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**King County Metro Transit
Power & Facilities Section**

North Facilities Maintenance Building Program
January 2004

*Building and Grounds Program
for a New North Facilities Maintenance Headquarters*



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Executive Summary

The purpose of this report is to produce a Building Program for a new King County Transit North Facilities Maintenance Headquarters (North Facilities)

Program Document

The Program Document gives an overall site area requirement for a new King County North Facilities Maintenance Headquarters (North Facilities) which, in essence, will replace the existing facility north of Lake Union in Seattle.

The overall Program area is given below.

Section 1	Outdoor Support Areas	22,217 SF
Section 2	General Parking	20,800 SF
	Parking/Equipment Area	34,663 SF
	Site Landscaping	5,017 SF
<u>Site Requirements Subtotal</u>		<u>82,697 SF</u>
Section 3	Office/Admin. Areas	2,519 SF
Section 4	Crew Support Areas	3,416 SF
Section 5	Shop Areas	5,175 SF
Section 6	Storage Areas	4,945 SF
Section 7	Support Areas	1,380 SF
	Building Envelope Gross Area Factor (15%)	2,615 SF
	Planning Contingency (15%)	2,615 SF
<u>Building Requirements Subtotal</u>		<u>22,665 SF</u>
<u>Total Site Area Required</u>		<u>105,362 SF</u>

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Introduction

The purpose of this report is to produce a Program Document which King County Metro Transit can use as a evaluation tool to assess potential sites for the relocation of its North Facilities Maintenance Headquarters.

The Program Document was developed through meetings with Metro employees which aimed at understanding the current duties and tasks of the existing North Facilities Maintenance Headquarters and identifying future space needs and responsibilities. The goal was to develop a building and site program which would serve the space needs of a twenty year facility.

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Background

Transit Facilities Maintenance currently operates out of three facilities in three locations: North Seattle, Central Base (custodial office only) and Tukwila.

Facilities Maintenance is responsible for the maintenance and repair of all Metro Transit properties and facilities as well as associative equipment throughout King County.

Purpose

Currently North Facilities Maintenance operates from a 1.7 acre site located in an industrial zoned site at N. 34th Street and Woodland Avenue North. This property is under consideration for redevelopment and Facilities Maintenance will need to relocate either temporarily or permanently.

The purpose of the space needs study is to define the site area and building space requirements that need to be accommodated at a new North Facilities Maintenance headquarters.

Methodology

The consultant's work consists of:

- 1) Program Document (Space Needs Study). Through the following procedures, the consultant was able to generate a space needs document that defines the space requirements for a new maintenance facility.
 - Workshop with Power and Facilities section manager and key supervisors was conducted to discuss the future direction of the North Facilities Maintenance.
 - Interviews with key staff members were conducted.
 - Site visits to the North Lake Union facility were undertaken.
 - Background information provided by Metro which included past studies was reviewed.

Standards

Where they exist, King County space standards were used for administrative office and staff areas. There are no standards for shop or specialty areas. For these instances, the consultant looked at the functional requirements of the work to be performed in the space and relied on input from Metro staff. For large vehicle and equipment parking, a vehicle survey was taken to determine the quantities, relative size and turning radius of the vehicles used. Please see section 5 for specific vehicle data information. Number of employee parking was determined through meeting the current staff requirements (44 day shift workers) then providing additional stalls (10) for future growth and (6) non revenue vehicles.

The following list indicates the King County Space Standards used for the administrative areas.

King County Space Standards:

Unit Supervisor	110 – 180 SF
Chief	85 -120 SF
Admin. Assistant	85 -120 SF
Conference Room	20 SF per chair
Reception Area	13 SF per chair
Copy Room	150 SF
PC Work Station	30 SF
Circulation Factor	25%

Zoning and Compatible Uses

Jurisdiction: The existing North Facilities is located in the City of Seattle. Therefore, a review of the site zoning requirements is based on the Seattle Municipal Code (SMC).

Use Classification: Given the range of uses identified in this Program, the North Facilities could be classified within any of the following use types by Seattle's Department of Planning and Development:

- Transit Vehicle Base
- Office, Administration
- Outdoor Storage
- Principal Use Parking Surface Area or Garage

A summary of the zones that would allow these uses is provided in the table below. The facility may also be subject to additional provisions for Public Facilities, which are treated separately on the following page.

The following SMC Industrial and Commercial zoning designations would permit uses included in the Metro facilities maintenance program.

CU = Permitted after Administrative Conditional Use review by director.
 CCU = Permitted after Council Conditional Use review by City Council.

Zone	Transit Vehicle Base	Office, Administrative	Outdoor Storage	Principal Use Parking, Surface Area or Garage
Commercial 1 - C1	CCU	Permitted	Permitted	CU
Commercial 2 - C2	CU	Permitted	Permitted	CU
Industrial - IB	CU	Permitted	Permitted	Permitted
Industrial - IC	CU	Permitted	Permitted	Permitted
Industrial - IG1	CU	Permitted	Permitted	Permitted
Industrial - IG2	CU	Permitted	Permitted	Permitted

The chart shows that both Commercial 1 and 2 zones, and all Industrial zones could accommodate the facility. However industrial zones are more permissive outright. If classified as a Transit Vehicle Base, or a Principal Use Parking or Garage, the facility may require conditional use review, and perhaps City Council conditional use review in the case of a C1 zone.

Public Facilities: North Facilities Maintenance is a governmental quasi-public facility, and may be subject to special considerations. As discussed above, uses in the program are generally similar to those permitted by the noted zones. In this case, the public facility use will be permitted according to the same use regulations and development standards. (SMC 23.47.004 F).

Special provisions may apply if uses are deemed not to be similar to uses permitted by the underlying zone. In this case, the City Council may waive or modify applicable development or conditional use criteria according to the provisions of Section 23.76, Subsection III.

Finally, in all commercial zones, uses in public facilities not meeting development standards may be permitted by City Council if the project A) provides unique services, B) the location is required to meet a public need, C) the waiver is necessary to meet needs, and D) the relationship with the surrounding area has been considered. This may be of particular importance if departures from development standards are required for the Metro facility.

Setbacks and FAR Restrictions

Setbacks from the property line are generally not required for buildings in commercial and industrial zones unless they abut a residentially zoned lot. In these cases a setback of 10' is required when the building is above 13' high (under 13' in height, typically no set back required). An additional 1' of setback is required for each 10' of building height above 65' of overall height. The only setbacks that would apply to a building not adjacent to a residentially zoned lot, would be those necessary to satisfy the landscaping and screening requirements of the land use code, a Uniform Building Code requirement, or for constructability reasons when building adjacent to an existing structure.

FAR restrictions do not apply to buildings below 65' in height in commercial zones. In industrial zones maximum FAR is usually 2.5, much higher than what would be expected for a low slung facilities building.

No maximum size limit is placed on non-residential uses in commercial zones. In industrial zones maximum size limits for office uses begin at 50,000 square feet, far beyond the office space allocation in this Program.

Screening & Landscaping

Required setbacks and screening factor into the lot area needed to accommodate a North Facilities Maintenance. 5% of total site area must be reserved for site landscaping for new construction. Buffers of at least 5' should be assumed along lot lines, though this area may count towards the 5% landscaping requirement. Trees and landscaped areas must be included within

parking areas. Additional space for this parking area landscaping is included in the parking area grossing factors.

It should be noted that setback and screening requirements vary depending on the zone of a new facility and its adjacencies. Notably, required landscaping in industrial zones is less than for commercial zoning requirement. In all cases, setbacks and screening requirements are significantly more stringent where next to residentially zoned lots, especially for outdoor storage and work areas. Space allocations for screening and landscaping should be adjusted upward if a proposed site abuts a residentially zoned lot. In most cases, outdoor storage spaces, loading and work areas, will require a 6' high visual screening, and surface parking areas will require a 3' high visual screen.

Parking Requirements

Off street parking requirements only apply to commercial zones and are minimum requirements. No maximum number of spaces is required. Where required in commercial zones, parking provided in the program will likely exceed required standards. Parking requirements in commercial zones for uses in the program include the following:

Office / Admin. Space	1 space / 1,000 gsf
Outdoor Storage	1 space / 2,000 gsf
Vehicle / Vessel Repair	1 space / 2,000 gsf
Transit / Vehicle Base	1 space / 2,000 gsf

The program allocates 52 total parking spaces, three of which will be required to meet ADAAG. This includes parking stalls for 36 dayshift workers, 10 additional spaces for future or seasonal workers, and 6 non-revenue vehicles. Therefore, the number of programmed parking stalls will exceed the parking required by code. For example, a 25,000 gsf (gross square footage) building (larger than the Program) would require between 13 and 25 parking spaces according to the standards above. All parking lots for this facility must have the ability to be secured using an automated gate which operates on the building's key card access control system.

Access and Circulation

Adequate site circulation is a major factor in determining the effectiveness of a maintenance facility. The layout for large vehicle and equipment parking must be arranged in such a way as to allow for easy access in and out of the secured areas as well as allow for loading and unloading of materials from trucks and trailers. Drive-through access to vehicle re-fueling stations and wash down areas are also very important. A planning level gross area factor of 270% has been applied to the large equipment and outdoor support areas to account for

circulation, maneuverability and set backs from property lines. This increase is conservative and depending on the existing street networks, circulation patterns of a site and efficient parking layouts, a lesser factor may actually be achieved.

Pavement within this area must be designed for heavier vehicular loading and able to withstand staging for extended periods of time. All pick-up trucks, trailers, sweepers, garbage compactors and other large maintenance equipment should be stored in a covered and secured area on site. Loading docks should also be covered and connected to all shop and storage areas to allow for convenient loading and unloading of materials and supplies. Please see Space Data Sheets and Adjacency Diagrams for further adjacency requirements.

Utilities

The following represents a basic list of the utility requirements for the building. A thorough analysis of the requirements of the building and the existing services at the potential sites was not included as part of this work task.

Water: Basic building service would include domestic water and fire protection. A large volume 2" diameter non-potable water supply is needed for the pressure wash refill station.

Sanitary Sewer: Waste lines for building waste, vehicle wash down areas, vehicle fueling stations and garbage compaction area.

Storm Sewer: Rainwater leaders connected to existing storm sewer. The program allocates 10% of impervious area for surface storm water detention. An underground vault may also be an option.

HVAC: Mechanical Room has been provided for in the program. The building will be fully heated and air conditioned. Specific heating and cooling systems as well as controls are not identified as part of this program. Ventilation systems as required by code.

Electrical/Power: Electrical Room has been provide for in the program. Power delivery and transformation, power distribution, emergency power systems, back-up power systems, wiring distribution methods and lighting systems were not part of this program. Electrical construction will conform to the National Electrical Code and the City of Seattle Electrical Code.

Interior lighting systems will utilize energy efficient fixtures to meet current Seattle Energy Codes.

Fire Detection and Alarm Systems: An Ancillary Space / Fire Protection area for automatic sprinkler system risers has been provide for in the program. The fire detection and alarm system will be provided in accordance with local code requirements and the Authority Having

Jurisdiction (AHJ) which is the Seattle Fire Marshall. The system will likely be an audible and visual type, with each horn having an ADA rated visual strobe.

Telephone Service: Telephone / Data Room has been provided for in the program. Determining the service conduits, raceways, terminal boards and wiring distribution was not part of this work.

Gas: Natural gas supply as required.

Intercom/Paging System: Required. Integral with telephone and data system.

Door Alarm and Building Security: Key card building and fenced yard access is required.

Gross Area Factor

For employee parking, the program assumes 400 SF per vehicle. This accounts for circulation, handicap parking stalls, 25 SF for landscaping (code requirement for +50 stalls), and required setbacks.

A planning level gross area factor of 270% has been applied to the large equipment and outdoor support areas to account for circulation, maneuverability and landscaping set backs. Due to the large turning radiuses of Metro's truck and trailer units, as well as large garbage compaction vehicles, any new prospective site should be field tested with mock-ups to ensure the vehicle maneuverability.

Program Area Summary

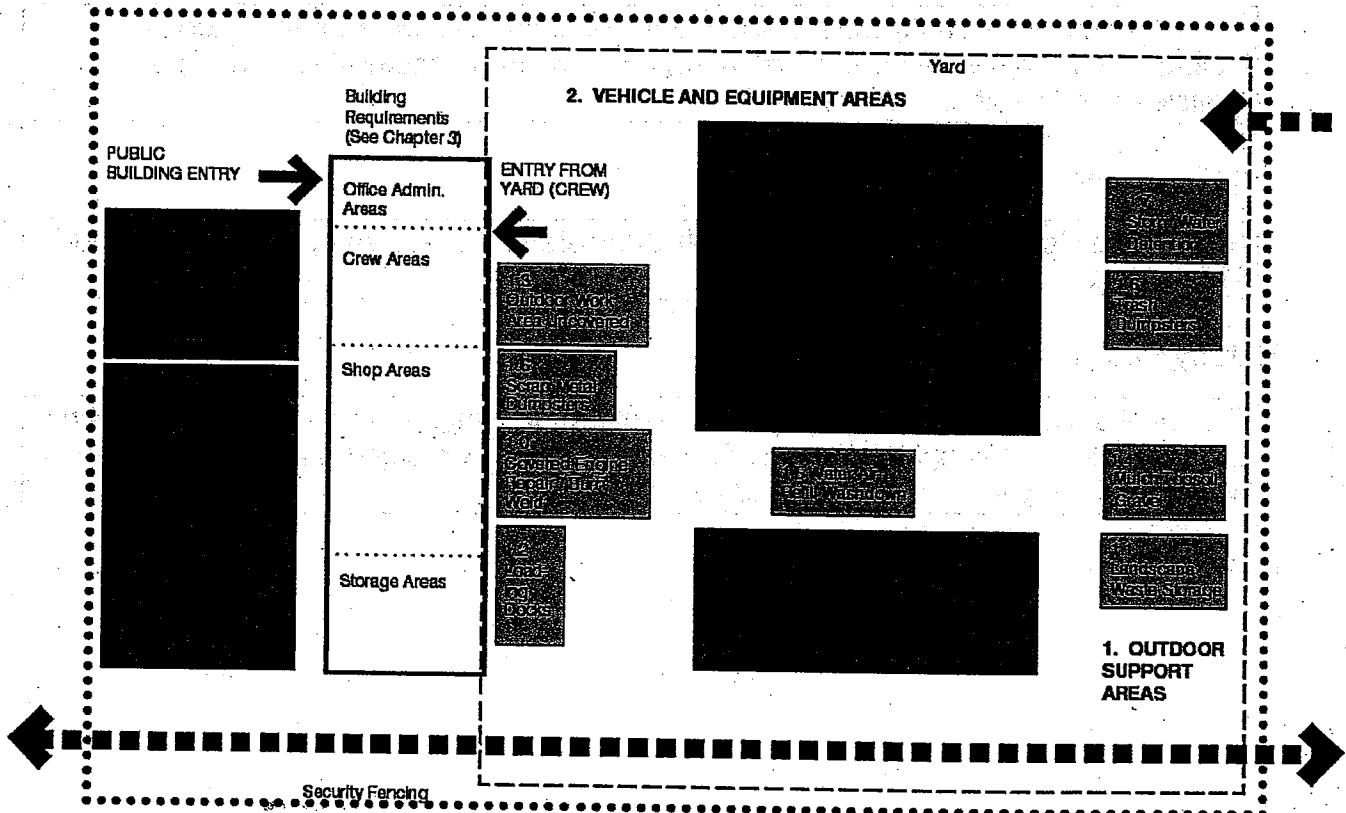
Site Requirements have been divided into two groups. Section 1 pertains to Outdoor Support Areas and Section 2 covers Parking and Equipment Areas.

Table 2.0 Site Requirements Summary

Section 1	OUTDOOR SUPPORT AREAS	Standard or Estimated SF	Qty	Total Area SF
1.0	Covered Engine Repair/Burn/Weld	500	1	500
1.1	Landscaping Waste Storage Area	600	1	600
1.2	Loading Docks	1,000	1	1,000
1.3	Outdoor Work Area, uncovered	750	1	750
1.4	Mulch/Top Soil/Gravel Loading Area	750	1	750
1.5	Water/Air Refill Station w/ Washdown	800	1	800
1.6	Scrap Metal & Trash Dumpsters	150	3	450
	<i>Subtotal</i>			4,850
	Gross Area Factor 270%			13,095
1.7	Stormwater Det. (10% Impervious)			9,122
	<i>Subtotal 1</i>			22,217
Section 2	PARKING/EQUIPMENT AREAS	Standard or Estimated SF	Qty	Total Area SF
	<i>General Parking</i>			
2.0	Employee Parking	400	46	18,400
2.1	Additional Non Revenue Vehicles	400	6	2,400
	<i>Subtotal</i>			20,800
	<i>Parking - Large Equipment</i>			
2.2	Pick Up Trucks	200	22	4,400
2.3	Garbage Compactor	360	2	720
2.4	Ford Sweeper	324	2	648
2.5	Isuzu Sweeper	242	1	242
2.6	Truck and Landscaping Trailers	400	9	3,600
2.7	Truck and Pressure Wash Trailers	320	9	2,880
2.8	Sanding & Snow Removal	348	1	348
	<i>Subtotal</i>			12,838
	Gross Area Factor 270%			34,663
	<i>Subtotal 2</i>			55,463
	Site Landscaping Factor 5% Total Required Area			5,017
	Site Requirements (outdoor) Total			82,697

Adjacency Diagram

The adjacency diagram below provides a loose illustration of some of the relationships that should be provided between site uses. Space requirements and adjacencies within the building structure are treated separately in the following section.



Note: space sizes are not to scale. Schematic diagram only.

OUTDOOR SUPPORT AREAS

Space Name: Covered Engine Repair/Burn/Weld

Space Number: 1.0

Area: 500 SF

Function:

Covered outdoor area for maintenance work on items too large for the shop area including vehicle and large equipment repairs. Must be accessible with large vehicles and fork lifts. Secured area.

Adjacencies:

Near to the Constructor Shop and Trash Dumpsters. Locate away from Public and Office Areas.

Utility Requirements:

Electrical supply for welding equipment. Outdoor lighting. Exterior intercom required. Overhead lift. Air supply. Hose bib for water supply. Structural pavement capacity to withstand heavy vehicle loading and parking.

OUTDOOR SUPPORT AREAS

Space Name: Landscape Waste Storage Area

Space Number: 1.1

Area: 2 Dumpsters @ 300 SF = 600 SF

Function:

Designated, covered area for two 'green' landscaping waste dumpsters. Secured area.

Adjacencies:

**Near landscaping storage area.
Near landscaping trailer parking area.**

Utility Requirements:

Exterior intercom required. Structural pavement capacity to withstand heavy vehicle loading and parking.

OUTDOOR SUPPORT AREAS

Space Name: Loading Docks

Space Number: 1.2

Area: 1,000 SF

Function:

Dock areas for loading of equipment and material off trucks and into storage and shop spaces. Fork lift access and delivery access required. Secured area.

Adjacencies:

Must be adjacent to the Stores.
Near to Constructor Shop, Constructor Storage and Landscaping Storage.

Utility Requirements:

Electrical convenience outlets. Overhead lighting. Exterior intercom required.
Structural pavement capacity to withstand heavy vehicle loading and parking.

OUTDOOR SUPPORT AREAS

Space Name: Outdoor Work Area, uncovered

Space Number: 1.3

Area: 750 SF

Function:

General purpose uncovered outdoor work area. Set-up and staging area for equipment and vehicles. Secured area. Fork lift access.

Adjacencies:

Near shop areas.

Utility Requirements:

Outdoor area lighting. Exterior intercom required. Structural pavement capacity to withstand heavy vehicle loading and parking.

OUTDOOR SUPOPPORT AREAS

Space Name: Mulch / Topsoil / Gravel Loading Area

Space Number: 1.4

Area: 750 SF

Function:

Area for storage of landscaping materials

Adjacencies:

Near large vehicle parking areas. Access for loaders.

Utility Requirements:

Structural pavement capacity to withstand heavy vehicle loading and parking.

OUTDOOR SUPPORT AREAS

Space Name: Water / Air Refill Station with Vehicle Wash-Down Area.

Space Number: 1.5

Area: 800 SF (approximately 20' x 40' dual access island)

Function:

Water and air refilling station for pressure wash trailers, vehicles and miscellaneous equipment. Provides exterior vehicle wash area for cleaning and maintenance.

Adjacencies:

Near pressure washer trailer parking. Requires space for pull-through of pickup truck with pressure washer trailer.

Utility Requirements:

Requires 2" diameter water supply bib. Water supply should be non-potable or recycled water from the site. Drainage catchment for excess water. Structural pavement capacity to withstand heavy vehicle loading and parking. Exterior intercom required.

PARKING/EQUIPMENT AREAS

Space Name: Scrap Metal and Trash Dumpster Area

Space Number: 1.6

Area: 3 Dumpsters @ 150 SF each = 450 SF
(approximately 10'x15' pad)

Function:

Space for 3 dumpster receptacles and back-in unloading area and pick-up removal. Scrap metal and trash dumpsters collect waste from shop and other on-site activities. Covered and secure area required.

Adjacencies:

Adjacent to maintenance yard entry points for ease of pick-up and to minimize intrusion into the yard.

Utility Requirements:

Situated on concrete pavement pads suitable for heavy loads. Exterior parking lot area lighting. Underground catch basin for collection and treatment of surface water run off. Exterior paging system required.

PARKING/EQUIPMENT AREAS

Space Name: Storm Water Detention Area

Space Number: 1.7

Area: 10% of on site impervious areas = 9,122 SF

Function:

Storm Water detention area to detain all runoff from on-site impervious areas in a bioswale, or planted strip. This planted area may be in addition to special underground runoff detention tanks for particular types of runoff, such as from the vehicle wash down area.

Adjacencies:

Should be located at the lower end of the site.

Utility Requirements:

PARKING/EQUIPMENT AREAS

Space Name: Employee Parking

Space Number: 2.0

Area: 46 Vehicles @ 400 SF = 18,400 SF.

- Assumes a single lot of +50 parking spaces, therefore min. of 35% shall be striped for large stalls 8.5' x 19' (SMC 23.54.030)
- Includes 25 SF per stall for Landscaping (SMC 23.47.016)
- 3 parking stalls required to be handicap accessible (ADAAG)

Function:

On-site, secure, uncovered parking for 46 day-shift workers.

Adjacencies:

Near crew entrance and main building entrance.

Utility Requirements:

Concrete pavement for light vehicles and pedestrians. Exterior parking lot area lighting. Irrigation as required for landscaping. Underground catch basin for collection and treatment of surface water run off.

PARKING EQUIPMENT AREAS

Space Name: Additional Non Revenue Vehicles

Space Number: 2.1

Area: 6 Vehicles @ 400 SF = 2,800
Co-located within the employee parking. See 2.0 for area requirements.

Function:

On-site, non-secure, uncovered parking for 15 visitors.

Adjacencies:

Near main building entrance. Stalls added to the employee parking lot giving a total of 52 total stalls.

Utility Requirements:

Concrete pavement for light vehicles and pedestrians. Exterior parking lot area lighting. Irrigation as required for landscaping. Underground catch basin for collection and treatment of surface water run off.

PARKING EQUIPMENT AREAS

Space Name: Pick Up Truck Parking.
Models include: Ford F250 & F350, and Dodge Ram F350.

Space Number: 2.2

Area: 22 Vehicles @ 200 SF = 4,400 SF
Approximate parking stall size 10' x 20'

Function:

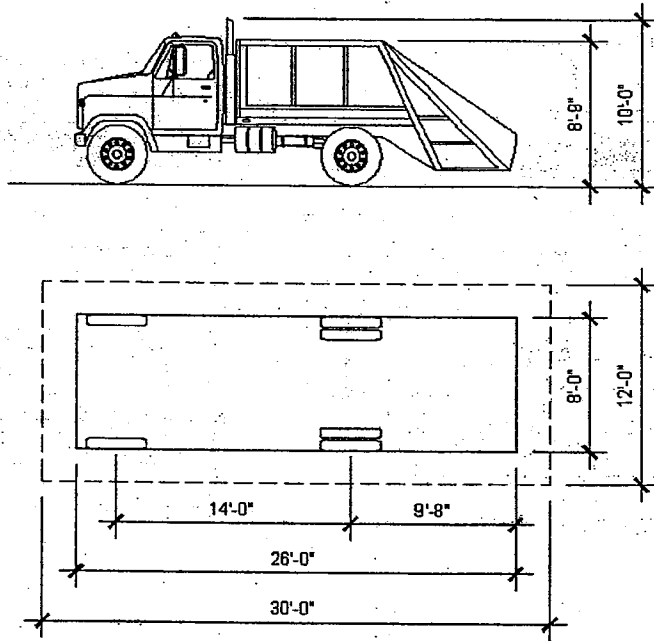
Parking for fleet of 22 maintenance pickup trucks. Covered and secured area required.

Adjacencies:

Near crew entrance.
Near trash and landscaping areas.
Access to vehicle fueling station and vehicle washdown area.

Utility Requirements:

Concrete pavement for heavy vehicles and equipment. Exterior parking lot area lighting. Underground catch basin for collection and treatment of surface water run off. Exterior paging system required.



PARKING/EQUIPMENT AREAS

Space: Garbage Truck (Collection & Compaction) Parking

Space Number: 2.3

Area: 2 Vehicles @ 360 SF = 720 SF
(See vehicle data sheets for additional vehicle information)

Function:

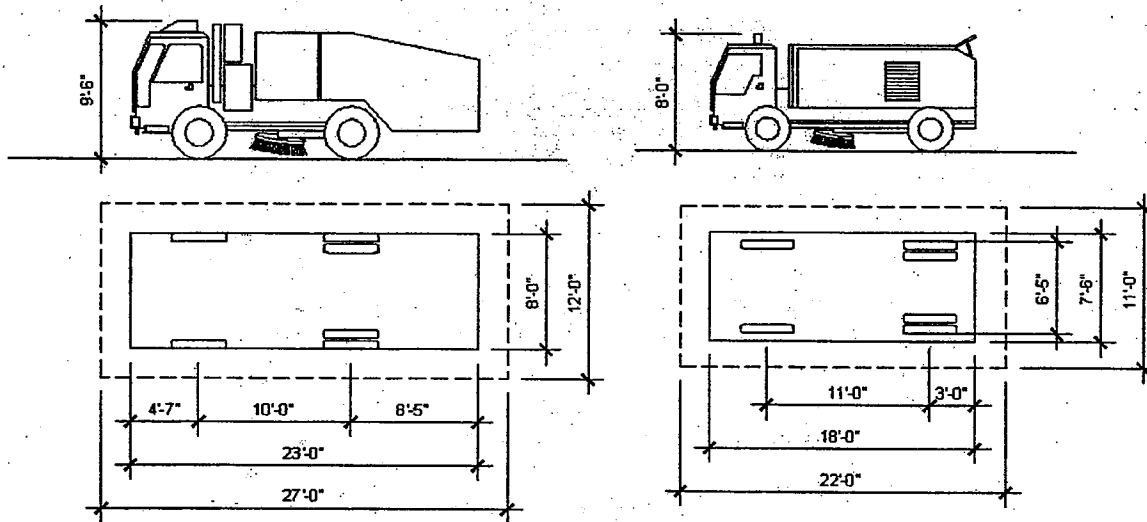
Parking for 2 garbage collection/compaction vehicles. Garbage trucks are used for both on-site garbage consolidation and compaction, and in route garbage collection. Covered area required.

Adjacencies:

Requires designated area to capture garbage compaction seepage. Near dumpster areas.

Utility Requirements:

Concrete pavement for heavy vehicles and equipment. Exterior parking lot area lighting. Underground catch basin for collection and treatment of surface water run off and garbage compaction seepage. Exterior paging system required.



PARKING/EQUIPMENT AREAS

Space: Sweeping Vehicle Parking

Space Number: 2.4 & 2.5

Area: Ford: 2 Vehicles @ 324 SF = 648 SF

Isuzu: 1 Vehicle @ 242 SF = 242 SF

(See vehicle data sheets for additional vehicle information)

Function:

Parking for 2 Ford and 1 Isuzu Model lot sweeping vehicles. Covered and secure area required.

Adjacencies:

Near vehicle wash-down area.
Near trash collection and compaction areas.
Adjacent to other large vehicle parking areas.

Utility Requirements:

Concrete pavement for heavy vehicles and equipment. Exterior parking lot area lighting. Underground catch basin for collection and treatment of surface water run off. Exterior paging system required.

PARKING/EQUIPMENT AREAS

Space Name: Full Size Pick-Up Truck & Landscape Trailers

Space Number: 2.6

Area: 9 Vehicles and Trailers @ 400 SF = 3,600 SF
Approximate required stall size 10' x 40'
(See vehicle data sheets for additional vehicle information)

Function:

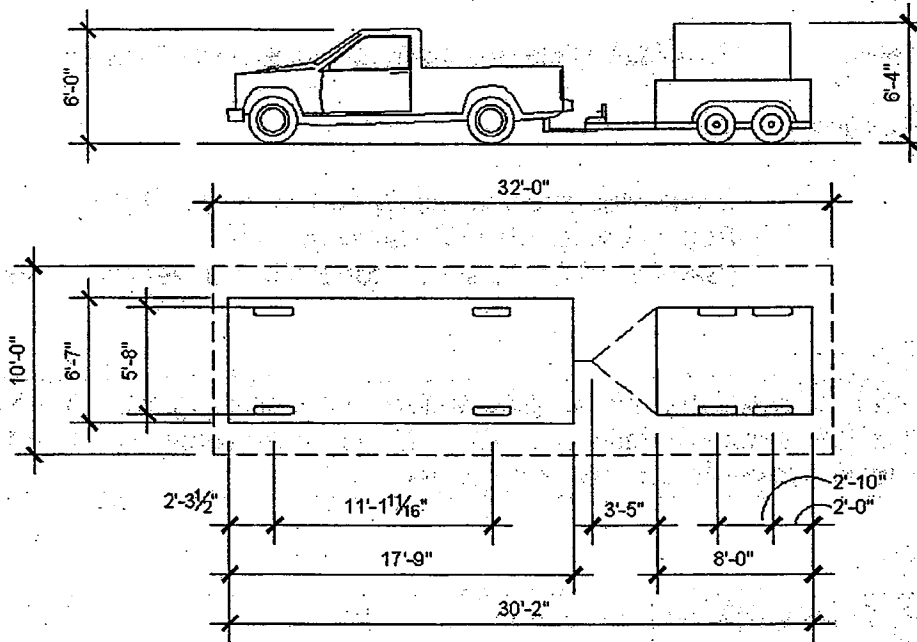
Parking and storage for 9 landscaping trailers. Landscaping trailers are used for transport of landscape materials, equipment and green spoils. Trailers towed by pickup trucks. Covered and secure area required.

Adjacencies:

Adjacent to landscaping storage area.
Adjacent to landscape waste area.
Near pickup truck parking area.

Utility Requirements:

Concrete pavement for heavy vehicles and equipment. Exterior parking lot area lighting. Underground catch basin for collection and treatment of surface water run off. Exterior paging system required.



PARKING/EQUIPMENT AREAS

Space: Full Size Pick-Up Truck & Pressure Washer Trailer

Space Number: 2.7

Area: 9 Vehicles and Trailers @ 320 SF = 2,880 SF
 Approximate required stall size 10' x 32'

Function:

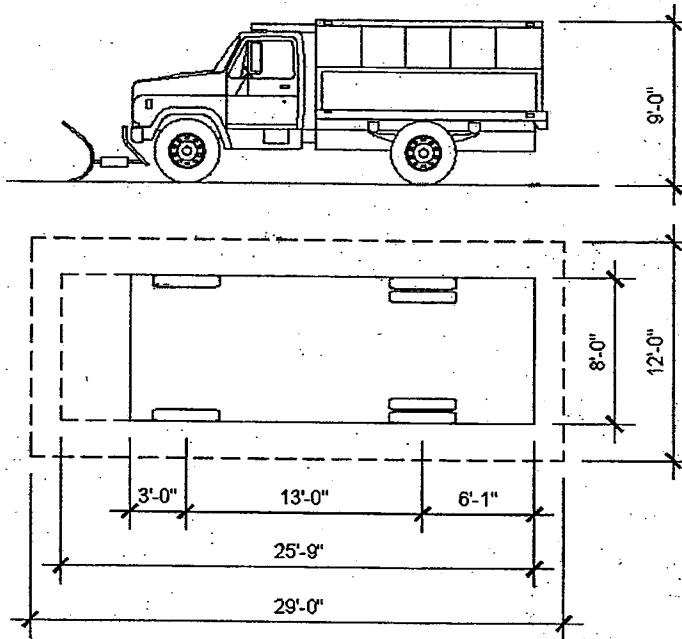
Parking and storage of 9 pressure washer trailers. Pressure washer trailers attach to pickup trucks for transport. Covered area required.

Adjacencies:

Near pickup truck parking area.
 Near water refill station.

Utility Requirements:

Concrete pavement for heavy vehicles and equipment. Exterior parking lot area lighting. Underground catch basin for collection and treatment of surface water run off. Exterior paging system required.



PARKING/EQUIPMENT AREAS

Space: Sanding & Snow Removal Vehicle

Space Number: 2.8

Area: 348 SF

Function:

Designated outdoor parking and storage area for 1 Sanding and Snow Removal vehicle. Uncovered secure space is adequate.

Adjacencies:

Near other large vehicle parking areas.

Utility Requirements:

Concrete pavement for heavy vehicles and equipment. Exterior parking lot area lighting. Underground catch basin for collection and treatment of surface water run off. Exterior paging system required.

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Building Code Requirements

This analysis is based on the 2003 edition of the International Building Code which took effect in Seattle in 2004. This is not intended to be a full review of the code, but only to propose the occupancy classifications, possible construction type and allowable area.

Use and Occupancy Classification

Office/Administration	B
Crew Areas	B
Shop Areas	S-1
Storage Areas	S-2

Table 302.3.2 Required Separation of Occupancies (for Separated Uses)

	S-1	S-2	
B	3 HR 2 HR	2 HR 1 HR	w/o Automatic Sprinklers Automatic Sprinklers
S-2	3 HR 2 HR		w/o Automatic Sprinklers Automatic Sprinklers

Building can be considered as having Separated Uses which would require separation walls between different occupancies.

or

Building can be considered as having Non-Separated Uses which would require the entire building to be constructed based on the Occupancy with the most restrictive type of construction. Fire separations are not required between uses.

Table 503 Allowable Building Areas (SF) based on Construction Type

	Type I		Type II		Type III		Type IV	Type V	
	A	B	A	B	A	B		A	B
B	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
S-1	UL	48,000	26,000	17,500	26,000	17,500	25,500	14,000	9,000
S-2	UL	79,000	39,000	26,000	39,000	26,000	38,500	21,000	13,500

Assume the lowest type of construction without separation walls, Type V B 9,000 SF

Section 506.3 Automatic Sprinkler System Increase

200% for multistory buildings	
300% for single-story buildings (assume a single-story building)	9,000 x300% = 27,000

Type V B construction type can be utilized for a occupancy type B or S-1 building, with an automatic sprinkler system. The allowable area would be 27,000 SF (not including frontage increases), which is greater than the programmed building area of 22,665 SF.

Staffing & Future Growth

Currently there are 44 day shift workers and 18 grave shift workers at the North Facilities. The table on the following page shows the job class title and shift for each employee. Assigning a growth factor to project what the future staffing needs may become is a difficult task. For the purposes of this study, the consultants used the following methods to allow for some future growth:

- **Employee Parking:** 10 spaces are allocated for future staffing growth. It should be noted that North Facilities hires about 8 seasonal employees which, depending on their shift structure, may use up a portion of the stalls allotted for future day shift workers.
- **Large Vehicles and Equipment:** Vehicle Data sheets were distributed to key Metro supervisors which asked for future vehicle growth projections. The numbers of large vehicles and maintenance equipment shown in the program reflect the data we received.
- **Building Areas.** In most instances, the space requirements given in this program are greater than those in the existing facility. These include locker rooms, conference rooms, lunch rooms etc., which will accommodate some future staffing growth.
- **General Storage Area.** This area was added into the program to provide flexibility and account for future storage needs.

Building Access and Systems

Security card access to the building should be incorporated into the design. This was discussed by Metro during our meetings. The necessary power and hardware infrastructure for this equipment should be included. In addition, an interior and exterior intercom service throughout the building and site areas is required.

Gross Area Factors

Gross area factors which account for the non-occupied building areas such as; corridors, mechanical shafts and wall construction have been applied to each section. For the net office and administrative areas, a factor of 25% is used. This is consistent with King County's space standards. The percentage is lowered to 15% for the shop areas, where the floor plan is more open and less space is allocated for circulation. In addition, an overall building gross area factor of 15% is applied to account for exterior walls and additional non-occupied building space. In the event that a site configuration precludes the use of the most efficient building layout, a 15% planning contingency factor is also added.

Building Requirements

Program Area Summary

The required building areas have been subdivided into five sections as shown in the table below.

Section 3	OFFICE/ADMINISTRATIVE AREAS	Standard or Estimated SF	Qty	Total Area SF
3.0	Administrative Specialist	85	1	85
3.1	Lobby / Waiting Area	100	1	100
3.2	Chief's Office	150	5	750
3.3	File/Fax/Copier Room	150	1	150
3.4	Large Conference/Training Room	600	1	600
3.5	Supervisor's Office	180	1	180
3.6	Office Area Restroom	150	1	150
	Gross Area Factor 25%			504
Subtotal 3				2,519
Section 4	CREW AREAS	Standard or Estimated SF	Qty	Total Area SF
4.0	First Aid Room	120	1	120
4.1	Laundry Room	150	1	150
4.2	Locker Room / Restroom - Men's	550	1	550
4.3	Locker Room / Restroom - Women's	500	1	500
4.4	Breakroom/Lunchroom w/ Kitchen	1,100	1	1,100
4.5	Mudroom/Foul Weather Storage	350	1	350
4.6	Report Room	200	1	200
	Gross Area Factor 15%			446
Subtotal 4				3,416
SECTION 5	SHOP AREAS	Standard or Estimated SF	Qty	Total Area SF
5.0	Carpentry/Constructor Shop	2,000	1	2,000
5.1	Landscaping Shop/Storage	1,500	1	1,500
5.2	Sign Shop	1,000	1	1,000
	Gross Area Factor 15%			675
Subtotal 5				5,175
SECTION 6	STORAGE AREAS	Standard or Estimated SF	Qty	Total Area SF
6.0	Constructor Storage	500	1	500
6.1	Custodial Closet	150	1	150
6.2	Office Supplies	150	1	150
6.3	Hazardous Material Storage	300	1	300
6.4	Records Storage	200	1	200
6.5	General Storage	2,000	1	2,000
6.6	Stores	1,000	1	1,000
	Gross Area Factor 15%			645
Subtotal 6				4,945
Section 7	SUPPORT AREAS	Standard or Estimated SF	Qty	Total Area SF
7.0	Ancillary Spaces/Fire Protection	100	1	100
7.1	Electrical Room	100	1	100
7.2	Mechanical Room	750	1	750
7.3	Telephone / Data Room	150	1	150
7.4	Recyclables Area	100	1	100
	Gross Area Factor 15%			180
Subtotal 7				1,380
Total Interior Areas				17,435
Building Envelope Gross Area Factor 15%				2,615
Planning Contingency Factor 15%				2,615
Building Area Totals				22,665
Total Required Site Area				105,362

Functional Adjacencies

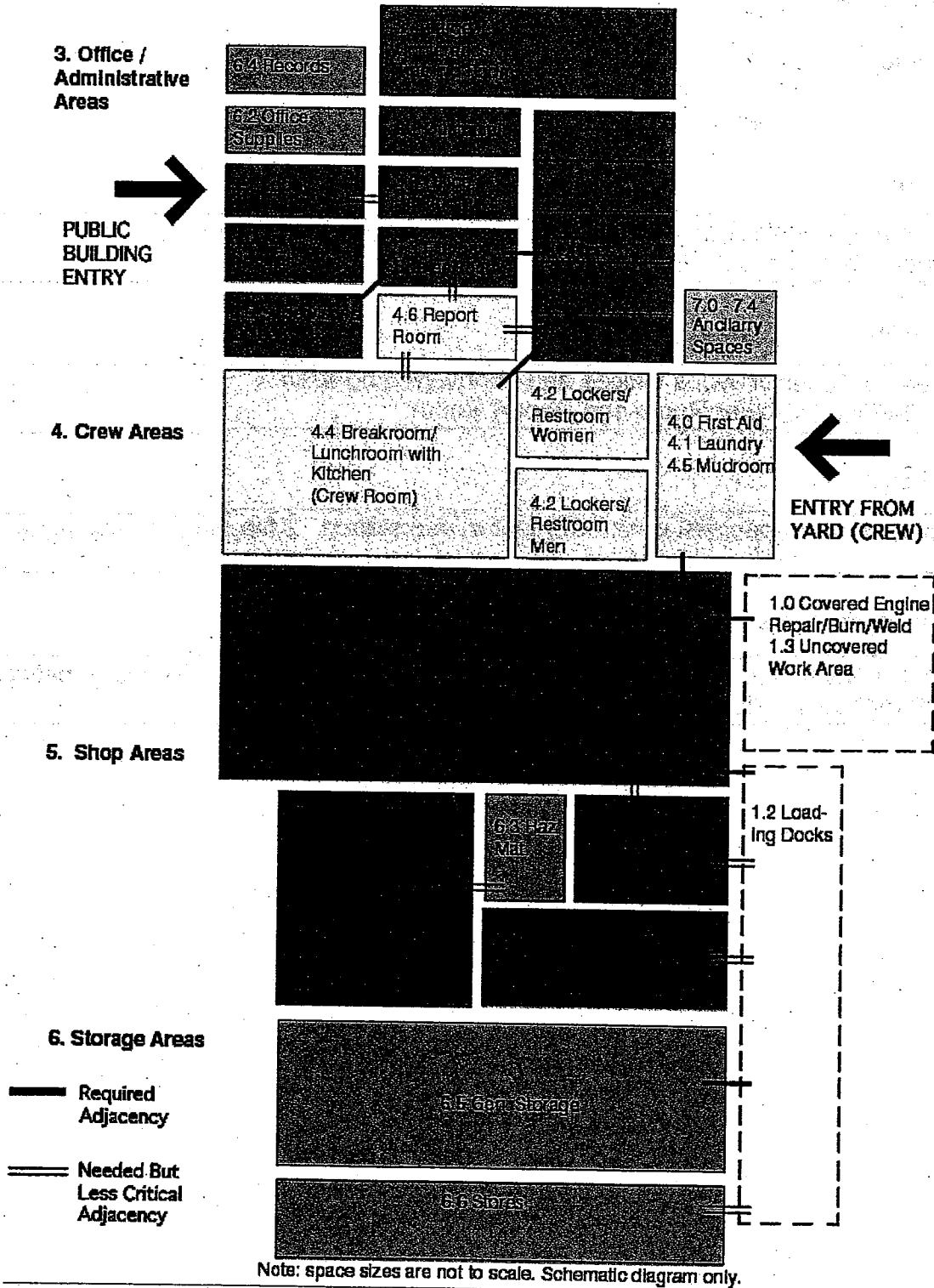
Space for the office and administrative functions should be allocated near the front entrance to the building. During the study several space needs emerged. A designated lobby/waiting area is not present at the current facilities maintenance site, but it was decided one should be included. Space should also be given for a designated report room, where crew members and employees may have access to telephones and fill out paper work.

Space for a range of crew areas is needed. Crews should have access to a separate building entrance adjacent to the mudroom and foul weather gear storage area. Building restrooms should be included within the Men's and Women's locker room spaces. Every employee is provided with one locker, sometimes a second is provided for miscellaneous equipment.

Space for various shop functions is a requirement of the facility. Three shop areas are listed: carpentry/constructor, landscaping, and signage. Shop areas should to some degree be considered flexible spaces that may be reprogrammed and adjusted for future needs. Shop areas must house a swing lift arm for hoisting. Capability for overhead movement is a necessity in the shop area.

Building Adjacency Diagram

The adjacency diagram below illustrates some of the relationships that should be present within the Facilities Maintenance building.



OFFICE/ADMINISTRATIVE AREAS

Space Name: Administrative Specialist

Room Number: 3.0

Occupancy: 1

Area: 85 SF

Function:

Work area for administrative functions including: answering phone calls, and document filing / organization.

Adjacencies:

Adjacent to Supervisor's Offices and Lobby/Waiting Area.
Near File/Fax/Copier Room and Report Room.

Furnishings:

Administrative specialist desk. Computer workstation. 2 file cabinets. Telephone

Utility Requirements:

Electrical convenience outlets. Telephone and fax machine jack. Computer network and internet connections. Interior intercom system required.

OFFICE/ADMINISTRATIVE AREAS

Space Name: Lobby/Waiting Area

Room Number: 3.1

Occupancy: 3

Area: 100 SF

Function:

Receiving area for visitors to the facility. Provides interface between administrative specialist and visitors.

Adjacencies:

Adjacent to Administrative Specialist
Near Supervisor's Office.

Furnishings:

Three chairs with Coffee table.

Utility Requirements:

Electrical convenience outlets. Interior intercom system required.

OFFICE ADMINISTRATIVE AREAS

Space Name: Chief's Offices

Room Number: 3.2

Occupancy: 1

Area: 5 @ 150 SF = 800 SF

Function:

Enclosed private office for Facilities Maintenance Chiefs. Area for small or private meetings.

Adjacencies:

Adjacent to Report Room.
Near Break Room / Lunchroom with Kitchen, Supervisor's Office and the File/Fax/Copier Room.

Furnishings:

Chief's desk. Computer workstation. Telephone. 3 additional chairs for guests. Layout table. Whiteboard or marker board. 2 file cabinets.

Utility Requirements:

Convenience electrical outlets. Telephone jack. Network and internet connections. Interior intercom system required.

OFFICE/ADMINISTRATIVE AREAS

Space Name: File/Fax/Copier Room

Room Number: 3.3

Occupancy: N/A

Area: 150 SF

Function:

Communications room for copy machine and fax machine. Office supplies storage shelves. Files storage area.

Adjacencies:

Near Administrative Specialist, Chiefs' Offices and Report Room

Furnishings:

One full size copy machine. Cabinets for office supplies storage. 10 file cabinets for office documents storage. Fax machine.

Utility Requirements:

Convenience electrical outlets. Network connections for copy machine. Phone jack for fax machine. Interior intercom system required.

OFFICE/ADMINISTRATIVE AREAS

Space Name: Large Conference / Training Room

Room Number: 3.4

Occupancy: 24

Area: 600 SF

Function:

Space for crew meetings and other large meetings. Space for employee training sessions. Flexibility desired.

Adjacencies:

Near to File/Fax/Copier Room.

Furnishings:

Small modular tables and chairs to accommodate 24 persons. 2 computer workstations for employee training. Whiteboard or marker board. Presentation or projection screen. Telephone.

Utility Requirements:

Convenience electrical outlets. Network and internet connections for 2 computers. Telephone jacks. Interior intercom system required.

OFFICE/ADMINISTRATIVE AREAS

Space Name: Supervisor's Office

Room Number: 3.5

Occupancy: 1

Area: 180 SF

Function:

Enclosed office for Supervisor of North Facilities.

Adjacencies:

Adjacent to Administrative Specialist.
Near Lobby / Waiting Area, File/Fax/Copier Room and Chief's Offices.

Furnishings:

Supervisor's desk. Computer workstation. Small conference table with 3 chairs. 2 file cabinets. Bookcase. Telephone.

Utility Requirements:

Convenience electrical outlets. Network and internet connection. Telephone jack. Interior intercom system required.

OFFICE/ADMINISTRATIVE AREAS

Space Name: Office Area Restroom

Room Number: 3.6

Occupancy: 1 person - 1 Water closet, 1 Lavatory,

Area: 150 SF

Function:

Small restroom for office staff not conveniently able to use the larger crew Locker Room / Restrooms.

Adjacencies:

Centrally located within the office area of the building.
Near Lobby / Waiting Area, Administrative Specialist and Offices.

Furnishings:

1 Water closet and 1 Lavatory. Provide restroom accessories such as toilet paper dispenser, sanitary napkin dispenser, hand dryer, above sink shelf and coat hook.

Utility Requirements:

Water supply for sink and toilet. Grounded electrical convenience outlets. Interior intercom system required.

Building Requirements

CREW SUPPORT AREAS

Space Name: First Aid Room

Room Number: 4.0

Occupancy: 1

Area: 120 SF

Function:

Enclosed room for storage of first aid supplies. Space for medical attention to injured or sick workers.

Adjacencies:

Adjacent to shop area. Close to outdoor area.

Furnishings:

Cabinets or storage closet for first aid equipment and medical supplies. Small cot for resting. Counter with sink and mirror.

Utility Requirements:

Sink with running water. Convenience electrical outlets. Interior intercom system required.

CREW SUPPORT AREAS

Space Name: Laundry Room

Room Number: 4.1

Occupancy: 1

Area: 150 SF

Function:

Laundrying of crew garments and rags.

Adjacencies:

Adjacent to mud room.
Near women's and men's locker rooms.

Furnishings:

1 washing machine. 1 dryer. Shelves for storage of laundering soaps and supplies.
Hampers.

Utility Requirements:

Water supply for washer. Convenience electrical outlets. Electrical outlet for drier.
Utility sink.

CREW SUPPORT AREAS

Space Name: Men's Locker Room & Restroom

Room Number: 4.2

Occupancy: 50 Lockers, 2 Water closets, 1 Urinal, 2 Lavatories,
2 Showers (UCB Table A-29-A)

Area: 550 SF

Function:

15" - 18" wide full length lockers for storage of personal employee items and work garments. Shower and restroom facilities as required by code.

Adjacencies:

Near laundry room.
Near lunchroom.
Convenient access to work areas.
Near mud room.

Furnishings:

One full length locker per staff member and seasonal staff (50 estimated). Provide restroom accessories such as toilet paper dispensers, sanitary napkin dispensers, hand driers, above sink shelves and coat hooks.

Utility Requirements:

Water supply for sinks, toilets and showers. Grounded electrical convenience outlets. Interior intercom system required.

STRAGE AREAS

Space Name: Custodial Closet

Room Number: 6.1

Occupancy: NA

Area: 150 SF

Function:

Provides storage area for janitorial supplies and equipment.

Adjacencies:

Centrally located between Office/Administration Area and the Crew Area. Adjacent to the Locker / Restrooms and Mudroom. Near the interior office areas.

Furnishings:

Shelving

Utility Requirements:

Convenience electrical outlets, drain

Building Requirements

STORAGE AREAS

Space Name: Office Supplies

Room Number: 6.2

Occupancy: NA

Area: 150 SF

Function:

Provides storage area for copier paper and various office supplies.

Adjacencies:

Centralized in the office area, adjacent to the Administrative Office.

Furnishings:

Shelving as required for efficient use of storage space.

Utility Requirements:

SUPPORT AREAS

Space Name: Mechanical Room

Room Number: 7.2

Occupancy: NA

Area: 750 SF

Function:

Designated area within the building for HVAC units and controls. Assume all mechanical units are inside the building with no roof mounted equipment.

Adjacencies:

Located away from office and administration areas to minimize noise disturbance. Isolate equipment and ducts from the building structure as to reduce vibration.

Utility Requirements:

As determined.

SUPPORT AREAS

Space Name: Telephone / Data Room

Room Number: 7.3

Occupancy: NA

Area: 100 SF

Function:

Storage for telephone system equipment, computer servers and other data equipment.

Adjacencies:

As determined.

Utility Requirements:

As determined.

SUPPORT AREAS

Space Name: **Recyclables Areas**

Room Number: 7.3

Occupancy: NA

Area: 100 SF

Function:

Space for on-site storage of recyclable materials.

Adjacencies:

Centrally located. Near File/Fax/Copier Room and Break Room / Lunchroom with kitchen.

Utility Requirements:

As determined.

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