has indicated to have combined levels of 60 dB during the day and 50 dB at night at a distance of 150-200 feet. These sources would be located about 600 feet from the northern or eastern property boundary where the levels would be reduced to about 50 dB daytime and 40 dB nighttime. These levels would comply with WAC 173-60 noise limitations. However, the noise would be about 11 dB above the existing background ambient and 7 dB above the existing L_{eq} and L_{dn}. Because of the low existing levels, the noise could be quite noticeable and might potentially cause significant impact (because noise would increase more than 5 dB).

Noise impacts from on-site automobile traffic are expected to be slight or moderate because of the proposed 75 foot buffer and probable low speed. Truck deliveries at night could cause some intermittent noise which might result in occasional sleep interference at adjoining properties. This traffic should be limited to daytime hours, if possible.

There would be temporary noise impacts during construction of the project. These impacts are generally unavoidable. Daytime L_{eq} would be about 53-71 dB at the property boundary, based on EPA construction noise data. Nighttime construction should be avoided and would be subject to WAC 173-60 noise limitations between 10:00 p.m. and 7:00 a.m.

3. MITIGATION MEASURES

Significant traffic noise impacts can be mitigated by using the existing roads to carry project traffic. (Residences near the site entrance could still be significantly impacted.) Noise impacts from nighttime truck traffic can be mitigated by limiting this traffic to daytime hours, if possible. Noise from stationary on-site equipment (such as the nitrogen manufacturing plant and cooling towers) should be evaluated and controlled in project design. Temporary construction noise cannot be effectively mitigated.

4. UNAVOIDABLE NOISE IMPACTS

Slight to moderate increases in traffic noise, noise impacts on residences near the site entrance, the introduction of some industrial noise, and temporary construction noise are considered unavoidable.

G. Light and Glare

1. Existing Conditions

There are currently no light sources present on the site.

2. Impact

The proposed development will add a variety of light sources to the site. They will include security lights on building exteriors, parking lot and walkway lighting, and headlights from automobiles. All exterior lights will be energy saving sodium fixtures which have a yellow cast.

Buildings will be constructed of non-reflective painted concrete and non-reflective glass. Paving materials of asphalt and concrete are not expected to produce significant glare.

There could be some reflected light and glare generated from automobiles on the roads to and from the site. Also, new roads or improvements to existing roads may include illumination. However, once inside the site all lighting should not prove intrusive to surrounding areas due to the buffer of existing trees and vegetation.

3. Mitigating Measures

All on-site lighting will be shielded from adjacent properties. In order to ensure maximum screening it is suggested that conifers be planted in sparsely vegetated areas to fill in the buffer zone and thus provide a dense year-round screen.

H. Land Use

1. Existing Conditions

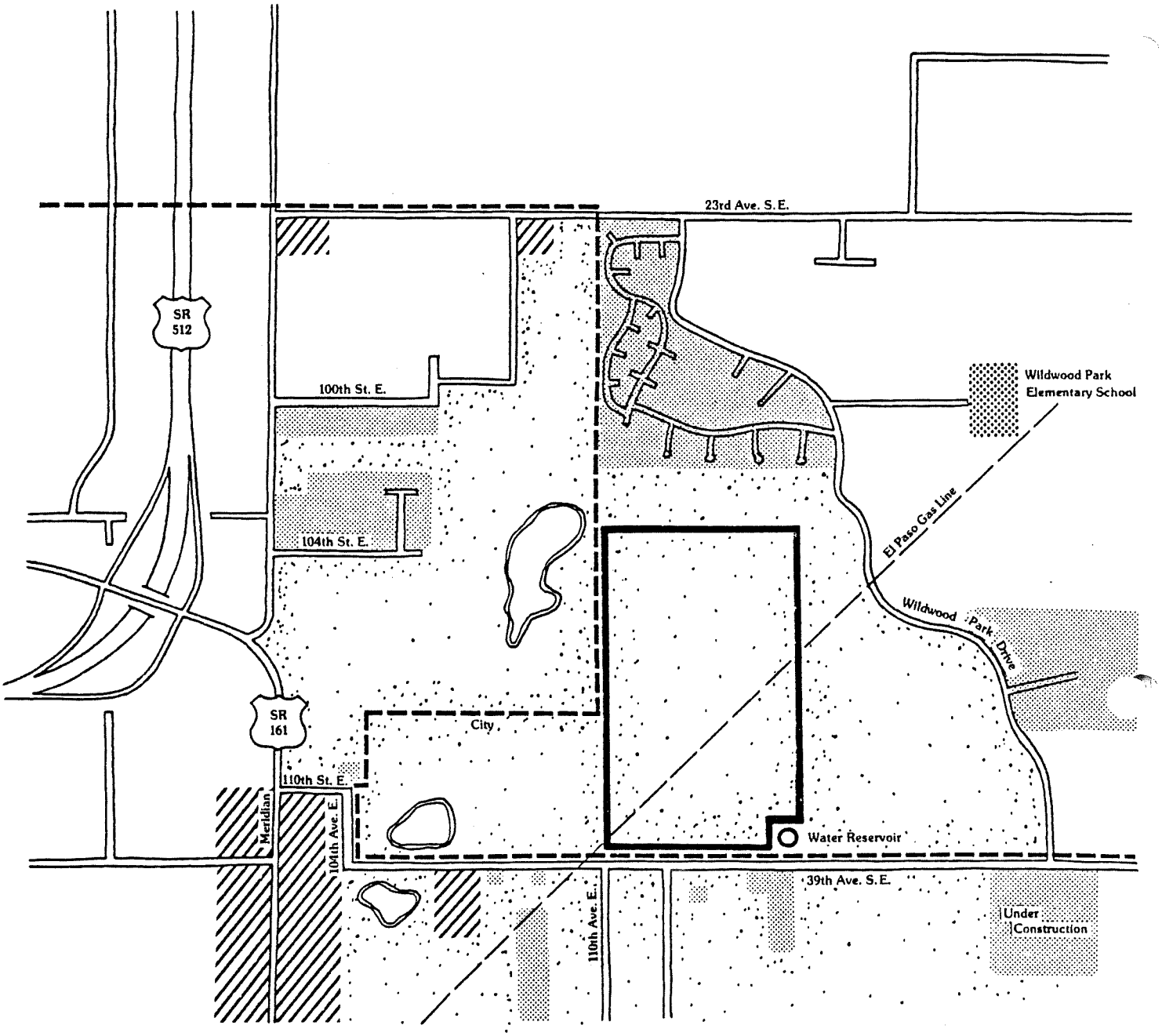
Generally, the land around the site is open and undeveloped. The following descriptions outline existing land use by direction. See Exhibit 13.

NORTH - Land immediately to the north is open, partially wooded, and owned by the applicant. Approximately 600' to the north is a single family subdivision which runs north to 23rd Avenue S.E. The lots adjacent to the applicant's property are undeveloped.

EAST - The land to the east is open and mostly wooded to Wildwood Park Drive. East of Wildwood Park Drive single family residential lots are being developed as Manorwood. An enclosed concrete water reservoir is at the southeast corner of the property.

SOUTH - The property is served by 39th Avenue S.E. which is the southernmost boundary of the site. Generally, the land immediately south is open except for approximately eight single family residences located southeast of the property and two mobile homes and a few new single family residences located southwest of the property. A retail lumber yard is further to the southwest of the property with frontage on S.E. 39th Avenue.

WEST - The land west of the site is open to Meridian Avenue. One single family residence exists at the corner of 110th Street and 104th Avenue S.E. Most of the land is open pasture and a small pond with wetland areas on the perimeter is located north of 39th Avenue S.E. at



Legend

- Property Boundary
- City Limits
- Open
- Residential
- Commercial

North

0 660 1320

Approximate Scale 1" = 1320'

Surrounding Land Uses

Exhibit 15

104th Avenue E. A small single family residential subdivision has been developed adjacent to 104th Street E. and 105th Avenue Court.

2. Impact

The site is surrounded on the west, north and east sides by open undeveloped land. The land south of the site is essentially open, with the exception of a few single family residences noted above. All of this land is now zoned and planned for residential purposes. More recent experiences with high technology users in other communities have indicated compatibility with residential uses. These experiences are based on the recognition that all operations and the storage of materials occur within totally enclosed buildings. However, increased pressures for zone and comprehensive plan changes around the site could develop.

3. Mitigating Measures

The development of the industrial zone does not require that a specific site plan be approved by the City. However, to ensure that potential land use incompatibilities are adequately mitigated, additional design review by the City can be required prior to the issuance of building permits for each project phase. This will ensure that development of the site is compatible with the overall project concept.

Because adjacent land to the north, east and west of the site is currently undeveloped, its future development can be planned to accommodate and complement the proposed use. Circulation routes and building orientation on adjacent lands can be planned to enhance land use

compatibility. Land to the north and east is owned by the applicant, assuring that compatibility is achieved.

The project will be developed and operated by a single use which will ensure architectural continuity, circulation control and facilities maintenance. Not only are these considerations important with respect to the establishment and preservation of land use compatibility, but they are also essential to the long-term success of the overall project.

I. Natural Resources

1. Existing Conditions

The site is not known to contain any fossil fuels or potential materials for excavation. The land has a low agricultural productivity, with only a small portion usable as grazing land. The most significant resource on the site is a small amount of marketable timber and vegetation providing wildlife habitat for bird and small animal species.

2. Impact

The development of the site will permanently commit approximately 40-45 acres of wildlife habitat to roads, buildings and parking lots. The small amounts of marketable timber will not be impacted because they occupy areas designated as buffer zone.

3. Mitigating Measures

For mitigations on impacts to wildlife habitat see Section V, E. 3. - Wildlife - Mitigating Measures.

VI. HUMAN ENVIRONMENT

A. Population and Employment

1. Population - Existing Conditions

The Puget Sound Region including Pierce County has had a high rate of population growth since 1975. The population has increased by 186,400, with 96% of the growth occurring since 1975. The rate of growth for Pierce County specifically is indicated in Table 11.

Table 11

Population for Pierce County and the Puget Sound Region

Population*	Pierce	Region	Annual % Change
1970	412,344	1,938,687	-
1975	410,800	1,955,090	-
1976	421,500	1,974,600	+1.0
1977	425,200	2,002,000	+1.4
1978	443,200	2,054,300	+2.5
1979	453,900	2,125,100	+3.4
1990 proj.	-	2,569,500	+2.1

* April 1 Population estimates, revised July, 1979.

Source: State of Washington, Office of Financial Management, Employment Security Department; PSCOG.

Though as of October 1980 updated forecasts were not available from the state, according to the Pierce Subregional Council Report of May 1979 (entitled "Pierce County Population Employment Forecast by Small Area, 1980, 1990, 2000"), the population projection for Pierce County for 1990 is 560,638.

For AAM 1410 (the small areas created by the Puget Sound Council of Governments (PSCOG) for the purposes of analyzing and forecasting trends), population projections have been made. AAM 1410 combines Census Tracts 712 and 734. See Exhibit 14. Census Tract 734 is the city of Puyallup. Table 12 indicates the existing and projected population for AAM 1410.

Table 12
Existing and Forecasted Employment for AAM 1410
and Census Tracts 712 and 734

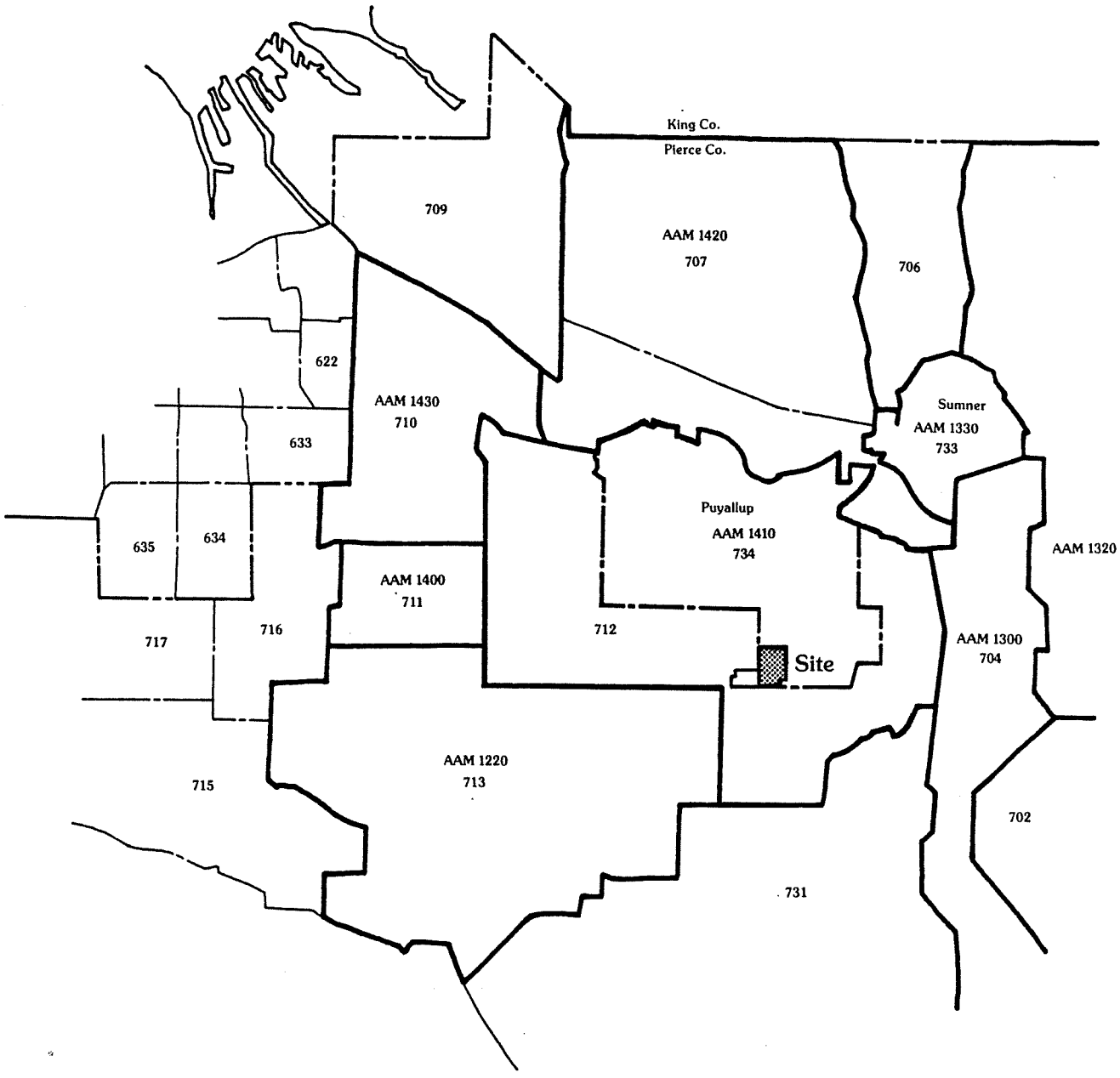
Year	Tract 712	Tract 734	AAM 1410
1970	7111	14,529	21,640
1978	11469	15,921	N.A.
1980	N.A.*	17,390**	28,000
1990	N.A.	20,556**	36,000
2000	N.A.	23,844**	44,900

* N.A. - Not available.

** Indicates "Medium" Projection from Draft Puyallup Comprehensive Plan.

2. Employment - Existing Conditions

The Puget Sound Region including Pierce County has had a large growth in employment since 1975. 214,000 jobs, or an increase of 86%, were added to the regional economy from 1975 to 1979. The rate of growth for Pierce County specifically is indicated in Table 13.



Legend

Census Tract Boundary

703 Census Tract Number

AAM District Boundary

North

Not to Scale

Census Tracts

Exhibit 14

Table 13

Pierce County Employment by Selected Sector *

(In Thousands)

	1970	1975	1976	1977	1978	1979**
Total Wage and Salary Workers	105.8	116.1	120.3	125.6	134.7	140.9
Total Manufacturing	19.6	20.4	20.3	20.5	21.3	22.2
Lumber and Wood Products	5.2	4.7	5.1	5.6	5.6	5.5
Other Manufacturing	14.4	15.7	15.2	14.9	15.7	16.7
Total Nonmanufacturing	86.2	95.7	100.0	105.1	112.9	118.6
Wholesale & Retail Trade	23.0	27.2	28.2	29.7	32.0	33.5
Services, Finance, Insurance and Real Estate	24.1	27.7	29.6	31.5	34.3	36.6
Construction	5.4	5.6	5.9	6.7	8.1	8.7
Government	26.6	29.4	30.1	30.7	32.0	32.6
Other Nonmanufacturing	7.1	5.8	6.2	6.5	6.5	7.2

* Central Puget Sound Region Growth Profiles, October 1, 1980.
** Preliminary

According to the PSCOG October 1980 report, "numerically manufacturing employment increases since 1975 have been considerably lower than the nonmanufacturing."

An older more detailed distribution of employment in manufacturing calculated for 1976 compares Pierce County with the total four county region in Table 14.

Table 14

Distribution of Employment Among the Sectors of Manufacturing in the Central Puget Sound Region, 1976

(Thousands)

Sector	Total 4 - County Region Employment	Dist.	Pierce County Employment	Dist.
Total Manufacturing	141.4	100.0%	20.8	100.0%
Total Manufacturing w/o Aircraft	96.9	68.5	20.8	100.0
Food & Kindred Prod.	11.9	8.4	2.6	12.5
Apparel	4.9	3.5	1.0	4.8
Lumber & Wood Prod.	15.5	11.0	5.0	24.0
Furniture	2.3	1.6	1.0	4.8
Paper & Allied Prod.	5.2	3.7	1.8	8.6
Printing and Pub.	7.6	5.4	1.1	5.3
Chemicals	2.2	1.6	1.0	4.8
Stone, Clay & Glass	3.9	2.8	0.5	2.4
Primary Metals	4.5	3.2	1.9	9.1
Fabricated Metals	7.4	5.2	1.4	6.7
Machinery	7.4	5.2	0.6	2.9
Elect. Equipment	4.8	3.4	-	-
Transp. Equipment	56.1	39.7	1.5	7.2
- Aircraft	44.5	31.5	-	-
- Shipbuilding	11.6	8.2	1.5	7.2
- Other Transp.				
Misc. Manuf.	7.6	5.4	1.4	6.7

Source: CPSEDD Computations (in CPSEDD, December 1978, p. II-5), based upon data from Washington State Department of Employment Security.

The table illustrates that for Pierce County no employment in Electronics Equipment existed in 1976. More current data is not available.

For the four county region, Pierce County has maintained the highest unemployment rate since 1975, exceeding the next highest county's rate (Kitsap) by 2.3% in 1979. The four county region rate in 1979 was 5.7%. See Table 15.

Table 15
Unemployment Rate *

	King	Kitsap	Pierce	Snohomish	Region
1970	9.6	8.9	8.9	10.2	9.5
1975	9.2	8.7	10.5	9.9	9.5
1976	8.6	7.8	10.2	9.2	8.9
1977	8.2	7.7	9.7	8.8	8.5
1978	5.7	6.3	7.5	6.2	6.1
1979	5.2	6.1	7.4	6.0	5.7

* Percentages based on resident civilian force annual averages.
Source: State of Washington Employment Security Department.

Employment figures and forecasts were derived from the Puget Sound Council of Governments (PSCOG) Pierce Subregional Council Report of May 1979, entitled, "Pierce County Population Employment Forecast by Small Area, 1980, 1990, 2000". The PSCOG has combined small census tracts into Activity Allocation Model Districts (AAM) for the purpose of analyzing and forecasting population trends. The site is located within AAM 1410 (Puyallup), which is equivalent to Census Tracts 734 and 712. See Exhibit 14. The forecasts for AAM 1410 are indicated in Table 16.

Table 16

Existing and Forecasted Employment for AAM 1410

Year	Employment
1970	4,218
1980	5,690
1990	9,120
2000	12,896

These forecasts were adopted by the Pierce Subregional Council on May 16, 1974 to serve "as a common guide for planning in all jurisdictions within the subregion..."

3. Population and Employment Impact

The proposed facility would employ 3,000 people by 1990. Moreover, approximately 50% of the employees would be low-salaried unskilled labor and 50% medium-to-high income technical and administrative positions. Given the above, estimates of the economic impact of the plant on the surrounding area have been calculated. These impacts include:

- o Additional population resulting from the direct and indirect employment increase.

- o The percentage of the existing labor force expected to be employed at the site.

Studies of this type pose a difficult initial problem for researchers and planners. The problem involves deciding whether to include the expected population and employment increase resulting from the proposed plant within existing population and employment projections or to add it onto existing projections. For the present study we

have elected to consider relocated employees recruited from outside the area as additional growth and employees recruited locally as within the existing projections.

Table 17 shows total employment at the facility and the split between technical/administrative employment and unskilled labor for the years 1982, 1985 and 1990. Data available from other electronic industries in Oregon indicate that technical/administrative personnel are mostly recruited and relocated from outside the area. Conversely, low-paid, unskilled labor is not mobile because it is restricted by second wage earners, in part, and by the availability of multifamily housing. Consequently, the unskilled labor force is recruited from within the area. Indeed, the ability to do so is a major criteria for locating an electronics firm.

Table 17
Plant Employment by Type 1982 - 1990

Year	Total Employment	Total Technical/Admin.	Total Unskilled
1982	300	150	150
1985	1500	750	750
1990	3000	1500	1500

Table 18 depicts the employment split between relocated/recruited employment and employment from the local labor force. It has been assumed that 75% of the technical/administrative employees are recruited outside the area and 100% of unskilled labor is recruited within the area.

Table 18
Plant Employment by Source of Employee

Year	Relocated/Recruited Employees *	Employees From Local Labor Market **	Total Employment
1982	113	187	300
1985	563	937	1500
1990	1125	1875	3000

* Assumes 75% of technical/admin. employees recruited from outside labor market.

** 100% of unskilled employees recruited from inside labor market.

Using the amount of employees relocating from outside the area, Table 19 indicates that by 1990 1,125 relocations will directly increase the area population by 2,903 to 3,768 over existing projections. This population increase results from the assumption that there are a fairly large number of people per household for middle-high income people living in surburban single family dwellings. The low direct population estimate assumes the Pierce County average per household.

Table 19

Estimate of Cumulative Population Growth

Year	Relocated / Recruited Employees	Total Direct Population @ 3.35 per Employee *	Total Direct Population @ 2.58 per Employee
1982	113	379	292
1985	563	1886	1453
1990	1125	3768	2903

* Assumes middle/high income living in single family dwelling in suburban area. Actual figure based on City of Hillsboro and City of Troutdale, Oregon 1979 data.

In addition to relocations from outside the area, the proposed facility also increases economic activity through multiplier effects. The Washington input-output tables indicate a type II statewide income multiplier of 0.9 for machinery.* By converting an income multiplier to an employment multiplier, this means the 3,000 new jobs at the site will eventually generate 2,700 additional jobs in all sectors of the Washington state economy. This number provides an upper limit on multiplier estimates.

To determine the additional impacts within the area of induced population growth, comparable data for electronics manufacturing indicates 0.18 job in the retail/service sector is created in suburban areas for each additional person added to the population. In this case, the approach is appropriate only to the population

* Schaffer and Chu. "Nonsurvey Techniques and Models", Papers of the Regional Science Association, 1969, p. 100.

growth assumed to be in excess of existing projections. The final column of Table 20 indicates that by 1990 the unanticipated population growth of 2,903 to 3,768 will induce another 523 to 678 jobs within the immediate area.

Table 20

Estimate of Induced Employment Growth

Year	Basic Employment	Additional Total Induced Employment Four County Area @ 0.9 per Basic Job*	Immed. Retail/Service Employment Increase In Impact Area 0.18 Job per Person**
1982	300	270	53 - 68
1985	1500	1350	262 - 339
1990	3000	2700	523 - 678

* Based on Washington State Type II income multipler for machinery as of 1963.

** Based on Washington County, Oregon employment patterns within ten miles of employment site.

Table 21 converts the induced employment growth to population and combines it with the extra population growth resulting directly from the facility. By 1990 the total unanticipated population amounts to 4,158 to 5,395. Of the total 4,158 to 5,395, 2,903 to 3,268 result directly from the plant induced in-migration into the area and 1,255 to 1,627 results from accompanying multiplier effects. In regard to the ultimate multiplier effects, we again note that by 1990 the 3,000 basic jobs will create an additional 2,700 jobs within Washington state. Of these 2,700 jobs, the present study regards 523 to 678 jobs created in the immediate area and unanticipated in existing employment/population projections. The study re-

gards the remaining 2,000 plus jobs as created outside the immediate area or implicitly contained within the area's current employment projections.

Table 21
Estimate of Total Induced Population Growth
Target Area

Year	Basic Employment Increase	Resulting Population Increase	Induced Employment Impact Area	Resulting Population Incr. @ 2.4 *	Total Population Increase
1982	113	292 - 379	53 - 68	127 - 163	419 - 542
1985	563	1453 - 1886	262 - 339	629 - 814	2082 - 2700
1990	1125	2903 - 3768	523 - 678	1255 - 1627	4158 - 5395

* Based on suburban single family - multi-family mix. Assumes somewhat lower income group than basic employment increase.

Table 22 makes use of an employment-residence location model calibrated from Washington County, Oregon data based on electronics industry workers commuting to suburban plant locations. Table 22 estimates the residential distribution of the facility's direct and induced population growth. It also provides an estimate of the location of the existing labor force expected to work at the plant. In this instance, we are assuming no difference in the commuting and macro-residential patterns of low and high income workers. While not true for inner-city job locations, this tends to be the pattern for suburban job locations. Table 23 illustrates the point.

Table 22

Approximate Residential Location of Employment

Both Existing and Induced by AAM

AAM #	In Vehicle Approx. Travel Time Minutes	Weighting from Equation*	Percent Distribution	Labor Force Weight	Adjusted Weighting Dist. %
1410	3	.4130	30.6%	4517	35.2
1210	5	.2027	15.0%	1162	9.1
1220	5	.2027	15.0%	1145	8.9
1300	7	.1150	8.5%	193	1.5
1420	9	.0730	5.7%	608	4.7
1400	6	.1502	11.1%	198	1.5
1430	9	.0730	5.4%	196	1.5
1330	10	.0600	4.5%	152	1.2
1320	12	.0425	3.4%	251	2.0
All Other	25	.0102	0.8%	4400	34.3
Total		1.3423	100.0%	12822	99.9

* Estimated from regression equation based on Washington County data holding % multi-family and competitive employment constant and allowing travel time to vary. Equation is of the form:

$$P = \frac{Ao\ e^{-b1\ x1}\ e^{b2\ x2}\ e^{-b3\ x3}}{1 + A3\ e^{-b1\ x1} e^{b2\ x2} e^{-b3\ x3}}$$

where: P = district weighting

x1 = travel time in vehicle minutes

x2 = % multi-family dwelling units

x3 = competitive employment index

Ao, b1, b2, b3 = parameters estimated from sample data

Table 23
Travel Time to Work by Job Class -
Washington County, Oregon
Electronics Industry

	Mean Average Travel Time in Minutes
Hourly Unskilled	14.0
Technical	13.7
Professional	13.4

All travel times are quite short, with the median typically under 10 minutes. Conversely, medium-high income commuters to inner city jobs travel much further. The fact that unskilled workers travel slightly longer in Table 23 represents the sensitivity of that wage group to the availability of low cost housing. For this analysis it was assumed that all areas will be able to meet the demand for housing for all income groups. Failure of this assumption will cause some areas to be more or less impacted than indicated.

Tables 24 and 25 allocate the residential distribution of the existing unskilled labor force and the new population induced by the facility. The areas are given by AAM number documented in the Pierce County Population and Employment Forecasts by Small Area 1980 - 1990 - 2000, Puget Sound Council of Governments, May 1979.

Table 24
Residential Distribution of Existing Labor Force
Expected to Work at Site

AAM #	1982	1985	1990
1410	65	330	660
1210	17	86	171
1220	17	84	167
1300	3	14	28
1420	9	44	88
1400	3	14	28
1430	3	14	28
1330	2	11	23
1320	4	19	38
All Other	64	321	644
Total	187	937	1875

Table 25
Residential Distribution of Induced Population Increase
1982, 1985 and 1990 by AAM
High Population Estimate Only

AAM #	1982	1985	1985 minus 1982	1990	1990 minus 1985
1410	191	953	762	1903	950
1210	49	244	195	488	244
1220	48	239	191	478	239
1300	8	40	32	80	40
1420	25	125	100	250	125
1400	8	40	32	80	40
1430	8	40	32	80	40
1330	7	35	28	70	35
1320	11	55	44	110	55
All Other	186	929	743	1856	927
Total	542	2700	2158	5395	2695

The data in Tables 24 and 25 indicate that 62% of the population and employment impact resulting from the facility will occur within 10 minutes (in vehicle drive time, 6.67 miles) from the plant site. As noted previously, this impact by 1990 entails the location of 4,158 to 5,395 people assumed unanticipated by existing population projections and the employment of 1,875 people in the existing or anticipated labor force.

Tables 26 and 27, respectively, compare the 1990 induced population growth to current projections and the 1990 unskilled labor force requirement to total projected labor force for each AAM.

Table 26 indicates considerable population impacts resulting from the facility. AAM 1410 can expect a population increase of 18.3% to 23.8% over projections while AAM 1210 and 1220 will be subject to unanticipated population increases of 6 to 10% by 1990. Unanticipated population increases are below 5% for the remaining areas.

Table 27 indicates unskilled labor force requirements are generally below 3% of the total labor force, with the exception of AAM 1410. Again, the projection method assumes affordable housing is equally available in all affected areas. Lack of such housing will act to redistribute the impact to other areas within acceptable travel time.

Overall, the population effects of the proposed facility appear substantial in the surrounding area, particularly Puyallup. However, it has been assumed that job relocations and recruitment from outside the area are <u>not</u> included in present employment and population projections. This assumption maximizes the potential impact of the proposed plant location.

Table 26

1990 Induced Population Growth

Compared to Expected 1980 - 1990

AAM #	1980 to 1990 Population Growth Without Plant	Plant Site Induced 1990		% Over Expected Growth	
		Low Pop.	High Pop.	Low	High
1410	8000	1467 -	1903	18.3 -	23.8
1210	6400	376 -	488	5.9 -	7.6
1220	4819	368 -	478	7.6 -	9.9
1300	2227	62 -	80	2.8 -	3.6
1420	11000	193 -	250	1.8 -	2.3
1400	2187	62 -	80	2.8 -	3.7
1430	3196	62 -	80	1.9 -	2.5
1330	1628	54 -	70	3.3 -	4.3
1320	6887	85 -	110	1.2 -	1.6
All Other	125402	1430 -	1856	1.2 -	1.5
Total	171746	4158 -	5395	2.4% -	3.1%

Table 27

1990 Residential Distribution of "Existing" Labor Force

Employed At Site Compared to Total Labor Force

AAM #	Total 1990 Labor Force *	Total Employed At Site	% of Total Induced Labor Force
1410	14760	660	4.5%
1210	7749	171	2.2%
1220	7634	167	2.2%
1300	2266	28	1.2%
1420	10660	88	0.8%
1400	1781	28	1.6%
1430	3632	28	0.8%
1330	3373	23	0.7%
1320	7380	38	0.5%
All Other	550000	644	0.1%
Total	609235	1875	0.3%

* Assumed to be 41% of the population.

4. Mitigating Measures

None are anticipated.

B. Housing

a. Existing Conditions

The 1979 population and housing estimates for Pierce County are indicated in Table 28.

Table 28
Pierce County, Washington
1979 Population and Housing Estimates

Market Area	Occupied Housing Unit	Total Population
North End	20,802 (+1.7%) *	50,198 (+.4%) *
City Center	8,989 (+1.7%)	18,742 (-.6%)
West Side	14,488 (+3.2%)	37,380 (+2.2%)
East Side	9,400 (+3.6%)	25,909 (+2.5%)
South End	20,578 (+1.4%)	52,560 (+.4%)
Lakewood	23,012 (+1.7%)	57,479 (+.9%)
Parkland	18,970 (+4.0%)	54,549 (+3.2%)
Military	4,580 (+1.1%)	29,660 (-1.8%)
Southeast County	10,023 (+10.3%)	28,943 (+9.3%)
Puyallup	26,673 (+6.4%)	72,285 (+5.5%)
Peninsula	9,809 (+7.7%)	26.195 (+6.8%)
Total - Pierce County (Areas 1-11)	167,324 (+3.7%)	453,900 (+2.6%)

* Annual % of increase.
Source: Puget Sound Council of Governments. August, 1980.

The housing unit count for Puyallup Census Tract 734 only is indicated in Table 29 .

Table 29

Housing Units - Census Tract 734

Census Block	Total Housing Units	Single Family	Multi-Units	Occupied Units Owner	Renter	Total
734-1	734	544	180	369	304	673
2	823	728	95	618	160	778
3	525	335	190	297	196	493
4	642	527	115	420	185	605
5	661	638	23	521	105	626
6	506	454	52	416	100	516
7	793	591	202	487	252	739
8	454	296	158	257	163	420
Total	5138	4113	1015	3385	1465	4850

According to the Pierce County Planning Department, there were 7,002 housing units in the city in 1980 as compared to 5,138 in 1970. The difference represents an increase of 36.2% over the last 10 years.

According to the Pierce County Department of Community Development, the vacancy rate in the county for all residential units is 2.4%. The single family vacancy rate is 2.1% and the vacancy rate for multi-family housing units is 5.2%.

For the period which includes the last quarter of 1979 and the first quarter of 1980, there were 2,588 building permits for single family housing units issued in the unincorporated areas of Pierce County. There were 888 permits issued for multi-family units. Within the City of Puyallup there were 188 building permits issued for single family housing and 19 permits for multi-family.

At present the average new home in Pierce County sells for $69,800. The average sales price for both new and used homes is $54,100. The average value of unsold housing units in the county is $61,400 per unit.

Because the rental market is so volatile, it is difficult to determine the average rent per unit. However, the federal fair market rents do provide insight into the rental market. The federal fair market rent in Pierce County for a semi-detached one bedroom apartment is $461; for a semi-detached two bedroom, $510; for a semi-detached three bedroom, $613. For walk-up apartments the rents are $407 for a one bedroom, $478 for a two bedroom and $570 for a three bedroom.

Currently, there are 2,449 owners in need of low income housing, and there are 8,301 renters in need of low income housing.

Pierce County, the City of Puyallup and King County maintain housing assistance plans. The three plans are part of HUD's Section 8 program and are similar in their objectives and operation. The intent of the Section 8 program is to subsidize the rents of persons 62 and over, individuals that are handicapped or disabled, and persons with dependent children. Eligibility requirements are uniform among the three plans.

In addition to the Section 8 program, King County also maintains a conventional housing program. According to this program, tenants live in projects that are owned by the Housing Authority and are

located throughout the county and rent directly from the authority according to their ability to pay, a figure that is based on slightly less than 20% of their monthly income.

b. Impact

There are impacts related to housing that will occur with implementation of the proposal.

- o 100 acres of land designated for low density residential purposes will be removed from the city's inventory.

- o New housing units will be required by the new employees that will relocate to the Puyallup/Pierce County Region in the next ten years.

The site is designated RS-1 Residential Single Family District. Based on an allowance for roads, open space and lot configuration, approximately 300 units could be developed on the site within the existing zoning classification.

In Pierce County from 1975-1979, 29,349 new single family and multi-family housing units were constructed. This represents an annual increase of 5,870 units. Based on the residential distribution of the induced population increase indicated on Table 25 , 1459-1597 employees can be expected to locate in Pierce County generally and 581-636 employees in AAM District 1410 specifically. The City of Puyallup is entirely within AAM 1410 which comprises Census Tracts 734 and 712. Assuming one housing unit per employee, 581 units utilizing the low forecast and 636

units utilizing the high forecast will be required. Based on an annual average housing unit increase of 186.4 units per year for the last 10 years in Puyallup alone, 58-63 units would represent 31-33% of the need for ten years.

The number of units required and the per cent of growth expected for each AAM district is indicated in the following table. For the units required in the "All Other" category, 2/3 are assumed required in Pierce County and 1/3 in King County. This ratio of settlement is identical to the distribution utilized to calculate the traffic impact.

Table 30

1990 Housing Requirements

Compared to Expected Population 1980 - 1990

AAM #	1980 to 1990 Housing Needs Without Plant	Household Units 1990		% Over Expected Growth	
		Low	High	Low	High
1410	3174	581	636	18.3 -	23.8
1210	2540	149	163	5.9 -	7.6
1220	1912	146	160	7.6 -	9.9
1300	884	25	27	2.8 -	3.6
1420	4365	76	84	1.8 -	2.3
1400	868	25	27	2.8 -	3.7
1430	1268	24	27	1.9 -	2.5
1330	646	21	23	3.3 -	4.3
1320	2733	34	36	1.2 -	1.6
All Other	49,763	567	620	1.2 -	1.5
Total	68,153	1648	1803	2.4% -	3.1%

c. Mitigating Measures

By redesignating the site for industrial purposes the city will lose approximately 300 low density residential units. These units could be maintained within the city by increasing the densities in a portion of the vacant land adjacent to the site now zoned for RS-1. For example, increasing the density from 3 units per acre to 6 could accommodate 300 units on 50 acres at comparatively low densities.

The need for housing units by employees relocating to the region will be mitigated by phasing the in-migration of new families over a ten year period and distributing the impacts as indicated in Table 25 page 104.

These percentages of growth for King and Pierce County are negligible and range from a ten year annual low of .012% to a high of .099 (less than 1%). This per cent of impact is less than the average vacancy rate.

The impact for Puyallup, however, is greater, but vacant lands now designated for residential purposes can accommodate the need for these additional housing units. Assuming a maximum requirement of 636 units, and 50% single family and 50% multi-family, 79.5 acres at a density of four units per acre and 26.5 acres at a density of 12 units per acre would be required. Considering that this represents a ten year requirement, the annual requirement is approximately ten acres, 3/4 single family and 1/4 multiple family.

C. Tax Impact

1. Existing Conditions

The Real and Personal Property Assessed Valuation of the city for 1979 was $227,768,972.00. The taxes for 1980 were based on the 1979 valuation at a millage rate of $16.1163 per $1,000. Based on this rate the following taxes were collected from each jurisdiction:

Table 31

Existing Real and Personal Property Tax Revenues by Jurisdiction

Jurisdiction		Rate		Tax
City	@	3.5475	=	$ 807,326
County	@	1.7545	=	399,618
School	@	5.5535	=	1,264,909
Port	@	.4817	=	109,715
State	@	4.7791	=	1,088,526
	Total	$16.1163		3,670,094

According to the county assessor's office the assessed valuation for 1980 has increased to $348,982,910.

2. Impact

Substantial capital improvements are planned for Phase I and Phase II. They are indicated in the following table.

Table 32

Projected Investment (in Millions)

	Site/Building	Equipment	Total
Phase I	$24 M	$15	$39
Phase II	$18	$20	$38
Total	$42	$35	$77

The total capital investment expected on site by 1984 is $77,000,000. This represents 22% of the existing assessed valuation of the city and could be expected to generate the following revenue to each governmental jurisdiction annually, assuming the millage rate remains constant.

Table 33

Projected Real and Personal Tax Revenues

Jurisdiction	Rate	Tax
City	3.5475	$ 273,157
County	1.7545	135,096
School	5.5535	427,619
Port	.4817	37,090
State	4.7791	367,990
Total	16.1163	1,240,952

D. Transportation

1. Existing Conditions

The estimated traffic impact area of the project is shown in Exhibit 15, extending from State Route 512 (S.R. 512) on the west to Shaw Road on the east. Current daily traffic volumes are noted on Exhibit 15 as gathered from the Washington State Department of Transportation (WSDOT) and Pierce County, and as counted by staff. Counts are also available from the City of Puyallup, but only as recent as 1977.

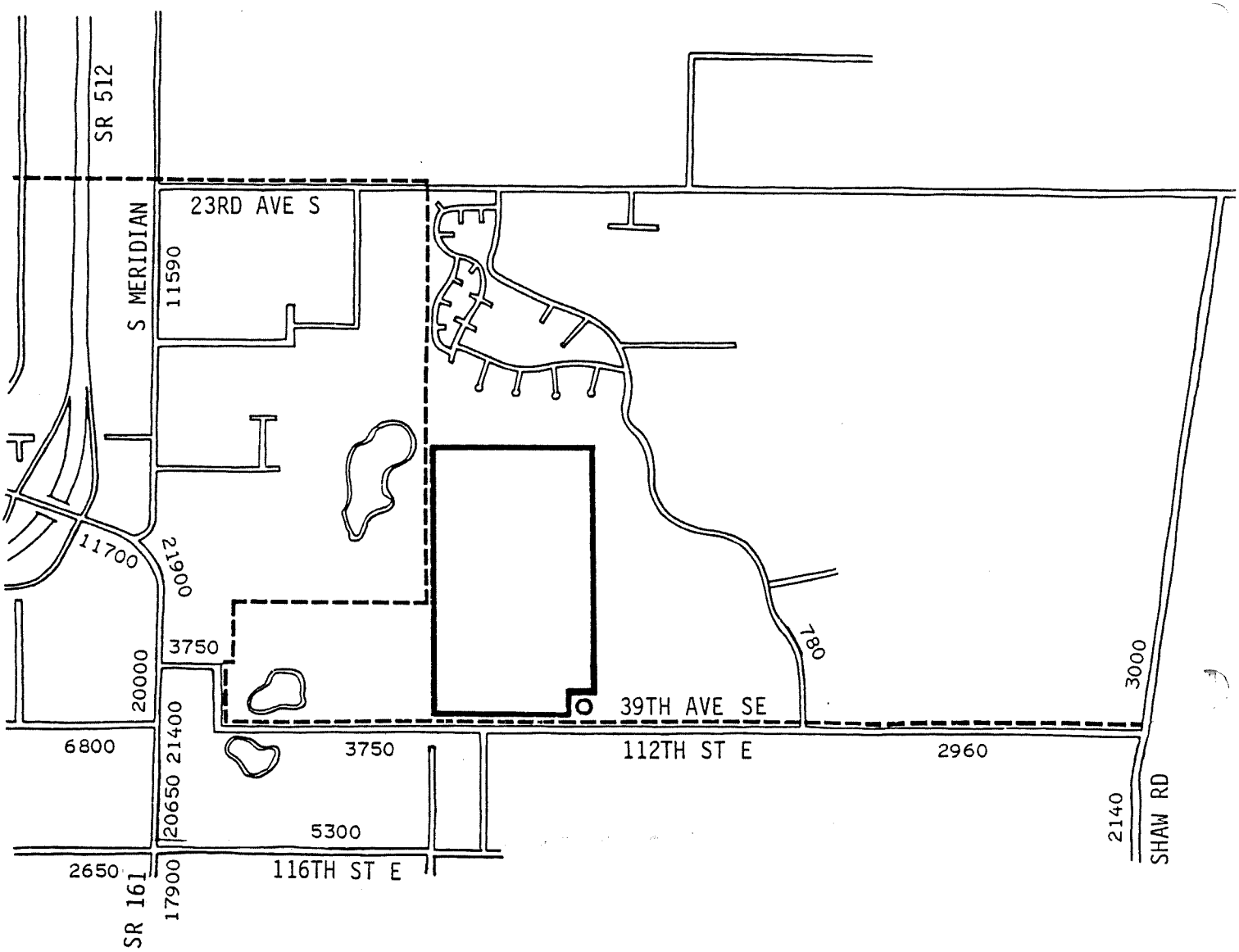
The surface street system in the area is essentially two lane, with the better standards on S.R. 161 (S. Meridian St.). A recent WSDOT project added a third lane to that facility from 110th south that is used as a two-way left-turn lane midblock and as a left-turn pocket at intersections. The intersections of S.R. 161 and S. Meridian*, 112th St. E, and 116th St. E are signalized. Stop signs control other intersections including the freeway (S.R. 512) ramp terminals and the intersection of S.R. 161 and 110th St. E.

The daily volumes illustrated on Exhibit 15 are not excessive for the number of lanes available except on S.R. 161. A two-lane roadway built to good standards can serve 5,000 daily trips without direct interference to pedestrians and adjacent property, and up to 10,000 to 12,000 daily trips at capacity under average peaking conditions and signal timing.**

S.R. 161 is capable of carrying over 20,000 daily vehicle trips largely because of light traffic on intersecting streets at the signals. This allows the green light to

*S. Meridian is a city street and county road from about 106th St. north, and S.R. 161 to the south.

**For example, a 10% peak hour and 50% green time available.



1980 Daily Traffic Volumes

Exhibit 15

be shown to S.R. 161 traffic for most of the peak hour. Nevertheless, the very heavy traffic demand on S.R. 161 creates serious peak hour congestion.

Exhibit 16 shows, schematically, the lane configuration of S.R. 161 and 39th Ave. SE plus the 1980 evening peak hour volumes. The evening peak is when the heaviest traffic of the day occurs. 8.1% of daily volume has been measured between 4 and 5 PM, as contrasted to 6.3% in the morning 7 to 8 AM peak.

Results of the analysis of the relationship between peak hour traffic demand and intersection capacity along S.R. 161 are shown in Exhibit 17. On this diagram (and several subsequent exhibits) the ratio of volume divided by capacity is presented. Ratios up to 0.85 or 0.90 are generally considered acceptable urban traffic operations (designated level of service "D").* Ratios of over 1.00 are theoretically impossible, but the variations of traffic and analysis technique often lead to values in excess of 1.00. In any event, the ratios of 1.02 and 1.08 calculated on S.R. 161 at 112th and 116th indicate that those intersections are at capacity under present conditions.

Observation easily confirms these calculations. In the evening, traffic southbound backs up through the intersections of 110th St. E and S. Meridian, and sometimes through the interchange east ramp terminal.

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*Levels of service run from "A" which is completely uncongested, to "F" which is failure:

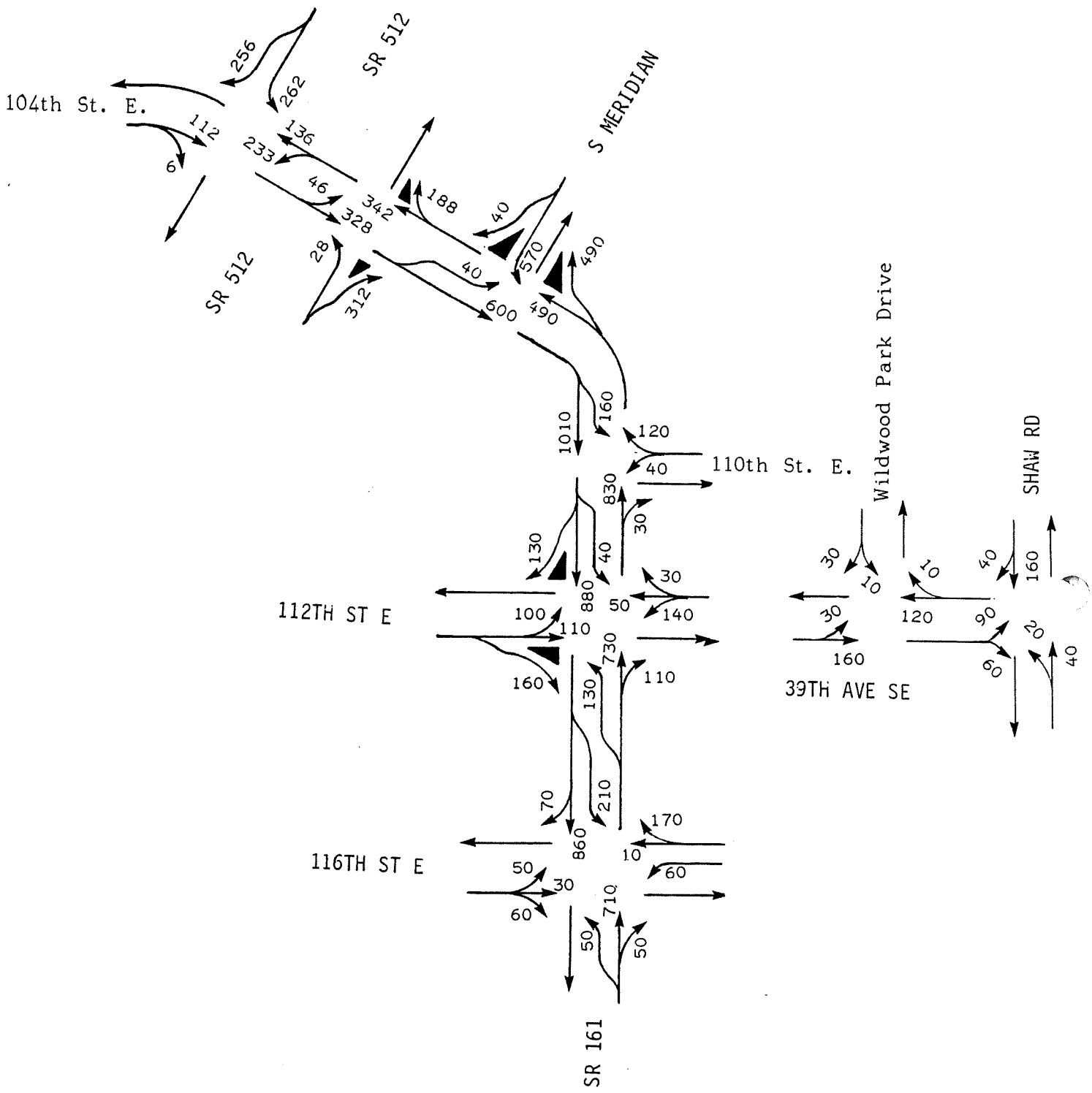
Levels "A" and B" are free flow.

Level "C" is generally smooth with a little congestion and delay.

Level "D" is normal in urban areas. Congestion and delay occur.

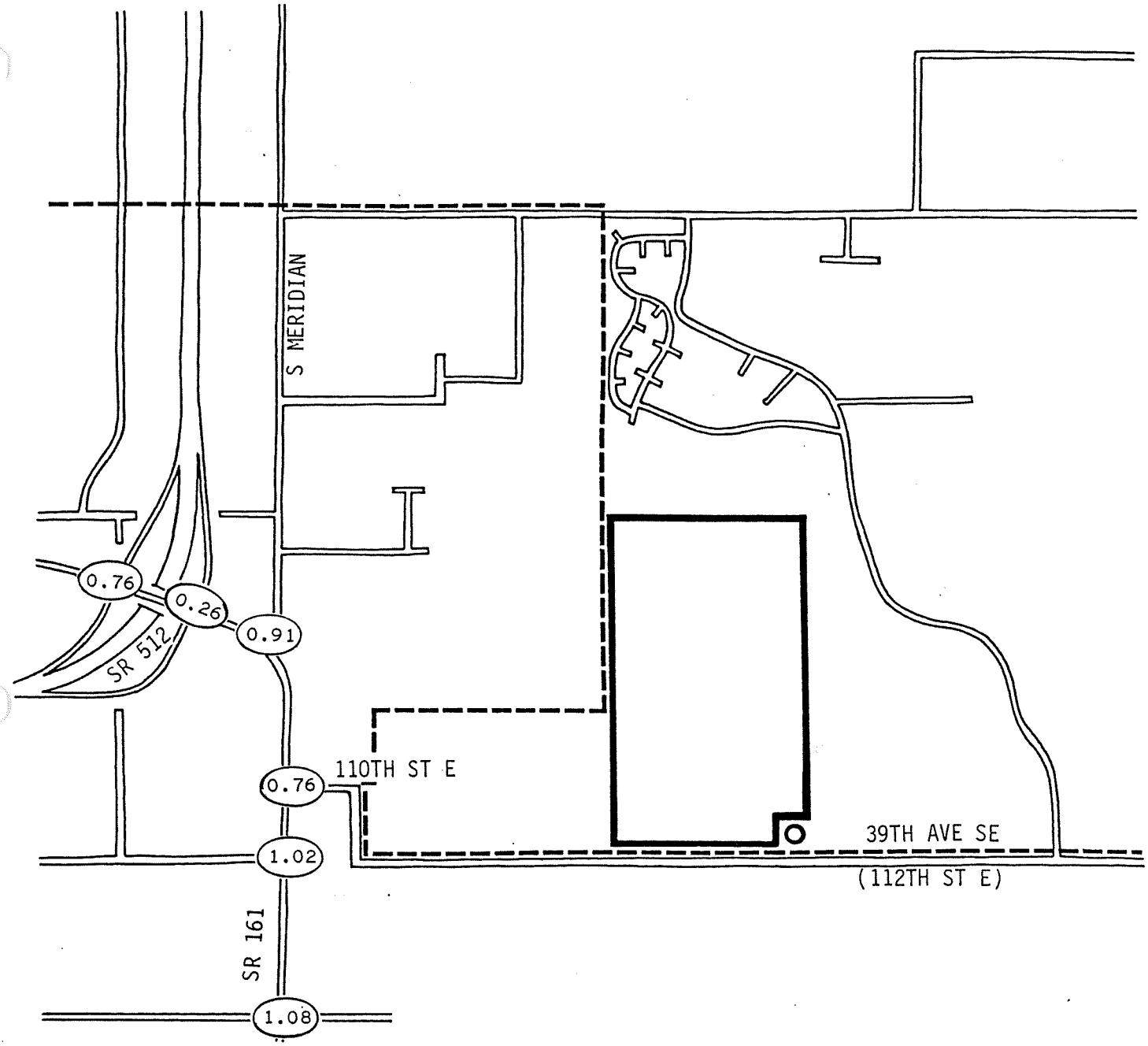
Level "E" represents serious congestion.

Level "F" is failure.



1980 PM Peak Hour Traffic

Exhibit 16



1980 PM Peak Hour Capacity Analysis

Exhibit 17

Traffic east of the project site encounters little peak hour congestion. The volume-capacity ratio at 39th Avenue S.E. and Shaw Road is 0.26.

Volume-capacity ratios at unsignalized intersections have been calculated by assuming that a signal is present in order to provide comparable data for all locations. Alternative techniques for unsignalized intersections do not produce exactly comparable data. Nevertheless, these techniques were applied at the unsignalized intersections and generally confirmed the results of the signalized analysis. Various turning and straight-through movements of unsignalized intersections rate:

- "A" to "D" at the west ramp terminal
- "C" at the east ramp terminal ("F" when traffic backs up from signals ahead)
- "C" to "E" at 110th (also "F" when traffic backs up)
- "A" at 39th Ave. and Shaw Road.

In summary, the moderate traffic volumes on most streets in the area are in keeping with the low density character of area development. However, the concentration of traffic on S.R. 161, which provides access to the freeway and growing commercial land uses, has led to intersection failure in peak hours and traffic back-ups a half-mile in length.

2. Project Impact

Project impact has been estimated by forecasting non-project traffic to 1990 (the year of full occupancy of the Puyallup Science Park), estimating peak hour volume-capacity ratios, adding project traffic, and then re-estimating volume-capacity relationships.

Non-project traffic for 1990 has been estimated using several methods. Forecasts by the Puget Sound Council of Governments (PSCOG) call for 1.50 times 1977 dwellings by 1990 in the project area, and a growth of 1.52 in trips generated. The growth of traffic on S.R. 161 has been predicted by WSDOT* to 1990 at a ratio of 1.40. The probable growth of land uses adjacent to 39th Ave. SE, assuming complete development by year 2000, equate to a growth of 2.15.** Combining all of these inputs produced the 1990 daily traffic estimates of Exhibit 18.*** The 100± acre project has been assumed to be developed as single family residential land use at a density of three units per acre.

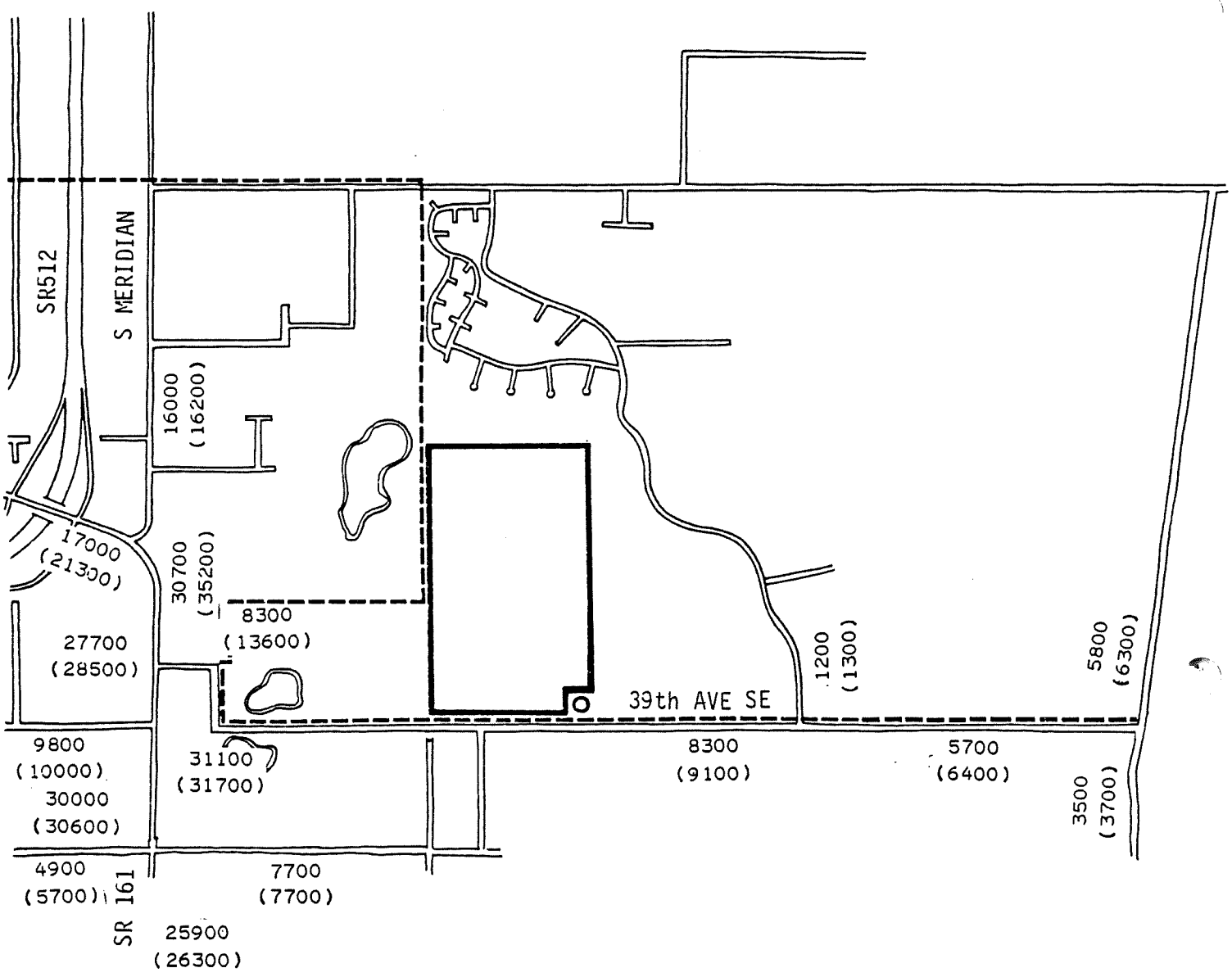
Exhibit 19 shows the 1990 non-project 4 to 5 PM peak hour estimated traffic volumes. Without improvements to beyond the existing street layout and number of lanes, growing traffic demand leads to volume-capacity ratios up to 1.45. Although travelers would probably adapt in part to such conditions by changing the time of day of trips, using alternative routes, and foregoing some trips altogether, it seems clear that some improvements to the existing system will be needed for non-project traffic. Alternative types of improvements have not been studied, but a logical direction for a program to cope with present congestion and meet traffic growth would be a widening of S.R. 161 to 5 lanes, through the interchange area, signalization of intersections, and widening the approaches of intersecting streets. Such improvements have been diagramed schematically in Exhibit 19 as a basis for presenting 1990 peak hour traffic volumes.

---

*Data prepared for a study of future improvements to S.R. 161.

**This assumes commercial use along S.R. 161; mixed commercial, office and multiple residential just to the east, and single family residential for the balance.

***Exhibit 18 also shows combined project and non-project traffic (in parenthesis). Derivation is explained in subsequent paragraphs.

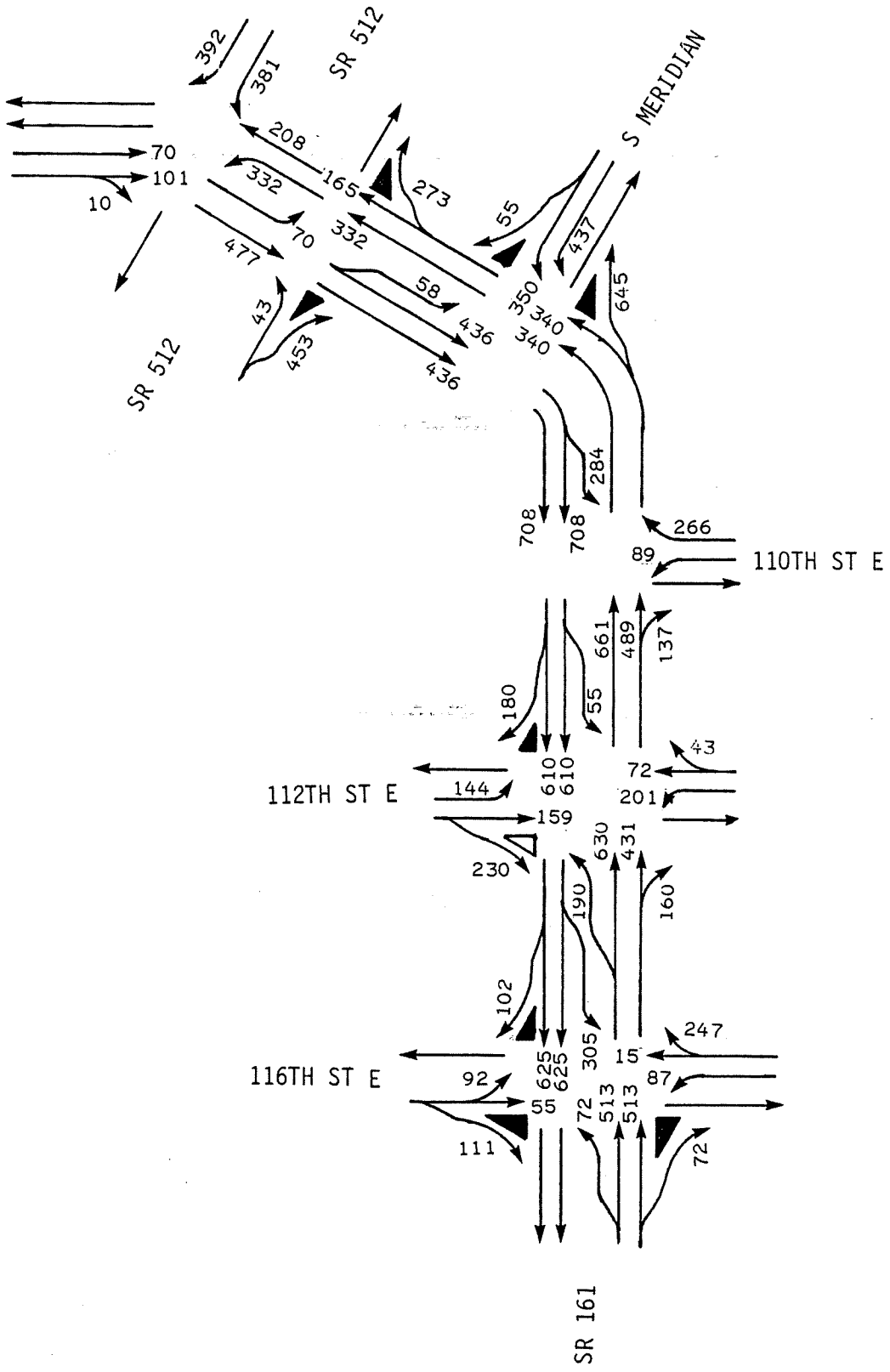


LEGEND:

1990 NON-PROJECT TRAFFIC
(1990 DAILY TRAFFIC WITH PROJECT)

1990 Daily Traffic Volume Estimates

Exhibit 18



1990 PM Peak Hour Traffic Estimates

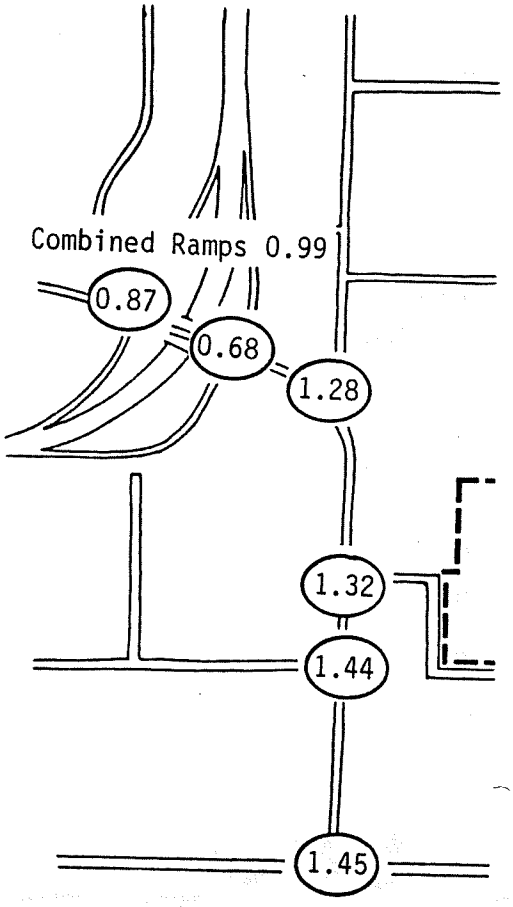
Exhibit 19

Estimated 1990 volume-capacity ratios at key intersections are shown in Exhibit 20. Note that ratios at the S.R. 161 - S.R. 512 interchange are figured as an individual intersection basis and as a total interchange. The latter is included in recognition that the two intersections in diamond-type interchanges often interact, and signal programs for diamond interchanges often treat the two intersections as a unit. The intersection of 39th Avenue S.E. and Shaw Road (not on the diagram) is estimated at a ratio of 0.55.

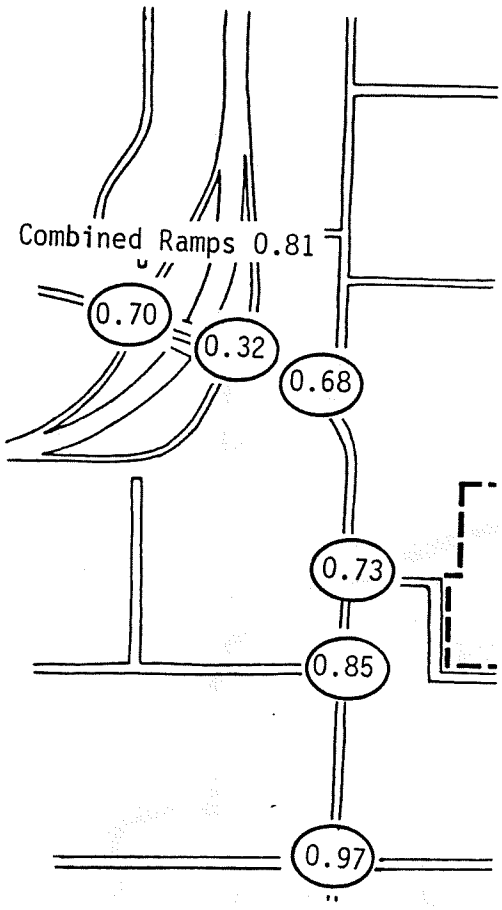
The left side of Exhibit 20 shows estimated volume-capacity ratios under the assumption that no major changes are made to S.R. 161 and it remains a two-and three-lane road in the vicinity of the project. These extremely high ratios reflect level of service "F" conditions along S.R. 161 at Meridian, 110th, 112th and 116th. Since the existing roadway is overloaded in the evening peak hour at present, it is not surprising that continued traffic growth will only worsen the situation.

The right side of Exhibit 20 shows the estimated situation if S.R. 161 is widened. The assumed improvements would provide well for 1990 nonproject traffic on S.R. 161, except at 116th St. The volume-capacity ratio of 0.97 at that location is close enough to today's 1.08 to suggest a return towards serious congestion as traffic grows to 1990 and beyond, even with street widening.

Project traffic was added to the non-project estimates at a rate of 2.1 daily vehicle trips per employee. With 3,000 employees, this produces 6,300 daily trips. The paths through the street system most likely to be used by project traffic were estimated using PSCOG work trip data, and are illustrated in Exhibit 21. This data was added to non-project traffic to produce the total combined daily volumes shown in parentheses on Exhibit 18.



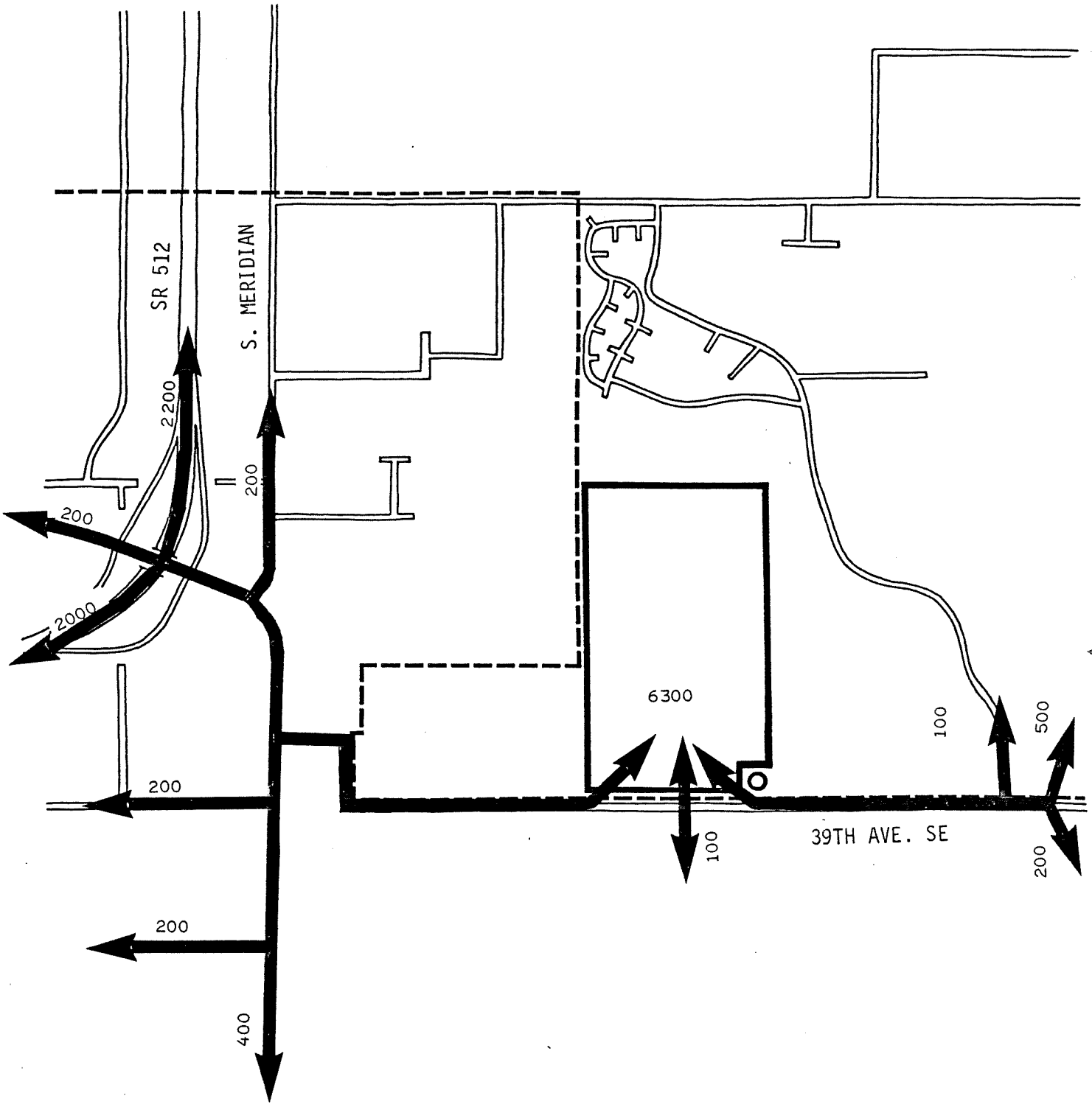
Assuming No Major Change
in Existing SR 161
Roadway



Assuming SR 161
Widened to 5 lanes

1990 PM Peak Hour Non—Project Capacity Analysis

Exhibit 20



Distribution of Daily Project Trips

Exhibit 2

Employee shift changes in the afternoon (upon full development in 1990) result in the following pattern:

3-4 PM	1,050 in	1,150 out
4-5 PM	-	-
5-6 PM	-	200 out

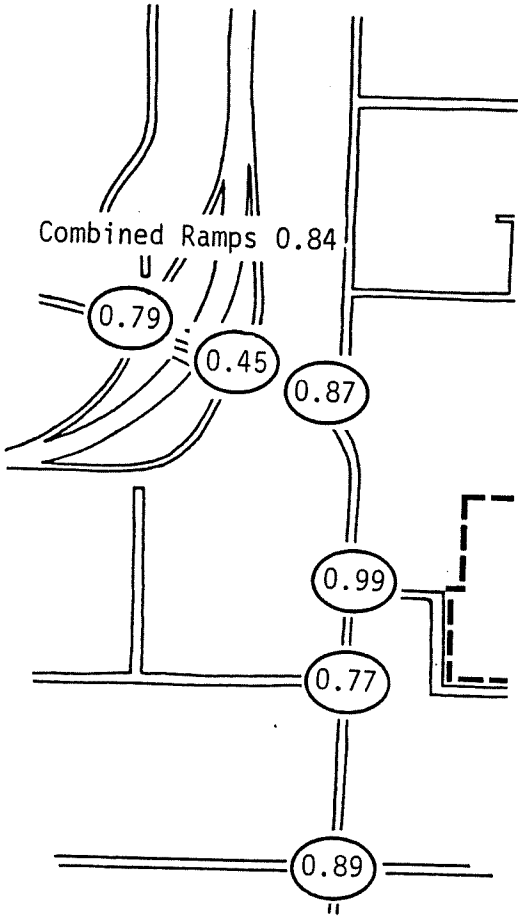
At 1.18 average auto occupancy, 880 vehicles would be inbound and 970 vehicles outbound between 3 and 4 PM.

Estimates of 1990 peak conditions with the project were developed by adjusting non-project traffic to the 3 to 4 PM hour (87% of the 4 to 5 PM level) and adding in project volumes. When project traffic is added, volume-capacity ratios are increased to the levels shown in Exhibit 22. As before, the two diagrams in Exhibit 22 show ratios with and without the assumed widening of S.R. 161. The Shaw Road intersection with 39th Avenue S.E. remains satisfactory with a ratio of 0.57 under either assumption.

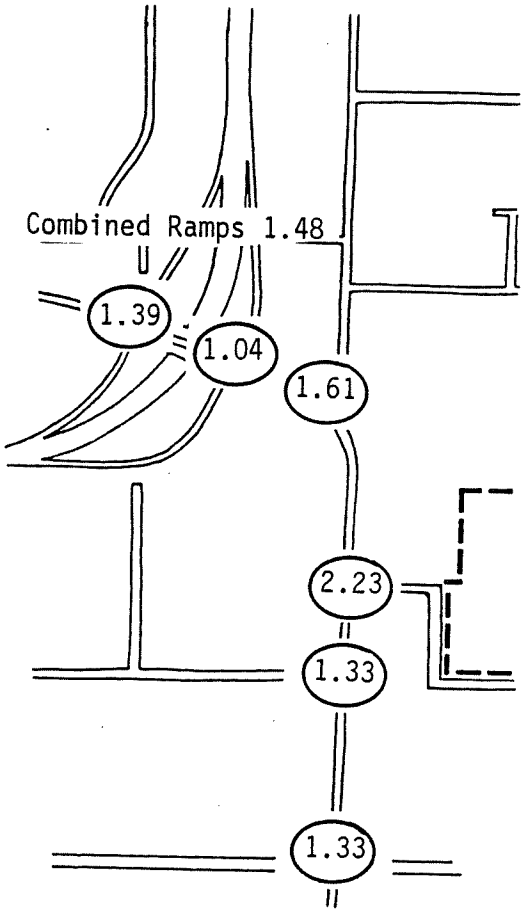
The project creates a heavy impact at the intersection of S.R. 161 and 110th St. E. where project traffic is concentrated. With the assumption of a five-lane S.R. 161, the volume-capacity ratio is raised from 0.73 to 0.99.

The project also increases volume-capacity ratios along S.R. 161 under the "no improvement" assumption as well (indicating worse congestion), with ratios as high as 2.23 as shown on the right side of Exhibit 22. However, these calculations portray an imaginary situation since all of the capacity available from existing S.R. 161 will be used by growing non-project traffic.

The solution to the predicted lack of capacity in the S.R. 161 corridor is beyond the scope of this analysis. However, estimates of the traffic demand to be generated by the project have been presented in Exhibits 18 through 22 for consideration by WSDOT in studies of the future development of S.R. 161.



Assuming SR 161
Widened to 5 lanes



Assuming No Major Change
in Existing SR 161
Roadway

1990 PM Peak Hour Capacity Analysis (With Project)

Exhibit 22

Although the long-range traffic impacts of the project cannot be solved until WSDOT reaches conclusions about the future of S.R. 161, short-range impacts and mitigation can be assessed.

Project traffic will not be added to the street network as a single event. Project development is planned in phases as follows:

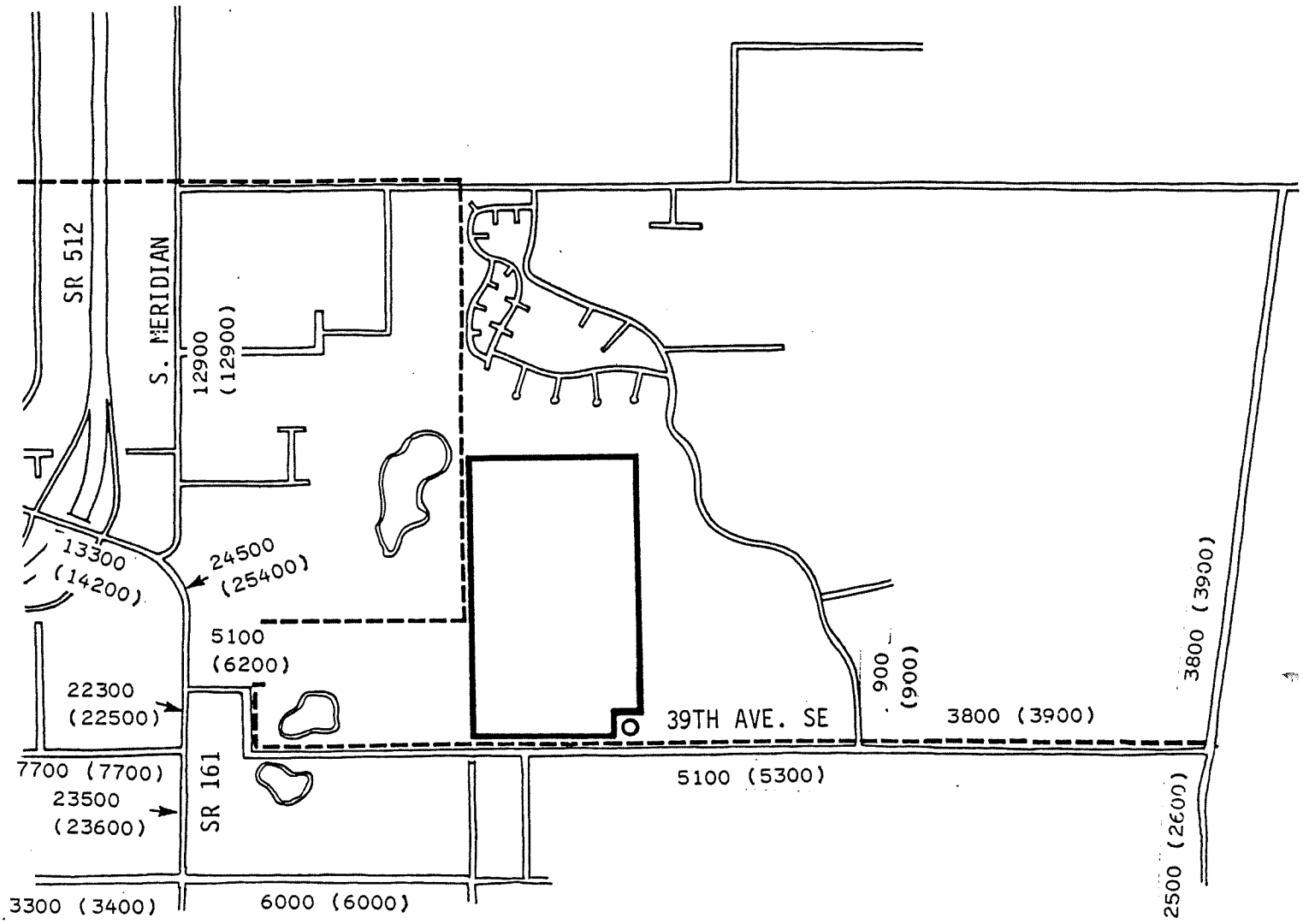
Year	Phase	Employees	Daily Trips
1983	I	600	1,260
1984	II	1,000	2,100
1985	III	1,500	3,150
1986	IV	2,000	4,200
1990	V	3,000	6,300

The impact in 1983 is illustrated in Exhibit 23 where 1983 non-project daily traffic is shown as well as combined non-project and project Phase I trips. The addition of project Phase I peak trips to the present network would change 1983 3 to 4 PM capacity ratios as follows:

Intersection	Non-Project	Combined
S.R. 161 and S. Meridian	0.90	0.98
S.R. 161 and 110th St. E	0.91	1.17
S.R. 161 and 112th St. E	1.06	1.08
S.R. 161 and 116th St. E	1.05	1.06

The primary short-range impact, like the long-range impact, is focused at the intersection of S.R. 161 and 110th St. E.

Project on-site parking will also be developed in phases to match employment totals up to the maximum of planned development in 1990. At that time, the combined incoming and outgoing employees at the end of the day shift will generate a need for between 2,000 and 2,100 spaces.



LEGEND:
1983 NON-PROJECT TRAFFIC
(COMBINED NON-PROJECT & PHASE I TRAFFIC)

1983 Daily Traffic Estimates

Exhibit 23

3. Mitigating Measures

Several actions suggest themselves in mitigation of project impacts. One of these would be development of transit service to the project site plus strong encouragement of ridesharing through matching programs, priority parking, and a vanpool program.

Conservatively, since the project site is not a central location adjacent to other employment centers, transit use could be at least 1% of peak hour trips. A ridesharing program could realistically increase average auto occupancy from 1.18 to 1.30 by shifting 16% of employment from single occupant vehicles to carpools. Peak hour traffic would be reduced to 93% of the initial estimated value by these measures. This change in project traffic would improve the 1983 volume-capacity ratio at the intersection of S.R. 161 and 110th from 1.17 to 1.15. Greater improvements would be possible if more employees respond to rideshare programs.

It can be expected that these measures will be pursued vigorously. A high level of cooperation with the Pierce County Public Transportation Benefit Area Authority is planned as well as strong ridesharing promotion that could lead to a substantial shift of employees to car and vanpools.

Mitigation efforts for short-range impacts should focus on S.R. 161 and its approaches. Project traffic volumes to the east of the site on 39th Avenue, S.E., Wildwood Park Drive, and Shaw Road are low volume (both in 1983 and 1990).

Initial analysis of possible intersection improvements along S.R. 161 using 1983 traffic estimates show that volume-capacity ratios could be improved with the following improvements:

- Widen S.R. 161 to two lanes in each direction through the signal at Meridian.

- Lengthen the left-turn lane north of 110th and add an additional southbound lane on S.R. 161. Signalize the intersection.

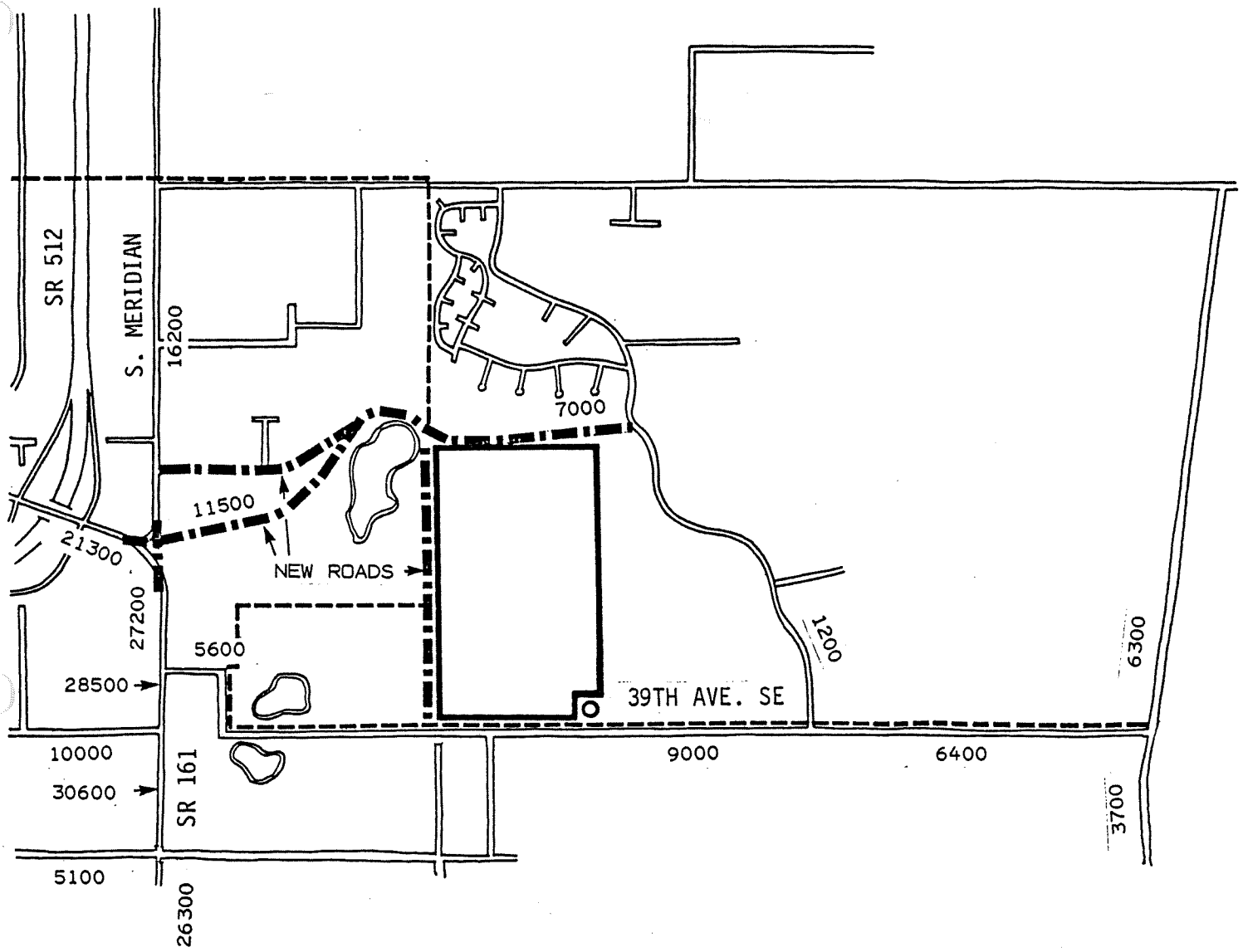
- Widen the south leg of the intersection with two lanes southbound to 112th and two lanes northbound through the intersection with 110th.

These steps would essentially provide a four-lane S.R. 161 from 112th to Meridian and a signal at 110th. Existing right-of-way may be sufficient for this from 110th to the north.

Additionally, the westbound intersection approach to S.R. 161 on 110th St. E. should be widened to two lanes. The easterly extent of this improvement is related to the timing of non-project land use development. Traffic forecasts indicate the ultimate need for at least four lanes on the 39th/112th/110th route, but when that traffic growth will occur is unclear at this time.

The implementation of these improvements is presently being negotiated among the City of Puyallup, Pierce County, WSDOT, land owners and developers. Estimated costs are $1,266,000 to $1,408,000 plus rights-of-way.

A long-range mitigating action would be the development of additional roadway facilities. Exhibit 24 shows, in dashed lines, several possible new streets. One could be a new connection between Wildwood Park Drive and S. Meridian St. north of the project site. Such a route would require the rebuilding of the intersection of S.R. 161 and S. Meridian from a three-legged intersection to a four-legged type or a connection to and improvement of 104th Street. This route would also require careful planning and design in the vicinity of the pond west of the project site.



1990 Daily Traffic (With Project) Plus New Roads

Exhibit 24

Also shown on Exhibit 24 is a north-south connection between 39th Ave. SE and the new east-west road. This connection is shown as a system development feature, but is not central as a mitigating feature.

Exhibit 24 also shows estimated 1990 daily traffic with the new facility. The total volume of 11,500 includes project traffic bound for the freeway and traffic from easterly residential areas that could otherwise use 23rd and 39th Avenues SE.

A final scheme for new roads such as those shown in Exhibit 24 depends on future development of long-range plans for the improvement of S.R. 161 and city and county arterials in the South Hill area.

E. Public Services

1. Existing Conditions

a. Fire Protection

The site is served by the Puyallup Fire Department. Fire Station No. 2 is located north of 39th Avenue S.E. at 3509 Shaw Road, approximately 1½ miles from the site. Station No. 2 is manned twenty-four hours a day by two people and is equipped with two pumpers, the largest being a 1957 750-gallons-per-minute pumper. The response time to the site would be between 2½ and 3 minutes.

There are 25 firefighters in the Puyallup Fire Department, which is approximately one firefighter per every 700 residents. The national average is one firefighter for every 500 people. In order to meet that average, an additional 11 firefighters should be added to the department. In September of 1981 one additional firefighter will be added to the department for a total of 26 firefighters.

There is ample water presently available to service the site. A 16-inch water main runs along 39th Avenue and water hydrants have been installed. The water tower adjacent to the site is available to the Fire Department. The Fire Station is also equipped with carbon dioxide for combating combustion at electronics facilities.

b. Police Protection

The east side patrol area of the Puyallup Police Department includes everything east of Meridian Ave-

nue and south of Pioneer Avenue, an area which includes the project site. There are two patrol cars on duty within the east side patrol area between 7 a.m. and 11 p.m. and one patrol car between 11 p.m. and 7 a.m. There are also rover cars on duty which serve the entire city police district. There is always a minimum of four cars on duty in the district between 3 p.m. and 7 a.m.

The police response time to the site for an emergency would be 3 minutes; for a general call, the response time would be 7 minutes. The ratio of police officers to the Puyallup population served is 1.77 officers for every 1,000 people. This compares to 0.63 officers per 1,000 population for District 6 of the Pierce County Sheriff's Office and 1.68 for the City of Tacoma.

The Police Department has recently proposed a base level service concept to the City Council which includes one 24-hour patrol unit for every 5,264 residents. A 24-hour patrol unit would require 5.19 patrol officers, one detective and one clerical staff. For example, every time the population increases by 5,000 to 5,500 residents, a 24-hour unit should be added. At present, the police department maintains 3.21 24-hour units, or an average of 3.21 patrol officers on duty at any time during the day.

c. Medical and Emergency

Good Samaritan Hospital is located at 407 14th Avenue S.E., two blocks east of Meridian and 25 blocks north of the site. The hospital maintains a 24-hour emergency room and currently has 173 beds. Construction for an addition with 50 beds will begin in late December or January of 1981.

A private ambulance service is based at the hospital. The response time to the site by an ambulance would be 5 minutes or less. There is another private ambulance service in Puyallup which is located approximately 1½ miles from the hospital.

2. Impact

a. Fire Protection

The development of this facility adds five two-story structures for manufacturing purposes. Because Fire Station No. 2 is presently undermanned, an additional two firefighters should be added to the staff in order to respond adequately to an incident at the facility. The 1957 pumper should be replaced by at least a 100-gallon-per-minute pumper of a newer model.

b. Police Protection

Due to the combination of in-house security on the site and the present adequate level of police protection for the city of Puyallup, the addition of manpower to the police force for security reasons will not be required. The new population that can be expected as a result of the development will warrant the addition of a 24-hour unit.

It can be assumed that the Highway Patrol will continue to have adequate cars on the major thoroughfares to and from the site. The project poses no significant regional impact on police services.

c. Medical and Emergency

The Good Samaritan Hospital and private ambulance services available would provide adequate service for the site. They, in combination with planned safety programs of the facility, would not necessitate any significant increases in staff or facilities.

3. Mitigating Measures

a. Fire Protection

Revenues generated by the development would offset impacts on fire protection services.

Compliance with all city, state and federal codes regarding construction, maintenance and specific fire prevention equipment on the site will reduce any potential hazards.

Highly technical monitoring devices employed by the facility, proper training of personnel, and implementation of in-house safety policies that accompany the operation will further mitigate any impact.

b. Police Protection

Revenues generated by the proposed project will most likely offset costs of any additional manpower required in the future.

On-site, 24-hour security further mitigates the impact of the development on police protection services.

c. Medical and Emergency

Revenues generated by the proposed project will offset costs of additional personnel and facilities in the future. The owner will coordinate the types of common injury with the existing medical staff in the Puyallup/Pierce County area. The coordination will include indoctrination programs, consultation with medical officers, etc. Again, the in-house safety program of the facility and historical health and safety statistics mitigate the impacts on this service.

F. Utilities and Energy

1. Water Supply

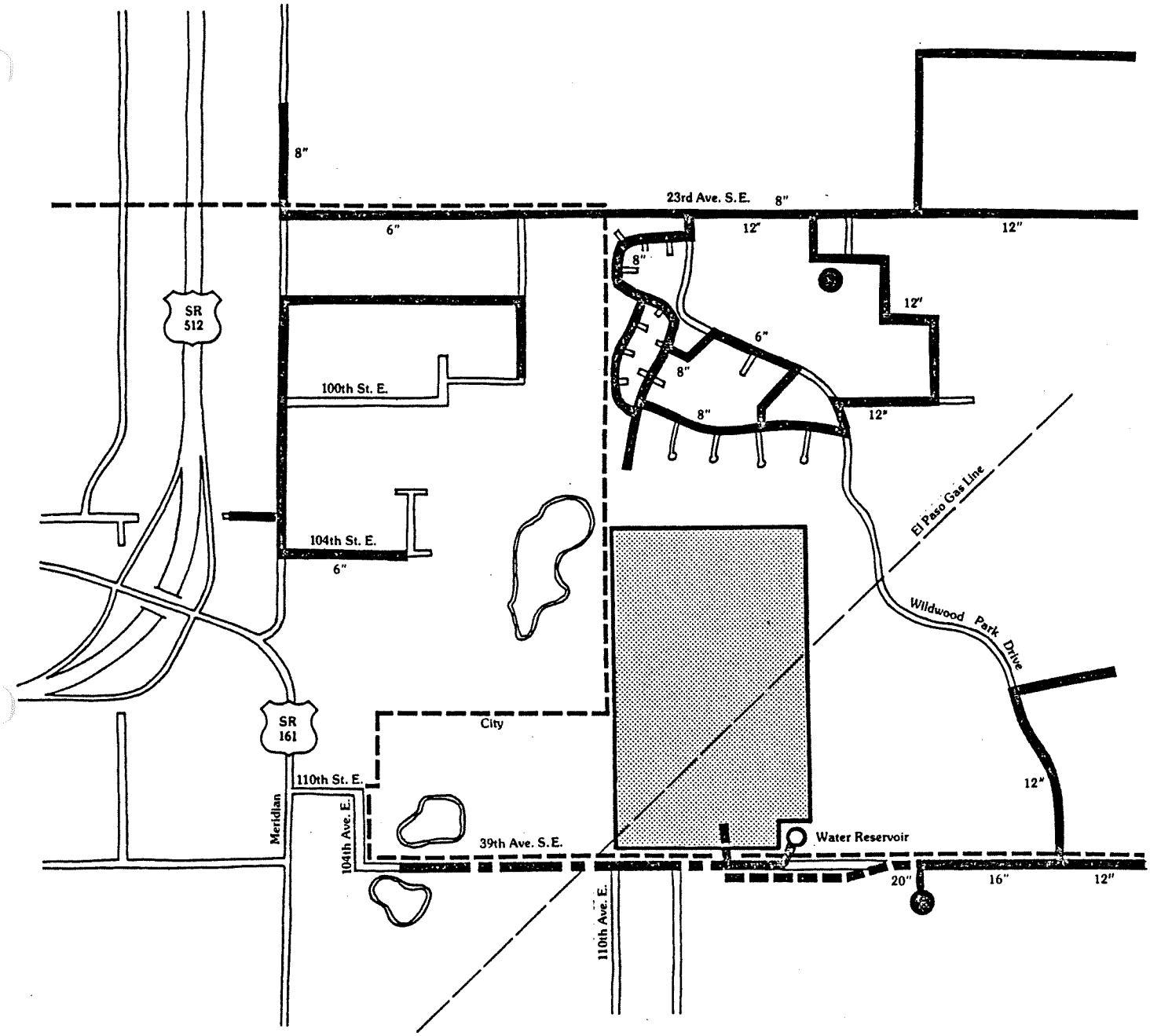
a. Existing Conditions

The City of Puyallup is the existing public water purveyor to the site. The source of water supply originates in Salmon Springs located in the City of Sumner; Maplewood Springs located in the southwest area of the city; and from three wells with pumping capacities of 400, 750 and 1000 gallons per minute. Present storage capacity within the city totals 9.9 million gallons provided by six intertied reservoirs. Four pressure zones within the city regulate adequate working pressures to the users. At present, the city water system supplies approximately 3.0 million gallons per day to users of the system. The total available water supply is 8.5 MGD. A peak daily water use was recorded in July of 1979 with consumption at 8.1 MGD. The city is currently installing water meters on all services and it is anticipated that water consumption will be reduced.

The proposed Science Park site is presently served by a 2.9 million gallon reservoir located approximately 1000 feet east of the site on the south side of 39th Avenue S.E. (See Exhibit 25). The operating level of this supply reservoir is 684 feet which will provide 60 to 100 p.s.i. water pressure for the site.

b. Impact

The water required to supply the Science Park site is based on preliminary estimates furnished by the potential user. The water use rates for the various phases of development are estimated as follows:



Legend

- Property Boundary
- City Limits
- Existing Water Service – Puyallup
- Existing Water Service – Fruitland Water District
- Existing Reservoir – Puyallup
- Existing Reservoir – Fruitland Water District
- Proposed Water Service

North

0 660 1320

Approximate Scale 1" = 1320'

Existing Water Service

Exhibit 25

Phase I - End of 1983	550 GPM, (0.8 MGD) Average Daily Flow (5 days/week, 24 Hrs./Day, 4.0 MGD/week).
Phase II - End of 1984	1110 GPM (1.6 MGD) Average Daily Flow (5 days/week, 24 hrs./day, 8.0 MGD/week).
Phase IV - End of 1990	1390 GPM (2.0 MGD) Average Daily Flow (5 days/week, 24 hours/day, 10.0 MGD/week).

The majority of water use is for rinsing and cooling with cooling water accounting for 10 to 20 per cent of the water needs. The peaking factor for water use is estimated at 15 per cent of the average daily flow rate. The water use rates, average daily flow and peak flow based on expected use for the various phases are as follows:

	Expected Average Daily Flow	Expected Peak Flow
Phase I (End of 1983)	550 GPM 0.8 MGD	630 GPM 0.9 MGD
Phase II (End of 1984)	1110 GPM 1.6 MGD	1270 GPM 1.83 MGD
Phase IV (End of 1990)	1390 GPM 2.0 MGD	1600 GPM 2.3 MGD

In order to provide service to the site a new water main will be installed between the existing reservoir and the site.

To meet the anticipated water use required by the proposed Science Park, a connection will be required to the Tacoma water system. The City of Tacoma's main transmission line lies south of the existing site. The City of Tacoma has indicated that 2.0 MGD would be available at present. The supply would not be continuous during a period of high demand, and the City of Puyallup would have to make up the difference in storage.

The water available at the Tacoma supply line would have to be pumped to the existing reservoir on 39th Ave. S.E. During periods of high water use within the Tacoma service area, the City of Puyallup would be receiving its contracted daily supply (2.0 MGD) in approximately a 16-hour period. A water use requirement of 2.0 MGD is the equivalent of 1,400 GPM for 24 hours. During periods of high use, the City of Puyallup would receive, say 2,100 GPM for 16 hours, and the storage capability of 700,000 gallons, or 0.7 MGD, would be required.

c. Mitigating Measures

To obtain a 2.0 MGD supply from the City of Tacoma will necessitate the construction of a supply line, booster station and connection to the existing reservoir to handle the Phase I development and possibly the Phase II, depending upon the supply availability. Under the Phase IV development, additional storage capability will be required.

Immediate Needs

Supply line to connect to City of Tacoma, booster station and line to connect to existing standpipe.

$750,000.00

Future Needs

Possibly as early as the end of 1984, or the end of 1990, participate in the construction of an additional storage reservoir.

$550,000.00

The city and user are currently studying the financing arrangement necessary for the construction of the required improvements.

Sources of funds being investigated to implement the improvement needs are Federal and State grants and loans, revenue bonds, general obligation bonds and local improvement districts. Potential repayment sources for loan programs or bond retirement are user fees, surcharges to user fees or an allocation of property taxes generated by the site improvements.

2. Sanitary Sewers

a. Existing Conditions

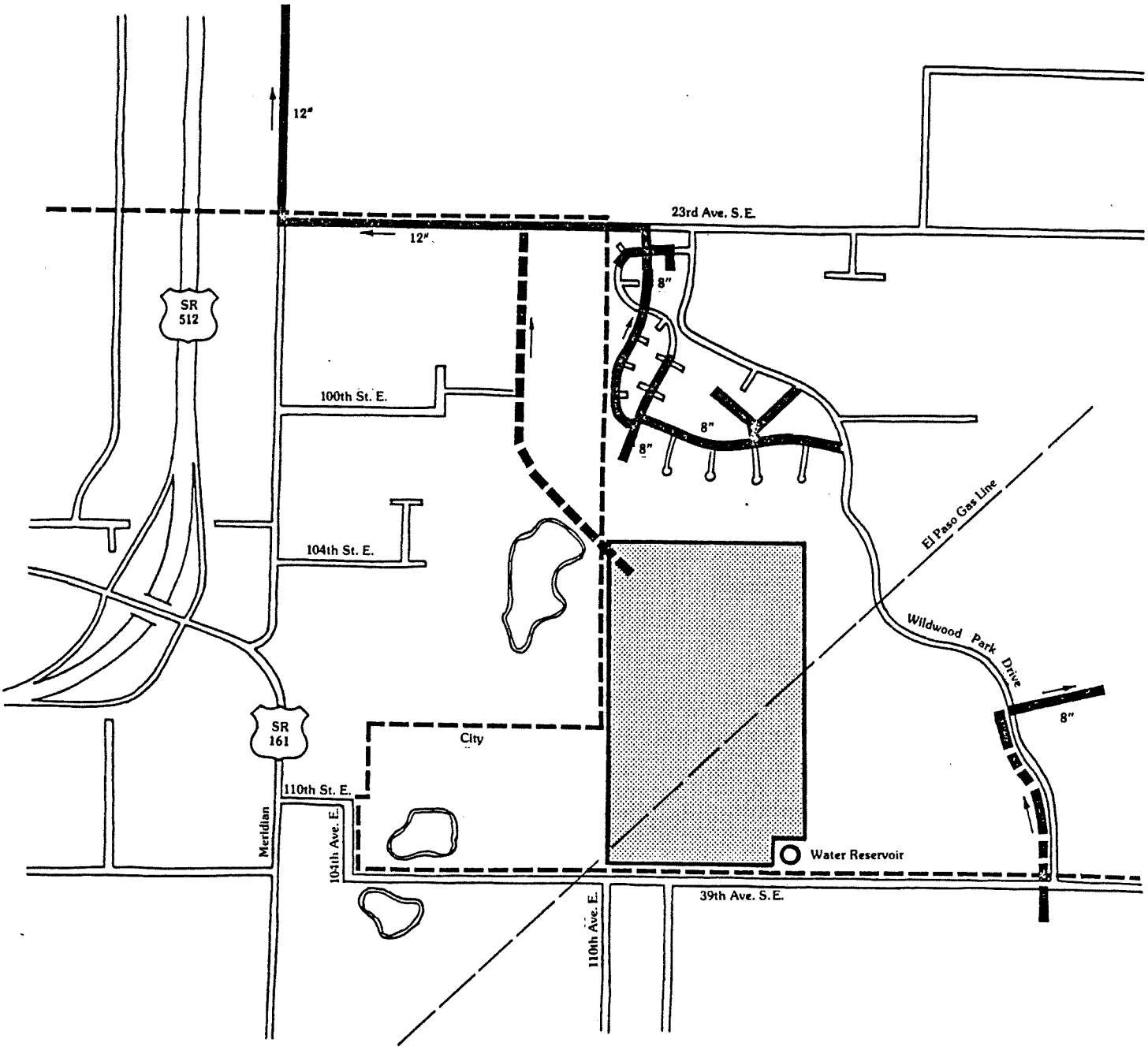
The site is serviced with a sanitary sewerage system by the City of Puyallup. An 8-inch gravity sewer line is located within Parkwood Blvd., approximately 600 feet north of the site. The 8-inch line flows northward to a connection with a 12-inch line within 23rd Avenue S.E. From this point the gravity collec-

tion system flows northwesterly, with trunk line sizing of 12, 24 and 36-inch diameters, to a lift station located at 19th Street S.W. and West Pioneer Avenue. The lift station and a 24-inch force main convey flow northerly to a 36-inch gravity line that continues northerly to the sewage treatment plant located adjacent to the Puyallup River at 21st Street N.W. See Exhibit 26.

The existing sewage treatment plant is a primary plant consisting of settling basins for removal of suspended solids. Expansion to secondary treatment with a capacity of 10.8 million gallons per day wet weather flow rate is planned in the near future. Design plans are complete for the expansion and a construction grant has been awarded. Funding is provided by the Environmental Protection Agency, the State of Washington Department of Ecology and the City of Puyallup. The location of the sewage treatment plant is 4.3 miles from the site.

b. Impact

The waste water flows from the Science Park as estimated by the potential user are at a rate of 0.9 million gallons per day (MGD) for Phase I and 2.3 MGD for Phase IV (1990). It is estimated that 90 per cent of the waste water flows will be process water utilized in the facility and the remaining 10 per cent will be domestic waste waters. Process water will receive pre-treatment in order to neutralize the acids by controlling the PH within a 6-10 range. There are no solid wastes collected from the process waste water pre-treatment. See Industrial Waste Control Section in the Appendix.



Legend

- Property Boundary
- City Limits
- Existing Sanitary Sewers
- Proposed Sanitary Sewer
- Existing Force Main

North

0 660 1320

Approximate Scale 1" = 1320'

Sanitary Sewer Service

Exhibit 26

1) Wastewater Transmission Lines

The City has completed a study of the existing sewer lines between the site and the wastewater treatment facility. The following are the results of the study:

a) The existing sanitary sewer line on 23rd Avenue S.E. from 7th St. S.E. to Meridian has a capacity of 1.7 MGD. The computed peak flow rate for the service area tributary to manhole R-12 at the intersection of 23rd Avenue S.E. and Meridian St. is 0.53 MGD. The line would just have sufficient capacity to serve Phase I, 0.9 MGD only.

b) The existing sanitary sewer line on Meridian St. has a capacity of 1.8 MGD. The computed peak flow rate for the service area tributary to manhole R-1 on Meridian St. just south of the intersection of 14th Avenue S.E. is 1.23 MGD. The line would not have capacity to serve the Phase I requirements of 0.9 MGD.

c) The existing sanitary sewer lines between Meridian St. and 5th St. S.W. crossing SR 512 on 14th Avenue S.W. has a capacity of approximately 1.8 MGD. The computed peak flow rate for the service area tributary to manhole P-1 is 1.67 MGD. The line does not have the capacity to handle the Phase I requirement of 0.9 MGD.

d) The existing sanitary sewer line on 5th St. S.W. between 14th Avenue S.E. and 9th Avenue S.W. has a capacity of approximately 1.0 MGD.

The computed peak flow rate for the service area tributary to manhole M-1 is 2.3 MGD. The line does not have sufficient capacity to handle the Phase I requirement of 0.9 MGD.

e) The existing trunk line on 9th Avenue S.W. from 5th St. S.W. to 14th St. S.W. on 9th Avenue S.E. is a 24" line with an average capacity of approximately 5.16 MGD. The line serves the majority of the existing corporate limits up to East Main St. The line was found to be surcharged during the sewer system evaluation survey, and excess capacity is not available. The computed peak flow rate for the existing service area tributary to manhole N-1 is 4.96 MGD. The line does not have sufficient capacity to handle the Phase I requirement of 0.9 MGD.

f) The existing 36-inch trunk line to the 19th St. and West Pioneer Lift Station has an average capacity of 10.5 MGD. The tributary area to this line is not fully developed and it is our opinion at this time that this 36-inch line from manhole L-7 to manhole L-1 has adequate capacity to temporarily handle the Phase I requirement of 0.9 MGD.

g) The existing Sewage Lift Station at 19th St. and West Pioneer has a design capacity of approximately 9.0 MGD. During periods of high rainfall the station runs continuously. In December of 1980 peak flow of approximately 13 MGD was recorded at the existing Treatment Facility; the majority of this flow is anticipated to occur in the service area tributary to

the 19th St. Lift Station. The existing infiltration and inflow removal to include roof drain removal is not complete at the time. Even if the program is entirely successful, the first Phase flow rate of approximately 0.9 MGD only, as anticipated, could be handled. The Lift Station would require enlargement for the Phase II and IV flow rates.

h) The existing 36" gravity trunk line from the terminal manhole for the 24" force main from the 19th St. S.W. and West Pioneer Lift Station (manhole A-15) northerly on 21st St. N.W. to the Treatment Facility has a capacity of approximately 15.3 MGD. This line would have sufficient capacity to serve the Phase I, II and Phase IV flow rates provided the tributary service area within the corporate limits is not fully developed.

The following are construction estimates excluding engineering, administration and contingency costs for transporting the wastewater generated at the proposed facility to the existing wastewater treatment plant site:

New Gravity Transmission Line to the 19th St. S.E. and West Pioneer Lift Station Site
$1,500,000.00

Increase Lift Station Capacity and Construct a Second Force Main to the Existing Gravity Sewer
$ 400,000.00

* Note: For Phase I the existing sewage lift station capacity need not be increased.

2) Wastewater Treatment Facility

The proposed wastewater treatment facility is designed to serve the existing corporate limits of the City of Puyallup, including a portion of the county area. In the State of Washington the Department of Ecology administers the grant program and issues what is termed a "State Waste Discharge Permit." The Permit covers industrial users discharging to a municipal sewer system. The State of Washington Department of Ecology also issues "National Pollutant Discharge Elimination System" (NPDES) Permits; the NPDES Permits cover the discharge to state waters. The proposed user will be required to obtain either or both of these permits from the Department of Ecology.

The State of Washington, Department of Ecology, Southwest Regional Office recommends that an Engineering Report be provided by the industry to determine the type of waste and the effect of the wastewater on the proposed treatment facility biological processess and alternative methods of handling wastewater. The proposed treatment facility covered by the existing grant did not include provisions to treat an industrial discharge of 2.0 MGD, which is greater than 40 per cent of the design average daily dry weather flow. The City of Puyallup will be required to provide wastewater treatment to the service area designated in the Facility Plan approved by the E.P.A. and the State D.O.E. and cannot deny service.

The proposed Treatment Facility is designed to serve the study area for a ten year period. The Treatment Facility is designed to provide secondary treatment for the average daily dry weather flow of 4.8 MGD described in the EPA regulations, Volume 30, 40 CFR. The plant is also designed to provide a treated effluent during wet weather not to exceed 30 milligrams of BOD_5 and suspended solids for a 30-day average for a wet weather flow rate of 10.8 MGD.

The first alternative (a) consists of possible pre-treatment at the site and transmission to the wastewater Treatment Facility for eventual treatment and discharge to the Puyallup River. The costs of wastewater transmission was previously discussed. The cost of wastewater treatment cannot be ascertained at this time until the question of waste compatability with the treatment process is determined.

The City's Engineering Report found a large amount of infiltration and inflow in the sewer system. The City and the regulatory agencies have expended a considerable effort in removing excess water to the sanitary sewer system. The wastewater from the site may be able to be pretreated and discharged directly to the Puyallup River, thereby eliminating the wastewater treatment plant handling of the process and cooling waters. This alternative (b) also cannot be determined until the nature and characteristics of the wastewater to be discharged are known.

Alternative (b) may not require treatment plant increased capacity and only a discharge to the Puyallup River. A transmission line from the proposed development site to the Puyallup River east of SR 512 is estimated to cost $1,100,000.

Under alternative (a) or (b), any method the user can adopt to reduce wastewater discharge and water consumption will be most beneficial in the long term. The alternatives cannot be fully evaluated until the type of wastewater, the nature and characteristics of the flow stream, and its effect on the proposed treatment process can be determined and evaluated by the Department of Ecology.

c. Mitigating Measures

The City and user are currently studying the methods of financing required for construction improvements for alternatives (a) or (b) wastewater transmission lines. The cost of wastewater treatment is unknown until the Engineering Report is submitted to the Department of Ecology and a determination is made as to the point of effluent discharge.

Sources of funds being investigated for capital improvement projects are Federal and State grants and loans, revenue bonds, general obligation bonds and local improvement districts. Possible repayment sources for loan programs or bond retirement are user fees, surcharges to user fees or an allocation of property taxes generated by the site improvements.

3. Energy

The project will be served by both natural gas and electricity. Current industrial power usage, heating and lighting are provided by a combination of the two energy sources. See Exhibit 27.

It is likely that when the project is completed in 10 years, there may be some severe changes in both the energy supply and the methods available for heating, lighting and industrial power consumption. It is entirely possible that there will be trends towards individual sources of power supply.

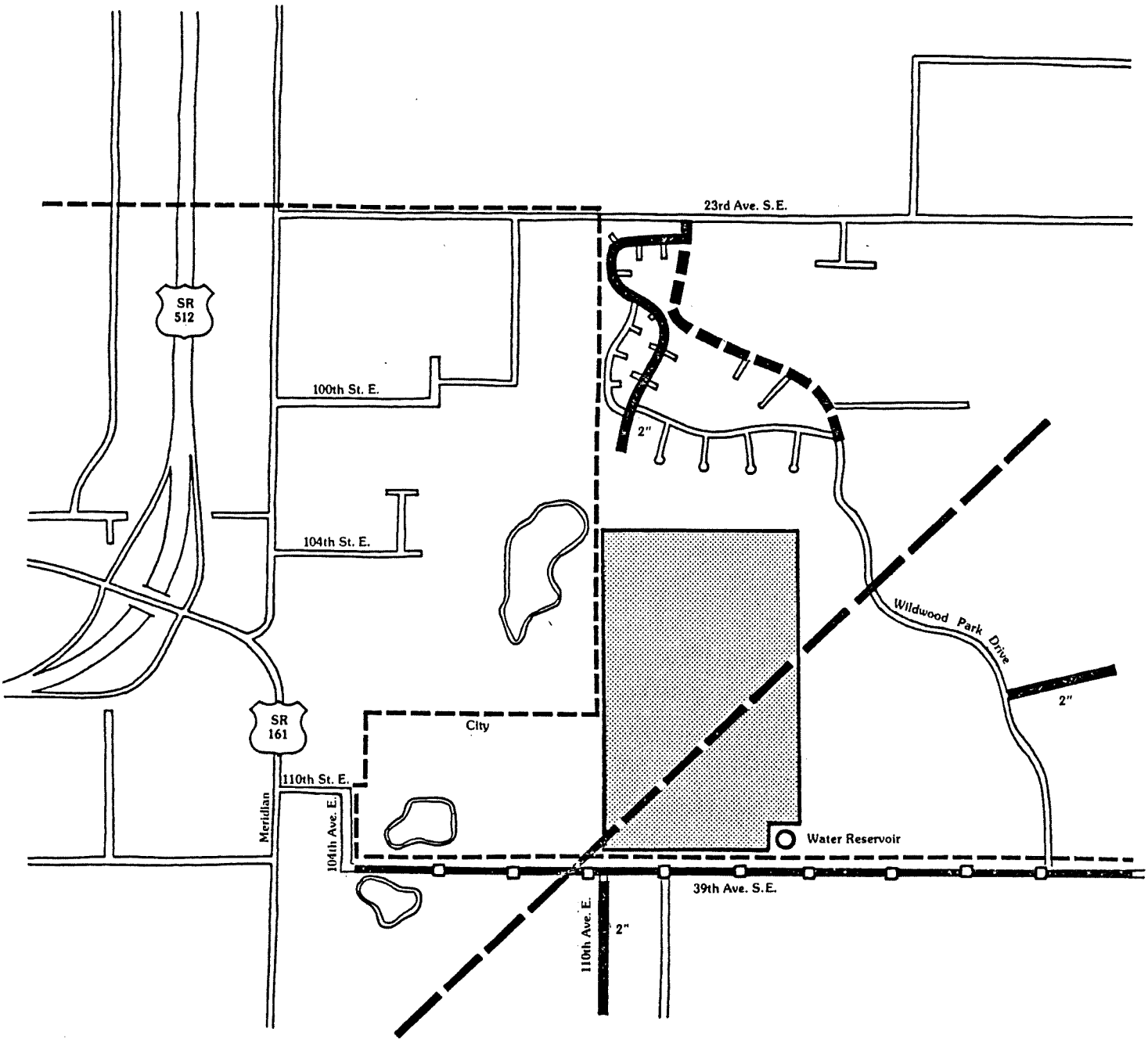
Methods available in the future could include heat pumps, solar heating, electrical generation, wind generated electricity, better insulation and construction standards, and other methods not yet developed. As these methods become commercially available, they will be reviewed and incorporated into future development.

Current plans for an energy efficient facility include an energy conservation program which will be integrated into the planning and design of the project. This program will include:

- Building siting, configuration and fenestration will respond to the principles of energy conservation and efficiency.

- Building materials will be selected with energy conservation, maintenance and weather-ability as a main priority.

- Utilization and selection of high energy-efficient plant components.



Legend

- Property Boundary
- City Limits
- Power Lines – 115 KV & 12.5 KV
- Northwest Pipeline – Transmission
- Washington Natural Gas – Service Lines
- Pacific N.W. Bell – 400 pair cable

North

0 660 1320

Approximate Scale 1" = 1320'

Other Existing Services and Facilities

Exhibit 27

4. Natural Gas

a. Existing Conditions

Washington Natural Gas Company has available service from three locations situated to the north, east and south of the proposed Science Park. More specifically they are: 1) to the north, a two-inch main at the southern terminus of Parkwood Blvd., 2) to the east, a two-inch main at the intersection of Manorwood Drive and Wildwood Park Drive, and 3) to the south, a two-inch main at the intersection of 110th Avenue Court East and 112th Street East.

In addition to the above available distribution mains, a major natural gas transmission line crosses the site. The line is owned by Northwest Pipeline Corporation.

b. Impact

Natural gas will be used to heat structures. Preliminary estimates of the natural gas required for the site is 415,000 therms annually. Provision is currently available in the area.

The underground installation of gas mains to service the site will result in the displacement of soil, an increase in the possibility of wind or water erosion, and a slight increase in ambient noise levels during construction.

c. Mitigating Measures

The placement of underground gas mains to service the site will be confined to existing or proposed right-of-ways, avoiding unnecessary clearing. Con-

struction techniques, such as covering or wetting the trench area, will mitigate the wind blown or water erosion of the soil. Effective mufflers on construction equipment will mitigate noise levels during construction. The building design will incorporate energy conservation measures. (See Energy, page 154.)

5. Electricity

a. Existing Conditions

Puget Sound Power and Light Company has recently installed an overhead 115,000 volt transmission line within 112th Street East. The line will be energized in the near future. Local distribution or feeder lines at 12,500 volts are carried on the same pole line.

b. Impact

In order to accommodate the proposed Science Park, a connection to the transmission line in 112th Street will be necessary. From the point of connection, an overhead power line will be carried to an on-site substation approximately 0.5 acres in size. From the substation, underground distribution lines will service the facility.

It is estimated that the power requirements for the Science Park will be initially in the range of 7000-7500 KW for and the full development, 14,000-15,000 KW. This electrical requirement will be available when the system in 112th Street is energized.

The addition of the Science Park into the service area of Puget Power will contribute to the electrical

demand of the overall service area. The present generating capacity of the power companies will be adequate to serve this development. However, the company does not guarantee the future availability of power in the nine county service area, as present projections for continued growth in the area indicate potential problems in keeping up with the cumulative demand for electrical service.

c. Mitigating Measures

The cost of energy related to sales is less than 5% in the semiconductor industry, as compared to 30% in the aluminum and other industries. It is a fact that the use of solid state semiconductors saves energy by reducing consumption. A good example of this is the computer industry. Power consumption has been reduced by a factor of 100 over the last 20 years and by a factor of 10 in the last 10 years from the "building sized computers" to the small desk top computer.

Reduction of electricity consumption will come primarily from technology changes which will be implemented as they become commercially available. The placement of overhead power lines to the on-site substation will be incorporated into the site design. The line will be placed in the access roadway corridor or adjacent to the cleared gas line easement in order to mitigate the amount of tree clearing.

The substation site will be sited where a minimum of clearing and grading is required. It will be landscaped to mitigate visual impacts.

Puget Sound Power and Light Company may consider a contract for interruptable power service to the site. A

contract of this type will help mitigate the peak demands for electrical energy during 1) cold weather, 2) low hydro generation years, and 3) inability of the power company to obtain power from other regions. Standby power facilities may be considered for incorporation into the proposed facility.

An energy conservation program will be integrated into the planning and design of the project. (See Energy, page 154.)

6. Communications

a. Existing Conditions

Pacific Northwest Bell has an existing 400 pair cable within Wildwood Park Drive, running southerly from 23rd Avenue S.E. and terminating at the intersection of Rainier Blvd. Service can be underground to the site by continuing southerly along Wildwood Park Drive to the Northwest Pipeline easement, and then southwesterly within or adjacent to the easement to the site. Pacific Northwest Bell will be capable of initial service to the site. Current planning and upgrading of telephone service to the general area is occurring at this time.

b. Impact

Underground telephone service would be provided during the road and utility phase of the project. The impacts of installation will be the same as for the other energy utilities.

c. Mitigating Measures

See mitigating measures for natural gas.

G. Aesthetics

1. Existing Conditions

The character of the site is derived primarily from the aesthetic quality of the varied plant materials and slightly undulating topography. The deciduous trees and shrubs provide a variety of interest typical of second growth Pacific Northwest woods. Stands of conifers create a striking contrast in color, texture and form to the shrubby, open branching and grey bark of the alders. The conifers, when massed, form a rich dark green background for the deciduous trees and shrubs, particularly during winter months when branching patterns can be appreciated. The site, in a regional sense, can be considered a visually pleasing area, containing all the elements of a wooded natural resource. The combination of topography and varied plant materials create a site of average interest.

Although not the highest point on the site, the upper reaches of the west pasture provide the best view of distant wooded areas broken by development and adjacent ponds. This is the only area of the site with a distinctively different character. Here the native grasses in an open expanse contrast sharply with the denser areas along the perimeter.

There is no year-round water element present on the site, though topography creates drainage pockets which hold water during the wet seasons. There are no other naturally occurring dominant or distinctive site features.

A buried gas line transects the site from the southwest to the northeast. A 50-foot swath of cleared trees resulting from construction of the line is the major alteration to the site.

On northern portions of the site considerable debris and garbage have been deposited, creating often unsightly disturbances in what is otherwise a naturally attractive landscape.

2. Impact

Construction of the proposed project will eliminate portions of the existing natural vegetation. Any change in grade necessary for construction of buildings and roads will be minimal.

The site plan which will be implemented by the year 1990 includes five buildings in a campus-like setting. The two-story structures will be constructed of concrete and painted. A 150,000 square foot building will be completed by 1982 and by 1990 there will be a total of 520,000 square feet of building space constructed. All windows will be of non-reflective glass. The zoning codes of the City of Puyallup will be adhered to throughout the design of the science park. A Conceptual Master Plan is presented in Exhibit 4. Refinement of the master plan will continue as the project develops.

The ratio of parking space to the total square footage of building size will be 1.1

For each building there will be a tower rising to a height of 8 to 10 feet above the height of the two-story building. The towers will be used for air intake and to exhaust used air. They will be built of concrete or brick. Because of the tall fir and other vegetation that will remain on the site, their presence will not be isolated nor dominate the skyline.

A buffer of trees and other vegetation of approximately 75 feet will completely surround the complex and retain the natural quality of the site and the vicinity. The overall development of the science park will remain restrained and visually integrated into the existing natural character of the area.

3. Mitigating Measures

Because between 40 to 45% of the site will remain undeveloped or be planted with new growth, the impact of development will not be adverse and will, in fact, serve to improve some characteristics of the site. The swath of cleared land along the path of the gas line will be eliminated either by a structure or by new landscape plantings. The debris strewn along northern portions of the site will be removed and further dumping will cease when the property is no longer vacant. Development of the property will end the illegal cutting of trees and improve the overall aesthetic value of the natural vegetation through regular maintenance.

The planned buffer will reduce visual access to the buildings. The character of the proposed development will be that of buildings located in a park-like natural setting. From adjacent properties, only trees and vegetation in the buffer area will be immediately visible, and only sporadic deliveries by trucks will reveal the industrial nature of the operation.

H. Archaeological/Historical

1. Existing Conditions

The Washington Office of Archaeology and Historical Preservation is presently investigating the proposed project site for any indication of ethnographical, historical, or archaeological value. See Letter of Request in Appendix. A preliminary investigation of the project area by Ms. Sheila Stump at the office in Olympia revealed that the site is not known to hold any ethnographical, archaeological or historical elements. There are ethnographic sites to the south and east of the project area, thus requiring further investigation to confirm that the site is free of the resource. The Office of Archaeology and Historical Preservation will prepare and submit a final written report when its investigation has been completed.

2. Impact

Prior disturbances on the site, consisting of the construction of the El Paso gas line, logging, and grazing activities, have not yielded any archaeological or historical finds. It is unlikely that the development of the site will unearth any of these resources.

3. Mitigating Measures

If at any time during site preparation activities, archeological materials are unearthed, it will be necessary to suspend all work and contact the Office of Archaeology and Historical Preservation. They will then investigate the find to determine appropriate mitigation measures and alternatives.

I. Human Health

1. Existing Conditions

There are no elements on the site which pose a serious threat to human health and safety. The El Paso gas line presently running through the site most likely conforms to typical construction criteria for such installations. There are, however, random piles of debris and garbage in the northern part of the site which could be considered a minor health hazard.

2. Impact

The proposed development and occupancy of the site offers the promise of a maintenance plan that would include cleanup of the debris and stoppage of indiscriminate disposal.

The Puyallup Science Park facility will utilize a variety of potentially hazardous chemicals. These include process gases such as hydrogen, silane, oxygen, arsine and phosphine. Several flammable liquids and acids are also utilized in the semiconductor process. These include acetone, isopropyl, alcohol, xylene, hydrofluoric acid, sulfuric acid, and hydrochloric acid. In all, aproximately 25 different chemicals are employed in the manufacturing process.

3. Mitigating Measures

The proposed site user maintains a safety and environmental manager and staff which includes safety engineers. An extensive safety and training program is employed to reduce risks and prevent accidents.

All gases are stored in proper cabinets equipped with ventilation and sprinkler systems. Piping for hazardous gases is non-seamed with welded fittings to prevent leaks into the atmosphere and create a closed system. Monitoring systems capable of detecting minute leaks and triggering alarm systems add additional protection.

The hazardous substances are handled properly. They are stored in approved safety containers and recovered for proper disposal. All exhausted air is washed with scrubbers which are discussed under air quality. Fluoride and solvent wastes are collected and removed by a private contractor who is certified to handle these wastes and meets all state and federal rules and regulations.

All personnel receive proper training and safety codes are strictly enforced. This includes compliance with all national, federal and state standards and current building codes.

For an outline of a report on the in-house corporate safety policies and program see Appendix 9.

VII. RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES AND MAINTENANCE OF LONG-TERM PRODUCTIVITY

The implementation of the proposal will irreversibly commit the site to long-term office and industrial land uses. While buildings could be renovated and parking areas could be removed in the future, redevelopment of the site would probably occur for industrial purposes. ~~Any~~ future site uses, unless related to the proposed use, will be precluded when the project is completed. Long-term environmental losses include the loss of open space and native undergrowth, elimination of habitat for wildlife, and a minor decrease in the quality of air and storm water runoff. Similar environmental losses would occur with other types of development.

The site is undeveloped and has been logged in the past. Until it is developed, its potential for any contribution towards long-term economic productivity is extremely limited. Delay in implementing the project would reduce the probability that development for a science park will ever occur and it may limit the rate of long-term economic growth of the city. If the proposal is not implemented, the development alternatives described in Section IX would remain available as potential uses for the site.

Permanent commitments of energy or other natural resources are not required as a result of the site's current use. Implementation of the proposal will require that energy sources be utilized on a permanent basis. Projected expenditures of these sources are discussed in Section VI. E, Utilities and Energy.

VIII. UNAVOIDABLE ADVERSE IMPACTS

Adverse impacts which cannot be completely mitigated if the proposed development concept is implemented are as follows:

A. Phyical Environment

1. Earth

- o Alteration of existing soil profiles due to excavation for building foundations and regrading for accessways and parking areas.
- o Increased erosion potential.

2. Air

- o Short term changes in particulate levels during construction phases.
- o Increased vehicle air pollutant emissions. VOC levels may reach 0.2916 tons per day by 1990.

3. Hydrology and Drainage

- o Increased quantities of surface water runoff due to increased impervious surface areas.
- o Some contaminants in the surface water runoff will enter the storm drainage system and possibly the ground water system.
- o Less runoff will be available for recharging subsurface aquifers.

4. Vegetation

- o Removal of natural vegetation from construction areas; 55% of the site will be retained as open space with native vegetation and/or landscaping.

5. Wildlife

- o Loss of habitat for most resident and transient animal species.

6. Noise

- o Slight to moderate increases in traffic noise, noise impacts on residences near the site entrance, the introduction of some potentially significant industrial noise, and temporary construction noise are considered unavoidable.

7. Light and Glare

- o Increased levels of internal and external illumination.

- o Increased relfective surface areas.

8. Land Use

- o Reduction in the amount of land available for residential uses.

9. Natural Resources

- o None.

B. Human Environment

1. Population and Employment

- o None.

2. Housing

- o Increased demand for existing available housing.

3. Tax Impact

- o None.

4. Transportation

- o Approximately 6,300 vehicle trips per day will be generated.
- o Increased congestion will occur on Meridian Avenue principally north of 110th St. east and on 39th Avenue, west of Wildwood Park Drive.

5. Public Services

- o None.

6. Utilities and Energy

- o Increased demand on existing energy sources.
- o Increased demand on sewerage treatment facilities.

7. Aesthetics

- o Change of the aesthetic quality from undeveloped to developed.

8. Archaeological/Historical

- o None.

8. Human Health

- o None.

IX. ALTERNATIVES

Section 12 of WAC 197-10-440 requires that reasonable alternatives to the proposed development be analyzed in order to identify adverse environmental impacts that would be associated with each alternate use. The purpose of this analysis is to "permit a comparative evaluation of each alternative and the proposal". Four are discussed below.

Single Family Residential District

Multiple Family Residential District

"No Action"

Development on another site

A. Single Family Residential District

Maximum single family residential development density could be achieved under the RS-1 zoning restrictions. The City of Puyallup Zoning Code requires a minimum lot size of 10,000 square feet for each residence, permitting approximately 300 homes. Population of the site would be approximately 774 based on the area's 1978 average 2.58 persons per household.

Adverse environmental impacts from this alternative would be as follows:

- o An increase in impervious surfaces resulting in increased surface water runoff and reduced recharge of ground waters.
- o A loss of potential open space amenities.
- o An increased demand for public services, particularly schools.
- o An increased loss of wildlife habitat.

Approximately 40% of a minimum size residential lot would be covered by surfaces that are impervious to water absorption. These surfaces plus those used for roadways would produce a site coverage of 47.5% versus a proposed ground coverage of approximately 35% by 1990. Open space would be 52.5% and 65% for single family residential development and the proposal respectively.

Unless a single family housing development is planned at a lower density with areas of community open space preserved, residential development would impact the wildlife habitat more significantly than the proposed development.

B. Residential Buffer District

If the site were to be developed in accordance with a RB zoning designation, a maximum of 2,176 dwelling units could be constructed. Population of the site would be approximately 5,600 if the maximum density development were permitted.

Adverse environmental impacts of this alternative would be essentially the same as for the single family alternative, except that the traffic impact would be greater than the impact projected for the user. The severity of the impacts would be more severe than that which would result if the proposal were implemented.

Traffic volumes and the associated air pollutant emission and noise levels would be greater. Based on an average of 7.2 vehicle trips per day per unit for condominiums and 10.0 for single family, a daily traffic count of nearly 19,000 could be expected.

Impervious surfaces would cover approximately 68% of the site while 32% of the site would be used as open space.

Demand for public services, especially schools and utilities service would be significantly greater than for the single family alternative.

C. No Action Alternative

The "no action" alternative would retain the site in its present undeveloped condition. Traffic and utility impacts would be forestalled most probably until after road, sewer and other improvements had been made. The alternative would result in a potential loss of at least $77 million in local tax base and an ultimate employment of 3,000 persons. There would be no adverse environmental impacts.

D. Development on Another Site

Many alternative sites were evaluated in the Puget Sound Region. These other sites were considered unsuitable for six major reasons:

1. The sites were in heavy industrial districts that generated vibration. No vibration can be tolerated by the equipment used in the manufacturing processes proposed.

2. Several sites were near rail tracks that also generate vibration. See Item 1. above.

3. Many sites had severe soil or foundation problems.

4. Some sites were located in 100 year flood plains.

5. A considerable number of sites were too small and efforts to aggregate smaller parcels were not satisfactory.

6. Most importantly, many sites were not within close proximity to an adequate labor market.

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2. Draft Environmental Impact Statement, Wildwood Downs, prepared by J.J. Sleavin & Associates, Inc., 615 South 9th, Tacoma, Washington 98405.

3. Draft Environmental Impact Statement, South Hill Plaza, Pierce County Planning Department, 930 Tacoma Avenue South, Tacoma, Washington 98402.

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5. Washington Department of Ecology, State Air Monitoring Data for 1979 - June 1980.

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APPENDIX

APPENDIX 1

Chapter 20.16

RS-1 RESIDENTIAL SINGLE FAMILY DISTRICT

Sections:

20.16.010 Permitted uses. Uses permitted shall be as follows:

Single-family dwellings;
Noncommercial gardens;
Noncommercial greenhouses. (Ord. 1393 Art. IV §1(part), 1962).

20.16.020 Conditional uses. Conditional uses shall be as follows:

(1) Public parks, subject to the following conditions:

A. No permament bleachers or stadiums are permitted if the site is less than ten acres, and no public amusement device for hire is permitted.

B. Lights provided to illuminate any recreation area shall be so arranged as to reflect light away from abutting private property.

C. Every building or structure shall maintain a distance of not less than forty-five feet from any park property line.

D. Off-street parking shall be provided as required by the commission and shall be adequately screened to prevent lights from shining into residential property.

(2) Golf courses:

A. Every building or structure shall maintain a distance of not less than forty-five feet from any property line.

B. Off-street parking shall be provided for a minimum of sixty cars, and shall be adequately screened to prevent lights from shining into residential property.

C. No lighted or flashing signs shall be permitted.

(3) Public schools, subject to the following standards and provisions:

A. Minimum site areas:

elementary schools	10 acres
junior high schools	20 acres

senior high schools	35 acres
junior colleges	40 acres

B. No building or structure shall be built closer than forty feet to any property line.

C. All buildings, including accessory buildings and structures, shall cover not more than twenty-five percent of the total site area.

D. All off-street parking requirements shall be complied with.

(4) Churches, subject to the following conditions:

A. All buildings on the site shall cover not more than thirty-five percent of the total site area.

B. No building or structure shall be built closer than thirty-five feet to any property line.

C. Where areas devoted to off-street parking about any "R" zoned property, a solid wall or view-obscuring fence or hedge not less than fifty-four inches nor more than six feet in height shall be maintained on the common property line abutting such "R" zoned property. There shall be one car space for each four seats, a minimum of twenty off-street car spaces.

(5) Libraries, subject to the following conditions:

A. Minimum site area shall be one acre.

B. Off-street parking shall be provided for a minimum of twenty cars, and shall be adequately screened to prevent lights from shining into residential property.

C. Minimum building line setback: Thirty-five feet.

(6) Public utility uses, subject to approval of the planning commission.

(7) Hospitals (not to include hospitals for the treatment of mental disorders or alcoholism) on tracts five acres or larger, subject to approval of the planning commission. In determining the adequacy of required hospital tracts, noncontiguous areas separated only by a dedicated city street from the property on which the main hospital buildings are located may be included, but the use of such noncontiguous areas shall be restricted to parking purposes.

(8) Private schools with an enrollment under one hundred pupils to be granted conditional permits with specific provisions, by the planning commission. Schools with an enrollment over one hundred pupils are to be considered the same as public schools. (Ord. 1431 §1, 1964; Ord. 1393 Art. IV §1(part), 1962).

20.16.040 Lot area. Minimum lot area shall be as follows: Ten thousand square feet. (Ord. 1393 Art. IV §1(part), 1962).

20.16.050 Yard requirements. Minimum yard requirements shall be as follows:

Front: Twenty-five feet except when abutting an arterial street, then thirty-five feet.

Side: Eight feet for the front seventy-five feet abutting a side property line. On corner lots, the side yard abutting a street shall have the same requirements as the front yard.

Rear: No residential structure shall be built within twenty-five feet of the rear property line. (Ord. 1393 Art. IV, §1(part), 1962).

20.16.060 Lot coverage. Maximum lot coverage shall be as follows: Thirty percent of total area (not to apply to swimming pools). (Ord. 1393 Art. IV §1(part), 1962).

20.16.070 Height. Maximum heights shall be as follows: Twenty-five feet. (Ord. 1393 Art. IV §1(part), 1962).

20.16.080 Off-street parking. For off-street parking provisions, see Chapter 20.60. (Ord. 1393 Art. IV §1(part), 1962).

APPENDIX 2

Chapter 20.48

I INDUSTRIAL DISTRICT

Sections:

20.48.010 Permitted uses. Uses permitted shall be as follows:

(1) All uses permitted in the Commercial District;
(2) Automobile body and fender shops;
(3) Automobile painting, provided all painting, sanding and baking shall be conducted wholly within an entirely enclosed building;
(4) Bakeries, wholesale;
(5) Battery rebuild;
(6) Book binding, newspaper printing;
(7) Bottling plants, creameries;
(8) Broom and brush manufacturing;
(9) Cabinet shops, carpenter shops;
(10) Carpet and rug cleaning plants;
(11) Ceramic products, manufacture of (except brick);
(12) Clothes cleaning plants;
(13) Distributing plants (jobbers);
(14) Dog pounds;
(15) Draying, freight or trucking yards or terminals;
(16) Electrical appliance, manufacture and assembly of;
(17) Electrical neon sign manufacture;
(18) Fuel yards, lumber yards;
(19) Food products manufacture, storage, processing, canning, packaging;
(20) Pharmaceuticals, manufacturing, processing, packing and storage of, including drugs, perfumes, toiletries and soap (cold mix only);
(21) Prefabricated buildings, manufacturing of;
(22) Storage yards, building materials contractors;
(23) Tile, manufacture of wall, floor and small tile products;

(Puyallup 7/17/72)

(24) Tinsmith;
(25) Truck repairing, overhauling, rental;
(26) Warehousing;
(27) Wrecking yards. (Ord. 1393 Art. IV §9(part), 1962).

20.48.020 Conditional uses. Conditional uses shall be as follows:
Foundry, heavy machine shop;
Heavy manufacturing;
Breweries, distilleries;
Incinerators;
Trailer park or trailer court. (Ord. 1568 §2, 1970; Ord. 1393 Art. IV §9(part), 1962).

20.48.040 Lot area. The minimum lot area shall be as follows: Six thousand square feet. (Ord. 1393 Art. IV §9(part), 1962).

20.48.050 Yard requirements. Minimum yard requirements shall be as follows:

Front: Twenty-five feet from front property line abutting a public right-of-way line.

Corner: Twenty feet from side property line abutting a public right-of-way line. (Ord. 1393 Art. IV §9(part), 1962).

20.48.060 Floor area ratio. The maximum floor area ratio shall be as follows: 3.5. (Ord. 1393 Art. IV §9 (part), 1962).

20.48.070 Off-street parking and loading. For off-street parking and loading requirements, see Chapter 20.60. (Ord. 1393 Art. IV §9(part), 1962).

CHEMECOLOGY CORPORATION
690-B Garcia Ave
Pittsburg, CA 94565
415-439-5766

FIELD DATA SOURCE TEST

Prepared for _____

Attention: J. Mike Stevenson
Plant and Facilities Maintenance Manager

Regarding: Testing of Savco and Ceilcote Scrubber Units

Regulatory Agency: Bay Area APCD

Purpose: Primary Data

Test Date: 10-7-80

Unit Tested: Savco Scrubber and Ceilcote Scrubber

Report Number: A-1017

Reviewed By: _____
CHEMECOLOGY CORP.

PARTCULATE EMISSIONS

Ref: EPA, Code of Federal Regulations, Part 60, Chapter 1, Method 5
: ASME Performance Test Code #27, N.Y., 1957
: Bay Area APCD, Source Test Manual, revised
: Los Angeles APCD, Air Pollution Test Manual, L.A., Calif., Nov. 1963.

SAMPLING PROCEDURE:

The apparatus consisted of a Vicor nozzle, heater wrapped Vicor probe and Vicor section containing the tared filter medium (See data sheet). A series of impinger-absorbers (See data sheet for type and contents) were connected in tandem and immersed in ice. The absorption train was followed by a gas drying tube containing indicating silica gel, an aspiration pump, dry test meter and a calibrated restriction orifice fitted with a Magnehelic differential pressure gage.

Duct conditions were monitored throughout the sampling period with a type "S" pitot tube and thermocouple simultaneously positioned at the traverse point. Conditions at the sampling apparatus and metering device were constantly monitored and regularly recorded on the data sheet.

On completion of sampling the apparatus was removed, sealed from possible contamination and transported to the laboratory. Replicate samples were taken as indicated by the data sheets.

ANALYTICAL PROCEDURE:

The volume increase of the impingers was measured and recorded for calculation of percent water.

The filter section was recovered, placed in a 105°C drying oven and desiccated to constant weight. The weight increase was determined and recorded from tare weights.

Dust was removed from all glass prior to the filter section with distilled water, acetone and a rubber policeman. A tared beaker was used for subsequent evaporation, desiccation and weight determination.

MOLECULAR WEIGHT AND PERCENT WATER

SAMPLING PROCEDURE:

A stainless steel probe with small wool plug was inserted into the duct. A condenser and drying tube were attached, followed by a sample container consisting of an evacuated bladder within a modified desiccator. The sampling lines were flushed with sample, then the bladder was filled by applying vacuum to the space between the inner desiccator wall and the bladder.

ANALYTICAL PROCEDURE:

The bladder was analyzed by Orsat for dry percent CO_2, O_2 and N_2. The bu of the analyzer was flushed with sample then filled at ambient temperature and pressure. Carbon dioxide was determined by absorption in potassium hydroxide; oxygen in Oxsorbent; carbon monoxide in Cosorbent and nitrogen by

difference. Replicate runs were made until agreement was reached.

PERCENT WATER:

1. Procedure: (EPA, Method 4)

A tared condenser and drying tube were inserted in place of the spent molecular weight apparatus. Where possible the probe was heated above 225°F. A meter was attached downstream of the pump. Sampling was maintained at a constant rate of approximately 0.2 CFM. Percent water was determined by the increase in weight at the condenser and drying tube plus the meter data.

DATA AND RESULTS:

Site: Wing A

Date: 10-7-80

Run: #1

Time: 10:53

Absorber Type	Contents	Final Wt.	Tare Wt.	Net Grams
#1 Lg. Grnbrg. Smith	H_2O	114	100	14
#2 Sm. Grnbrg. Smith	H_2O	54	50	4
#3				
liquid trap	empty	0	0	
drying tupe	silica gel	265	250	15
			TOTAL	33.

Filter Sample: Type Glass Flat Filter #1a*

Sample Fraction	Final Wt.	Tare Wt.	Net mgram	Co
Flat Filter	0.5297	0.5247	5.0	8.1×10^{-4}
TOTAL			5.0	8.1×10^{-4}

Gas Composition: @ 1130

CO_2 0.4 % volume(dry)

O_2 19 % volume(dry)

CO ____ % volume(dry)

N_2 80.6 % volume(dry)

H_2O 1.6 % volume(dry)

MW (wet) 28.67

Excess Air ____ %

Sampled Volume 94.70 SDCF

Isokinetic Rate ____ %

Dust Grainloading:

Co 8.1×10^{-4} grains/SDCF @ 60 °F and 29.92" Hg

* Filter 1a is of the glass type and was saved for other possible in-lab analysis.

DATA AND RESULTS:

Site: Wing A

Date: 10-7-80

Run: #2

Time: 14:15

Absorber Type	Contents	Final Wt.	Tare Wt.	Net Grams
#1 Lg. Grnbrg. Smith	H_2O	120	100	20
#2 Sm. Grnbrg. Smith	H_2O	54	50	4
#3				
liquid trap	empty	0	0	
drying tupe	silica gel	263	250	13
			TOTAL	37

Filter Sample: Type Cellulose Flat Filter #2c*

Sample Fraction	Final Wt.	Tare Wt.	Net mgram	Co
Flat Filter	0.5680	0.5663	1.7	2.8×10^{-4}
		TOTAL	1.7	2.8×10^{-4}

Gas Composition: @1440

CO_2 0 % volume(dry)

O_2 20 % volume(dry)

CO % volume(dry)

N_2 80 % volume(dry)

H_2O 1.8 % volume(dry)

MW (wet) 29.08

Excess Air %

Sampled Volume 94.70 SDCF

Isokinetic Rate %

Dust Grainloading:

Co 2.8×10^{-4} grains/SDCF @ 60 °F and 29.92" Hg

* Filter 2c was of the cellulose type and was sent to American Spectrographic Laboratories for metals emission analysis, see page 8.

DATA AND RESULTS:

Site: Wing B

Run: #1

Date: 10-7-80

Time: 9:50

Absorber Type	Contents	Final Wt.	Tare Wt.	Net Grams
#1 Lg. Grnbrg. Smith	H_2O	120	100	20
#2 Sm. Grnbrg. Smith	H_2O	51	50	1
#3				
liquid trap	empty	~0	0	
drying tupe	silica gel	264	250	14
			TOTAL	35.

Filter Sample: Type Cellulose Flat Filter #1c*

Sample Fraction	Final Wt.	Tare Wt.	Net mgram	Co
Flat Filter	.5497	.5481	1.6	2.6×10^{-4}
		TOTAL	1.6	2.6×10^{-4}

Gas Composition: @ 1015

CO_2 0 % volume(dry)

O_2 20 % volume(dry)

CO % volume(dry)

N_2 80 % volume(dry)

H_2O 1.7 % volume(dry)

MW (wet) 29.09

Excess Air %

Sampled Volume 94.70 SDCF

Isokinetic Rate %

Dust Grainloading:

Co 2.6×10^{-4} grains/SDCF @ 60 °F and 29.92" Hg

* Filter 1c was of the cellulose type and was sent to American Spectrograph Laboratories for metals emission analysis, see page 8.

DATA AND RESULTS:

Site: Wing B

Date: 10-7-80

Run: #2

Time: 1300

Absorber Type	Contents	Final Wt.	Tare Wt.	Net Grams
#1 Lg. Grnbrg. Smith	H_2O	120	100	20
#2 Sm. Grnbrg. Smith	H_2O	60	50	10
#3				
liquid trap	empty	0	0	
drying tupe	silica gel	271	250	21
			TOTAL	51

Filter Sample: Type Glass Flat Filter #2a*

Sample Fraction	Final Wt.	Tare Wt.	Net mgram	Co
Flat Filter	0.5286	0.5265	2.1	2.3×10^{-4}
		TOTAL	2.1	2.3×10^{-4}

Gas Composition: @ 1345

CO_2 0 % volume(dry)

O_2 20 % volume(dry)

CO % volume(dry)

N_2 80 % volume(dry)

H_2O 1.6 % volume(dry)

MW (wet) 29.10

Excess Air %

Sampled Volume 142.05 SDCF

Isokinetic Rate %

Dust Grainloading:

Co 2.3×10^{-4} grains/SDCF @ 60 °F and 29.92" Hg

* Filter 2a is of the glass type and was saved for other possible in-lab analysis.

AMERICAN SPECTROGRAPHIC LABORATORIES, INC.
557 MINNA STREET
SAN FRANCISCO, CALIFORNIA 94103
(415) 863-0190

TO Chemecology Corporation
690-B Garcia Avenue
Pittsburg, California

DATE October 15, 1980

SUBJECT ASL #9711

Attention: Mr. David Ray

RE: Semi-quantitative spectrographic analysis, as requested, on your three filters submitted on your P. O. 6494.

Each filter was charred in a porcelain dish, then ignited at 1100°F to remove organic material. In each case the residue was too small to weigh accurately and was taken up in high purity graphite containing Lithium Carbonate. This material was used for analysis, however values below are reported as metals in micrograms in or on the filters submitted.

	1C (Wipe B)	2C (Wipe A)	3C	
B	6.	—	—	micrograms
Fe	17.5	10.	7.	
Al	30.	12.5	7.	
Mg	5.	5.	3.5	
Cr	.75	.25	.1	
Cu	.75	.8	.3	
Ni	1.	<1.	<1.	
Si	100.	90.	30.	
Ca	150.	100.	100.	
Na	125.	100.	50.	
Ti	1.75	1.	.5	
Ba	3.5	2.	1.25	
Sr	<1.	<1.	<1.	

B. H. Hinckley

Each filter was charred in a porcelain dish, then ignited at 1100°F to remove organic material. In each case the residue was too small to weigh accurately and was taken up in high purity graphite containing Lithium Carbonate. This material was used for analysis, however values below are reported as metals in micrograms in or on the filters submitted. Filter number 3C was used as a blank. The metals obtained in the blank were then subtracted from the sample filters, numbers 1C and 2C, giving net metal obtained on sample filters

				NET (micrograms)	
	1C	2C	3C	1C	2C
B	6.	--	--	6.0	--
Fe	17.5	10.5	7.	10.5	3.0
Al	30.	12.5	7.	23.0	5.5
Mg	5.	5.	3.5	1.5	1.5
Cr	.75	.25	.1	.65	.15
Cu	.75	.8	.3	.45	.5
Ni	1.	<1.	<1.	--	--
Si	100.	90.	30.	70.	60.
Ca	150.	100.	100.	50.	0.
Na	125.	100.	50.	75.	50.
Ti	1.75	1.	.5	1.25	.5
Ba	3.5	2.	1.25	2.25	.75
Sr	<1.	<1.	<1.	--	--

The results of Chemecology Report number A-1017 indicate levels of particulate grainloading and metals concentration that are very low. The levels are probably too low to cause a plume (visible emissions) at the stack. No emissions from the stack were visible during the testing performed on October 7, 1980. We suggest that the tests be repeated at a later date when visible emissions are present.

Appendix 4

Plant Species

The following is an alphabetical list of known and suspected plant species on the site.

Acer circinatum	-	Vine maple
Acer macrophyllum	-	Bigleap maple
Alnus rubra	-	Red alder
Athyrium filix-femina	-	Lady fern
Berberis neruosa	-	Oregon grape
Cornus var.	-	Dogwood
Cytisus scoparius	-	Scotch broom
Gaultheria shallon	-	Salal
Picea sitchensis	-	Sitha spruce
Polystichum munitum	-	Sword fern
Populous trichocarpa	-	Black cottonwood
Pseudotsuga menziesii	-	Douglas fir
Rubus parviflorus	-	Thimbleberry
Rubus ursinus	-	Blackberry
Thuja plicata	-	Western Red cedar
Tsuga heterophylla	-	Western hemlock
Vaccinium parvifolium	-	Red huckleberry

Various native grasses

Appendix 5

Wildlife Species •

The following is a list of known or suspected wildlife species on the proposed project site and in the vicinity.

Small Fur Bearing Mammals

Mole
Shrew
Raccoon
Skunk
Weasel
Squirrel
Chipmunk
Gopher
Rabbit
Field Mouse

Reptiles

Snake
Lizard
Toad
Frog
Salamander
Newt

Birds

Bushtit
Bluejay
Cowbird
Crow
Flycatcher
Goldfinch
Blackhead Grosbeak
Hawk
Hummingbird
Jay
Mallard
Owl
Quail
Pheasant
Robin
Sparrow
Thrush
Towhee
Tunco
Virea

STATE OF
WASHINGTON

Dixy Lee Ray
Governor

DEPARTMENT OF GAME
600 North Capitol Way, GJ-11 Olympia, WA 98504 206/753-5700

December 10, 1980

Ms. Maisha Ruth
Berkendorf Evans Ltd.
620 S.W. Fifth Avenue
Portland, Oregon 97204

SUBJECT: Puyallup Science Park

Dear Ms. Ruth:

We have completed a review of our files for information on significant natural features in the study area. The result of this review is presented in the following enclosures:

Enclosure 1 summarizes the occurrence of special plants, animals, and plant communities reported within or adjacent to the study area.

Enclosure 2 is a summary of national and statewide status of special animals reported to occur within the study area.

In order to ensure the protection of the special species and plant communities occurring in the study area, we recommend that the specific locational information presented here not be published or distributed. If general information is distributed, please provide the Nongame Program with a draft of any document in which information from the Natural Heritage Data System is incorporated or referenced.

If your office should publish or distribute any of the information presented here, please cite the Natural Heritage Data System as follows:

Natural Heritage Data System
Washington Natural Heritage Program and
Department of Game - Nongame Program
c/o The Evergreen State College
3109 Seminar Building, TA-00
Olympia, Washington 98505

The animal species of concern mentioned here are not normally found in alder/douglas fir forests like that which your project will affect.

I am forwarding a copy of your letter to the Washington Natural Heritage Program. They may respond by letter. During a brief consultation with Annette Olson, of the Washington Natural Heritage Program, I learned that it is unlikely that this particular forest is exemplary or unique.

I hope this presentation will be useful to you for your review of the planned Puyallup science park project. More detailed locational information from our files can be made available for site planning purposes. If you have further questions or concerns about special animals, please feel free to contact me at (206) 754-1449 or SCAN 8-235-1449.

Sincerely,

THE DEPARTMENT OF GAME

Kelly R. McAllister

Kelly R. McAllister
Wildlife Biologist
Nongame Wildlife Program

KRM/ljl

Enclosure

ELEMENT OCCURRENCE SUMMARY

Introduction

This enclosure summarizes the element occurrences reported within or adjacent to the study area and catalogued in the Natural Heritage Data System. An "element" is a natural feature of particular interest because it is exemplary, unique, or endangered on a statewide or national basis. An element can be a plant community, plant species, or special animal.

The Natural Heritage Data System was established by the State of Washington and the Natural Heritage Program of The Nature Conservancy. It is currently maintained by the Natural Heritage Program and by the Nongame Program of the Washington Department of Game. Information on plant and animal occurrences in the state is gathered from various sources. Through historical data, scientific literature, field observations, and herbarium and museum species, the Natural Heritage Data System is establishing a base from which to work in evaluating Washington's natural features.

The Element Occurrence summary table lists those plant communities, special plants, and special animals that have been reported to the sources listed above to occur in the area specified in your information request.

- The first column lists the U.S. Geological Service (USGS) topographic quadrangles.

- The second column lists the township, range, and section.

- The third column entitled "CONF." (confirmation) lists a code indicating the specificity of the locations recorded for each element occurrence.

Confirmation Codes

C Means the location of the element occurrence is known within a ¼ mile radius. In addition, the locality has been confirmed by the Nongame Program or the Washington Natural Heritage Program.

U Means the location of the element occurrence is known within a ¼ mile radius, but at this time, has not been confirmed.

N Means the location of the element occurrence is known within a 1 mile radius. This information was derived from secondary sources.

G Means the location of the element occurrence is not known within a 1 mile radius. The element occurrence is locatable only to a general area, usually denoted by a geographic name. This information was derived from secondary sources.

- The fourth column indicates the element's class, i.e. "PC" means plant community, "SP" means special plant, and "SA" means special animal.

- In the fifth column, the element is named. For animals, both scientific and common name is given, followed by letter codes that indicate the criteria used by data system personnel in determining whether a location is biologically/

ELEMENT OCCURRENCE SUMMARY
Puyallup Science Park

Quad Name		T	R	S	Conf.	Element Occurrences		
						Class	Name	Number
Puyallup	7.5	20N	4E	*	G	SA	Sciurus griseus (western gray squirrel) IO	005
		20N	4E	*	G	SA	Polites sonora (Sonora skipper-butterfly) IO	006
		20N	4E	*	G	SA	Charina bottae (rubber boa) IO	053

* Reported to occur in the general area of the project.

ELEMENT STATUS SUMMARY

Element Name	Element Status	
	Federal	State
Sciurus griseus (western gray squirrel)		C(d)
Polites sonora (Sonora skipper-butterfly)		C(d)
Charina bottae (rubber boa)		C(d)

C(d) = Species of Concern. Washington Department of Game - Nongame Program's draft working list.

NOTE: The Washington Department of Game's Nongame Program's species list will, upon completion, include status information for each species. Status information for individual species can now be obtained by contacting the Nongame Program.

EMPLOYMENT IN SELECTED BUSINESSES

TACOMA-PIERCE COUNTY, WASHINGTON

U.S. Government	8,500	United Pacific Insurance	424
State of Washington	4,127	Pacific Maritime	400
Tacoma Public Schools	3,381	Lakewood General Hospital	383
City of Tacoma	2,638	Martinac Shipbuilding	358
St. Regis	2,400	University Place Schools	353
Clover Park Schools	1,600	Mary Bridge Hospital	330
Puyallup Schools	1,591	Allenmore	323
Pierce County	1,300	Fick Foundry	306
Tacoma General Hospital	1,200	Buffelen Woodworking	300
Pacific Northwest Bell	1,186	Puget Sound Hospital	300
Puget Sound National Bank	980	Boise Cascade	256
Safeway	980	Piggly Wiggly	250
Ft. Steilacoom Community College	800	Hooker Chemical	235
Weyerhaeuser	794	Luckeys	234
West Coast Grocery	767	Peoples Store	231
Bethel Schools	760	American Manufacturing	225
Tacoma Boat Building	746	Frederick & Nelson	225
Good Samaritan Hospital	730	Pierce County Medical Bureau	220
Nalleys	706	Concrete Technology	212
Bates Vocational School	700	Metropolitan Parks	210
Franklin Pierce Schools	650	Brown & Halley	200
Penneys	630	Ernst	200
ASARCO	626	Fife Schools	200
Hygrade	600	Milgard Manufacturing	200
Pacific Lutheran University	525	Pay 'n Save	200
Peninsula Schools	525	Port of Tacoma	200
Tacoma News Tribune	506	Nordstrom	200
Atlas Foundry	500	Tam Engineering	200
University of Puget Sound	500	Item House	185
Fred Meyer	500	Western Farmers Association	185
Pacific National Bank of Washington	500	North Pacific Plywood	176
Tacoma Community College	500	Reichold	170
Burlington Northern	475	Tacoma Public Library	170
Kaiser Aluminum	472	Washington Natural Gas	168
The Bon	450	American Building Maintenance	162

Woodworth Company	158
Doctor's Hospital	155
Steilacoom-DuPont-Anderson I. Schools	147
Pierce County Library	139
American Biscuit	135
Pen Walt	131
North Star Glove	130
Seattle First National Bank	130
National Blower & Sheet Metal	125
Puget Sound Power & Light	125
Globe Machines	110
Tribune Publishing Co. (non-newspaper)	110
Tucci & Sons	107
Abscher Construction	100
Educators Manufacturing	100
Elvins	100
Harmon Cabinets	100
Marine Iron Works	100
Slyter Chair	100
Annie Wright	98
Food King	95
Precision Machines	93
U.S. Gypsum	90
United Mutual	89
Coast Sash & Door	86
Dalgety Food (Seasonal)	86
Pacific Coca-Cola Bottling Co.	86
Foss Launch & Tug	85
Mark-It Foods	85
Allstate	83
Print Northwest	81
Parker Paint	80
Rainier Bank	80
J.D. Shotwell	79
Glaser Beverage	77
Tacoma Motor Hotel (Doric)	75
Zidell Dismanteling	73
North Pacific Bank	72
Tacoma Savings & Loan	71
Bellarmine	70
Pacific First Federal	70
Steiner Corp. (Alsco Linen)	65
General Plastics Manufacturing	60
Manleys	60
Hi Ho	55
Sunoco (Fibreboard)	52
Flett Dairy	49
Holroyd Company	45
Lundberg Concrete Pipe	45
Lyle Wood Products	45
Glacier Sand & Gravel	41
American Federal Savings & Loan	39
American Marine	35
Gray Company	31
Great Northwest Savings & Loan	30
Peoples Bank	28
Nabisco	25
Puget Sound Plywood	25

Benkendorf · Evans Ltd.

620 S.W. Fifth Avenue, Portland, Oregon 97204
(503) 226-0068

December 3, 1980

Ms. Sheila A. Stump
Office of Archaeology and Historical Preservation
111 West Twenty-First Avenue
Olympia, Wash. 98504

RE: Puyallup Science Park

Dear Ms. Stump:

As part of an Environmental Impact Statement for the Puyallup Science Park, we would like to inquire if an archaeologic and historic site and/or literature survey has ever been conducted on the below described property. We would like copies of any of these surveys.

Location of property:

100 acres located on the north side of 39th Avenue, S.E. approximately 2500 feet east of South Meridian at the intersection of 39th Avenue and 110th Avenue East within the city limits of Puyallup, Washington.

Description of the proposed project:

The site will be developed for the purpose of a high technology manufacturer of solid state memory integrated circuits. A 150,000 sq. ft. building employing 300 employees will be completed by 1982 with 520,000 sq. ft. building employing 3000 employees projected to be on site by 1990. The 1990 plan encompasses five 2-story in a campus like setting on the 100-acre site, with extensive natural buffers (over 200 feet) preserved on the perimeter of the site.

Very truly yours,

Carol Gamblin

CG:pj

APPENDIX 9

INTERNAL CORRESPONDENCE

TO: Al St. Amand DATE: December 4, 1980

FROM: Lee Neal, Corp. Safety M/S: 19-111 CC: J. Mills
File

RE: New Site Development

Reference is made to your memorandum of 12-3-80 regarding safety data for new site development.

RISK OF EXPLOSION:

does use potentially hazardous process gases in the manufacturing spaces, including Hydorgen, Silane, Oxygen, Arsine and Phosphine. These gases are required to be stored/used in proper cabinets and storage closets that are equipped with mechanical exhaust ventilation and fire sprinkler protection. In addition, all piping for gases is required to be stainless steel, non-seamed piping with welded fittings to prevent spurious excursions into the atmosphere and to create a closed piping system between the furnaces and the gas cylinders. Special gas monitoring equipment is also required to detect minute amounts of gas leakage and allow evacuation of our facilities and shut down of equipment to prevent employee exposure and enviornmental contamination. Our history has indicated that these precautions have been very beneficial and that explosions have not occurred in our work spaces.

HAZARDOUS SUBSTANCES:

In addition to the toxic/flammable gases listed above, utilizes flammable liquids (acetone, isopropyl alcohol, methyl alcohol and xylene) and acids (hydrofluoric, acetic, sulfuric and nitric) in their semiconductor process. The people assigned to work stations utilizing these chemicals are trained in the proper handling of the materials and special neutralization equipment is installed to ensure that the environment is not contaminated by inadvertantly disposing of chemicals down the drain. Flammable liquids are stored and dispensed from approved metal safety containers for additional safety. All chemical mixtures involving hydrofluoric acid are recovered as required by law. Exhaust scrubbing appliances are installed on facilities to remove contaminants from the exhaust air prior to discharge into the atmosphere and 100% fresh air make-up is designed into fabrication spaces to negate the possibility of air contaminants being recirculated back into the building.

FORM 10-289 12/74 STOCK NO. 8407-55

SAFETY PRECAUTIONS:

In addition to safety training for all employees, the Corporate and Divisional safety engineers enforce code requirements to ensure proper safety for employees and to minimize major losses.

All fabrication spaces are enclosed in a one (1) hour fire separation from other occupancies within the same building and all openings into these spaces are equipped with fire rated assemblies.

All facilities are equipped with complete fire sprinkler protection. Fire extinguishers are installed at 50 foot intervals to ensure accessibility in case of fire.

Emergency shut off's are installed on hydrogen piping to allow isolation of independent work spaces without shutting down the entire fabrication area.

Emergency generators are installed to provide a minimum of 50% of the normal exhaust ventilation in all areas where chemicals are used (if normal power fails) and emergency lighting and evacuation alarm systems are incorporated into all buildings.

Attached to this memorandum is a complete list (hazardous materials booklet) of chemicals and process gases used in the making of semiconductors.

POTENTIAL RISK FACTORS:

Whenever chemicals and toxic/flammable gases/liquids are used there is always a potential for human exposure. However, we feel that our Corporate Policy and installation procedures minimize the chance of this type of occurrence.

NOTE: The Corporate Safety Engineers and Divisional Safety representatives are continuously evaluating the equipment, storage and handling techniques and operating procedures to ensure that everything possible is being done to reduce the risk of exposure to personnel and the environment. When changes are required in our procedures, they are implemented without delay.

BUILDING CODE REQUIREMENTS:

Your attention is directed to the Uniform Building Code, Table 5A, which provides a description for specific occupancies. The cities of San Jose and Santa Clara, California have stipulated that fabrication spaces utilized for semiconductor operations be classified as a B-2 occupancy as long as conformance with Table 9A is maintained. Table 9A outlines the limitations regarding flammable liquids and corrosive materials that are allowed in a B2 occupancy without requiring it's reclassification to the hazardous "H" occupancy.

If the writer can be of further assistance, please feel free to contact me at any time.

Lee Neal

Lee Neal
Corporate Safety Manager

TABLE NO. 10-A—EXEMPT AMOUNTS OF HAZARDOUS MATERIALS, LIQUIDS AND CHEMICALS

MATERIAL	MAXIMUM QUANTITIES
1. Flammable liquids	
Class I-A	30 gal.[2]
Class I-B	60 gal.[2] 120 GALS
Class I-C	90 gal.[2]
Class II	120 gal.[2]
2. Combustible liquids, Class III-A	250 gal.[2]
3. Combination flammable liquids[1]	120 gal.[2]
4. Flammable gases	3000 cu. ft. at one atmosphere of pressure at 70°F.
5. Liquefied flammable gases	60 gal.
6. Flammable fibers—loose	100 cu. ft.
7. Flammable fibers—baled	1000 cu. ft.
8. Flammable solids	500 lbs.
9. Unstable materials	No exemptions
10. Corrosive liquids	55 gal.
11. Oxidizing material—gases	6000 cu. ft.
12. Oxidizing material—liquids	50 gal.
13. Oxidizing material—solids	500 lbs.
14. Organic peroxides	10 lbs.
15. Nitromethane (unstable Materials)	No exemptions
16. Ammonium nitrate	1000 lbs.
17. Ammonium nitrate compound mixtures containing more than 60% nitrate by weight	1000 lbs.
18. Highly toxic material and poisonous gas	No exemptions

[1]Containing not more than the exempt amounts of Class I-A, I-B, or I-C flammable liquids.

[2]Quantities may be increased by 100 percent in areas which are not accessible to the public. In buildings where automatic fire-extinguishing systems are installed, the quantities may be increased 100 percent in areas accessible to the public.

TABLE NO. 5-A—Continued

TYPES II ONE-HOUR, II-N AND V ONLY

GROUP	DESCRIPTION OF OCCUPANCY	FIRE ZONE	FIRE RESISTANCE OF EXTERIOR WALLS	OPENINGS IN EXTERIOR WALLS
H See also Section 1002	1—Storage and handling of hazardous and highly inflammable or explosive materials other than flammable liquids		Not permitted in Fire Zones Nos. 1 and 2	
		3	4 hour less than 5 feet 2 hour less than 10 feet 1 hour less than 20 feet	Not permitted less than 5 feet Protected less than 20 feet
	2—Storage and handling of Class I, II and III flammable liquids as specified in U.B.C. Standard No. 10-1, dry cleaning plants using flammable liquids, paint stores with bulk handling, paint shops and spray painting rooms and shops 3—Woodworking establishments, planing mills, box factories, buffing rooms for tire rebuilding plants and picking rooms; shops, factories or warehouses where loose combustible fibers or dust are manufactured, processed, generated or stored and pin refinishing rooms. 4—Repair garages	1	4 hour less than 20 feet 1 hour elsewhere	
		2	4 hour less than 5 feet 2 hour less than 10 feet 1 hour elsewhere	
		3	4 hour less than 5 feet 2 hour less than 10 feet 1 hour less than 20 feet	
	5—Aircraft repair hangars		Not permitted in Fire Zones Nos. 1 and 2 except as set forth in Sections 1602 (c) and 1603 (c).	
		3	1 hour less than 60 feet	Protected less than 60 feet
B See also Section 1102	1—Gasoline and service stations, storage garages where no repair work is done except exchange of parts and maintenance requiring no open flame, welding, or the use of highly flammable liquids 2—Wholesale and retail stores, office buildings, drinking and dining establishments having an occupant load of less than 100, printing plants, municipal police and fire stations, factories and workshops using material not highly flammable or combustible, storage and sales rooms for combustible goods, paint stores without bulk handling Buildings or portions of buildings having rooms used for educational purposes, beyond the 12th grade with less than 50 occupants in any room	1	2 hour less than 20 feet 1 hour elsewhere	Not permitted less than 5 feet Protected less than 20 feet
		2	1 hour	Not permitted less than 5 feet Protected less than 10 feet
		3	1 hour less than 10 feet	

For Notes see page 54.

APPENDIX 10

CHEMICAL HANDLING GUIDE

I. PURPOSE

To provide supervisors and chemical handlers with a guide to the characteristics, hazards and emergency information procedures for the most frequently used hazardous chemicals.

II. INTRODUCTION

The information provided on each chemical, gas and solid is based on highly concentrated solutions. Chemicals diluted will have similar hazardous effects based directly upon the degree of dilution. The effects of exposure are based on the "average" person, and it should be understood that some people may react sooner than or differently than others.

It is important to note that almost all chemicals listed are highly toxic and may be fatal, particularly if swallowed. The effects of swallowing any of the chemicals have not been addressed but must be considered a serious medical problem.

Special chemical problems or questions should be directed to the Safety Department.

III. BASIC EMERGENCY INFORMATION

Body Contact: In case of skin or eye contact with ANY chemical, flood exposed area immediately with cold water for at least 15 minutes. Remove clothing if chemical is on them and wash before putting back on. Get prompt medical attention by calling extension "3000". Report all industrial injuries to the nurse immediately.

Fire: In the event of fire, GET HELP! Evacuate the surrounding area. Call the emergency response on extension "3000". After notification, attempt to extinguish the fire. Use carbon dioxide (CO_2), dry chemical or halon extinguishers. DO NOT USE WATER. A fire may also be smothered by adding sodium bicarbonate, Sorb-All, sand, or by applying a fire blanket. Close all doors adjacent to the fire area.

Chemical Spill: In the event of a hazardous chemical spill, evacuate the surrounding area and call the emergency response at extension "3000". DO NOT ADD WATER! Only trained personnel should attempt the clean-up. (See Page 3, Section IV for proper clean-up procedures of hazardous chemicals.)

Gas Leakage: In the event of a toxic fume, vapor or mist leak, evacuate the surrounding area and call the emergency response on extension "3000". Remove any exposed individual to fresh air and seek medical attention. Use self contained breathing equipment only if properly trained.

III. BASIC EMERGENCY INFORMATION (continued)

Handling Guidelines:

1. The supervisor is responsible for insuring that all personnel in the area know how to safely handle chemicals, that they are wearing the proper personal protective clothing for their job, and that they know where all emergency equipment is located and how to use it.

2. The suggested minimal amount of personal protective equipment consists of rubber gloves, full-face shield, apron and leather footwear. Rubber gloves should be checked for pinhole leaks before and after each wearing and rinsed after use.

3. Suitable, sound leather footwear should be worn by all personnel working with chemicals. Sandals, moccasins, thongs, and tennis shoes are not suitable.

4. All work areas must be kept clean and free of spill at all times to avoid injury and prevent accidents.

5. All acid chemical containers must be rinsed with water before discarding. Never mix empty acid, flammable, or oxidizer containers in the same waste cans.

6. Never transfer any chemicals into any other container except a container specifically designed for that chemical or the original container.

7. AAA. Always Add the Acid to water to avoid hazardous chemical reactions.

8. When dumping acid down into the drain, turn faucet on first and pour acid slowly into running water. DO NOT DUMP SOLVENTS, METAL ACIDS, WATER REACTIVE CHEMICALS, OR TOXIC SUBSTANCES INTO THE SAME SEWER DRAIN.

9. Use all chemicals under a fume hood at all times. Report unusual odors immediately.

10. Open chemical containers slowly to allow excess pressure or vapor to escape. Keep chemical container lids tightly closed and place the container in its proper place. Hydrogen peroxide does have its own special vented lid.

11. Never store or transport differently labeled or noncompatible chemical containers, either full or empty, together. DO NOT MIX ANY CHEMICALS TOGETHER, ESPECIALLY WASTE CHEMICALS. Only trained and authorized personnel should mix chemicals.

12. Contents of all chemical containers must be clearly identified at all times as prescribed by California State Law.

DEFINITION OF TERMS

Caustic	Capable of dissolving organic tissue. Commonly referred to as base or alkaline. Attacks living tissue. (Blue label dangerous when wet.)
Caution	Lowest degree of hazardous chemical warning.
Corrosive	Capable of destroying by chemical action. Commonly referred to as acid. (Black and White label -- corrosive.)
Cumulative	Increased effect by each exposure.
Danger!	Highest degree of hazardous chemical warning.
Flammable	Capable of burning. Any chemical with a flash point below 100°F or 37.8°C (red label).
Flammable Limits	That minimum-maximum percentage of vapor-air mixture within which an ignition would be supported. Often referred to as lower explosive and upper explosive limits in percentage. (Lel, Uel)
Flash Point	That temperature at which a liquid gives off sufficient vapor to be ignited.
Oxidizer	Produces or gives off oxygen. Increases flammability of other materials (yellow label).
P.E.L.	Permissible Exposure Limit (See TLV).
P.P.M.	Parts per million. 1 ppm = $\frac{1}{1{,}000{,}000}$ or 0.0001%
T.L.V.	Threshold limit value. The legal limit of exposure of employees to chemical fumes, dust, or mists. This figure is generally for an eight-hour period.
Toxic	Poisonous. Produces changes to the body that may cause serious injury or illness. Slightly toxic is not as hazardous as highly toxic (white and black poison label).
Warning!	Intermediate degree of hazardous chemical warning.

APPENDIX 11

INDUSTRIAL WASTE CONTROL SECTION

Request for Laboratory Analysis

Fish Bioassay and Specific Constituents

Sample No. ______

Source ______ Collected By [illegible]

Type of Waste [illegible] Composite X Grab ___ Witness [illegible]

Date Collected 24 June 80 Time [illegible] Date Received 24 June 80 Time 3:00

Comments: ______

Specific Constituents (mg/l unless noted) Analyst(s) RJ, DFB

☐ Ag		☒ Zn	0.05	☐ TOC		☐ CN.A.Cl	
☐ Cd	<0.05	☐ Hg		☐ BOD		☐ GC	µl/l
☐ Cr	<0.05	☐ As		☐ SS		☐	
☒ Cu	<0.1	☐ CN		☐ Grease		☐	
☒ Ni	<0.1	☐ F		☐ MBAS		☐	
☒ Pb	<0.3	☐ NH_3·N		☒ Cl_2	Neg.	☐	

Comments:

Acute Toxicity Fish Bioassay Analyst(s) RW, DZ, JY

Preliminary Data

Initial pH 7.7

Initial D.O. 7.8 @ 21°C

Prelim. TLm 32+

24-Hr. TLm 75+ %

48-Hr. TLm ___ %

72-Hr. TLm ___ %

Results

96-Hr. TLm 75+ %

Requirements:

TLm: ☐ Pass ☐ Fail

pH: ☒ Pass ☐ Fail

Comments: ______

Bioassay Analytical Data:

Test Organism: Gasterosteus aculeatus Source Ala Fish Co.

Average Size: 35mm. Conditioned to very hard water.

D.O. Maintained By: Aeration ✓ Oxygenation ______

Date Test Started 6-25-80 Date Finished 6-29-80 1 Fish/Liter Test Soln.

Percent Sample	24 Hours		48 Hours		72 Hours		96 Hours		Percent Survivors
	Dead	Living	Dead	Living	Dead	Living	Dead	Living	
75	0	10	0	10	0	10	0	10	100
42	0	10	0	10	1	9	3	6	60
24	0	10	0	10	0	10	0	10	100
Control	0	10	0	10	1	9	0	9	90
D.O.					7.1		7.2		
pH					8.3		8.2		

White - Main Lab
Yellow - Industry
Pink - File Copy

Reviewed By Inspector [illegible]

Form #31-920R 111078

INDEX OF DRAFT EIS REVIEW COMMENTS AND RESPONSES

STATE OF WASHINGTON

Dixy Lee Ray
Governor

OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION
111 West Twenty-First Avenue, Olympia, Washington 98504 206/753-4011

January 6, 1981

In reply refer to: 188-C-PI-15

Re: Puyallup Science Park DEIS

Bruce Uhl
Puyallup Planning Department
218 West Pioneer
Puyallup, WA 98371

Dear Applicant:

We have reviewed your draft environmental impact statement and find there are no historic/archaeological properties on the State or National Register of Historic Places, or the Washington State Inventory of Historic Places, that will be impacted by the project.

In the event that unknown archaeological resources are inadvertently unearthed during construction activities, please notify the Office of Archaeology and Historic Preservation in Olympia, and the Washington Archaeological Research Center, Pullman, Washington.

Sincerely,

Jeanne M. Welch, Deputy State
Historic Preservation Officer

md

Sheila A. Stump, Archaeologist

JAN 8 1981

orm AHP R-6 (1/79)

STATE OF WASHINGTON

Dixy Lee Ray
Governor

OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION
111 West Twenty-First Avenue, Olympia, Washington 98504 206.753.4011

Date: December 22, 1980
In reply refer to: 188-C-PI-15
Re: Puyallup Science Park

Carol Gamblin
Benkendorf-Evans Ltd.
620 S.W. Fifth Avenue
Portland, OR 97204

Dear Applicant:

We have reviewed the project materials forwarded to us for the above project and would like to make the following comments:

___*Insufficient information:* We will need: ___a detailed narrative of the project elements; ___a vicinity map; ___a map of the project site and surrounding area showing topography, drainage, specific project boundaries, and indicating County, Section, Township, and Range; ___line drawings of the project; ___photographs of structures to be renovated or demolished.

XX *No resources known:* No properties are listed in the National or State Registers of Historic Places or the State Inventory of Historic Places which may be impacted by the project. Properties include archaeological and historic resources.

XX *Project area*___has/XX has not been surveyed for cultural resources.

___*Potential effects on unidentified resources:* There is reasonable probability that cultural resources exist in the project areas. ___A cultural resources survey/ ___monitoring of the project area is recommended as part of project construction.

___*Resources present:* ___no effect/___effect uncertain; see below for comment.

___*No adverse effect/*___*Adverse effect* on National Register property. See below for comment.

XX In the event that cultural materials are disclosed during construction, work in the immediate vicinity should be discontinued and this office notified.

Sincerely,

JEANNE M. WELCH, Deputy State
Historic Preservation Officer

Sheila A. Stump, Archaeologist

Comments:

Form AHP R-5 (Rev. 7/80)

RESPONSE 1.

In the event that unknown archaeological resources are inadvertently unearthed during construction activities, construction activities will be halted and the Office of Archaeology and Historic Preservation in Olympia and the Washington Archaeological Research Center in Pullman will be promptly notified.

STATE OF WASHINGTON
Department of
Natural Resources

COMMISSIONER
BERT L. COLE

R. A. BESWICK
SUPERVISOR

28329 SE 448th Street
Enumclaw, Washington 98022

January 12, 1980

Puyallup Planning Department
218 W. Pioneer
Puyallup, WA. 98371

RE: Draft EIS Proposed Puyallup Science Park

ATTN: Bruce Uhl

Dear Mr. Uhl:

The EIS has been reviewed.

If the proposal results in timber removal then a Forest Practice Permit is required per RCW chapter 76.09.

Very truly yours,

BERT L. COLE
Commissioner of Public Lands

James P. McElroy
Area Manager

Seth Mackie.

Seth Mackie
Operations Forester

SM/bh

JAN 1 = 1980

RESPONSE 2.

When timber is removed from the site a Forest Practice Permit will be obtained. This permit requirement has been included in the Introduction, page 4.

STATE OF
WASHINGTON
Dixy Lee Ray
Governor

DEPARTMENT OF GAME
600 North Capitol Way, GJ-11 Olympia, WA 98504 206/753-5700

January 20, 1981

Bruce Uhl
Puyallup Planning Department
218 W. Pioneer
Puyallup, Washington 98371

DRAFT ENVIRONMENTAL IMPACT STATEMENT:
Puyallup Science Park

Mr. Uhl,

Your document was reviewed by our staff as requested; comments follow.

Erosion and runoff control measures appear to be well planned. On-site detention and oil/water separating systems should help to reduce potential off-site surface water quality degradation, as well as assist in controlling the cumulative effects of incremental pollutant loading. To remain effective, however, a maintenance schedule should be established to assure that the facilities are frequently cleaned.

Discussion of vegetation (pages 63-68) is well presented and appears accurate. Planned mitigation measures demonstrate a concern for maintaining and managing vegetation for its value as habitat for wildlife. Such consideration is appreciated. References are made, however, of wildlife being "displaced" (pages 18 and 70). This is somewhat misleading. Some animals attempt to relocate at other habitats when their living area is made uninhabitable. However, successful relocation depends on availability of other habitat which can fill the specific needs of the affected animals. Most habitats are already filled to capacity and cannot provide food, cover, or territory for new "immigrants." Therefore, a proportional net loss of wildlife numbers and kinds should be expected when habitat is eliminated.

Thank you for the opportunity to review your document. We hope you find our comments helpful.

Sincerely,

THE DEPARTMENT OF GAME

Fred H. Maybee, Asst. Program Manager
Environmental Affairs Program
Habitat Management Division

FHM:cv
cc: Agencies
Region

RESPONSE 3.

A maintenance schedule for on-site detention and oil/water separating systems will be established to assure that the facilities are frequently cleaned.

We agree that there may be a loss of wildlife numbers and kinds as a result of displacement and the lack of other available habitats which can fill the specific needs of the affected animals. However, that loss should not be significant because of the retention of existing natural vegetation within the buffer.

STATE OF
WASHINGTON

DEPARTMENT OF ECOLOGY
Mail Stop PV-11
Olympia, Washington 98504

(206) 753-2800

January 19, 1981

Mr. Bruce Uhl
Puyallup Planning Department
218 W. Pioneer
Puyallup, Washington 98371

Dear Mr. Uhl:

Thank you for the opportunity to comment on the draft environmental impact statement for the Puyallup Science Park. We reviewed the EIS and have the following concerns.

A state waste discharge permit will be required from the Department of Ecology for the discharge of process water to the Puyallup sanitary sewer system. An engineering report must be submitted for review and approval prior to the issuance of a permit. The report must be prepared in accordance with WAC 173-240-130 and should include alternative waste water disposal options (such as recycle), detailed process water quality information, and the potential impacts on the sewage treatment plant (STP).

The Puyallup STP upgrade design includes an industrial waste water flow of 65,000 gallons per day from within the city. The proposed discharge from the Puyallup Science Park far exceeds this allocation. This means that future domestic users within the service area will not be able to get service. The implications of this should be carefully examined.

If you have any questions, please call Mr. Jim Krull of our Southwest Regional Office at 753-0145.

Sincerely,

Barbara J. Ritchie

Barbara J. Ritchie
Environmental Review Section

BJR:bjw

cc: Jim Krull, Southwest Region

JAN 20 1981

RESPONSE 4.

We understand the requirement for a state waste discharge permit in order to discharge process water into the Puyallup sanitary sewer system and will comply fully with the stated regulations. See Section VI., E., 2., pages 124-128. The permit will be obtained prior to Phase I construction.

The implications of added discharge of industrial waste water from the science park into the Puyallup sewerage system is being carefully examined. However, no action could occur until the City discusses the matter with the State Department of Ecology. The results of that discussion have been incorporated into the body of the EIS, Section VI., E, Utilities and Energy.

STATE OF
WASHINGTON

Dixy Lee Ray
Governor

WASHINGTON STATE ENERGY OFFICE
400 E. Union-1st floor, Olympia, Washington 98504 (206) 754-0700

January 6, 1981

Bruce Uhl
Puyallup Planning Department
218 W. Pioneer
Puyallup, WA 98371

Dear Mr. Uhl:

SUBJECT: Review of Draft Environmental Impact Statements

Because of limited staff and budget resources, our office regretfully must discontinue review of Environmental Impact Statements at this time. Should the situation improve, we will again provide what I consider to be an important review function.

Sincerely,

Jack O. Wood
Director

JOW/gh

STATE OF
WASHINGTON

Dixy Lee Ray
Governor

WASHINGTON STATE PARKS AND RECREATION COMMISSION
7150 Cleanwater Lane, Olympia, Washington 98504
206/753-57

January 5, 1981

35-2640-1820
DEIS - Puyallup Science Park
(E-2099)

Bruce Uhl
Puyallup Planning Department
218 W. Pioneer
Puyallup, WA 98371

Dear Mr. Uhl:

The staff of the Washington State Parks and Recreation Commission has reviewed the above-noted document and finds that it will have no effect on properties under the management or control of the Washington State Parks and Recreation Commission.

Thank you for the opportunity to review and comment.

Sincerely,

David W. Heiser

David W. Heiser, E.P., Chief
Environmental Coordination

DWH/DAP:sh

JAN 7 1980

STATE OF
WASHINGTON

John Spellman
Governor

DEPARTMENT OF TRANSPORTATION
Office of District Engineer, 5720 Capitol Blvd. KT-11, Tumwater, Washington
P. O. Box 327, Olympia, Washington 98504

January 26, 1981

Puyallup Planning Department
218 West Pioneer
Puyallup, Washington 98371

City of Puyallup
Puyallup Science Park
Draft Environmental
Impact Statement

Dear Sir:

We have reviewed the subject document as it relates to existing and proposed state highway facilities in the area and offer the following comments.

Transportation Project Impact, pages 105 through 115. This section of the document portrays impacts to SR 161 that will be created by traffic generated by the proposal. The exhibit for 1990 peak hour traffic and peak hour capacity analysis assumes that SR 161 will have been widened to five lanes, intersections will have been signalized and other improvements constructed. At the present time the Department has no plans for any improvements to SR 161 in the vicinity of the proposed development, other than the current contract that has just been completed which widened SR 161 between 110th and 128th to three lanes. Based on the Department's current financial outlook and funding possibilities it does not appear reasonable to assume that the improvements mentioned above will be implemented by the year 1990. As such, and as has been discussed with the developer and the City, we feel it appropriate to include additional exhibits to illustrate the impact that would result from the proposal if no improvements were made to SR 161 by the year 1990.

Transportation Mitigation Measures, pages 115 and 116. This section of the EIS addresses the mitigation of traffic impacts resulting from the proposal but does not indicate what mitigation is required as a direct result of the proposal. The Department has discussed this issue with both the City and the developer's traffic consultant and feel that is is appropriate to address in the final environmental statement, specific mitigation on the transportation network that is related directly to the proposal in question. In our meetings and conversations with the City and the developers, as well as the developer's traffic consultant, the Department felt that it is appropriate to mitigate the impacts of the first phase development anticipated to be completed by 1983 as well as mitigation for the ultimate phase to be completed by the year 1990.

The developer's consultant has provided information that identifies impacts of first stage development. We feel that the following items are required on the state highway system as a direct result of the proposed first stage development:

1. At the intersection of SR 161 and 110th it appears a signal installation will be required.

2. At the intersection of SR 161 and 110th it appears improvement to the east approach of the intersection would also be required.

3. At the intersection of SR 161 and 110th analysis should be made as to the type improvement that will be required on the north leg. It appears that at this time at least widening and extending the left turn lane would be required.

4. The impacts at the intersection of SR 161 and Meridian should be addressed to determine if the existing signalized intersection will be adversely affected as a result of the development.

5. The impacts at the ramp terminals on the SR 161/SR 512 interchange should be addressed to determine if there are significant impacts at those locations.

6. It is the Department's opinion that the areas generally identified in Items 1, 2 and 3 above are a direct result of the subject development and as such feel that the developer is 100% financially responsible for making those improvements. Should the analysis that is identified in Items 4 and 5 above result in a mitigation measure that is a direct result of the subject development, we feel the developer should be responsible for making those improvements also.

The Department feels that it is also appropriate to address the long range impacts of the subject development. Those have been addressed to a certain extent in the EIS and the Department has a couple of general comments in relation to preferences that need to be pursued so that implementation of those long range alternatives can be logically staged in the future. It appears to the Department that alternative routes to the site should be investigated in addition to the entrance off of 110th onto SR 161. It appears that another roadway, possibly a portion of which may be on new alignment located north of the SR 161/Meridian Avenue intersection, should be evaluated. This would be a new east-west facility that could possibly tie in at 104th or that vicinity. At such time as the alternative routes are evaluated the impact by the development on each of those improvements should also be evaluated identifying that portion of the improvement that is required as a direct result of the development.

In the consideration of a northern alternative route to the site, the evaluation should include the impact at the existing intersection on SR 161 and Meridian as well as the ramp terminals at the SR 161/SR 512 interchange. It is the Department's position, as stated in Item 6 above in reference to first phase development, that the impacts identified as a direct result of the ultimate development should be the financial responsibility of the developer.

Since the issuance of the draft environmental statement for subject project, the City and the developer's traffic consultant have worked closely in developing analysis over and beyond what is in the draft EIS which led the Department and the City to arrive at many of the conclusions that are presented in this letter. That theme of cooperation between the City, the developer and the Department of Transportation will need to continue into the future regarding the additional improvements required as a result of the phases and the actual implementation of those projects.

The Department feels that the problems of transportation related to state highways that is presented in the draft EIS are solvable and that the items contained in this memorandum anticipates a solution that would mitigate the impacts of this development. It is also anticipated that to implement the above roadway improvements on the state highway that a formal agreement between the City, the Department of Transportation, the developer and possibly the County will be required that will better define the details and the additional studies that might be required for each of the mitigative measures. As a result of the suggested agreement mentioned above, it is anticipated that additional studies to determine the more detailed requirements for both the first phase and the ultimate phase of mitigated measures will need to be pursued and reviewed at a later date.

In the Department's review of the draft environmental statement we feel we have received excellent cooperation from the developer's traffic consultant and a good working relationship with the City. As a result, we are able to present the above information in what we feel as a straightforward manner and hope that the cooperation that we have seen over the last several weeks will continue through the implementation phases. If you have any additional questions, please contact R. A. Mattila at 753-7260.

Very truly yours,

A. R. MORRELL, P.E.
District Administrator

Roland C. Cook

By: ROLAND C. COOK
District Location Engineer

ARM:dmh
RCC/RAM
cc: J. Bell
D. Anderson
L. Berry
Keith Gilbert, Transpo Group
Warren Gray, City of Puyallup

RESPONSE 7.

The draft EIS recognized that WSDOT does not have plans nor financing for improvement of SR 161. In accordance with WSDOT comments, the Transportation Section has been revised to include information about impacts on SR 161 without major changes to the existing roadway.

Similarly, the Transportation Section has been revised to include comments about short-range (1983) impacts and mitigation through intersection improvements on SR 161 at 110th and at Meridian. The design and implementation of such improvements are presently being negotiated by the City of Puyallup and others, will be agreed upon prior to the rezone, and implemented prior to occupancy of the phases.

Long-range solutions to SR 161, South Hill, and project access traffic problems can be produced only through comprehensive planning studies beyond the scope of this EIS. The Transportation Section provides an analysis of a five-lane widening of SR 161 and comments on alternative east-west arterials north of the project site. All of this material can be incorporated into future comprehensive planning studies by WSDOT and local agencies; the scope and responsibilities of these future studies will, however, be identified prior to the rezone.

Economic Development Council of Puget Sound

1900 Seattle Tower 1218 Third Avenue Seattle, Washington 98101 Phone: (206) 622-2730 Cable: EDCOPS Telex: 152910

January 23, 1981

Mr. Bruce Uhl
Acting Planning Director
City of Puyallup
218 West Pioneer Street
Puyallup, WA 98371

JAN 26 1981

Dear Mr. Uhl:

Both as Chairman of the Economic Development Council of Puget Sound and as a long-time resident of the Puget Sound area, I was delighted to see the announcement in the press earlier this week of the plans of Fairchild Camera and Instrument Corporation to establish a manufacturing facility in Puyallup.

This will be a very beneficial development for the City of Puyallup and for the entire Puget Sound region because of the size and quality of the operation. The building investment will be significant and no doubt attractive. Not only will there be a wide variety of jobs provided at various skill levels in both direct and indirect employment; it will be a non-polluting and labor intensive operation that will demonstrate the manufacturing opportunities and capabilities of the region. The training programs of the company should benefit the people living in Puyallup and environs.

All in all, it appears to me as one of the more favorable and stabilizing developments in the Puget Sound area in the past several years, and we feel privileged to have participated to some degree in the discussions and research leading up to Fairchild's decision.

Congratulations to you and the others who have worked on this project.

Sincerely,

Gordon H. Sweany
Chairman

Gordon H. Sweany
mr

PUGET SOUND AIR POLLUTION CONTROL AGENCY

410 West Harrison Street, P.O. Box 9863 (206) 344-7330
Seattle, Washington 98109

January 12, 1981

Mr. Bruce Uhl
Puyallup Planning Department
218 W. Pioneer
Puyallup, WA 98371

Dear Mr. Uhl:

Puyallup Science Park

The following comments are submitted in response to review of the Puyallup Science Park Draft Environmental Impact Statement received by our office.

There have been some minor changes in the ambient air quality standards as shown in Table 3 of the report. Enclosed is a copy of the standards which should replace those shown in Table 3.

The Puget Sound Air Pollution Control Agency is a four-county agency covering King, Kitsap, Pierce and Snohomish counties, not three counties as stated. The enclosed maps indicate the ozone nonattainment area and the 1979 suspended particulate geometric mean isopleths. The CO non-attainment area focuses on five "hot spot" areas in the region.

The EPA has recently made some changes in Mobile I emission factors and some changes in the program. These have been incorporated in Mobile II. If possible the CO concentrations should be recalculated using these new factors.

VOC sources other than the automobile need to be considered. In particular are the number of solvents that will be used at the facility. Based on the size of this plant it appears that volatile organic compound (VOC) emissions could be significant and warrant consideration when evaluating the overall VOC problem. Enclosed is a copy of our Regulation II, which deals specifically with VOC control.

The source test information in the Appendix is commendable but somewhat incomplete. Such information as stack flow rate, process tested, process input and flow rate, isokinetic rate, scrubber pressure drop, scrubber efficiency, gas composition (other than N_2, O_2, CO_2 because of solvents used), test duration, etc., would be helpful in determining test validity. If a similar type of scrubber is to be used at this facility, this information would be necessary to determine suitability

SERVING:

KING COUNTY
410 West Harrison St.
P.O. Box 9863
Seattle, 98109
(206) 344-7330

KITSAP COUNTY
Dial Operator for Toll
Free Number Zenith 8385
Bainbridge Island, 98110
Dial 344-7330

PIERCE COUNTY
213 Hess Building
Tacoma, 98402
(206) 383-5851

SNOHOMISH COUNTY
(206) 259-0288

of the scrubber for this particular application. Any air contaminant source requires a notice of construction be filed with this Agency.

The report states that the toxic gases to which workers may be exposed will be exhausted through the aforementioned scrubbers. Although many of these substances are not specifically covered by our regulations, care should be exercised to prevent possible public exposure. In reference to these chemicals the section on Human Health in the report contains only a partial listing of the chemicals used and no information regarding the health aspects of exposure to these chemicals.

Because this is a ten year project, all mitigating measures should be enforced to reduce the suspended particulate burden in the area. As can be seen from the data in your report, there has been a general decline in the air quality in the area. This dictates application of good engineering practice through all phases of the project.

Thank you for the opportunity to comment.

Sincerely,

A. R. Dammkoehler
Air Pollution Control Officer

tj

Enclosures

RESPONSE 9.

1) The Puget Sound Air Pollution Control Agency has supplied a new table on the Ambient Air Quality Standards (Table 34). As compared to Table 3 from the Draft EIS, changes can be noted in the hourly average for Photochemical Oxidants (VOC) and additional standards are included for lead and sulfur oxides.

   A standard of 0.08 ppm $(160)^{c}$ was set for photochemical oxidants in the State of Washington. The new table reflects a standard of 0.12 ppm. All other data remains the same and as stated by the PSAPCA. This change is minor and does not increase the impact of the project on the region.

2) The Puget Sound Intrastate Air Quality Control Region encompasses the counties of Pierce, King, Snohomish and Kitsap.

   The PSAPCA has supplied two additional exhibits. One depicts the suspended particulates 1979 annual geometric means and the other outlines the Ozone Non-Attainment area in the Seattle Tacoma Region. The two exhibits illustrate that although Puyallup is within the Non-Attainment area (Exhibit 28), it does not lie in one of the five concentrated TSP zones (Exhibit 29).

3) Information supplied by Dave Newman of the PSAPCA in Seattle, Washington indicates that the following locations comprise the five "hot spot" areas:

   1. Tacoma - CBD
   2. Seattle - CBD
   3. Bellevue - CBD
   4. Seattle - Northgate Shopping Center
   5. Seattle - University District

TABLE 34
AMBIENT AIR QUALITY STANDARDS

	NATIONAL			WASHINGTON STATE		PUGET SOUND REGION	
	PRIMARY	SECONDARY	Notes		Notes		Notes
SULFUR OXIDES	ppm	ppm		ppm		ppm	
Annual Average	0.03		a	0.02	a	0.02	a
30 day Average						0.04	a
24-hour Average	0.14		b	0.10	b	0.10	a
3-hour Average		0.50	b				
1-hour Average				0.25	c	0.25	c
1-hour Average				0.40	b	0.40	a
5 min. Average						1.00	d
SUSPENDED PARTICULATES	µg/m³	µg/m³		µg/m³		µg/m³	
Annual Geo. Mean	75	60	a	60	a	60	a
24-hour Average	260	150	b	150	b	150	b
CARBON MONOXIDE	ppm	same		same		same	
8-hour Average	9		b				
1-hour Average	35		b				
OZONE	ppm	same		same		same	
1-hour Average	0.12		e				
NITROGEN DIOXIDE	ppm	same		same		same	
Annual Average	0.05		a				
HYDROCARBONS (Less Methane)	ppm	same	b				
3-hour Average	0.24						
LEAD	µg/m³	same				same as National	
Calendar Quarter Average	1.5		a				

a Never to be exceeded
b Not to be exceeded more than once per year
c Not to be exceeded more than twice in seven days
d Not to be exceeded more than once in eight hours
e Standard attained when expected number of days per year with maximum hourly average above 0.12 ppm is equal to or less than one
f Applies 6 a.m. to 9 a.m. daily

ppm = parts per million

µg/m³ = micrograms per cubic meter

SULFUR OXIDES

The presence of sulfur oxides in the ambient air has been associated with a variety of respiratory diseases and increased mortality rates. They represent a significant economic burden and have a nuisance impact. When sulfur oxides are inhaled with small particles, the effect on health is increased. Inhalation of sulfur dioxide can cause increased airway resistance by constricting lung passages.

PARTICULATES

Small discrete masses of solid or liquid matter dispersed in the atmosphere, especially those of one micron or less in diameter, are associated with a variety of adverse effects on public health and welfare. Particulate matter in the respiratory tract may produce injury by itself, or it may act in conjunction with gases to increase the effect on the body. Small particles suspended in the air are chiefly responsible for reduced visibility in the Puget Sound area. Soiling of buildings and other property is a common effect of high particulate levels.

CARBON MONOXIDE

Carbon monoxide reacts with the hemoglobin in red blood cells to decrease the oxygen-carrying capacity of the blood. The national primary standard for carbon monoxide was based on evidence that levels of carboxyhemoglobin in human blood as low as 2.5% may be associated with impairment of ability to discriminate time intervals. The national ambient air quality standards for carbon monoxide are intended to protect against the occurrence of carboxyhemoglobin levels above 2%. Note: Smoking up to 2 packs of cigarettes a day raises carboxyhemoglobin levels to about 5%. This is equivalent to exposure for 8 or more hours to 30 ppm of carbon monoxide.

OZONE

Oxidants are produced in the atmosphere when nitrogen oxides and some hydrocarbons are exposed to sunlight. Ozone is the oxidant found in largest amounts. It is a pulmonary irritant that affects lung tissues and respiratory functions. Ozone impairs the normal function of lung and, at concentrations between 0.15 and 0.25 ppm, causes lung tightness, coughing, and wheezing. Other oxidants, produced in smaller amounts than ozone, cause eye irritation. Persons with chronic respiratory problems such as asthma seem most sensitive to changes in ozone concentration.

NITROGEN DIOXIDE

Nitric oxide results from the fixation of nitrogen and oxygen at high temperatures as in fuel combustion. There are several atmospheric reactions which lead to the oxidation of nitric oxide to nitrogen dioxide, and the presence of nitrogen dioxide in ambient air is essential to the production of photochemical oxidants. The presence of nitrogen dioxide in ambient air has been associated with a variety of respiratory diseases.

HYDROCARBONS

Defined as organic compounds composed exclusively of carbon and hydrogen, hydrocarbons are primarily associated with the use of petroleum products. They are the main components of photochemical smog. Hydrocarbons alone have no known effect on human health; therefore the sole purpose of prescribing a hydrocarbon standard is to control photochemical oxidants.

LEAD

Lead affects humans in numerous ways, but the greatest effects appear to be on the blood-forming system, the nervous system, and the kidneys. It affects some persons more than others. Young children (ages 1-5) are particularly sensitive to lead exposure. The standard for lead in air is intended to prevent most children from exceeding blood lead levels of 30 micrograms per deciliter of blood.

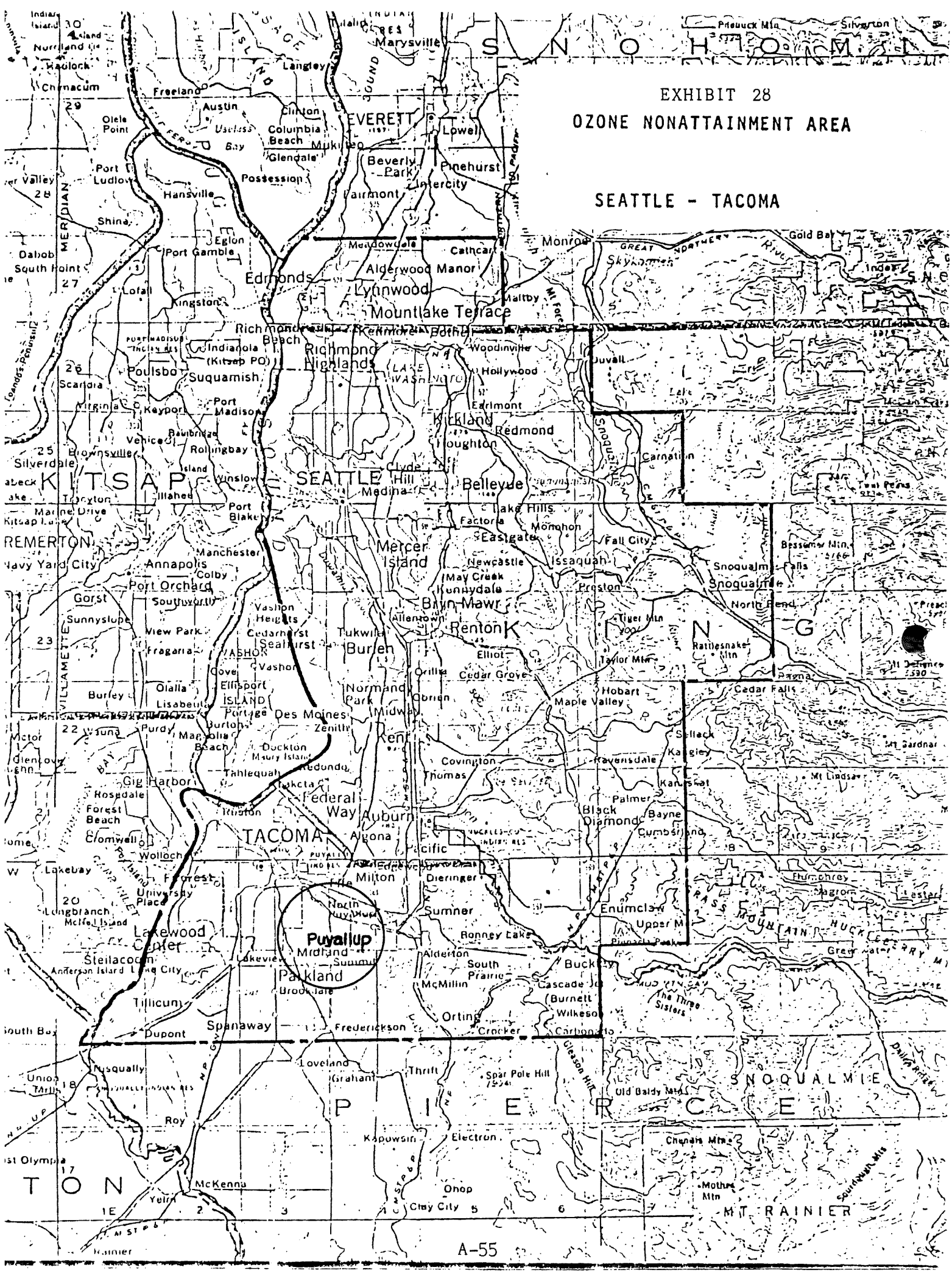
EXHIBIT 28
OZONE NONATTAINMENT AREA
SEATTLE - TACOMA
S N O H O M I S H
K I T S A P
SEATTLE
EVERETT
TACOMA
Puyallup
Renton
Kent
Auburn
Bellevue
Kirkland
Redmond
Lynnwood
Edmonds
Mountlake Terrace
Mercer Island
Federal Way
Lakewood Center
Parkland
Spanaway
Tillicum
Steilacoom
Gig Harbor
Port Orchard
Bremerton
Poulsbo
Suquamish
Issaquah
Snoqualmie
Enumclaw
Black Diamond
Maple Valley
Covington
Sumner
Bonney Lake
Buckley
Orting
Milton
Algona
Pacific
Fife
Tacoma
Lakewood
Steilacoom
Dupont
Roy
McKenna
Yelm
Kapowsin
Electron
Orting
Carbonado
Wilkeson
Burnett
Cascade Jct
McMillin
South Prairie
Aldercrest
Lakeview
Brookdale
Midland
Summit
North Puyallup
Thrift
Graham
Loveland
Frederickson
Crocker
Old Baldy Mtn
Spar Pole Hill
Glacier Peak
Chenuis Mtn
Mother Mtn
Mt Rainier
Tiger Mtn
Taylor Mtn
Rattlesnake Mtn
Cedar Falls
North Bend
Snoqualmie Falls
Fall City
Preston
Issaquah
Newcastle
Factoria
Bellevue
Medina
Clyde Hill
Hunts Point
Yarrow Point
Kirkland
Redmond
Woodinville
Bothell
Kenmore
Lake Forest Park
Shoreline
Mountlake Terrace
Lynnwood
Alderwood Manor
Edmonds
Mukilteo
Everett
Marysville
Tulalip
Arlington
Stanwood
Camano Island
Whidbey Island
Port Townsend
Olympia
Shelton
Hoodsport
Union
Belfair
Allyn
Grapeview
Longbranch
Key Peninsula
Vashon Island
Maury Island
Des Moines
Normandy Park
Burien
Tukwila
Seatac
Renton
Bryn Mawr
Skyway
Lake Hills
Eastgate
Factoria
Mercer Island
Newcastle
May Creek
Honey Dale
Preston
Fall City
Snoqualmie
North Bend
Tiger Mtn
Taylor Mtn
Rattlesnake Mtn
Cedar Falls
Hobart
Maple Valley
Ravensdale
Kanaskat
Palmer
Black Diamond
Bayne
Cumberland
Selleck
Kangley
Enumclaw
Upper M
Pinnacle Peak
Greenwater
Huckleberry Mtn
Mud Mtn Res
The Three Sisters
Buckley
Wilkeson
Carbonado
Burnett
Cascade Jct
McMillin
South Prairie
Aldercrest
Sumner
Bonney Lake
Orting
Crocker
Frederickson
Spanaway
Dupont
Tillicum
Steilacoom
Lakeview
Brookdale
Midland
Summit
North Puyallup
Thrift
Graham
Loveland
Old Baldy Mtn
Spar Pole Hill
Glacier Peak
Chenuis Mtn
Mother Mtn
Mt Rainier
Onop
Clay City
Kapowsin
Electron
Roy
McKenna
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Maury Island
Des Moines
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Tukwila
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Renton
Bryn Mawr
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Eastgate
Factoria
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Honey Dale
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Cedar Falls
Hobart
Maple Valley
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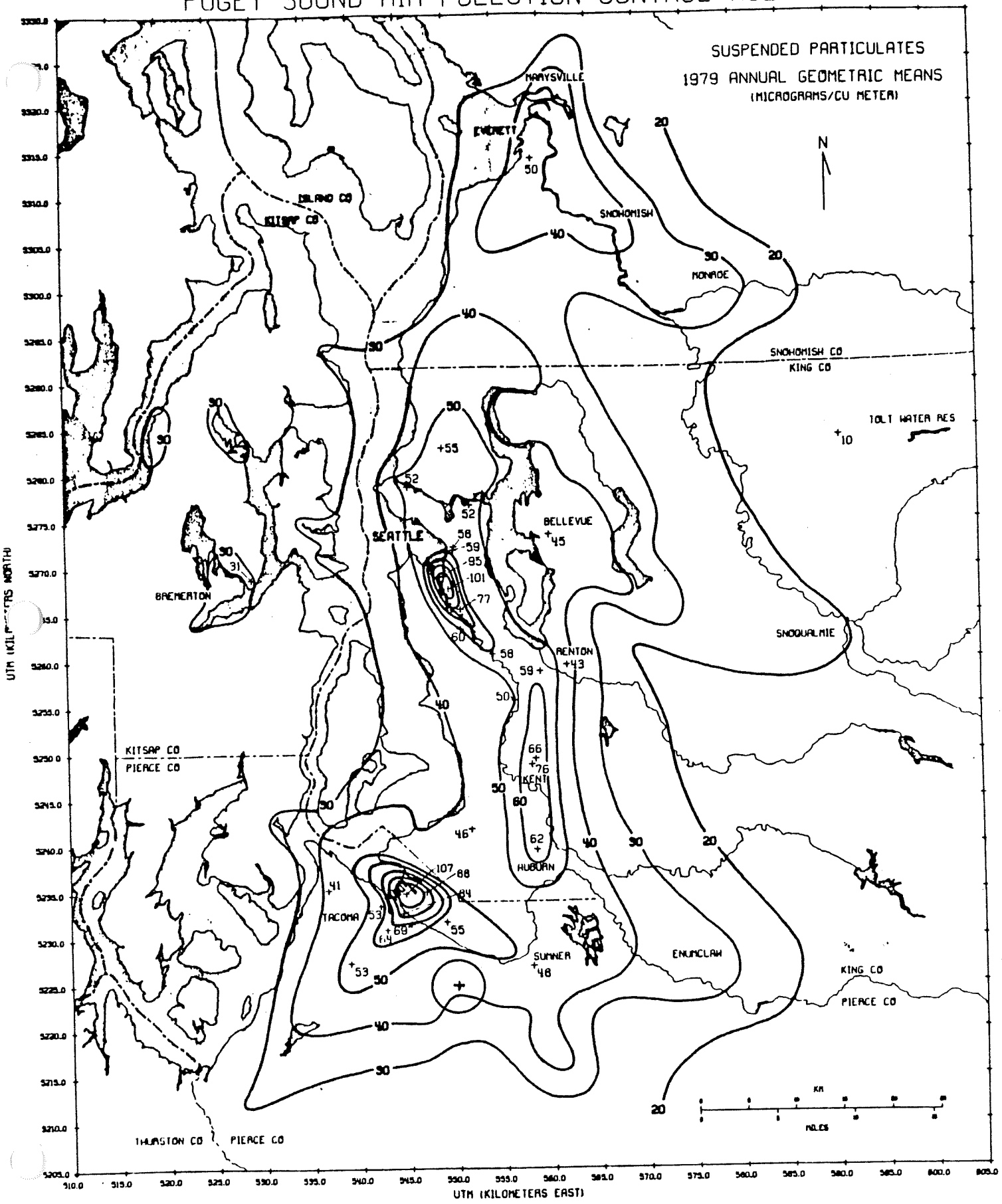
Electron
Roy
McKenna
Yelm
Tenino
Rainier

EXHIBIT 29

PUGET SOUND AIR POLLUTION CONTROL AGENCY



4) The following two agencies have been contacted in an attempt to obtain the new factors which actually are a combination of the Mobile I and Mobile II Emission factors:

1. Dave Newman
   Puget Sound Air Pollution Control Agency
   Seattle, Washington

2. Florence Pearson
   Environmental Protection Agency
   San Francisco, California

Both representatives stated that they had not received any definite publication containing the new standards.

Additional information was then obtained from Mr. Jay Wallace at the U.S. EPA Motor Vehicle Emission Laboratory in Ann Arbor, Michigan. The Mobile II Emission factors reflect the new regulations and data on newer vehicle emission rates since the Mobile I Emissions were published in 1978. At this time there is no table published like the one included in the 1978 Mobile I Emissions Manual.

However, there is a computer model available to the public. Mr. Wallace calculated a new 1985 factor of 3.8 grams/mill per vehicle which reflects the following criteria: a temperature of 50°F, an average speed of 19.6 mph, a 20% cold start factor, a 27.3% hot start factor, and a mix of vehicles (63% autos, 16% Class 1 trucks, 16% Class II trucks, 2.5% heavy trucks and 2.5% diesel trucks).

Traffic data indicates a projected 3,150 trip miles per day to and from the freeway. Utilizing the new 3.8 factor, it can be shown that 11,970 grams per day, or 0.01319 tons, would be emitted. Multiplying this sum by 10 yields 0.1319 tons per day, reflecting projected trip miles to nearby residences. This 10% decrease in emissions from data depicted on page 55 of the draft EIS again indicates that the regional impact of the project on VOC emissions appears to be minor as the Puget Sound Air Pollution Control Agency's 1985 projected emission for the region is 197 tons per day.

5) The volatile organic compounds (VOC's) to be used in the initial phase of the project are listed on the following table, which includes the estimated annual emissions of each. Freon TNC and hexamethyldisilane are not included in the Chemical Substances Inventory of the Toxic Substances Control Act, implying that they are not manufactured in, imported to, or processed in the U.S. Perhaps there is confusion over the nomenclature of these two compounds.

The estimated emissions of the VOC's in the table are quite low, especially considering that the greatest emissions are of VOC's that have low photochemical reactivity. The effect of such emissions on photochemical oxidant formation would be negligible.

Table 35

Annual VOC Emissions From Initial Phase

	Gal.	Lb.	Avg. lb.d.	Comment
Acetone	2,155	14,180	39	Low photo-chemical re-activity.
Isopropyl alcohol	1,270	8,357	23	Low photo-chemical re-activity.
Trichloroethylene	182	2,213	6	Reactive.
Freon TF (1,2,2-tricholoroe-thane)	14	165	0.5	Exempt from Regulation II.
Freon TNC	56			Can find no information, but not likely reactive.
Hexamethyldisilane	172			Can find no information, but methyl groups not like-ly to be photo-chemically re-active.

6) The science park facility will utilize the same manufacturing process and stack design as was tested at the San Jose facility. Therefore, test results on the San Jose scrubbers are valid for the proposed project. Additional testing information is supplied below as requested by the PSAPCA, to assist in further determination of test validity.

Stack Flow Rate - 46,000 cu. ft. per minute
Process Tested - Manufacturing of semi-conductors
Process Inflow Rate - 46,000 cu. ft. per minute
Isokinetic Rate - 266.5 ft. per minute
Scrubber Pressure Drop - 4" water
Scrubber Efficiency - 97%

Gas Composition - Gases other than N_2,0_2 and CO_2 occur in unmeasurable trace amounts.
Test Duration - 4 hours.

7) In a recent study for the California Air Resources Board, the researchers concluded that controlling workplace exposures almost invariably results in reduced emission to the air outside of the workplace.* The same principal investigator in that study has since made further observations supporting that conclusion and supporting the conclusion that significant exposures to the public near industrial facilities is only rarely significant. Therefore, we conclude that significant public exposure to toxic materials will very likely not occur at the proposed facility.

The data in Section B., Air, has not been revised. The data described in this response is the most correct.

* Margler, L.W. et al. "Screening and Identification of Airborne Carcinogens of Greatest Concern in California." Journal of Air Pollution Control Association, 29 (11): 1153 (Nov. 1979).

Chamber of Commerce
Tacoma-Pierce County

January 26, 1981

Bruce Uhl
Puyallup Planning Department
218 West Pioneer
Puyallup, WA 98371

RE: Draft EIS Puyallup Science Park, Puyallup, Washington

Reference Paragraph 10, Population & Housing, page 19.

The Draft EIS notes that 100 residential units are needed for core employees that will not come from the present Pierce County population.[1] The Housing Survey Summary, details the presently available housing in zip code area 98371 (Puyallup). While the survey notes 360 vacant housing units (1.8%) and 144 single family units vacant (1.0%), the available stock could accomodate the market.

Reference Paragraph 11, Employment and Economics, page 19.

The Tacoma SMSA has endured several years of comparatively high unemployment, as detailed in the Draft EIS. Noting that only 100 core employees will be added to the local workforce over the next four years,[2] a study by the U.S. Chamber of Commerce outlines the benefits to the community. These are:

$872,000 more personal income per year
$481,000 more bank deposits
$395,000 more retail sales per year
2 more retail establishments

The total of 3,000 new direct jobs and 900 indirect jobs to be generated over the next 10 years and filled by people now living in Pierce County, would have much the same effect. Additionally, with our community's employment at 14,500 people, 8.5% of the work force, the new jobs should have a dramatic input on work opportunities and unemployment levels[3].

735 St. Helens, P.O. Box 1933, Tacoma, WA 98401 (206) 627-2175

We believe this project is the type of new development for which our community has asked. We recommend you accept it.

Sincerely,

Gary D. Brackett, Manager
Business - Industry Department

Ruth Kors, Manager
Community Development Department

GDB:RK:lks
enclosure: Bibliography

BIBLIOGRAPHY

1) "Seattle-Everett-Tacoma Housing Vacancy Survey 1980,"
Federal Home Loan Bank of Seattle, 600 Stewart Street
Seattle, WA 98101, c. Feb., 1980. Page 4-A, B.

2) "What New Jobs Mean to a Community,"
Economic Analysis and Study, Chamber of Commerce of the United States,
1615 "H" Street, NW, Washington, D.C. 20062, 1973. Page 11

3) "Tacoma SMSA Labor Area Summary,"
Washington State Employment Security Department, 955 Tacoma Ave. S,
Tacoma, WA 98402, Dec., 1980. Page 1,6.

RESPONSE 10.

See Section VI., A. Population and Employment, page 90.

TACOMA-PIERCE COUNTY
ECONOMIC DEVELOPMENT BOARD
P.O. Box 1933
735 St. Helens Avenue
Tacoma, Washington 98401
(206) 383-4726

January 23, 1981

Mr. Bruce Uhl
Acting Planner
City of Puyallup
218 W. Pioneer
Puyallup, WA 98371

Dear Mr. Uhl:

This letter is in support of the Environmental Impact Statement that has been submitted by the Leavitt Co. in support for the rezone of the property for Fairchild Camera and Instrument Corporation.

It has been our pleasure to work with these fine Fairchild people and to observe their mode of operation and we in Pierce County are indeed fortunate to have them select us out of the 30 cities studied throughout the United States.

The outstanding fact about this high technology, labor intensive and clean industry is they felt "We in the area really wanted them here." This shows the friendliness and concern for others people in Puyallup have.

Thank you for your positive consideration of the EIS - I'm extremely pleased to be able to recommend it to you.

Sincerely,

Lester M. Bona
President

LMB:mr

WALTER R. HERRON M.D., M.P.H. · DIRECTOR OF HEALTH

January 13, 1981

City of Puyallup Planning Dept
218 West Pioneer
Puyallup, WAshington 98371

Attention: Bruce Uhl

SUBJECT: Draft Environmental Impact Statement, Puyallup Science Park

Dear Mr. Uhl:

Mr. Tom Rogers of this Division has reviewed the subject Draft Environmental Impact Statement.

He has found no objections to the proposal as long as the proposed Science Park is allowed to connect to the City of Puyallup sanitary sewer system.

Yours very truly,

Donald L. Oliver

Donald L. Oliver, Director
Environmental Health Division

DLO:np

RECEIVED

JAN 14 1981

TACOMA-PIERCE COUNTY HEALTH DEPARTMENT

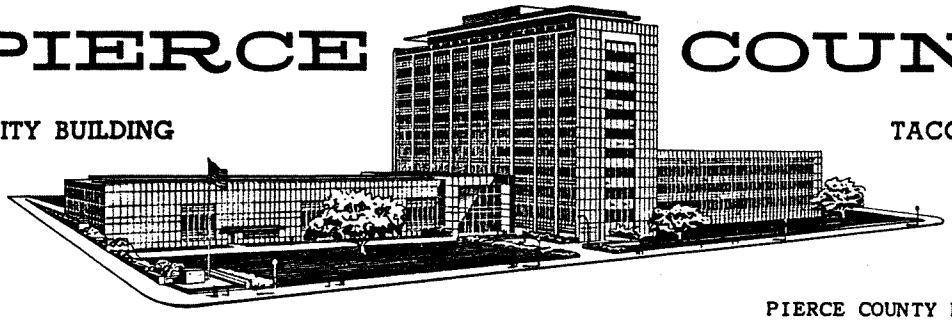
3629 SOUTH D ST. TACOMA, WASHINGTON 98408

RESPONSE 12.

No construction on the Science Park will begin until arrangements to connect to the City of Puyallup sanitary sewer system have been finalized.

PIERCE COUNTY

COUNTY-CITY BUILDING



TACOMA, WASHINGTON

PIERCE COUNTY PLANNING DEPARTMENT
XXXXXXXXXXX, Director
D.L. Rosenkranz

January 22, 1981

Mr. Bruce Uhl
City of Puyallup
Planning Department
218 West Pioneer
Puyallup, WA 98371

JAN 26 1981

Re: Puyallup Science Park Draft EIS

Dear Sir:

The Pierce County Planning Department has reviewed the above referenced draft environmental impact statement. Our comments follow:

GENERAL

The EIS does not make referenced to Pierce County's Draft Comprehensive Plan for the South Hill area.

We recognize that the proposal is not subject to the South Hill Plan nor has the plan been adopted. We would like to point out, however, that the proposal does not appear to be consistent with several policies of the plan which relate to traffic. These policies are as follows:

Policy: Traffic generated by industrial sites shall not impact residential streets and neighborhoods.

Policy: Arterials utilized for transport of hazardous materials shall meet the highest standards for highway design and maintenance.

Policy: Commuter transit services to industrial areas should be developed; the location configuration, and design of industrial development should facilitate convenient and efficient transit service.

Policy: The suburban environment contains policies which would evaluate the compatibility of the project with surrounding uses. It is probable that traffic in residential areas would fail this test.

Also, should the project have any potential for interference with communications transmissions, we would suggest that McChord Air Force Base be contacted.

PAGE 14

The summary of the proposal does not include the construction of the nitrogen manufacturing plant and cooling tower on the site as indicated in the noise impacts section on Page 77. More specific information regarding this aspect of the project should be given.

PAGE 15

The conceptual site plan does not show the location of the proposed nitrogen plant and cooling tower. It would appear that these facilities would have to be placed in either the vegetative buffer or in an area now designated for parking.

Also, the site plan should more clearly delineate those areas set aside for future development

PAGE 33

The "Description of Proposal" section lacks a description of the major physical and engineering aspects of the proposal. This section should include a detailed description of the activities which are proposed to take place on the site, to include both construction and post construction activities. Examples include:

a) site preparation (clearing, grading, filling, etc.)
b) phasing of construction
c) proposed landscaping and buffer areas
d) services and utilities which will be utilized
e) description of manufacturing processes
f) materials used in the manufacture of the product
g) hours of operation
h) transport of materials, chemicals, etc., to the site

PAGE 57

Nitrogen manufacture should be included in the section on manufacturing processes, and impacts on air quality therefrom addressed.

PAGE 77

The second paragraph refers to a proposed 200 foot buffer on the site, while on Page 83 the buffer is referred to as 75 feet.

Futhermore, the conceptual site plan on Page 15 shows a vegetative buffer of approximately 300 feet around the site. Please clarify.

PAGE 83

The land use impacts section indicates that the project will have a high degree of compatibility with adjacent residentially zoned properties surrounding the site. We do not think that this statement is entirely accurate especially as it pertains to the SR-9 zoned properties lying to the west between the project site and Meridian Avenue.

If the road to the north and west, depicted on Exhibit 23 is constructed, the bulk of employee and trucking traffic will be routed through this area detracting from its suitability for residential development.

We feel that development of the subject project and road will most likely lead to pressure for additional industrial uses for that land lying between the project site and Meridian Avenue.

PAGE 84

The statement at the top of Page 84 indicates that the applicant owns land to the north and east which will ensure that these lands will be developed consistent with the subject site. It would be helpful if these adjacent ownerships were shown graphically.

PAGE 91

Housing

The new housing units required by the 100 core employees who would be relocated appears to be far too low an estimate of housing demand generated.

The assumption that the opportunity for employment would not draw new residents to the area is unwarranted; even though it also may not be possible to quantify the probable number of new residents. The effect is to stimulate demand beyond what is estimated in the EIS. Depending

on the inventory of housing, the effect of this heightened demand may have an adverse affect of the price structure of the housing market; however, this would be difficult to ascertain without a study beyond the scope of the EIS.

Our studies indicate there may be a relationship between the availability of jobs and a high unemployment rate. This may be caused by in-migration of workers.

PAGE 96

The primary benefit to Pierce County is not the quantity of jobs, but the diversification of primary employment.

PAGE 136

Aesthetics

This section indicates that 40-45% of the site will remain undeveloped. On Page 66, however, the statement is made that 45.7 acres of the site will be converted from vegetation to buildings, roads, and parking areas. Please clarify.

PAGE 142

Noise

This statement indicates that there will be moderate increases in noise levels on residences near the site. It should be pointed out, however, that if the road proposed as a mitigating measure is constructed to the west of the site, significant noise increases can be expected in the residentially zoned areas which the road would traverse.

PAGE A-26 Appendix 9

This appendix includes a description of the types of chemicals used in the manufacturing process and the handling of these substances on site.

The EIS, however, lacks any discussion of the transport of these chemicals to the site and the potential for explosion or spillage during transport and transfer. The EIS should provide an explanation of quantities of chemicals used; methods of transport to the site; routes of travel by trucks carrying these chemicals; and contingency plans for accidental spill or explosion.

Thank you for the opportunity to review and respond to the Draft Environmental Impact Statement on the Puyallup Science Park.

Sincerely,

Dan Cagle

DAN CAGLE
Environmental Official

DC/scw

RESPONSE 13.

General

We agree that the proposed development is not subject to the South Hill District Comprehensive Plan though we are aware of those policies which affect the unincorporated areas.

Page 14

The proposal will include a nitrogen manufacturing plant and cooling tower to support other manufacturing processes at the facility. See response to comments on page 15 and page 57.

Page 15

The nitrogent manufacturing plant will be located in the vicinity of the area marked "tanks" in Exhibit 4, page 15.

Page 33

a) The site will be prepared for construction by clearing existing vegetation and debris and removing any irregularities in slope through grading.

b) The project will be constructed in five phases. In Phase I a fabrication building and a mechanical core will be constructed and in Phase II a second fabrication building will be built. Phases III and IV will involve construction of one office building each and in Phase V two buildings for research and development will be built. Construction will begin in 1981 and be completed in 1990.

c) The facility will be fully landscaped around the buildings and parking lots in a manner that reflects the existing natural character of the site. A 75-foot buffer of natural vegetation and trees will completely surround the complex.

d) The facility will utilize both natural gas and electricity. The local water and sanitary sewage systems will service the site. The services of the Puyallup Fire Department, the Puyallup Police, and the local hospital and ambulance services will be available to the project.

e) Solid state memory integrated circuits (IC) will be manufactured at the facility. The manufacturing processes will include wafer fabrication (manufacturing integrated circuit chips on a silicon wafer), assembly of IC chips on a frame, packaging, and electrical testing and finishing of IC packages for customer distribution.

f) Materials that will be used in the manufacturing process include silicon, aluminum, gold, titanium, silver, hydrogen, silane, oxygen, arsine, phosphine, acetone, isopropyl, alcohol, xylene, hydrofluoric acid, sulfuric acid and hydrochloric acid.

g) The facility will operate three shifts a day: (1) 7 AM to 3:30 PM (15% of the first shift will work from 8 AM to 5 PM), (2) 3:25 PM to 11:55 PM, and (3) 11:30 PM to 7:05 AM.

h) Materials and products will be shipped to and from the site via trucks approved for interstate transport.

Page 57

Liquid nitrogen is manufactured through a process that involves cooling and separating atmosphere. Atmosphere moves through a

cooling process in which a refrigerant cools it to 30°. It moves through a series of expansion values and pressure units until it enters a separation column. Through expansion and contraction the atmosphere is turned into a liquid state and the nitrogen plates out on trays. Liquid nitrogen is stored at -320° and at low pressure in a vessel equipped with a safety device that enables gas to escape. There are no harmful by-products from the process.

Page 77

The buffer will be 75 feet in depth surrounding the complex.

Page 83

Though it is possible that additional industrial uses could be proposed for land lying between the project site and Meridian Avenue, such uses are not being proposed by the City at this time.

Page 84

The applicant owns all the property east of the proposed facility to Wildwood Drive and north to the Parkwood Subdivision.

Page 91

We agree that this type of research is beyond the scope of the EIS. However, revisions have been made in the EIS to the discussions of population, employment and housing and include an amplification of these issues.

Page 96

We agree that the primary benefit to Pierce County is the diversification of primary employment. See section VI, A, page 90.

Page 142

We agree that if the road proposed as a mitigating measure is constructed to the west of the site, significant noise increases can be expected, as discussed in Section V, F, page 75.

Page A-26, Appendix

Chemicals will be transported to the site on approved roads via trucks approved for interstate transport. The quantities of chemicals that will be used at the facility are not available at this time nor will they be until the manufacturing process is sized in the next 26 weeks.

PIERCE COUNTY

3551 BRIDGEPORT WAY WEST — TACOMA, WASHINGTON 98466

4 February 1981

WM. R. THORNTON
PUBLIC WORKS DIRECTOR
Telephone: (206) 593-4600

Puyallup Planning Department
218 West Pioneer
Puyallup, WA 98371

Re: Draft Environmental Impact Statement for Puyallup Science Park

Gentlemen:

We have reviewed the referenced document and offer the following comments:

TRAFFIC SECTIONS:

Page 27 Sec. 12 — Are the two proposed streets being constructed by the developer as a part of this development to mitigate traffic impacts? If so, during which phase of development will construction be completed? New road locations should be shown on conceptual development plan. Ex. 3, page 15.

Page 102 — It should be noted that for design and planning purposes Level of Service "C" is used as a standard by Pierce County. Any roads within Pierce County jurisdiction which are affected by this development will be evaluated on this standard.

Page 103 — Exhibit 15 - Names of all cross streets should be shown.

Page 106 — First paragraph - What 100± acre project is being spoken to at this point?

Page 106 — Last paragraph - Who will be installing and paying for the "assumed improvements"?

Page 107 — Exhibit 17 - Are the volumes shown west of SR161 on 116th correct?

Page 109 — Exhibit 19 - The title of the exhibit should include "with assumed improvements in place". A figure should also be included which shows 1990 PM Peak Hour Non-Project Capacity Analysis without assumed improvements.

Page 110 — Third Paragraph - This statement indicates that unless the developer proposes to construct all assumed improvements, the project analysis should be conducted without the assumed improvements in place.

Page 113 Exhibit 21 - The title of the Exhibit should include "with assumed improvements in place." A figure should also be included which shows 1990 PM Peak Hour Capacity Analysis (within project) without assumed improvements.

Page 116 No mention was made of who will pay for the proposed new roads shown on page 117. No mention was made of what improvements will be made on 110th/112th and the intersection of 110th & SR161. In short, a summary of improvements which will be made by the developer as a part of this project should be outlined. Timing of these improvements should also be spoken to in the summary.

HYDROLOGY AND DRAINAGE:

P.17 & 24 Hydrology and Drainage - These statements are generally correct, but the specific discussion (see page 60) lacks adequate analysis of the problem to demonstrate that adequate mitigating measures can be taken.

Page 37 Description of Proposal, Paragraph 2 - Response for storm drainage runoff control is generally correct.

Page 60 Hydrology and Drainage - A conceptual drainage control plan should be included at this time for further review. The following information under "Existing Site Conditions" should include:

- o An overlay mapping the conceptual site plan, topography, and soils mapping.
- o Any and all off-site tributary land areas (adjust topography for adjacent roadway and/or land development changes made to the tributary area's drainage pattern).
- o Delineation of existing private road or drainage ditch features within or adjacent to the site which could concentrate storm-water runoff into the site or away from this site area.
- o Show on the drainage and topography map the off-site drainage features as described in the first paragraph for at least 1/4 mile downstream from the site. Show any existing constrictions to the flow in this area.

Please include the following changes/analysis in the "Mitigating Measures" section:

- o Revise the first paragraph to state that the system will be designed in accordance with City of Puyallup standards and specifications together with certain engineering criteria as specified by Pierce County Public Works Department such as maximum infiltration rate @ 3 min./in., existing condition runoff coefficient @ .05.

- Revise the second paragraph to state "Siltation fences shall be located along downhill areas where runoff is not concentrated, but are generally sheet flow conditions to minimize siltation during peak runoff." "Holding ponds for silt control will be constructed prior to other clearing or development at appropriate points of runoff concentration."

- Revise and expand paragraph 3 to present the conceptual drainage control plan to utilize either detenion or retention control systems. If positive surface discharge is existing or established by drainage easements across adjacent private County lands to the west from this site, then detention control system may be utilized. If there is no existing watercourse onto the west to Bradley Lake, then on-site retention control system must be utilized. Note that the Everett & Indianola soil types may be suitable for this and that the downstream existing channel capacity may already be limiting for any increased runoff from this area.

Thank you for the opportunity to review this Draft E.I.S. I hope our comments are constructive and helpful. If you have any questions, please call me.

Very truly yours,

WM. R. THORNTON
Director

Don Peterson

DON PETERSON
Bridge Engineer

WRT:DP:cn
cc: Tom Ballard
John Comis
File
D1-3

RESPONSE 14.

Traffic Sections

1. The transportation sections have been revised to clarify the status of mitigation actions. In summary, short-term 1983 Phase I action includes widening of the SR 161 intersections with Meridian and 110th St. E., a new signal at SR 161 and 110th, and widening of 110th and 112th between the project site and SR 161. Implementation is now being negotiated. Long-term actions include a possible new east-west route north of 110th, but plans for this new roadway are dependent on plans for properties west of the project site and WSDOT plans for SR 161.

   Since WSDOT does not have plans at this time for the long-range improvement of SR 161, the analysis in the EIS has been expanded to cover conditions in the future if no improvements are made to this highway.

2. Levels of service below "C" (the county standard) have been identified only on state highways, not on county roads.

3. The project referred to on page 106 of the draft EIS is the rezoning that is the subject of the EIS.

4. The "assumed improvements" mentioned on page 106 are on SR 161. The EIS states that financing is not presently available for these improvements. The transportation section has been revised to show conditions without the assumed improvements.

5. The volumes on 116th St. E. shown on page 107 of the draft EIS were developed from WSDOT forecasts.

Hydrology & Drainage

1. A drainage control plan for the site will be provided at the plan approval stage of development. It will accurately address the design and location of the drainage system and detention facilities with consideration of the final elevations for parking and buildings.

2. An additional exhibit entitled "Existing Drainage Conditions" follows these responses. The exhibit indicates the limits of the drainage basin, the approximate open ditch location, direction of existing drainage flows, and downstream piping. The source of the information is the "Comprehensive Trunk Storm Drainage Plan", City of Puyallup, September, 1980. In addition the conceptual site plan and a proposed location of the detention facility are shown.

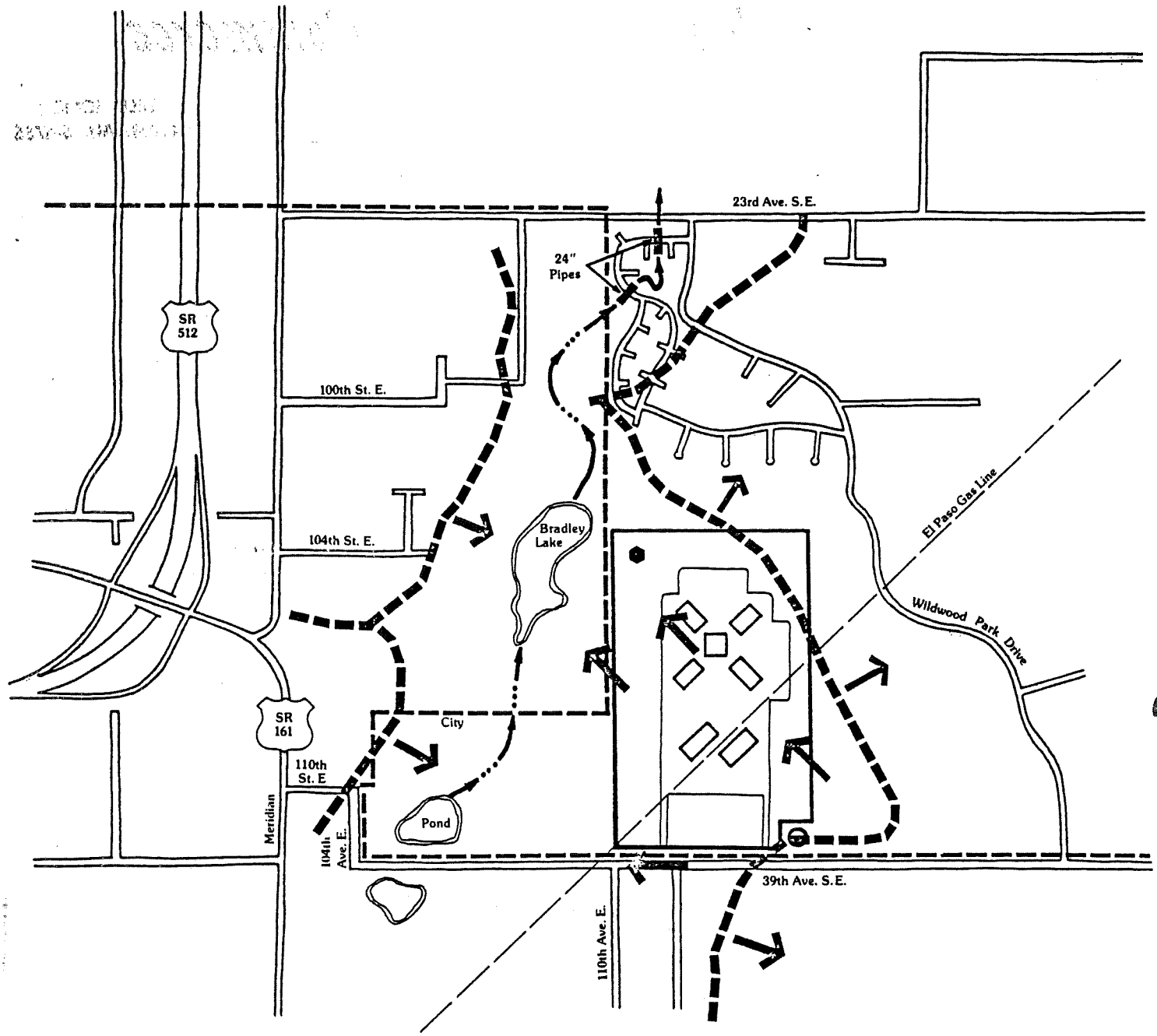
   The exhibit represents the existing drainage features without the benefit of topographic contours. At later stages of site plan approval, a more detailed drainage analysis will be prepared as supporting documentation of the drainage system to serve the site.

3. Final storm drainage engineering and design will be based on the standards and specifications of the City of Puyallup and, if applicable, engineering criteria from the Pierce County Department of Public Works.

4. We concur with the comments regarding placement of siltation fences along downhill areas of the site and the construction of holding ponds for siltation control prior to other clearing or development.

5. Surface water discharge across adjacent lands is presently occurring. For this reason a detention facility will be incorportated into the overall storm drainage system for the site.

Jurisdictional approvals will be required for the final storm detention facility, drainage system and temporary erosion sedimentation control plan.



Legend

- Property Boundary
- City Limits
- Open Ditch
- Drainage Divide
- Direction of Sheet Flow
- Proposed Location of Detention Facility

(Source: Comprehensive Trunk Storm Drainage Plan, City of Puyallup, September 1980.)

North

0 660 1320

Approximate Scale 1" = 1320'

Existing Drainage Conditions

Exhibit 30

ORTING PUYALLUP SUMNER

Puyallup Valley Chamber of Commerce

2823 E. MAIN, PUYALLUP, WASHINGTON 98371

TELEPHONE
THORNWALL 5-6755

January 26, 1981

Mayor Scott Minnich and City Council
Members
P.O. Box 458
Puyallup, Washington 98371

Dear Mayor Minnich and Council Members:

This is to inform you that at their January 23, meeting the Public Relations/Social Services Committee of the Puyallup Valley Chamber of Commerce voted to support the Puyallup Science Park.

This morning, January 26, the Legislative Committee of the Chamber went on record supporting the Puyallup Science Park.

If you have any questions feel free to call me.

Sincerely,

Robert A. Burmeister
Executive Director

RB:rs

FEB 3 REC'D

Puyallup Public Schools

February 2, 1981

Puyallup Planning Department
City of Puyallup
Puyallup WA 98371

To Whom It May Concern:

The Puyallup School District has reviewed the Draft Environmental Impact Statement relevant to the proposed Puyallup Science Park. The proposed site is located relatively close to two existing elementary schools, Wildwood Elementary School which is located at 2601 Wildwood Park Drive and Sunrise Elementary School which is located at 2323 39th Street East. It is also very close to a planned new junior high school which is to be located on a site just East of Wildwood Park Drive at approximately 34th Avenue S.E. The construction of the new junior high school is scheduled to begin during the late Spring of 1981.

The school district is concerned about the additional traffic which will be generated in the vicinity of the proposed Science Park and the above mentioned schools. Extreme caution must be exercised in developing traffic patterns so as to assure the safety of both pedestrians and drivers. It appears that establishing access to the Science Park from 39th Avenue S.E. rather than from Wildwood Park Drive is highly desirable.

It is reasonable to assume that because of employment opportunities drawing new families into the area, the rate of growth of student population within the school district would accelerate significantly as a result of the development of the Science Park. The relocation of 100 core employees to the Puyallup - Pierce County region would not significantly impact the school district's ability to accommodate students. However, it seems very likely that large numbers of employees other than the core group would be drawn to the area and would seek living accommodations relatively close to their place of work, thus accelerating population growth on south hill and the school district as a whole.

The Puyallup School District has had a rather extensive building program in recent years; however, the added facilities basically meet the needs of present students and do not provide any significant number of "extra" classrooms. The influx of even a relatively small proportion of the families of those employed in the 3900 positions mentioned would result in the need for

109 East Pioneer, P. O. Box 370, Puyallup, Washington 98371 Telephone: (206) 841-1301

additional classroom space. The additional classrooms could be provided only with the passage of a bond issue by the voters of the community to provide the necessary funds. It should be noted, however, that over the long term the added tax base resulting from the investment in buildings and equipment at the Science Park would be of major benefit to the school district in providing funds for both the construction and operation of schools.

The school district also expresses a concern that there be no possible hazards in the vicinity of any school sites as a result of potential explosions or from emissions which might be created by chemicals or the manufacturing process.

In summary, the school district anticipates a continuing need for additional school facilities, particularly in the south portion of the district. The cost of any new school facilities and added school operational costs which might occur as a result of the development of the proposed Science Park would be more than offset over a period of years by added revenues accruing as a result of an improved tax base. Concerns relating to the traffic patterns and any potential hazards as the result of the manufacturing process must be mitigated.

Sincerely,

Sam Peach
Associate Superintendent

SP/hw

FEB 2 1981

RESPONSE 16.

We agree that caution must be exercised in developing traffic patterns to assure the safety of both pedestrians and drivers. Though no particular solution has been confirmed at this time, every effort will be made to develop those mitigations that are most acceptable to all concerned.

We also agree that on a long-term basis the added revenues resulting from an improved tax base would offset the costs of any new school facilities and added operating costs that may result from residential development associated with new employment opportunities.

Extreme care in the handling of hazardous substances and strict enforcement of safety codes will virtually eliminate any potential threat to neighboring schools and residences. No hazardous emissions will be discharged into the air. See Section VI., I., pg. 165.

Lloyd B. Nickel
10223 D-105
Meridian Fir Apts.
Puyallup, WA 98371

JAN 26 1981

January 26, 1981

Planning Director
City of Puyallup
218 W. Pioneer
Puyallup, WA 98371

Re: Puyallup Science Park

Dear Sir:

I would like to take this opportunity to let you know that I believe that the planned industrial park which you are considering will be very beneficial to the community and residents of Puyallup. I believe this project not only has the potential for being valuable not only economically but also the campus like setting as planned could be very aesthetic and a welcome development for those of us who work in the South Hill area. As I am sure you know, all of us who use Meridian daily are already concerned with traffic problems and do not want to see this problem compounded. As I understand, both the city and Fairchild are concerned with this problem and intend to seek every means possible of minimizing any adverse impact. Along those lines, however, it is my understanding that under the current residential zoning, the property in question could subject Meridian to even more automobile traffic than under the planned use.

In summary, I support the project completely and am satisfied that you and the proponents are aware of certain difficulties that might arise and are conscientiously attempting to study and come up with viable solutions. I believe this project would be a welcome addition to the South Hill area of Puyallup and Pierce County in general and is exactly the type of economic growth which we should welcome.

Sincerely,

Lloyd B. Nickel

Lloyd B. Nickel

LBN:lf

RESPONSE 17.

Alternative traffic mitigations are being developed through the cooperative efforts of the Washington State Department of Transportation, the City of Puyallup, Pierce County and the developer.

JAN 26 1981

Jan 24, 1981

To whom it may concern;

I would like to make a couple of comments on the new electrical component factory being proposed for the South Hill Puyallup Area.

I presently live in the Area and travel Meridian South everyday to and from work. My wife as well travels this road each and everyday. We have in the planning of this facility they do take into consideration this problem of Meridian So. I feel with co-operation from all concerned there can be a solution to the road problem.

As a property owner and tax payer in this community I welcome this firm into our Area. This should have some positive bearing on the over-all tax base that we pay taxes from.

We are a growing community and new business is needed to continue this growth. I hope this firm is allowed to establish it facilities in our community.

Sincerely

Ligon D. Eads
13815 104th Ave Ct E
Puyallup

RESPONSE 18.

The traffic problems associated with South Meridian have been carefully analyzed and methods to relieve the impact of the proposed facility on future traffic congestion are being formulated. See Section VI. D., Transportation, page 116 and the Response to the Department of Transportation comment in this section.

12907 129th St East
Sumner, Wash. 98371
24 January 1981

CITY OF PUYALLUP
JAN 26 1981

Planning Director
City of Puyallup
218 W. Pioneer
Puyallup, Wash. 98371

RE: Fairchild Camera Development

Gentlemen:

Just a short note to let you know that I believe the people responsible for bringing the kind of development to Puyallup should be congratulated. It is clean and non-pollutant. It is not noisy, business or ugly to look at. It should be an excellent neighbor. It will add some needed funds to the tax base. It will help move some of the unsafty homes in the local area. It will provide jobs for many others too.

The main problem I see with this particular development might be traffic. The business access would be 112th Street which is not in very good shape and hasn't been for many years and Meridian & Shaw. Both are now heavily traveled and Meridian in particular is so overloaded I nearly try to get on it. However, if we had a housing development instead of Fairchild Camera, the impact would be much worse. The reason for that is the residential density that is always approved for those kinds of projects. Housing would also add to the already overloaded school bus.

I feel it would be very foolish not to work out the necessary

RESPONSE 19.

Alternative traffic mitigations are being developed through the cooperative efforts of the Washington State Department of Transportation, the City of Puyallup, Pierce County and the developer.

MIKE SHACKELFORD
2612 - 35 Ave SE
PUYALLUP, WA

ALEX MACLAURIN
2615 - 35 Ave SE
PUYALLUP, WA
98371

JAN 26 1981

To WHOM IT MAY CONCERN:

This letter will serve to express our Positive opinion to FAIRCHILD CAMERA LOCATING ON 112th AVE IN PUYALLUP.

WE COLLECTIVELY FEEL THAT THIS TYPE OF INDUSTRY SHOULD BE ENCOURAGED TO LOCATE IN THIS AREA. IT IS NON-POLLUTING, LABOUR INTENSIVE AND PHYSICALLY THIS COMPANY HAS TAKEN EXTENSIVE CARE TO BLEND THEIR PLANT INTO THE GEOGRAPHICAL SURROUNDINGS.

A COMPANY OF THIS SIZE WILL PROVIDE A MUCH NEEDED TAX BASE TO THE CITY OF PUYALLUP THEREBY RELIEVING SOME OF THESE COSTS FROM THE POPULACE. ALSO FAIRCHILDS' WORK FORCE WILL GENERATE ADDED BUSINESS AND SERVICE INDUSTRIES.

AN EMPLOYER OF THIS SIZE ON SOUTH HILL WILL FORCE THE STATE TO WIDEN SOUTH MERIDIAN THUS EASING TRAFFIC CONGESTION FOR RESIDENTS OF THIS AREA.

A CITY GOVERNMENT AND A COUNTY GOVERNMENT THAT WELCOMES SUCH INDUSTRY HAS A GREATER CHANCE OF GETTING MORE OF THESE GOOD CORPORATE CITIZENS. SNOHOMISH COUNTY IS AN EXAMPLE OF HOW NOT TO WELCOME THIS TYPE OF INDUSTRY.

THE MORE INDUSTRY IN PIERCE COUNTY, THE LESS OF A BACK SEAT PIERCE COUNTY HAS TO TAKE TO KING COUNTY.

January 23, 1981

MINUTES ON THE PUBLIC HEARING ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT ON THE PROPOSED PUYALLUP SCIENCE PARK.

A public hearing was held on January 21, 1981, at 7 p. m. in the Council Chambers on the Draft Environmental Impact Statement on the proposed Puyallup Science Park.

Those in attendance were as follows:

Responsible Official:	Acting Planning Director Bruce E. Uhl	
Those in the Audience:	Mr. Thad Fausset	11302 - 112th Street E.
	Mr. Fred McCoy	11326 - 112th Street E.
	Mr. Fred Brune	3701 - 26th Street S. E.
	Ms. Joyce Parsons	5202 - 96th Avenue Ct. W. (EDB)
	Mr. John Barnes	2503 - 38th Avenue S. E.
	Mr. Robert Rasmussen	11912 - 112th Street E.

The following public hearing has been recorded on tape and can be heard in the Planning Department.

Mr. Uhl, the responsible official, explained the procedure on how the public hearing was going to be held, and then declared the hearing open. It should be noted that two (2) copies of the draft E. I. S. was available for the public to see at the hearing. After a fifteen-minute lapse with no comments, the public hearing was closed.

Mr. Fausset stated that he did have some comments, so the public hearing was reopened. He stated that the E. I. S. did not address the impact on the local residents that live around this proposal. He stated that he lives across the street. Mr. Fausset stated that his property value, residential property will be effected, and the history of Boeing has shown this. He stated that he had some concerns on who will pay the additional services, such as water, sewer, street, etc. He stated that he will lose his seclusion, because of this proposal; and there would be a lot of truck and auto traffic. What compensation will be available, if any, for the surrounding property owners. Has this been taken into consideration, and if not, why not? Mr. Fausset stated that his home is self-contained, except for electricity; and he believes this proposal would pollute his well. What compensation would there be for this? How about the protection of the children, the issue of safety must be addressed. He also spoke on the size of the street and the improvement of it. Is the city going to rezone only this site, or will they do the entire area? Mr. Fausset candidly spoke that the invasion on his property and the REASON of why he brought his property would be all lost; he is against the rezone.

The next person to speak was Mr. Robert Rasmussen. His concern was with the traffic, and the widening of the street to the east. How is the excessive noise and the safety of this street be accomplished?

The third person was Mr. Fred McCoy, who is a property owner across the street. He is concerned about the adverse effect on his property value, and also the safety of children. With the increase of traffic, there would be unsafe conditions for his children to go to the shopping center.

The fourth speaker was Mr. John Barnes, a resident of Manorwood. His concern was the access road to Wildwood Drive and the impact to this street. Will there be improvements to Wildwood Drive, 23d Avenue S.E., and Shaw Road to accommodate this new plant?

Mr. Fausset spoke again. What is the Comprehensive Plan for this area? What about the traffic, the routes before, during, and after the construction of this plant. Shaw Road is an arterial, has extra land been purchased to bring this up to standards, and when would this be done? Will all these roads be done by April? Planned progress is a lot better than progress. 77 million dollar tax base is honorable, but if we look back ten years from now, is this going to be a 77 million dollar deficit? People these days cannot get out of their homes as readily, this should be weighed against the 77 million dollars. The alternate plan is a no action plan, or a shot gun plan, why is there not a phased plan, where it can be done in phases. Again the motives are not honorable, in the long run is the 77 million dollars the best interest for the city?

With no further comments, the public hearing was closed a second time at 7:35 p.m.

Bruce E. Uhl
Responsible Official

BEU:cjm

RESPONSE 21.

Because of the natural buffers that will surround the facility and the amount of nearby vacant land that will be developed for residential purposes, the integrity of the residential neighborhood will be preserved. Therefore, no compensation will be necessary nor expected.

Additional services will be provided through tax revenue generated from the facility. Funds provided will enable the City either to make the improvements or to pay off bonds to make the improvements.

There will be no new wells drilled on the site, no septic tanks, nor drain fields. A gravity system will be used. Water drainage will flow to the north and the gravity flow of the sewers will be to the north. Nothing will be injected into the ground. Therefore, there will be no threat of pollution or interference to neighboring wells, and no compensation necessary.

There will be an expected increase in traffic on Wildwood Drive of only 100 cars by the year 1990, or only 10% of the current traffic volume. Consequently, the increase in noise generated by traffic and the threat to safety in residential areas will not be significant. Truck traffic will also increase minimally because the total bulk of the packaged IC chip product is quite small.

The City is not considering any additional zone changes in the area at this time.

There will be no improvements to 23rd Avenue S.E. nor to Shaw Road.

According to the City of Puyallup's Comprehensive Plan, the designation for this area is Low Density Residential.