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CITY OF SUNNYVALE

MASTER PLAN AND PRIMARY TREATMENT DESIGN

TECHNICAL MEMORANDUM

BUILDING PROGRAMMING:

SITE PLAN

FINAL

July 2014

carollo in association with HDR

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CITY OF SUNNYVALE

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TECHNICAL MEMORANDUM

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BUILDING PROGRAMMING: SITE PLAN

1.0 INTRODUCTION

The City of Sunnyvale (City) is preparing a long-term master plan to address various renovation needs of the existing Water Pollution Control Plant (WPCP). The purpose of this technical memorandum (TM) is to provide information about the existing and future space needs of the WPCP's occupied buildings and their accessory spaces. This space needs assessment provides data required to develop the basis of design for the development of occupied facilities as part of the WPCP Master Plan.

This assessment has been focused on collecting information on space use and space needs for functions currently accommodated, as well as those that the City requires to meet their needs in the future. The following functional areas were included in this assessment:

- Administration.
- Operations/Control.
- Maintenance.
- Laboratory.
- Compliance Inspection.
- General Staff Support.

The report is organized with the summary of findings presented first, followed by a description of the methodology and assessment results for each functional area. Supporting detailed Space Needs Assessments for each functional area are included in the appendices.

2.0 SUMMARY OF FINDINGS AND RECOMMENDATIONS

The key findings and recommendations for the building programming include:

- Most functional areas have adequate space for current staff levels. Notable functional area deficiencies include:
  - Offices and workstations for future staff.
  - Laboratory.
  - Accessible meeting and training space.
  - Maintenance Shop.

- The existing occupied spaces are located in multiple locations including existing buildings, temporary trailers, repurposed structures, and underutilized space in process buildings. Efficiency of space use, communication and circulation between functional groups is compromised by the decentralized facilities.
- Storage of some materials, parts and equipment are remote from primary functional locations. Access to storage is inefficient and inventory difficult to maintain.
- Recommend consolidation of administration, outreach, laboratory, compliance inspection and operations/control functions in a single building to increase efficiencies, accommodate future staff, maximize shared use space and minimize building space requirements (total estimated size of this building is 22,000 square feet).
- Recommend consolidation of maintenance shop, storage and maintenance staff facilities with warehouse for efficiency and inventory control (total estimated size of this building is 7,000 square feet).

3.0 BACKGROUND

3.1 SIP Recommendations

Table 1 summarizes how the Master Plan recommendations) compare with the SIP recommendations.

Table 1 Comparison of Master Plan and SIP Recommendations
Master Plan and Primary Treatment Design
City of Sunnyvale

Building/ Facility	Strategic Infrastructure Plan (SIP) (2011)	Master Plan (2014)
Administration Building	• Describes a new admin building that is larger than the existing building. A cost estimate is provided, but no basis for the increased size is described (CMU construction is assumed).	• Detailed survey and programming effort resulted in definition of two-story Administration/Lab/ Operations building.
Maintenance Building	• Describes replacing the maintenance shed adjacent to the Primary Control Building which would serve all maintenance and garage functions. A cost estimate is provided, but no basis for the size of the new building is described (CMU building is assumed). No discussion of warehouse space needs is described.	• Detailed survey and programming effort resulted in definition of one-story Maintenance Shop/ Warehouse building.

4.0 METHODOLOGY

The space needs assessment included the following efforts:

- Survey of existing functional areas (occupied buildings and yard space).
- Review of existing site and building documentation.
- Building Programming workshops with staff to assess existing functional area space needs.
- Development of Preliminary Programs including spatial and functional improvements, adjacencies, personnel and site requirements.
- Discussion and confirmation of the Preliminary Master Plan Building Program (Workshop #4 – Support Buildings).
- Final Building Program.

4.1 Survey

To create a basis for the analysis of the functional requirements of the occupied areas, a physical survey was conducted of all on-site facilities. Using diagram plans and the existing site plan as base drawings, existing functions and building configurations were confirmed. Existing spaces were photographed and existing use diagrams were created for reference. See Appendix A for Existing Space Use diagrams.

4.2 Building Programming Workshops

The space needs of each functional area were defined through workshops with representative City staff. The workshop groups included:

- Operations/Control and Maintenance.
- Administration, Laboratory, Compliance Inspection and Outreach.

Adequacies and deficiencies of the current spaces were discussed, as were the optimal adjacencies and the future requirements for staff, storage and equipment. The information from each workshop was recorded in minutes and as annotations on drawings of the existing buildings and site. See Appendix B for meeting minutes from these workshops.

4.3 Analysis

Based on the information provided in the programming workshops, along with field observations of the existing space use and experience with similar facilities, an analysis was performed to determine whether the square footage of each space within a functional area was adequate, deficient or oversized. For each deficient space that was identified, an

increase in functional area was calculated through discussions with staff, use of standardized work area sizes, or comparisons with similar wastewater facilities. Sketch plan diagrams were developed for some spaces with specific equipment or storage needs to confirm layouts and clearances. Areas of potential shared use were identified and square footage requirements reduced accordingly.

4.4 Preliminary Program Summaries

A Preliminary Program Summary for each functional area was compiled from the analysis. These summaries describe each space or function to be included in the facility, the requirements for each space as to area, function and any specialized equipment or extraordinary needs. The existing and required areas were then tabulated using square footage (SF) for each space. The existing and required square footage noted for each space are estimates of the net area required. The net square footage is exclusive of circulation space, mechanical chases, structural elements and partition walls. Diagrams of each functional area were developed to illustrate desired adjacencies and shared uses. Appendix C includes the preliminary program summaries and functional area diagrams.

4.5 Plant Workshop - Support Buildings

The Space Needs Assessment methodology, Preliminary Program Summaries and Functional Area Diagrams for each non-process area were reviewed and discussed at Plant Workshop No. 4 – Support Buildings on January 14, 2014 (see Appendix D for meeting minutes and presentation slides).

4.6 Final Program Summaries

The Program Summaries were revised based on feedback received at the January 14, 2014 workshop to reflect future staff positions resulting from implementation of the process improvements proposed for the WPCP, consolidation of City staff and specific space needs recommended by City staff. The existing space use was verified and updated by completing a site survey of all remote storage and operations/control areas not included in the original survey.

As the proposed increase in laboratory space is significant, further survey and assessment efforts were undertaken to confirm the functional space requirements. Based on additional information from Plant staff, the existing space use was revised to include exterior storage space. The functional space requirements for each work area were reviewed and clarified in a follow-up meeting with the WPCP laboratory manager.

To confirm industry standards for laboratory space requirements, a similar wastewater laboratory facility at the Dublin San Ramon Services District (DSRSD) was identified and the space use compared to the proposed WPCP laboratory space needs. The DSRSD laboratory was chosen for comparison as DSRSD conducts similar types and levels of

testing for wastewater, industrial pre-treatment, drinking water and recycled water. See Appendix F for a complete description of the DSRSD laboratory space. In general, the increase in laboratory areas, equipment space, storage and staff areas for the proposed WPCP laboratory are consistent with similar areas at the DSRSD laboratory. Specifically, the following similarities and differences were noted:

- Wet Chemistry: This area proposed for the WPCP includes six (6) fume hoods and space for BOD analysis. The DSRSD Lab includes six (6) fume hoods, but BOD analysis is in a separate room. The total functional area (Wet Chem + BOD analysis) is similar.
- Organics/GCMS/IC: This area proposed for the WPCP equals the space at DSRSD. The increase in space provides needed bench space and a small fume hood, similar to DSRSD. This functional area is a separate room at DSRSD, as is proposed for the WPCP.
- Metals/ICPMS: This area proposed for the WPCP is similar to DSRSD. The increase in space provides needed bench space, a small fume hood, and canopy hoods, similar to DSRSD. This functional area is a separate room at DSRSD, as is proposed for the WPCP.
- Microbiology: This functional area is a separate room at DSRSD, as it is at the WPCP. The DSRSD space includes two (2) autoclaves, one for duty, one for backup and a general use copier. The proposed area for the WPCP is smaller than DSRSD, as these functions and equipment are located in other laboratory spaces. The proposed increase in space provides additional bench space for separate water and wastewater testing. Separate areas result in more efficient work flow and reduces risk of contamination.
- Dishwashing, Glassware Storage and Laboratory Storage: Dishwashing and glassware storage is distributed throughout the DSRSD Lab. The WPCP has a dedicated room for this function, which also includes space for an autoclave. DSRSD has a large laboratory storage room. The combined area for these functions is similar at both facilities. .
- The DSRSD laboratory has infrequent pilot testing requirements. The WPCP staff foresees a need for more frequent pilot testing due to proposed plant improvements. Pilot testing requires dedicated bench space.
- DSRSD Lab was designed for a staff of seven (7). Staffing was reduced in 2007 to five (5) full time staff, compared to nine (9) full-time staff and one (1) temp at the WPCP.

Given the types of testing, staffing, separation of test areas and equipment requirements, the functional work area increases proposed for the WPCP seem appropriate when compared to DSRSD. The additional space is needed to provide adequate bench space and efficient flow of testing for the WPCP laboratory staff, existing and future testing requirements, additional fume hoods and separation of testing areas.

See Figure 1 for the DSRSD laboratory space use and Table 2 for comparison of areas.

Table 2 Laboratory Space Use Comparison Program Master Plan and Primary Treatment Design City of Sunnyvale

Area/Space	Sunnyvale Existing Area (Net SF)	Sunnyvale Future Area (Net SF)	DSRSD Existing Area (Net SF)
Entry	**100**	**0**	**0**
Laboratory Offices	**317**	**600**	**611**
Laboratory			
Wet Chemistry	1,215	2,200[1)]	1,972
BOD Analysis	Included in Wet Chemistry	Included in Wet Chemistry	220
BOD storage/incubator	54	48	Incl in BOD room
Microbiology	170	250	390[2)]
Organics	325	450	441
Metals Lab	180	300	273
Sample receiving /Refrigerator	42	215 [(3)]	Incl in Wet Chem.
Dishwashing & Glassware Storage	200	220 [4)]	Distributed
Lab Storage	100	150	301
Lab Mechanical	50	50	50 (est.)
Laboratory Total	**2,336**	**3,883**	**3,647**
Compliance Inspection Lab			
Lab/Work area	342	**450**	NA
Storage	90		
Comp. Insp. Lab -Total	**432**	**450**	NA

Notes:
(1) Based on currently projected testing, analysis and staffing needs.
(2) Includes shared space for two autoclaves and copier.
(3) Shared space with Compliance Inspection Lab
(4) Includes space for autoclave.

Tables 3 through 7 summarize the assessment results and compare the existing and future space requirements for each functional area. Spaces with significant increases from the existing conditions are annotated and explanation provided following each functional area. A detailed breakdown of these space requirements is included in Appendix E.

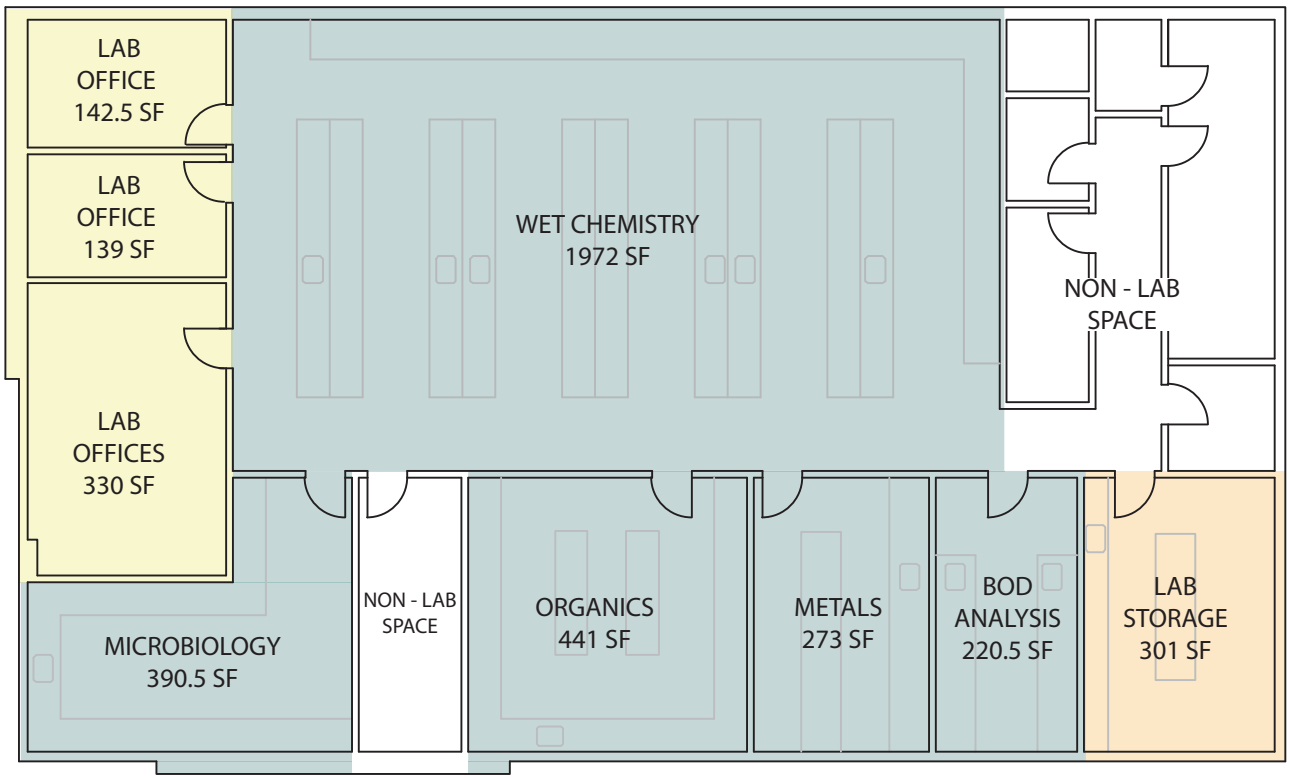


Figure 1
DUBLIN SAN RAMON SERVICES DISTRICT - LABORATORY
EXISTING SPACE COMPARISON
BUILDING PROGRAMMING
MASTER PLAN AND PRIMARY TREATMENT DESIGN
CITY OF SUNNYVALE

Table 3 Administration Program Summary Master Plan and Primary Treatment Design City of Sunnyvale		
Area/Space	**Existing Area (Net SF)**	**Future Area (Net SF)**
Administration		
General Public Areas		
Entry Lobby & Reception	190	350(1)
Public Outreach Meeting space	445	650(2)
Public Restrooms	0	255(3)
Administrative Offices		
Admin / Reception		
Staff Office Assistant	48	48
Staff Office Assistant	42	48
Copy Work Area	66	100
File/Mail	18	
Private Offices		
WPCP Division Manager	180	180
Reg. Programs Division Manager	105	180
WPCP Operations Manager	105	120
Maintenance & Facility Manager	180	120
Env. Program Manager	132	120
Senior Env. Engineer	102	120
Future Staff	0	120(4)
Future Staff	0	120(4)
Future Staff	0	120(4)
Future Staff	0	120(4)
Environmental Services Director	0	200
Solid Waste Manager	0	180
Solid Waste Staff	0	80
Solid Waste Staff	0	64
Solid Waste Staff	0	64
Open Office		
Environmental Engineering Coordinator	64	64
Intern/Temp. positions (3)	48	144 [4]
Admin. Aide	64	64

Table 3 Administration Program Summary
Master Plan and Primary Treatment Design
City of Sunnyvale

Area/Space	Existing Area (Net SF)	Future Area (Net SF)
Senior Staff Asst.	64	64
Stormwater Sustainability Outreach		
Outreach Coordinator	80	80
Sustainability Coordinator	80	80
Files/Library Storage	100	100
Outreach/Sustainability storage	215	215
Conference/Meeting Space		
Small Conference Room	0	150 [5,6]
Medium Conference Room	0	220 [5,6]
Library / File Storage	116	115
Archive File Storage	164	165
General Staff Support Areas		
Day Room / Training	425	600 [7]
Kitchen	140	150 [8]
Mud Room	65	160 [8]
Ice Machine	8	0
Uniform Storage	52	65
Men's Restroom/Locker Room	880	1,050 [8]
Women's Restroom/Locker Room	454	455
Staff Restrooms	85	160 [9]
Gym/ Exercise Room	415	400
Administration Total	**5,132**	**7,860**

Notes:

(1) Entry increased to accommodate public access to meeting room and tours.
(2) Current meeting room is undersized for occupant load and non-accessible.
(3) Restrooms required for public meeting/tours.
(4) Future staff position.
(5) Addresses deficiency of small and medium conference rooms for use by all staff.
(6) Provides efficiency of use and privacy for consultations.
(7) Existing day room does not meet building code requirements for 30 occupants.
(8) Existing rooms are undersized for current and projected staffing levels.
(9) Existing restrooms are non-accessible and do not meet code for required clearances.

Table 4 Operations Program Summary
Master Plan and Primary Treatment Design
City of Sunnyvale

Area/Space	Existing Area (SF)	Future Area (SF)
Operations		
Operations Office		
Principal Operator	0	80[(1)]
Senior Operator	175	80
Senior Operator		80
Sr. Operator in-training		80
Process Control Specialist	0	80[(1)]
Control Room – Tertiary control	400	150[(2)]
Control Room – Secondary control	254	
Control Room – Control adj. to MCC	125	
Operators Group Office	262	250[(3)]
Map and Drawing Storage		120[(3)]
Training workstations	0	85[(4)]
Operations Staff Support Areas		
Operator Work Bench Area	240	240
Operator Storage Lockers	200	200
Safety Carts Storage	150	150
Safety Equipment Storage	180	180
Operations Total	**1,986**	**1,775[(2)]**

Notes:
(1) Future staff position.
(2) Consolidate all Operations/Control Room functions, reduction in SF.
(3) Current SF inadequate for staffing levels, can be combined with Control Room space.
(4) Additional work stations required, can be combined with Control Room space.

Table 5 Maintenance Program Summary Master Plan and Primary Treatment Design City of Sunnyvale		
Area/Space	**Existing Area (Net SF)**	**Future Area (Net SF)**
Maintenance		
Maintenance Office Area		
Sr. Mechanic - Mechanical	92	80(1)
Sr. Mechanic - Instrumentation/electrical	92	80(1)
Copy Work Area	100	100
File Storage/Library/O&M manuals		
Maintenance Group Office	184	250(2)
Plan storage/layout	0	Incl. in Operations
Training workstations	0	85(3)
Maintenance Shop & Enclosed Storage Areas		
Maintenance Shop	1,925	2,300(4)
Mechanics Work bench (7) @ 8'x8'		
Fabrication		
Welding		
Machining		
Parts/Tool Storage	275	275
Parts Storage	400	850(5)
Equipment & Materials Storage	320	
Equipment & Materials Storage	200	
Lubricant Storage and Recycling	350	300
Shop Storage (Mezzanine)	150	0
Pipe Storage	440	600(6)
Instrumentation Shop		
Instrumentation Tech.	140	200
Instrumentation Tech.		
Instrumentation Tech. (future)		
Parts/manuals/equipment storage		
Warehouse & Stores		
Warehouse staff work area	382	80
Parts and Materials Storage		420
Maintenance Total	**5,050**	**5,620**

Notes:
(1) Standardize workstation.
(2) Current SF inadequate for existing staffing levels, can be combined with library/work area.
(3) Additional work stations required, can be combined with group office.
(4) Additional SF for equipment clearances and separation of welding area.
(5) Consolidate parts and materials storage, reduction in SF.
(6) Existing space is undersized and inefficient, increase of exterior covered storage area.

Table 6	**Compliance Inspection Program Summary Master Plan and Primary Treatment Design City of Sunnyvale**	
Area/Space	**Existing Area (SF)**	**Future Area (SF)**
Compliance Inspection		
Public Areas		
Entry	30	**0**
Compliance Inspection		
Private Offices		
Compliance Inspection Supervisor	88	120 (1)
Open Office		
Compliance Inspector	64	64
Compliance Inspector	64	64
Compliance Inspector	64	64
Compliance Inspector	64	64
Compliance Inspector (Future)	0	64 (2)
Compliance Inspector (Future)	0	64 (2)
Copy/Work Area	100	100
File Storage	100	100
Plan Review/Storage	0	80
Outreach Information Storage Shelving	20	0 (3)
Compliance Inspection Total	**594**	**784**

Notes:
(1) Standardize office space.
(2) Future staff position.
(3) Consolidate functions, reduction in SF.

Table 7 **Laboratory Program Summary** **Master Plan and Primary Treatment Design** **City of Sunnyvale**		
Area/Space	**Existing Area (SF)**	**Future Area (SF)**
Laboratory		
Public Areas		
Entry Corridor	100	0
Laboratory Offices		
Laboratory Manager	142	120
Sr. Chemist	175	80
Sr. Chemist		80
Chemists work stations	Incl. in Lab	108
Lab Tech work stations	Incl. in Lab	108
Copy, files library, meeting space	0	120
Laboratory (1)		
Wet Chemistry	1,215	2,200
Dishwashing & Glassware storage	200	220
BOD storage unit or incubators	54	48
Microbiology	170	250
Organics (Instrumentation)	325	450
Metals Lab	180	300
Sample receiving	0	175
Walk in Refrigerator	42	40
Lab Storage	100	150
Lab Mechanical Room	50	50
Compliance Inspection Lab		
Work Station	342	450
Work Counter		
Sampler Washdown		
Equipment Storage	90	
Laboratory Total SF - Net	**3,185**	**4,949**

Note:
(1) See Appendix E for detailed explanation of laboratory area increases.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The assessment has yielded substantial information about the current space use and projected space needs of the occupied functional areas at the WPCP. In general, the existing space is undersized for current space needs, functional areas are not located for optimal adjacencies nor efficiency, and expansion space would only be available in temporary/portable buildings.

An increase in built space is required to address current deficiencies and provide space for the projected space needs of the occupied buildings. There are several factors contributing to the need for additional space. The primary factors are:

- Increase in the number of staff.
- Spaces are undersized for current and future staff levels.
- Existing space does not meet building code requirements for occupant load.
- Existing space does not meet current accessibility code requirements.
- Existing laboratory space is undersized for equipment and testing space required for safe and efficient work flow.

See Figures 2a – 2d for selected examples of deficient spaces. Detailed explanations for specific proposed increases are provided in Tables 8 and 9.

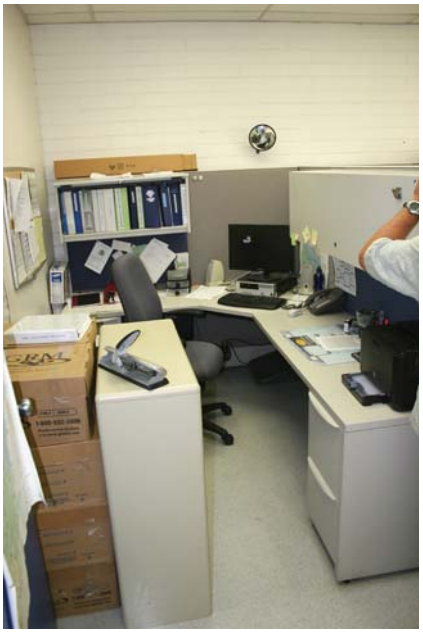
The functional work areas for Administration, Operations, Compliance Inspection, and general staff support are currently located in different buildings and modular structures. Circulation between functional areas and access to support space (i.e., restrooms, dayroom, meeting room) requires exterior circulation from one building to another. Operations areas are decentralized as are storage areas for sustainability, laboratory, maintenance and administrative archives.

The WPCP staff has creatively managed their space needs in the short term through reuse of existing built space, portable buildings and temporary structures. The consolidation of occupied space is a long term solution which allows the functional areas to be optimized, creates more efficient circulation and provides a more productive working environment for the foreseeable future.

There are two primary functional area subgroups based on need for conditioned space, floor to floor clearances, and vehicle access requirements – Administrative/Operations/ Laboratory and Maintenance/ Warehouse. A consolidated Building Program was developed for each subgroup from the functional area Program Summaries and optimal adjacencies. The consolidated Program Summaries include the net square footage for each functional area. A unit circulation factor is applied to the open office areas to account for space to move between workstations. An estimated total building area is calculated by applying a grossing factor to the net area. The grossing factor, which includes walls, structure,

Compliance Inspection Lab - Unconditioned 'porch' space and insufficient storage area

Wet Chemistry Lab - Insufficient bench space and fume hoods



Lab Offices - Undersized for current staff

Metals / ICPMS - Current testing requires improved ventilation and separate space

Figure 2a
EXISTING CONDITIONS
BUILDING PROGRAMMING
MASTER PLAN AND PRIMARY TREATMENT DESIGN
CITY OF SUNNYVALE

Dayroom - Undersized for current occupant load

Mudroom - Undersized for current staff

Large Meeting Room - Undersized for occupant load and inaccessible

Staff Restrooms - Do not meet accessibility codes

Figure 2b
EXISTING CONDITIONS
BUILDING PROGRAMMING
MASTER PLAN AND PRIMARY TREATMENT DESIGN
CITY OF SUNNYVALE

Maintenance Shop - Additional space needed for clearance around equipment


Maintenance Offices - Undersized for staff

Figure 2c
EXISTING CONDITIONS
BUILDING PROGRAMMING
MASTER PLAN AND PRIMARY TREATMENT DESIGN
CITY OF SUNNYVALE

Instrumentation Shop and Mechanics Offices - Portable Building

Compliance Inspection - Portable Building

Figure 2d
EXISTING CONDITIONS
BUILDING PROGRAMMING
MASTER PLAN AND PRIMARY TREATMENT DESIGN
CITY OF SUNNYVALE

mechanical chases and general building circulation, is typically in the range of 20 to 25 percent of the net area. The lower range is applicable to the Maintenance/Warehouse program and the upper range is applicable to the Administration/Operations/Laboratory program.

See Appendix E for the detailed consolidated programs. A summary discussion of each subgroup is provided in Sections 5.1 and 5.2.

5.1 Administration/Operations/Laboratory Building

Given the WPCP site constrictions, a two-story office/laboratory building is recommended to consolidate the Administration, Outreach, Operations, Laboratory and Compliance Inspection functions. Table 8 summarizes the space needs for these functions, compares existing and proposed net SF for each functional area and provides a rationale for significant increases in SF.

The detailed Consolidated Building Program describing all functions, areas (SF) unit circulation, grossing factors and location on first or second floor is included in Appendix E. The total estimated gross SF for the consolidated Administration/Operations/Lab building is approximately 22,000 SF assuming a two-story building. The building program requirements are split between two floors, with the first floor slightly larger than the second floor. The approximate building footprint is 12,000 SF.

The critical adjacencies and access requirements for the Administration/Operations /Laboratory are illustrated in Figure 3. See the Site Layout TM for the discussion of potential building locations.

5.2 Maintenance/Warehouse Building

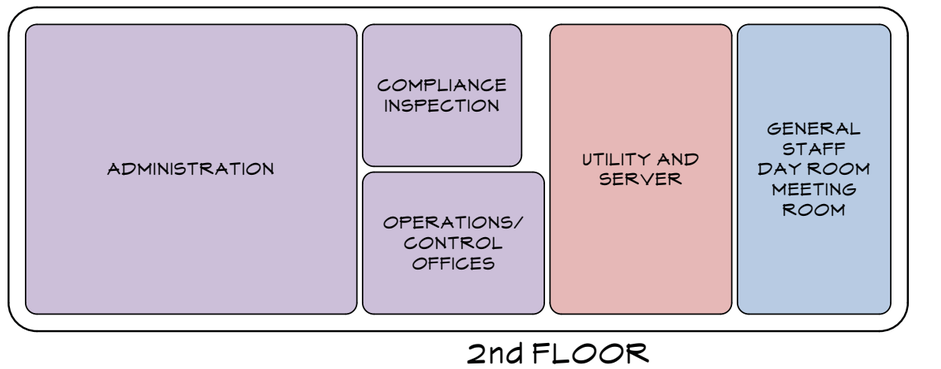
A one-story building, separate from the Administration/Operations/Laboratory Building, is recommended for the maintenance shop, staff, warehouse and storage areas. These functions require a different building type than the office/lab building, truck access and adjacent yard space for staging of equipment and materials. The Maintenance/Warehouse Building is ideally located more central to the process areas, with sufficient exterior yard space for storage and vehicle access. Table 9 summarizes the space needs for these functions, compares existing and proposed net SF for each functional area and provides a rationale for significant increases in SF.

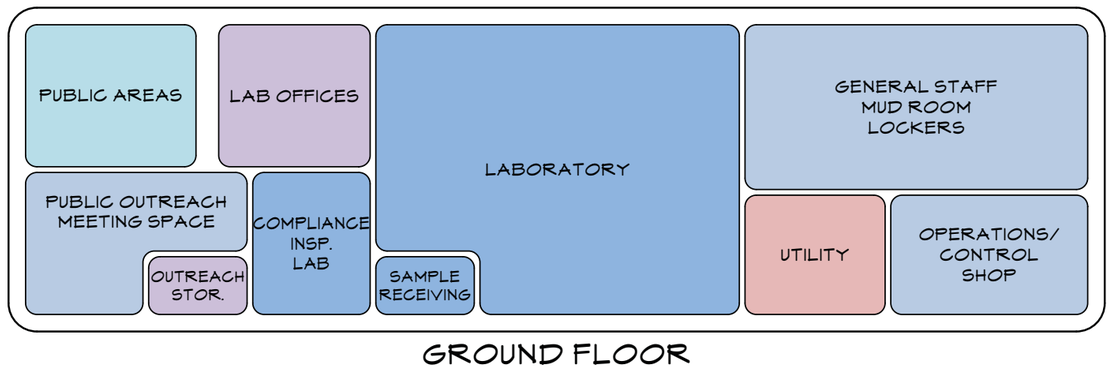
A detailed consolidated Building Program describing all functions, areas (SF) and grossing factors is included in Appendix E. The total estimated gross SF for the Maintenance/ Warehouse Building is approximately 7,000 SF.

Table 8 Summary of Space Needs - Administration/Operations/Lab Areas Master Plan and Primary Treatment Design City of Sunnyvale			
Area/Space	**Existing Net SF**	**Proposed Net SF**	**Rationale for Increase**
Administration			
General Public Area	635	1255	• Larger entry for public access to meeting room • Accessible public meeting room to accommodate 60 people
Administrative Offices	1,973	3,565	• Ten (10) additional staff offices/workstations • Two (2) additional intern spaces • Provide small & medium conference rooms
General Staff Support Areas	2,524	3,040	• Larger lunch room for occupant load • Increase mud room & men's lockers for current staff levels • Provide staff restrooms on second floor
Subtotal	5,132	7,860	
Operations/Control			
Operations Offices	1,216	1,005	• Standardize office area • Two (2) future positions • Consolidation of control areas reduces overall space needs
Operations Staff Support Offices	770	770	
Subtotal	1,986	1,775	
Compliance Inspection			
Private Offices	88	120	• Standardize office area
Open Offices	476	664	• Two (2) additional staff workstations • Provide plan review storage area
Subtotal	564	784	
Laboratory			
Entry Corridor	100	0	• Shared entry

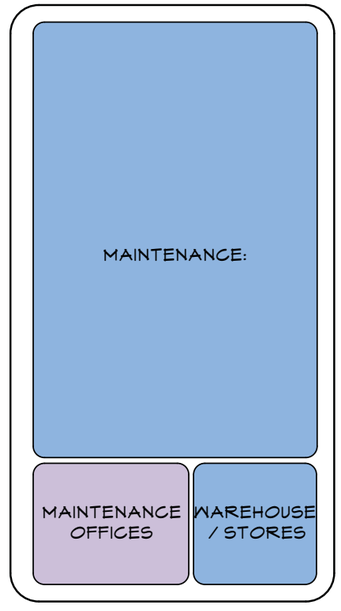
Table 8 Summary of Space Needs - Administration/Operations/Lab Areas
Master Plan and Primary Treatment Design
City of Sunnyvale

Area/Space	Existing Net SF	Proposed Net SF	Rationale for Increase
Laboratory Offices	317	616	• Standardize office area • Provide workstations for lab techs & chemists • Provide resource library & shared work area
Laboratory	2436	3883	• Additional fume hoods and canopy hoods required for control of contaminants and safety • Increased bench space for current and future testing requirements and pilot testing • Address need for sample receiving space w/ appropriate control of samples • Drinking water testing requires separation from wastewater testing • Proposed SF consistent with similar Lab facilities
Compliance Inspection Lab	432	450	• Consolidate storage • Provide additional work counter space • Shared sample receiving area with Lab
Subtotal	3,185	4,949	
Utility Areas			
Utility Rooms	200	580	• Server room sized for Plant wide system • Mech/Elec. room, tbd. Lab requires dedicated system.
Elevator	0	244	• No elevator in current building, includes elev. Equipment room
Stairs	0	800	• No stairs in existing building
Subtotal	200	1,624	
TOTAL Net SF	11,067	16,992	





ADMINISTRATION / OPERATIONS / LAB BUILDING



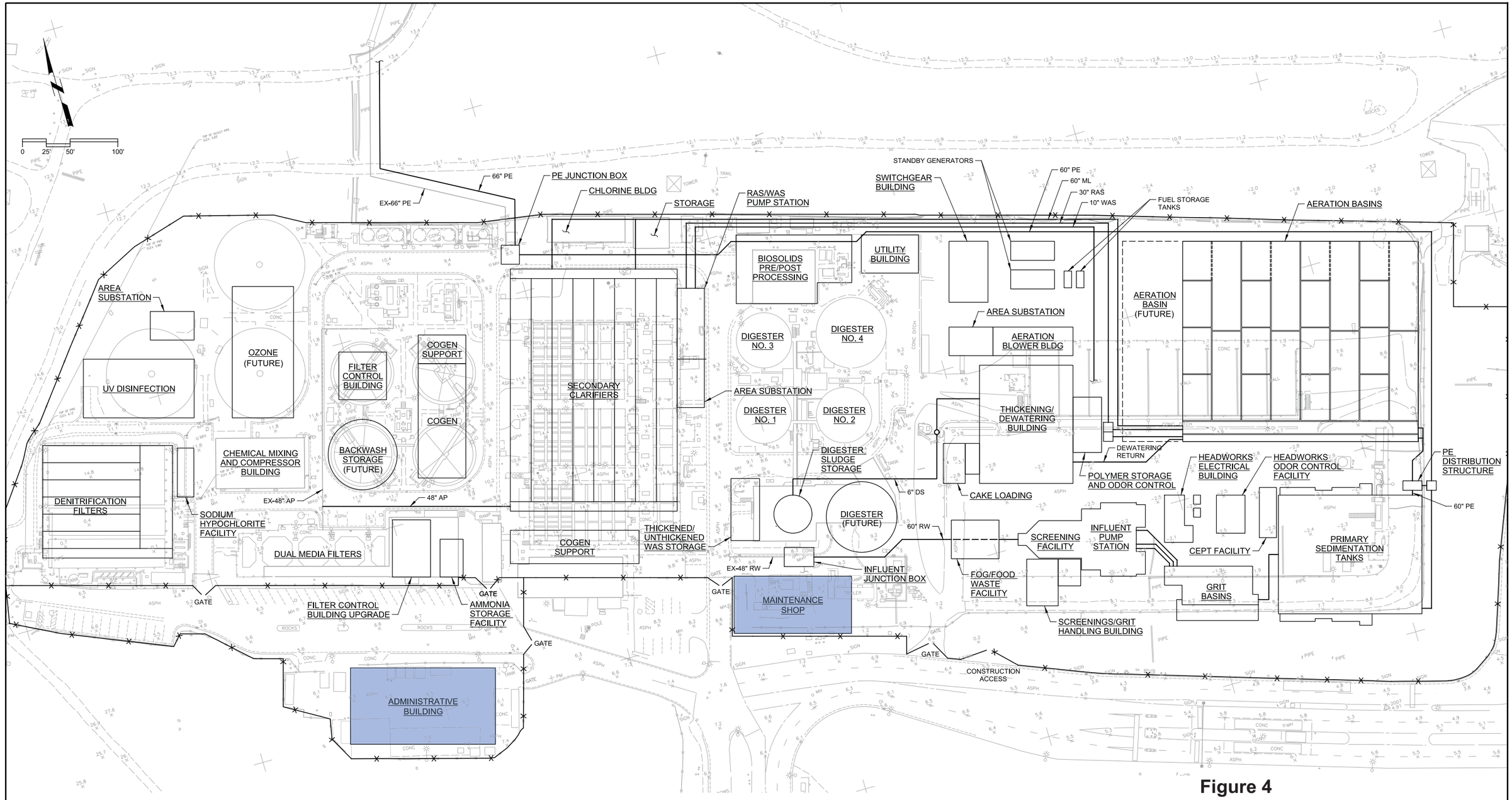
MAINTENANCE WAREHOUSE BUILDING

Figure 3
CRITICAL ADJACENCY DIAGRAMS
BUILDING PROGRAMMING
MASTER PLAN AND PRIMARY TREATMENT DESIGN
CITY OF SUNNYVALE

Table 9 Summary of Space Needs - Maintenance/Warehouse Areas Master Plan and Primary Treatment Design City of Sunnyvale			
Area/Space	**Existing Net SF**	**Proposed Net SF**	**Rationale for Increase**
Maintenance			
Maintenance Office Area	468	595	• Provide resource library, computer workstations & shared work area
Maintenance Shop/ Enclosed Storage Areas	4,060	4,325	• Increase Shop area for safety clearances and welding separation • Exterior Pipe Storage not adequate for current needs
Subtotal	4,528	4,920	
Instrumentation			
Instrumentation Shop	140	200	• Additional Instrument tech work bench area
Subtotal	140	**200**	
Warehouse & Stores			
Staff Work Area	100	80	
Parts & Materials Storage	282	420	• Consolidate small parts & equipment from remote locations, improve inventory control
Subtotal	**382**	**500**	
Utility Areas			
Utility Rooms	110	195	• Provide accessible restroom facilities • Mech / Elec similar to existing
Subtotal	**110**	**195**	
TOTAL Net SF	5,160	5,815	

The critical adjacencies and access requirements for the maintenance/warehouse functions are illustrated in Figure 3. See the Site layout TM for a discussion of potential building locations.

As noted above, locations for both buildings have been discussed as part of the Site Layout TM and preliminary sites identified (see Figure 4). These locations are subject to change as the Master Plan site layout becomes finalized.



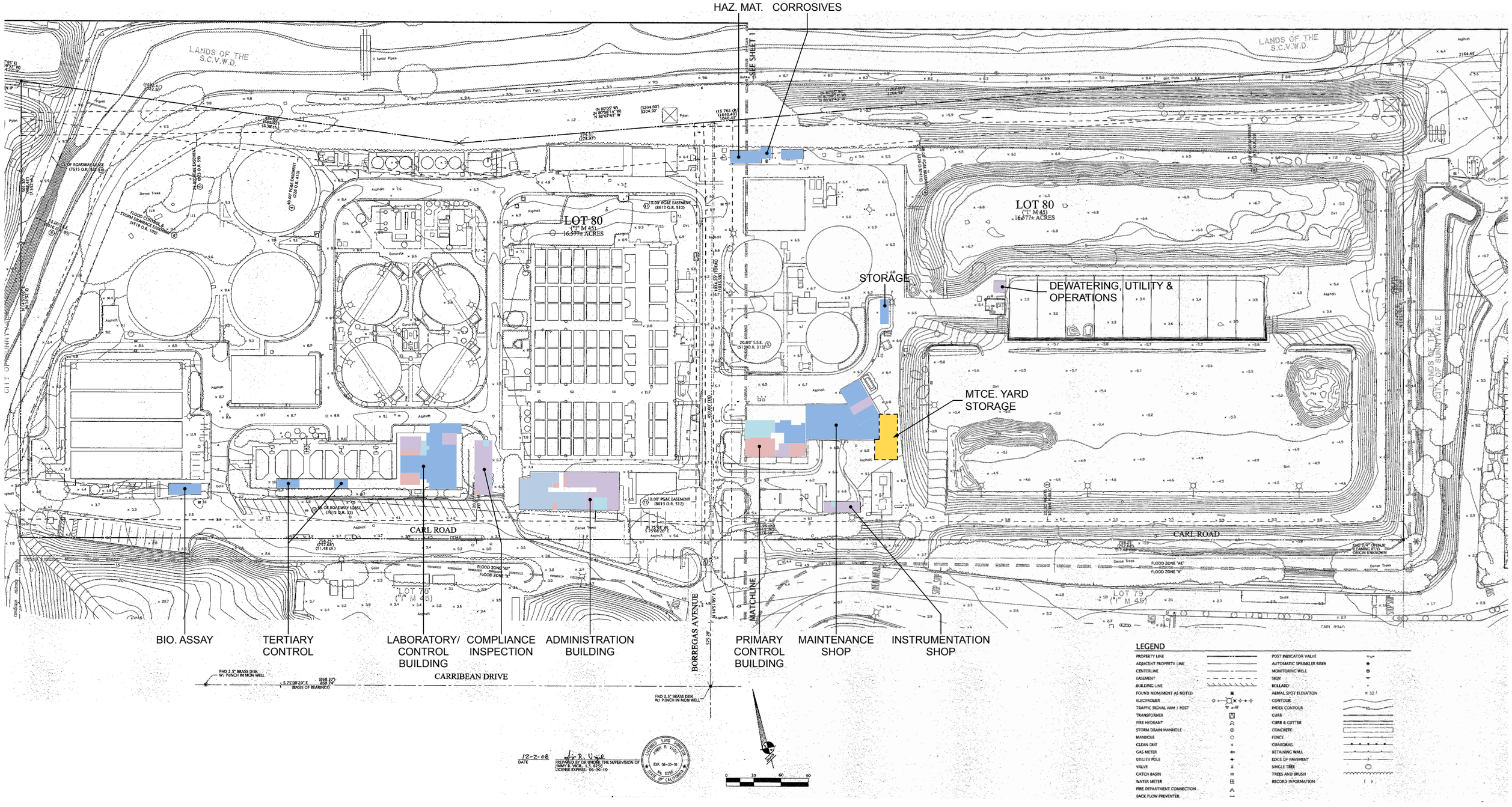
GENERAL NOTES:

1. SITE LAYOUT IS BASED ON IMPLEMENTATION OF CONVENTIONAL ACTIVATED SLUDGE PROCESS.

Figure 4
SITE LAYOUT
ADMINISTRATION AND MAINTENANCE BUILDING
BUILDING PROGRAMMING
MASTER PLAN AND PRIMARY TREATMENT DESIGN
CITY OF SUNNYVALE

Plot Date: 27-JUN-2014 11:21:18 AM
User: ALaico

APPENDIX A – EXISTING SPACE USE DIAGRAMS



SITE PLAN

1/8" = 1'-0"

BurksToma
Architects

burkstoma.com
v 510 524 4255 f 510 528 3009
814 Camelia Street Berkeley, CA 94710

WPCP Master Plan

City of Sunnyvale
1444 Borregas Avenue Sunnyvale, CA 94089

Existing Space Use
date: 10.03.2013

Occupied Buildings

LEGEND

- Public Area
- Administration
- General Staff
- Utility Areas

ADMINISTRATION BUILDING

1/8" = 1'-0"

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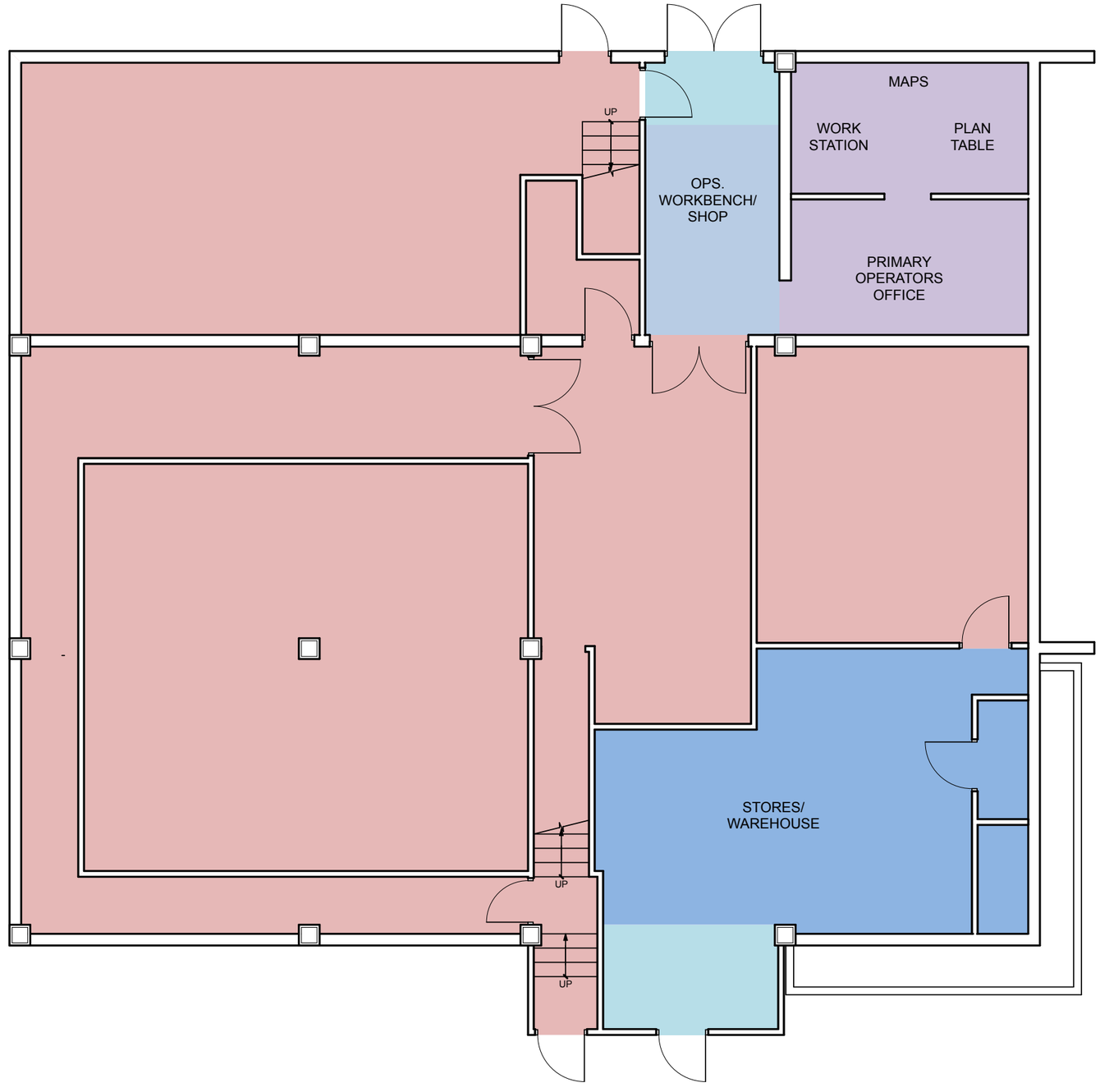
WPCP Master Plan

City of Sunnyvale
1444 Borregas Avenue Sunnyvale, CA 94089

Existing Space Use
date: 10.03.2013

Administration



LEGEND

- Public Areas
- Office Area
- Staff Support
- Warehouse & Stores
- Process Areas

PRIMARY CONTROL BUILDING 1ST FLOOR

1/8" = 1'-0"

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Architects

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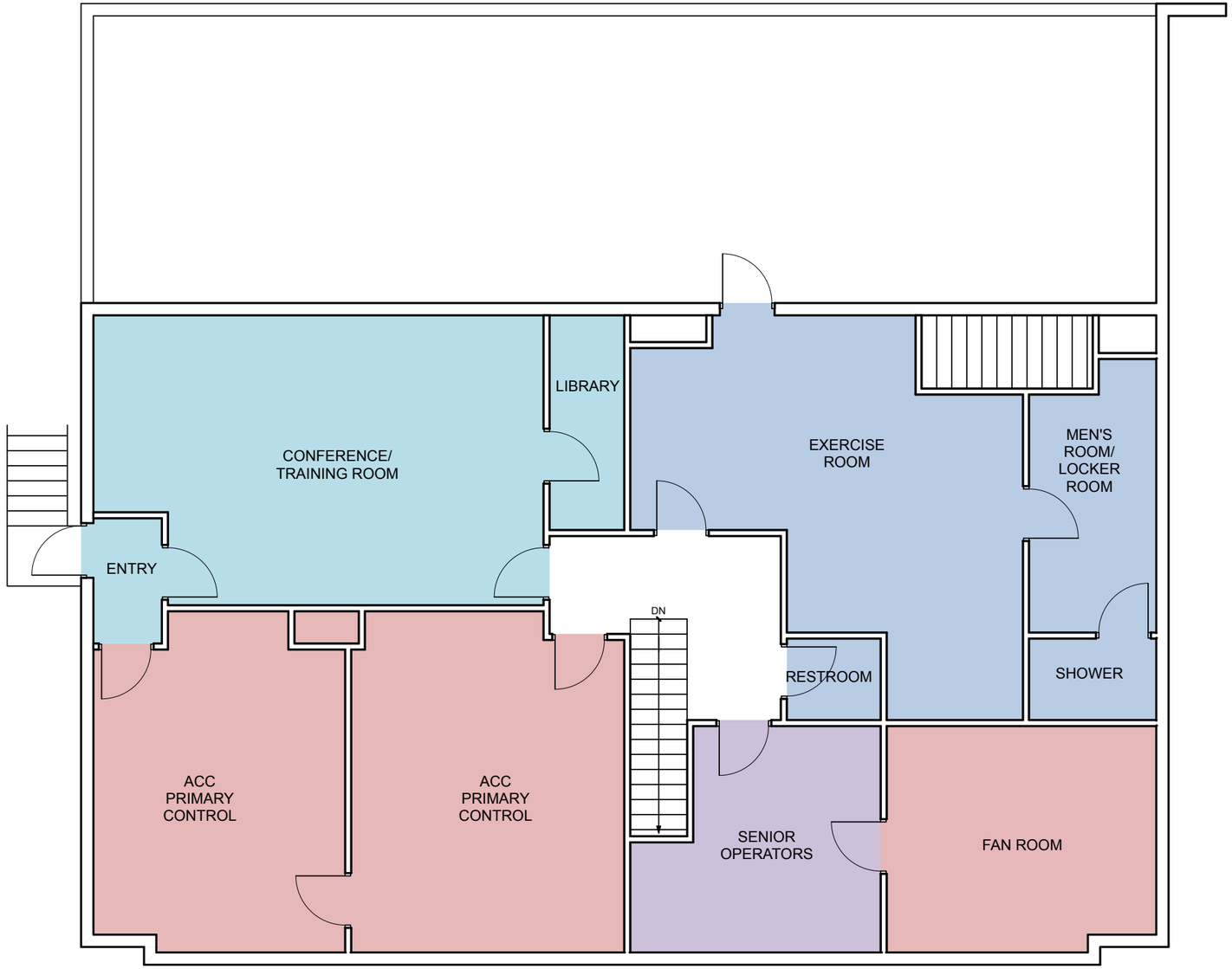
WPCP Master Plan

City of Sunnyvale
1444 Borregas Avenue Sunnyvale, CA 94089

Existing Space Use
date: 10.03.2013

Primarily Control - 1



LEGEND

- Public Areas
- Office Area
- Staff Support
- Warehouse & Stores
- Process Areas

PRIMARY CONTROL BUILDING 2ND FLOOR

1/8" = 1'-0"

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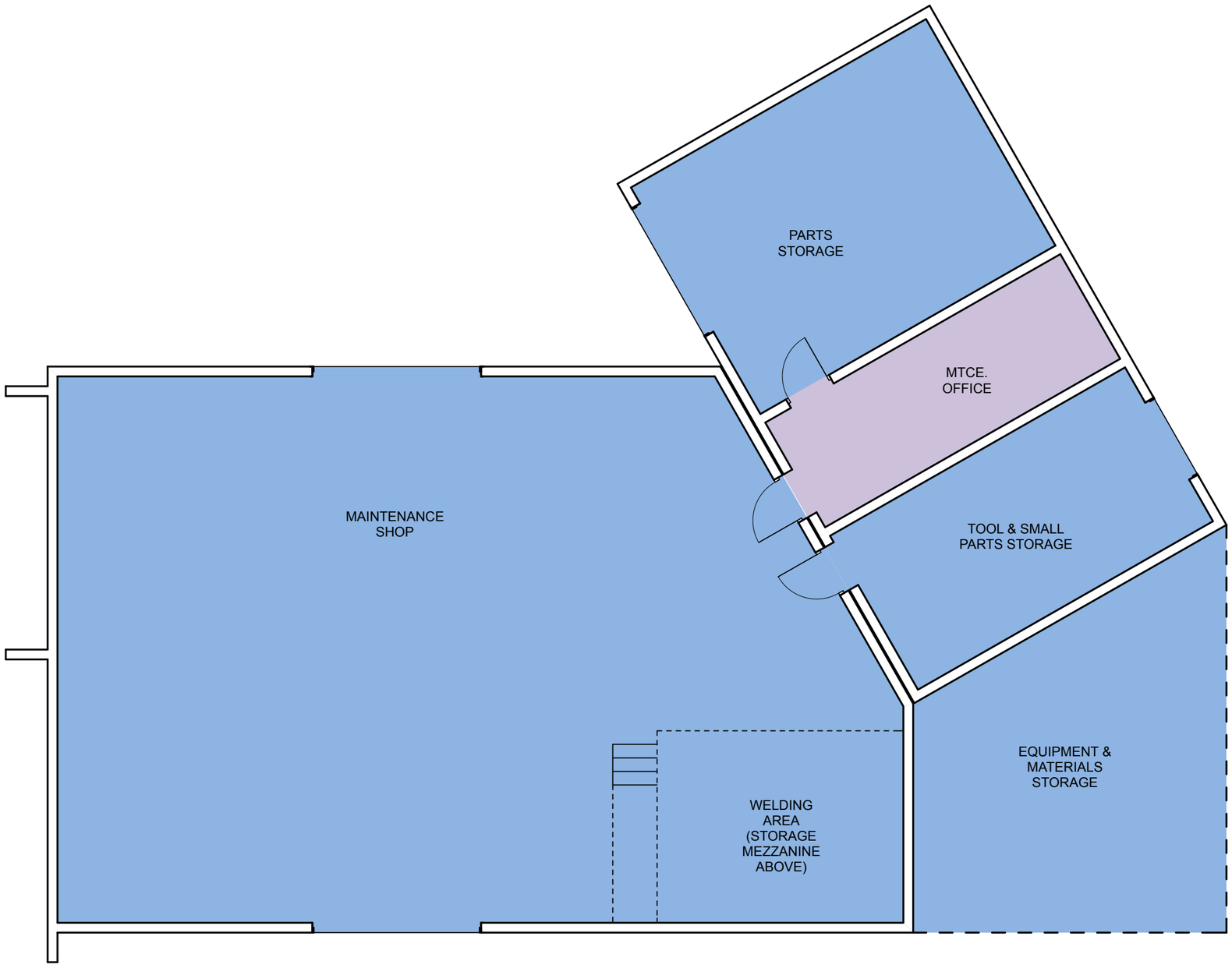
WPCP Master Plan

City of Sunnyvale
1444 Borregas Avenue Sunnyvale, CA 94089

Existing Space Use
date: 10.03.2013

Primarily Control - 2



LEGEND

Office Area

Shop & Enclosed Storage

MAINTENANCE SHOP

1/8" = 1'-0"

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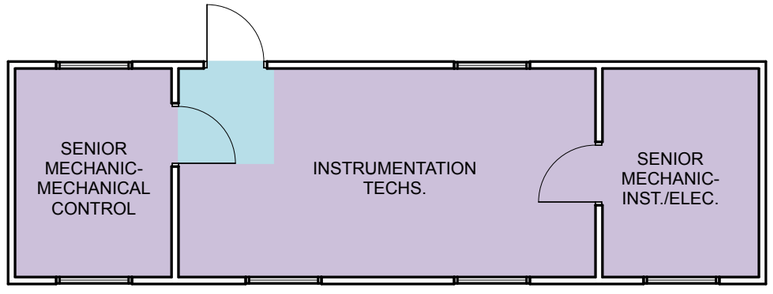
WPCP Master Plan

City of Sunnyvale
1444 Borregas Avenue Sunnyvale, CA 94089

Existing Space Use
date: 10.03.2013

Maintenance



INSTRUMENTATION

1/8" = 1'-0"

LEGEND

Public Areas

Office Area

B u r k s T o m a
A r c h i t e c t s

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WPCP Master Plan

City of Sunnyvale
1444 Borregas Avenue Sunnyvale, CA 94089

Existing Space Use
date: 10.03.2013

Instrumentation

LEGEND

- Public Areas
- Office Area
- Staff Support
- Laboratory
- Utility Areas

LABORATORY/CONTROL BUILDING

1/8" = 1'-0"

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Architects

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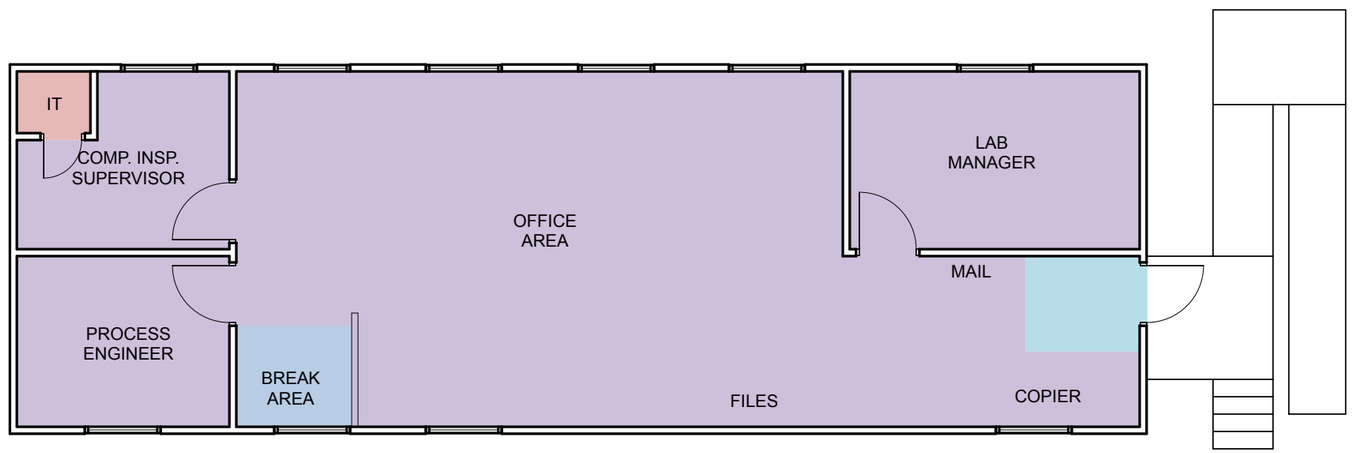
814 Camelia Street Berkeley, CA 94710

WPCP Master Plan

City of Sunnyvale
1444 Borregas Avenue Sunnyvale, CA 94089

Existing Space Use
date: 10.03.2013

Laboratory/Control



COMPLIANCE INSPECTION

1/8" = 1'-0"

LEGEND

- Public Areas
- Office Area
- Staff Support
- Utility Areas

BurksToma
Architects

burkstoma.com
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814 Camelia Street Berkeley, CA 94710

WPCP Master Plan

City of Sunnyvale
1444 Borregas Avenue Sunnyvale, CA 94089

Existing Space Use
date: 10.03.2013

Compliance Inspection

APPENDIX B – BUILDING PROGRAMMING WORKSHOP NOVEMBER 18, 2013 – MINUTES

Engineers...Working Wonders With Water™

CONFERENCE MEMORANDUM

Project:	Master Plan and Primary Treatment Design	**Conf. Date:**	November 18, 2013
Client:	City of Sunnyvale	**Issue Date:**	December 18, 2013
Location:	City of Sunnyvale WPCP Training Room		
Attendees:	City: Mobeck, Hammons, Yerrapotu, Sorrick, Espinoza, Lenoir, McGinnis	BTA/Carollo: Burks, Gilroy, Hagstrom,	
Purpose:	Review basis of planning and SIP recommendations to establish a foundation for the detailed master planning analysis.		
Distribution:	Attendees, Demir	**File:**	9265A.00

Discussion:
The following is our understanding of the subject matter covered in this conference. If this differs with your understanding, please notify us.

Introduction – Meeting Purpose, Review Agenda

1. The purpose of this workshop is to confirm the functional and spatial requirements of the Operations and Maintenance departments of the WPCP. The basis for the discussion was the preliminary program summaries created from the site survey. The program describes the types, sizes and requirements of all functional spaces as well as preferred access and adjacencies.

Existing and Future Space Use

1. The uses of the existing space by Operations and Maintenance staff were reviewed and confirmed. The survey plans were annotated to reflect spaces or uses that were missing or shown incorrectly.

2. The adequacy and/or deficiencies of each space were discussed and preferred configurations and adjacencies noted and summarized below.

3. Primary Control Building
   A. A larger Training/Conference Room is needed to accommodate up to 60 occupants for Training and staff meetings. This room should include two (2) computer workstations and AV equipment.
   B. Senior Operators work area need space for 6 Senior Operators, with up to 3 on duty at any given time.
   C. Operators meeting room is desirable. Space should accommodate 8 – 10 occupants. Include 3 – 4 computer workstations and layout/work table or adjacent with some acoustic separation.

D. Provide space for up to 5 training workstations to be shared by Operations and Maintenance staff. A 70% ratio of staff to computer workstations is a reasonable goal.
E. Operators Plan/Map storage – current storage area is undersized. Need additional storage racks or drawers and layout space. Adjacent to Operators meeting/work room.
F. Common lunch area for all staff is desirable. Storage shelving should be provided for individual lunch carriers, coolers, etc.
G. Exercise room is in regular use, size is adequate.

4. Senior Mechanics office area is adequate. Maintenance staff area is undersized. Increase size to accommodate small meeting/layout table, manual storage, printer, files and workstations. Currently have 3 computer workstations for 6 staff. Space should be adjacent to Operators work area and Maintenance shop. Acoustic separation from shop.

5. Maintenance Shop:
   - Provide restroom if remote from other facilities
   - Separate welding area, sized to accommodate large, long pipe, bridge crane access
   - Increase space to allow separation of machine area, welding and workstations for more efficiency and safety. 7 work bench/stations required.

6. Additional requirements were recorded and are incorporated in the Program Summaries. See attached documents:
   - Operations/Control Program Summary
   - Maintenance Office & Shop Program Summary

Walk through of Existing Space with Staff

7. BTA toured the Operations and Maintenance Shop and storage area with staff to confirm equipment and storage requirements discussed in the interview. Specific equipment, types and sizes of work areas and extent of storage were noted and photographed for reference.

Review Next Steps/Action Items

8. The information provided by staff at the Workshop will be incorporated in the program summaries, comparing current and projected space needs. The program summaries will be reviewed by staff to confirm that they reflect the interview discussions and space needs. The program summaries will form the basis for the determining the size requirements for new occupied buildings as part of the Master Planning process.

Action Items

Prepare Program Summaries for review by staff. **(Program Summaries attached.)**

Prepared By:
K.Burks

Engineers...Working Wonders With Water™

CONFERENCE MEMORANDUM

Project:	Master Plan and Primary Treatment Design	**Conf. Date:**	November 18, 2013
Client:	City of Sunnyvale	**Issue Date:**	December 18, 2013
Location:	City of Sunnyvale WPCP Training Room		
Attendees:	City: Mobeck, Yerrapotu, Hammons, Marshall, Choun, Lothian, Scheidt, Davison, Kauravlia, Borrello, Tovar	BTA/Carollo: Burks, Gilroy, Hagstrom,	
Purpose:	Establish current and projected space needs of the Laboratory and Compliance Inspection facilities at the WPCP.		
Distribution:	Attendees, Demir	**File:**	9265A.00

Discussion:
The following is our understanding of the subject matter covered in this conference. If this differs with your understanding, please notify us.

Introduction – Meeting Purpose, Review Agenda

1. The purpose of this workshop is to confirm the functional and spatial requirements of the Laboratory, Compliance Inspection and Administrative departments of the WPCP. The basis for the discussion was the preliminary program summaries created from the site survey. The program describes the types, sizes and requirements of all functional spaces as well as preferred access and adjacencies.

Existing and Future Space Use

1. The uses of the existing space by Laboratory, Compliance Inspection and Administrative staff were reviewed and confirmed. The survey plans were annotated to reflect spaces or uses that were missing or shown incorrectly.

2. The adequacy and/or deficiencies of each space were discussed and preferred configurations and adjacencies noted and summarized below.

3. Compliance Inspection (CI) Lab
   A. The CI Lab and processing area is undersized. Additional work counter and sampler storage area are needed to provide adequate work space for current staff. Washdown sink and storage shelving is in poor condition. Space is not insulated and temperature control is inadequate.
   B. The CI Lab would ideally share a sample receiving space with the Lab and should have level-in access to vehicle parking.
   C. An ice machine should be located in or near this space.

4. Compliance Inspection Office Area
   A. Senior Compliance Inspection Supervisor's office is undersized. Office should be sized to include a meeting space for 2 – 3 people.
   B. Current workstations are adequate.
   C. A plan review table and drawing storage system is desirable.
   D. Office area should include or be near a reference materials library.

5. Plant Compliance - Environmental Coordination
   A. Office area is adequate, should be near central files.
   B. A plan review table and drawing storage system is desirable, separate from Compliance Inspection.
   C. Need separate storage area for department files, files require frequent access.

6. Outreach/Sustainability
   A. Current workstations are adequate.
   B. Storage of materials and event equipment/props is currently in Chemical building. Ideally storage area should be located near staff offices with level-in access on ground level.
   C. Need access to small conference room. (See General staff support area notes below.)
   D. A large classroom/public meeting room for up to 60 people is needed on-site for outreach events. Space could also be used for large staff meetings and training. Direct access from public entry is required; could possibly be used for other City meetings when Plant offices are closed. Access to public restrooms is required.

7. Lab - following notes were made during the walk-through of the Lab with the Lab Manager and Lab staff. (See Item 11 below.)
   A. Office Area - Lab Manager Office size is adequate. Should be located adjacent to Chemist Offices and work stations. A common Lab 'data center' for shared files, reference materials and small meeting space is desired. All Lab office space should be adjacent to Lab.
   B. Chemistry Lab: Lab Manager indicated that additional work counter, upper storage cabinets and fume hoods are needed. Currently there are 5 60" hoods, 6 may be needed in the future, plus an additional 1 if metal testing is done. Bench space area is slightly undersized, could be increased.
   C. Wet Chemistry: Additional space is required for testing, approx.. 50% additional space.
   D. Microbiology – approximately twice the linear footage of work counter for prep space is needed to accommodate current and future testing requirements for water and wastewater plants.
   E. Organics – work counterspace is adequate for current equipment, but additional space is required for two (2) new fumehoods.
   F. Metals Lab – need better ventilation (canopy hoods) and separate enclosed room. Two fume hoods (48") in this space would be ideal.
   G. Bio Assay Lab – Currently located in separate trailer space. May not be needed in the future. If needed, will need approx.. twice the capacity for testing.
   H. Dishwashing area – separate space needed for storage of clean glassware. Provide canopy hoods over dishwashing area.
   I. DI system – locate in separate room from dishwashing and storage. Can be located with vacuum and compressed air equipment.

J. Sample receiving area – a dedicated space for sample shipping and receiving would increase efficiency and facilitate proper handling of samples. Space would be shared with Compliance Inspection Lab. Direct access to exterior vehicle parking area required. Equipment needs include: large walk-in refrigerator unit, 48" fume hood, and ice machine. Log-in desk, shelving for sample and bottle storage also required.

K. A walk-in BOD incubator is desirable, in lieu of separate incubators.

L. Lab Storage – currently located in Mechanical Room and Chemical Bldg. Provide storage room adjacent to Lab space.

8. Administration: no comments were made about existing private office space or administrative assistant workstations.
   A. Copy/file/mail area is undersized.
   B. See below for notes regarding conference/meeting room needs.

9. General staff support areas
   A. There is currently no small or medium size conference room for general use by all departments. The larger Training/Meeting Room is non-compliant with ADA requirements. The Day Room is used for some small meetings and training, but these uses conflict with break and lunch time use.
   B. Two to three (2 -3)Work stations for temp staff and/or interns are needed, to be shared by all groups. Can be located in central location near other administrative functions.

10. Additional requirements were recorded and are incorporated in the Program Summaries. See attached documents:
    A. Administration Program Summary
    B. Laboratory Program Summary
    C. Compliance Inspection Program Summary

Walk through of Existing Space with Staff

11. BTA toured the CI Lab and Testing Lab with staff to confirm equipment and storage requirements discussed in the interview. Specific equipment, types and sizes of work areas and extent of storage were noted and photographed for reference.

Review Next Steps/Action Items

12. The information provided by staff at the Workshop will be incorporated in the program summaries, comparing current and projected space needs. The program summaries will be reviewed by staff to confirm that they reflect the interview discussions and space needs. The program summaries will form the basis for the determining the size requirements for new occupied buildings as part of the Master Planning process.

Action Items

Prepare Program Summaries for review by staff. **(Program Summaries attached.)**
Lab Manager will provide list of current and future equipment needs for each area of the Lab.

Prepared By:
K.Burks

APPENDIX C – PRELIMINARY SPACE NEEDS ASSESSMENT SUMMARIES AND FUNCTIONAL AREA DIAGRAMS

WPCP - Maintenance Office & Shop

Space Needs Assessment Summary

No.	Area/Space	Function	Area (SF)	
			existing	future
1.0	**Maintenance Office Area**			
	Private Offices			
	Sr. Mechanic - Mechanical	work station or office?	92	120
	Sr. Mechanic - Instrumentation/electrical	work station or office?	92	120
	Copy Work Area	Copy, work area and supplies		100
	File Storage/Library/O&M manuals			
	Maintenance Group Office	Computer work stations (3 -4), meeting table for up to 10,	184	250
	Plan storage/layout	Shared with Ops		120
	Training workstations	Computer work stations (5 - 6), Shared with Ops		170
3.0	**Maintenance Shop & Enclosed Storage Areas**			
	Maintenance Shop	Machining and pump repair, metal working, welding, fabrication	1617	2100
	Mechanics Work bench (7) @ 8'x8'	450		
	Pump Repair / Rebuild Shop			
	Fabrication			
	Welding	separate area/control fumes		
	Machining			
	Parts/Tool Storage	Small parts, manual and electric tool storage	275	
	Parts Storage	Enclosed storage room, roll up door access	400	500
	Storage Mezzanine		215	250
	Equipment & Materials Storage	Roofed, fenced enclosure, adj. to Shop	440	600
	Instrumentation Shop	clean shop'	242	280
	Instrumentation Tech.	Workbench		
	Instrumentation Tech.	Workbench		
	Parts/manuals/equipment storage	Shelving		
5.0	**Warehouse & Stores**	**from Primary control**		
	Warehouse staff work area	Workstation, files, counter area	382	120
	Parts and Materials Storage	Shelving		400
4.0	**Utility Areas**			
	Mechanical Room	Mechanical equipment	0	
	Electrical Room	120V office, 240V & 120V Shop Space	0	
		Total estimated SF - Net	**3939**	**5130**
		Unit Circulation 15% avg.	NA	770
		Total estimated SF - Gross		**5900**
5.0	**Covered Storage & Vehicle Parking**			
	Covered Unsecure Material and General Use Storage	Shelving, materials racks, and storage bins for large parts	*tbd*	600
6.0	**Remote Storage**			
	Equipment & Materials Storage	Container	*tbd*	incl. above
	Lubricant Storage and Recycling	Lubrication, oil, paint and storage-remote location	*tbd*	
	Hazardous Materials Storage	corrosives - remote location	*tbd*	
	Exterior Washdown Area	*confirm location, if exists*	*tbd*	***?***
7.0	**Yard Areas**			
	Uncovered and Unsecured Parking	Electric vehicle and bike parking	# spaces tbd	
	Trash/Recycling	Trash/recycling/scrap metal	tbd	tbd

WPCP - Operations/Control

Space Needs Assessment Summary

No.	Area/Space	Function	Area (SF)		
			existing	future	
1.0	**Public Areas**				
	Meeting/Training Room	Large group meetings and public education	445	**incl in General**	
	Library Storage	Storage of reference materials and equipment	58		
2.0	**Operations Office**				
	Senior Operators' Office	Sr. Operators - Two (2) work stations 10 x 12 , files	175	**240**	
		1 Sr. Operator in-training		**100**	
	Control Room	2 -3 people , workstations for each phase		**350**	
	Operators Group Office	Computer work stations (3 -4), meeting table for up to 10,	262	**250**	incl. in control room?
	Map and Drawing Storage	share with Mtce.		**0**	
	Training workstations	Computer work stations (5 - 6), Shared with Mtce.		**0**	
3.0	**Operations Staff Support Areas**				
	Operator Work Bench Area		120	**150**	
	Operator Storage Lockers		170	**200**	
	Safety Carts Storage	need charging station , adj. to entry, mud room	150	**200**	
	Safety Equipment Storage	near Carts	180	**200**	
4.0	**General Staff Support Areas**				
	Restroom - Unisex	Toilet and lavatory	28	**incl. in general**	
	Restroom/Locker Room	Staff restroom/locker room	155		
	Gym/ Exercise Room	Staff exercise area	415		
7.0	**Utility Areas**				
	Server room	30'x25' - separate HVAC, near control room	0	**incl. in general**	
	HVAC Room		240		
		Total Occupied SF - Net	**2158**	**1690**	
		Unit Circulation 20% est.	432	338	
		Total estimated SF - Gross	**2562**	**2028**	

WPCP Administration

Space Needs Assessment Summary

No.	Area/Space	Function	Area (SF)	
			existing	future
1.0	**General Public Areas**			
	Entry Lobby & Reception	Primary staff and visitor entry	190	**350**
	Public Restrooms	Adjacent to Public Meeting Space	0	**400**
2.0	**Administrative Offices**			
	Admin / Reception			
	Admin. Aide	Work station 8'x8'	48	**65**
	Admin. Aide	Work station 8'x8'	42	**65**
	Copy Work Area	Copy, work area and supplies	66	**150**
	File/Mail	Staff mail slots /vertical files	18	
	Private Offices			
	WPCP Division Manager		180	**180**
	WPCP Operations Manager		105	**180**
	Regulatory Programs Div. Manager		105	**180**
	Mtce & Facility Manager		180	**180**
	Env. Program Manager		132	**180**
	Open Office			
	Admin. Aide	Work station - 10'x10'		**100**
	Senior Staff Asst.	Work station - 10'x10'		**100**
	Intern/Temp. positions (3)	Work stations 3 @ 8'x8' - SF		**200**
	Outreach/Sustainablity		495	
	Outreach Coordinator	Work station - 10'x10'		**100**
	Sustainablity Support Services	Work station - 10'x10'		**100**
	Files/Library Storage	Dedicated to O/S		**100**
	Outreach/Sustainablity storage	ground level, easy access to vehicles	0	**200**
	Conference/Meeting Space			
	Public Outreach Meeting space	40 - 60 people, storage, AV accessible to public entry		**800**
	Small Conference Room	Meeting space 6 - 8 people	0	**150**
	Medium Conference Room	Meeting space 10 - 12 people	0	**220**
	Library / File Storage	Active File storage, resource library	0	**150**
	Archive File Storage	Archive storage, moved from Control Bldg.	70	**100**
3.0	**General Staff Support Areas**			
	Day Room / Training	Lunch/break room, training and meeting space, 60 people	425	**750**
		Vending machines, incl. Day room	exterior	**incl**
	Kitchen	Food and beverage storage and preparation	110	**200**
	Mud Room / Wet Room	Wet weather gear/boot coat storage	65	**160**
	Ice Machine	Include in Mud Room	8	**0**
	Uniform Storage	Clean Uniform Storage	52	**65**
	Men's Locker Room	Staff locker room O+M 2x32 + 18 staff = 81 lockers		

		Showers 5 + 1 ADA	720	**1,050**
	Men's Restroom	Staff restroom 3 - WC , 2- Urn, 4 sinks		
	Women's Locker Room	Staff locker room 24 lockers, 4 showers ok	454	**455**
	Women's Restroom	Staff restroom		
	Staff Restooms	Additional M + W's if multifloor building		**400**
4.0	**General Utility Areas**			
	Server Room	Server room 30' x 25', near Control Room	40	**750**
	Janitor's Room	Custodial equipment and supply storage	21	**50**
	Mechanical Room	Estimated	10.5	**140**
	Electrica/Tel conl Equipment Area	Electrical panels, transformer	34	**140**
	Elevator, elevator equipment room	8 x 8 elevator, 8x 10 elevator equip. room	0	**240**
	Stairs	2 stairs - 10' x 20' - 2floors	0	**400**
		Total estimated SF - Net	**3,571**	**9,050**
		Unit Circulation (20%)	743	2,027
		Total SF - Gross	**4,244**	**11,077**
Y.1	**Covered Patio**	Outdoor lunch/break area	600	800
P.1	**Vehicle Parking**	*Confirm parking areas on Site Plan*		tbd

WPCP - Compliance Inspection

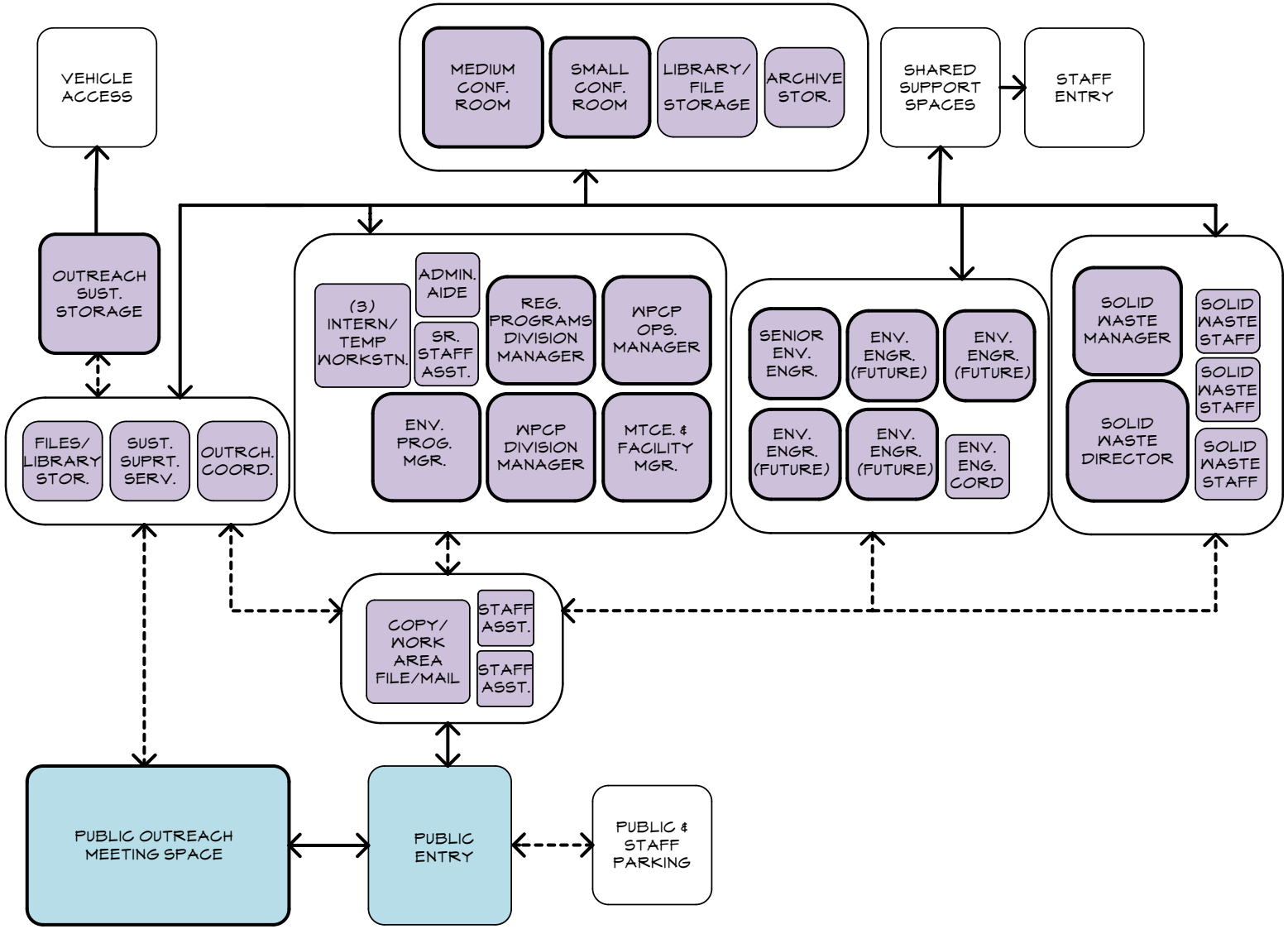
Space Needs Assessment Summary

No.	Area/Space	Function	Area (SF)	
			existing	future
1.0	**Public Areas**			
	Entry	Primary staff and visitor entry	30	**0**
2.0	**Compliance Inspection**			
	Private Offices			
	Compliance Inspection Supervisor		88	**180**
	Open Office			
	Compliance Inspector	Work station 8'x8' (E)		**64**
	Compliance Inspector	Work station 8'x8' (E)		**64**
	Compliance Inspector	Work station 8'x8' (E)		**64**
	Compliance Inspector	Work station 8'x8' (E)		**64**
	Copy/Work Area	Copy, work area and supplies	715	**100**
	Plan Review/Storage	Layout table, drawing storage		**100**
	File Storage	Near central files, but no public access		**120**
	Mail	Staff mail slots and work counter		**0**
2.0	**WPCP Compliance**			
	Environmental Engineering Coordinator	Work station 8'x8' +/- (E)		**64**
	Senior Env. Engineer	Private Office	102	**180**
		Total SF - Net	**935**	**1000**
		Circulation/Structure (5% existing - 20% future)	49	200
		Total estimated SF - Gross	**1170**	**1200**

WPCP - Laboratory

Space Needs Assessment Summary

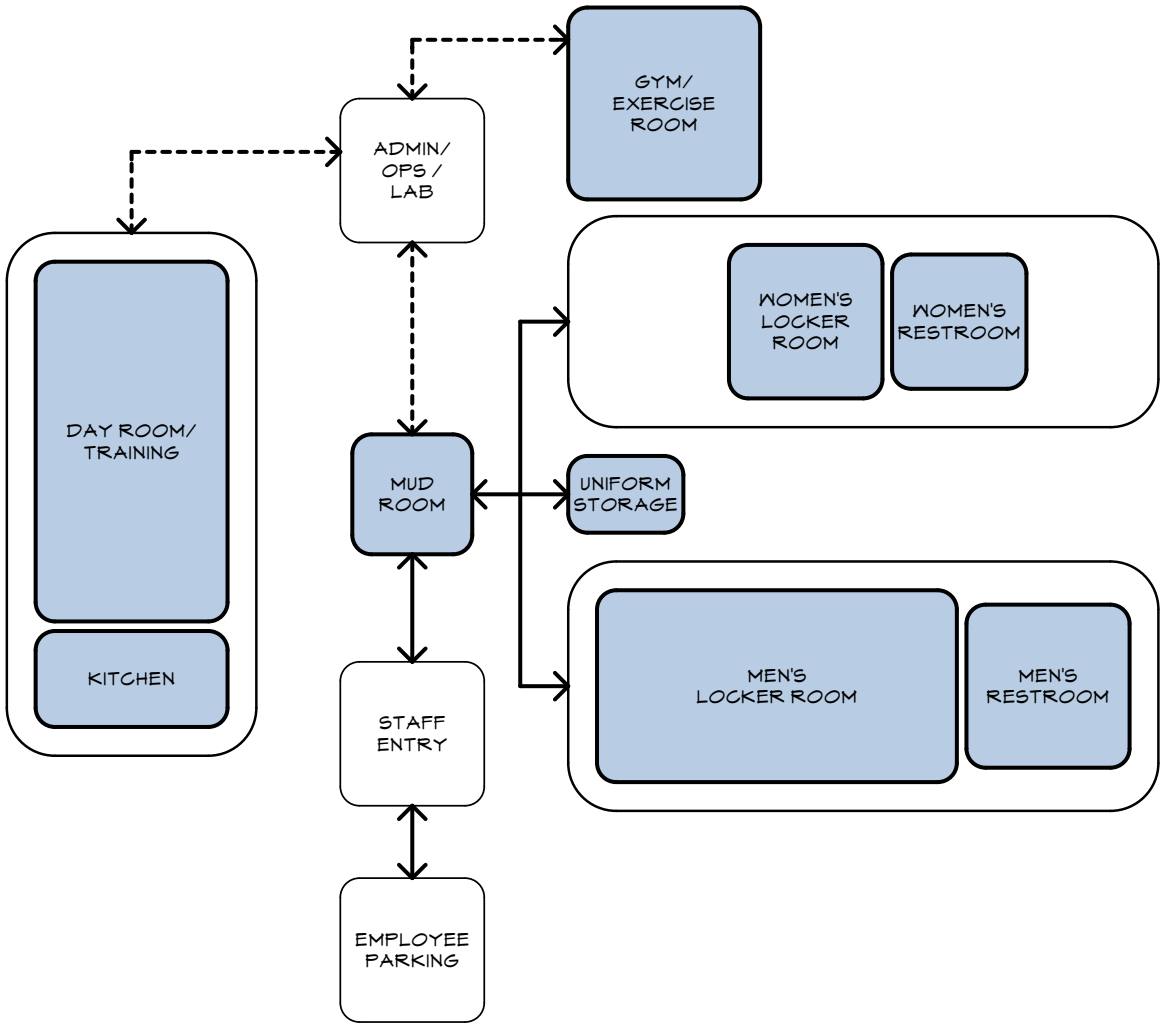
No.	Area/Space	Function	Area (SF)	
			existing	future
1.0	**Public Areas**			
	Entry Corridor	Primary staff and visitor entry	100	**0**
3.0	**Laboratory**			
	Chemistry Laboratory	Testing and processing of water samples	1032	**1200**
	Dishwashing & Dish storage	RO system, autocave, storage shelving, canopy hoods	195	**250**
	BOD storage unit	incubator		**100**
	Microbiology	2x (e) bench space	170	**350**
	Wet Chemistry	50% larger than existing	250	**350**
	Organics (Instrumentation)	Add fume hood	300	**350**
	Metals Lab	Lg. canopy hoods, separate room, 2 - 48" fume hoods	180	**300**
	Sample receiving	Processing & storage of samples, shipping/receiving	0	**175**
		Walk-in refrigerator 6'x6'	0	**36**
	Lab Storage	Equipment & supplies		**150**
	Lab Mechanical Room	separate room for D.I, vaccum , compressor, etc.		**54**
4.0	**Laboratory Offices**			
	Laboratory Manager		142	**180**
	Sr. Chemist		175	**120**
	Sr. Chemist			**120**
	Chemists work stations	(3) workstations, 6 x 6,		**100**
	Lab Tech work stations	(3) workstations, 6 x 6,		**100**
	Copy, files library, meeting space			**150**
5.0	**Compliance Inspection Lab**	**adj. to Lab, near C.I. Office area**		
	Work station	Computer workstation, files, manual storage	342	**450**
	Work Counter	Testing and processing of water samples		
	Sampler Washdown	Raised large sink, access to exterior		
	Equipment Storage	Shelving, racks, ice machine		
8.0	**Remote Bio Assay Lab**			
	Workcounter	Testing and processing of water samples	470	
	Sample Storage			**800**
	Tanks			
		Total SF - Net	**3356**	**5335**
		Unit Circulation	NA	1067
		Total SF - Gross		**6402**



ADMINISTRATIVE OFFICES

FUNCTIONAL AREA DIAGRAMS

City of Sunnyvale
Water Pollution Control Plant

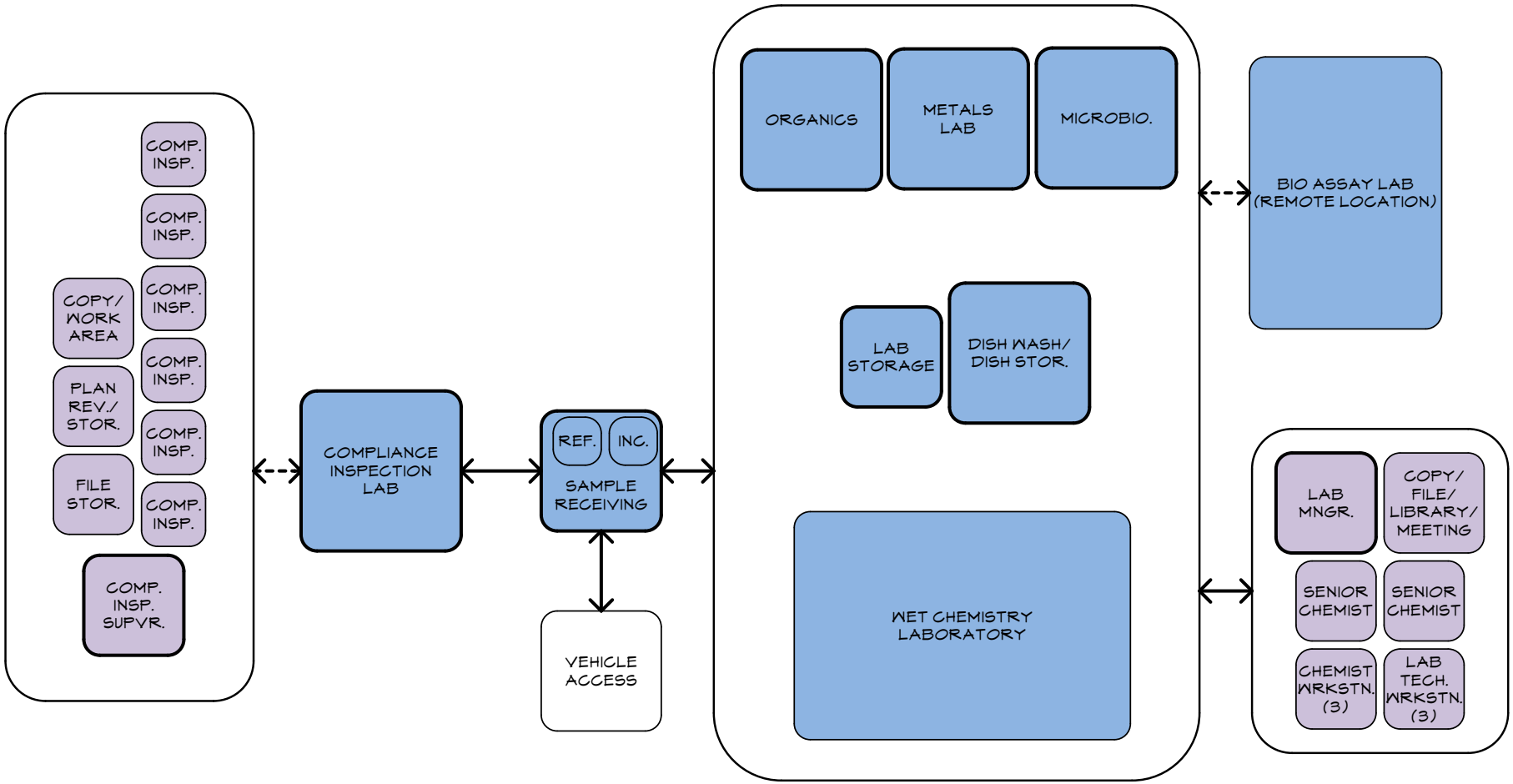


STAFF SUPPORT SPACE

SHARED SUPPORT SPACES

FUNCTIONAL AREA DIAGRAMS

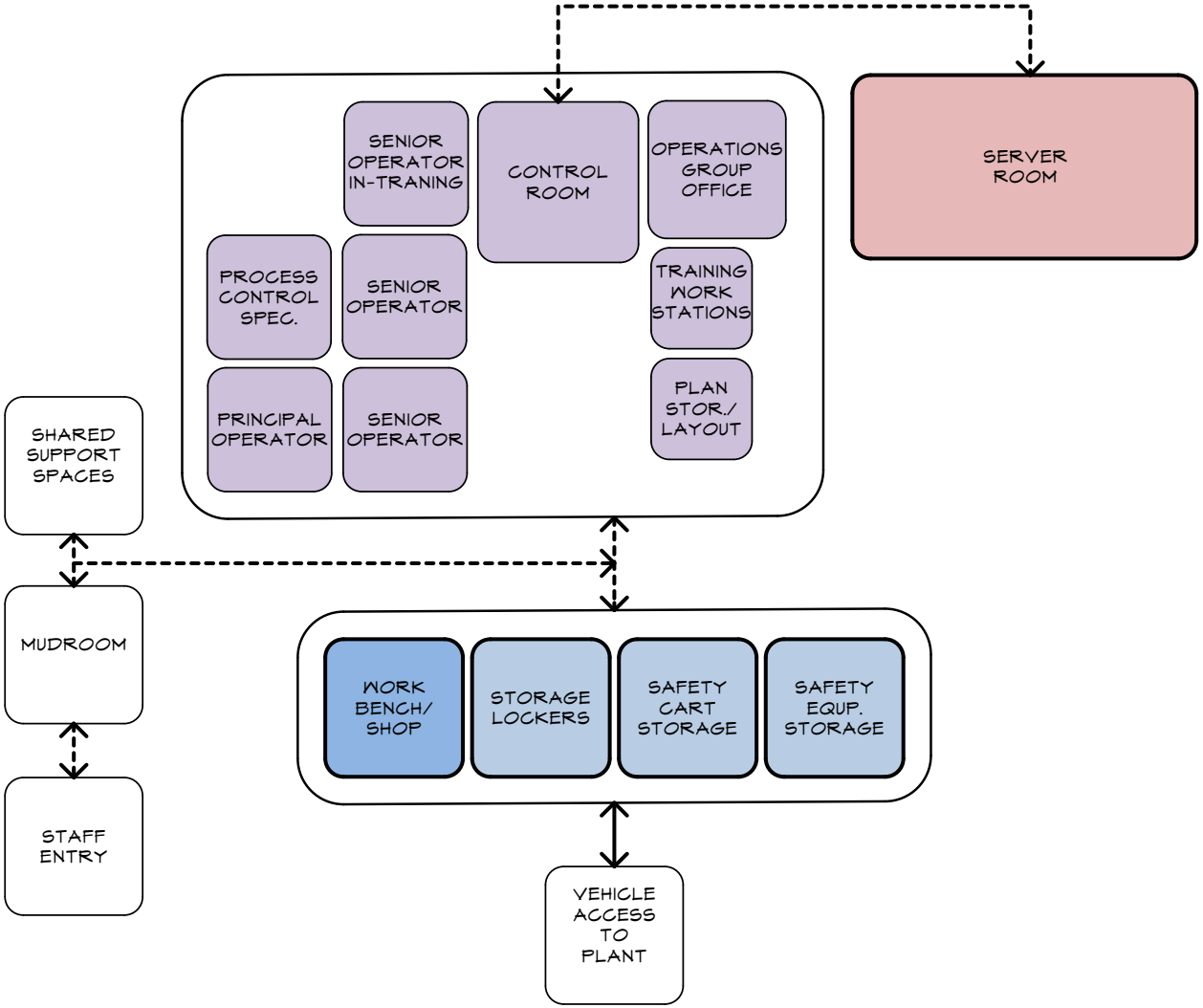
City of Sunnyvale
Water Pollution Control Plant



COMPLIANCE INSPECTION & LABORATORY

FUNCTIONAL AREA DIAGRAMS

City of Sunnyvale
Water Pollution Control Plant

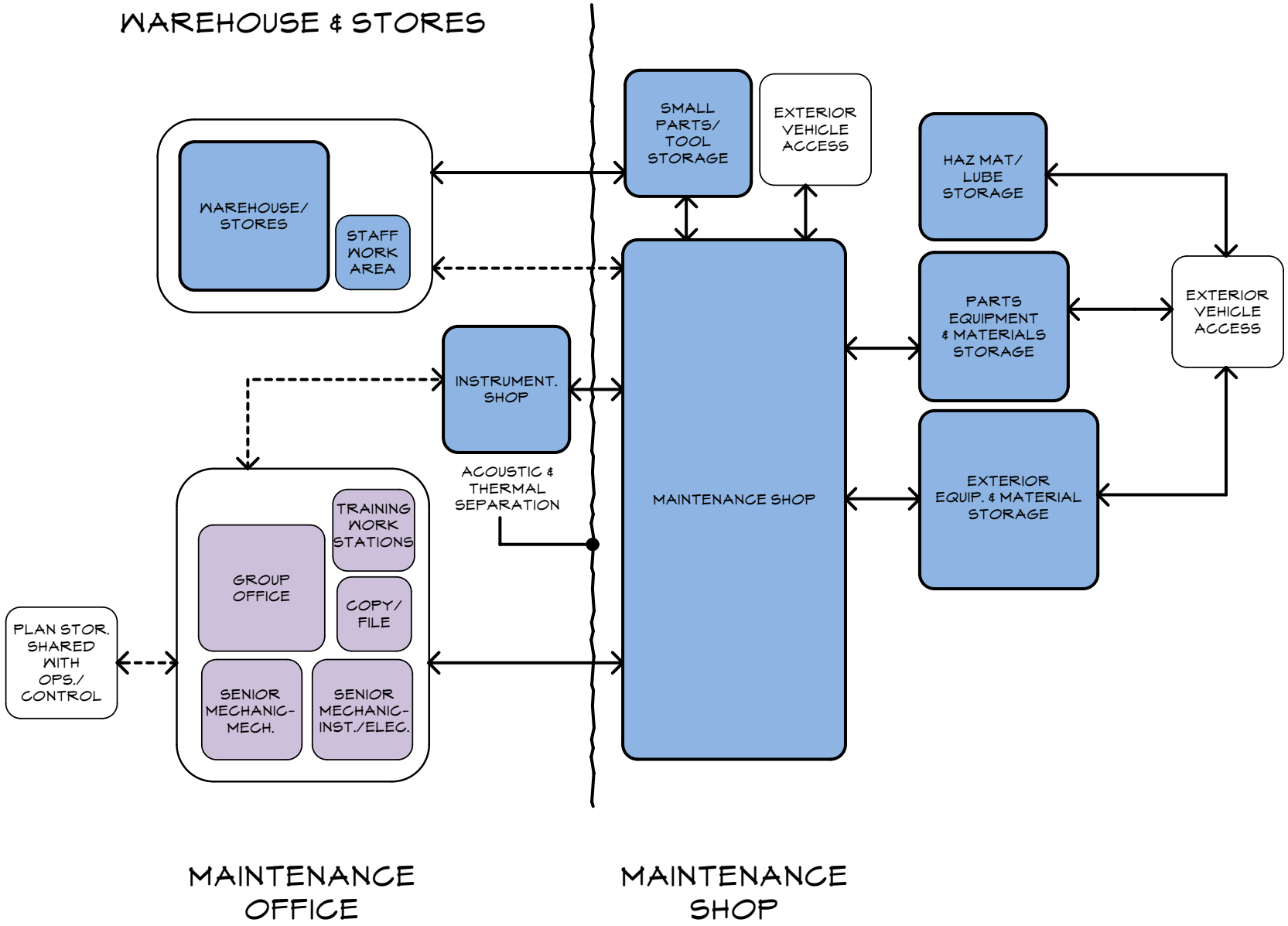


OPERATIONS/ CONTROL

OPERATIONS/CONTROL

FUNCTIONAL AREA DIAGRAMS

City of Sunnyvale
Water Pollution Control Plant



MAINTENANCE

FUNCTIONAL AREA DIAGRAMS

City of Sunnyvale
Water Pollution Control Plant

APPENDIX D – BUILDING PROGRAMMING WORKSHOP JANUARY 14, 2014 – MINUTES AND SLIDES

Engineers...Working Wonders With Water™

CONFERENCE MEMORANDUM

Project:	Master Plan and Primary Treatment Design	**Conf. Date:**	January 14, 2014
Client:	City of Sunnyvale	**Issue Date:**	February 20, 2014
Location:	Neighborhood Room, Sunnyvale Community Center		
Attendees:	City: Mobeck, Hammons, Yerrapotu, Stufflebean, Steffens, Pineda, Berdeen, Tovar,	Burks Toma Architects/Carollo: Burks, Gilroy, Demir, Hagstrom,	
Purpose:	Confirm preliminary master plan building program for the non-process facilities at the WPCP.		
Distribution:	Attendees	**File:**	9265A.00

Discussion:
The following is our understanding of the subject matter covered in this conference. If this differs with your understanding, please notify us.

Introduction – Meeting Purpose, Review Agenda

1. The purpose of this workshop is to confirm the functional and spatial requirements of the non-process areas of the WPCP and understand the optimal adjacencies and relationships of these areas.

Space Needs Assessment Process

1. Burks Toma Architects (BTA) presented a brief overview of the methodology used in the Assessment process:
   A. Survey of Existing Uses - All five non-process building areas and remote storage areas were surveyed and documented. Existing building space use summaries were created.
   B. Workshops with staff were held to discuss current space use and future space needs. Workshop No. 1 included Operations and Maintenance key staff, Workshop No. 2 included Laboratory, Compliance Inspection, Administration and Outreach key staff.
   C. Analysis of Space Needs. - BTA reviewed the current space use discussion from Workshops No. 1 and No. 2 and noted significant deficiencies and needs for future staff. BTA reviewed the stated area requirements and compared them to similar facilities. Potential areas for shared use were identified and adjacencies and access requirements defined.
   D. From the analysis, BTA developed Master Plan Building Program Summaries and Functional Area Diagrams for the non-process areas.

Confirmation of Building Program Summaries and Functional Area Diagrams

2. The Program Summaries and Functional Area Diagrams for each non-process area were reviewed and discussed. Functional areas include:
   A. Administration
   B. Operations & Control
   C. Maintenance
   D. Laboratory
   E. Compliance Inspection
   F. General Staff Support

3. Comments from the discussion are as follows:
   A. Administration:
      1) Standardize office and workstation spaces for different classifications.
      2) Small and medium size conference rooms can be used for private conversations in lieu of private offices.
      3) Storage areas should reflect storage unit space and area to access shelving.
      4) Review overall library area requirements amongst all the groups to see if the spaces can be consolidated, be more efficient and downsized (will depend on layout).
   B. Outreach/Sustainability
      1) Review estimated size of public meeting space. Assess whether the square footage can be reduced at all. Room should be adequate for 30 occupants at tables or 60 occupants in chairs (maximum occupancy of space during public tours)
      2) Reduce size of public restrooms adjacent to public meeting space.
      3) Correct description of section is: Stormwater Sustainability Outreach.
   C. General Staff Support Areas
      1) Reduce Day room to accommodate 30 occupants seated at tables. (i.e recognizing that public meeting space could be used for “all hands” meetings or training).
      2) Basis for Kitchen size was questioned – used for preparation for meals, coffee, etc. Noted that WPCP is staffed 24/7 and operators must remain at the Plant. Review SF (determine if it can be reduced)
      3) Provide cubbies/shelving for storage of staff lunches.
      4) Review Men’s locker and shower rooms to see if there is any opportunity to reduce square footage. Size for two lockers for field staff (Operations, Maintenance and Compliance Inspections).
      5) Plan for flexibility in size of Women’s Locker/shower room to accommodate changes in number of female field staff.
      6) Reduce size of the second floor restrooms – single occupancy type is sufficient.
      7) Server room seems large (size to be reviewed with ACS planning group)
      8) Review mechanical room size, reduce if possible (depends on systems used).
      9) Update the existing square footages for Maintenance mechanical and electrical rooms, it is not zero (noted that items are tucked away all over the WPCP). See Action Items.
   D. Operations

1) Look at consolidating the Operations control room and group office. Include two or three workstations for process and three or four workstations for staff use.

E. Laboratory
   1) Review laboratory space with outside specialist and reduce estimated increase as necessary.
   2) Bio Assay Lab must be located near Filters, remove from Lab program summary.

F. Compliance Inspection
   1) Will need up to six inspectors: Include 2 cubicle/workstations for new compliance positions.

G. SmARt station: Include 1 Directors office, one (1) Management office and two (2) cubicle/workstations for solid waste management staff.

H. Hazard waste facility site should be relocated as the location is a viable option for the location of new Admin/Ops/Lab/Maintenance building and/or construction trailers.

Action Items

1. Verify existing square footage and confirm all non-process spaces are captured. Update existing space use summary as necessary. ***BTA to met with D. Hammons 1/22/14 to survey and confirm all non-process spaces.***
2. Final space needs to be reviewed from the perspective of future technologies and implementation timing (staffing, maintenance, warehousing etc.
3. Document where current space does not meet code or poses a potential risk for evacuation/occupation, i.e. insufficient sanitary facilities, inadequate ventilation of copier areas, undersized meeting spaces based on occupancy limits.
4. Document deficiencies with diagrams and photographs to support argument for additional space.
5. Create a list of all new space required at the WPCP and key spaces being enlarged. Provide explanation of requirements and justify the recommendations for increases in square footages.

Prepared By:

Karen Burks

Master Plan Workshop Process
What / Where / When & How Much?

- What
  - Process Workshop – October 14/15, 2013
  - Energy/Combined Heat & Power – December 5, 2013
  - Support Buildings – January 14th, 2014
  - Automation Control Plan – January 27th, 2014
- Where
  - Site Layout/Access – February 7th, 2014
- When & How Much
  - Operations Staffing – Week of April 21st, 2014
  - CIP Implementation – Week of June 2nd, 2014

This Workshop will be a Success if …

- ✓Engage staff in meaningful discussion of the future space needs
- ✓Agree on functional area requirements
- ✓Understand the optimal adjacencies and relationships of functional areas
- ✓Agree on Preliminary Master Plan Support Building program
- ✓Understand current budget status

Workshop Agenda

- January 14, 2014
  - Introduction – Meeting Purpose
  - Review Space Needs Assessment Process
  - Discuss Building Program Summaries
  - Discuss Functional Area Diagrams
  - Summary of Preliminary Building Program
  - Next Steps

Workshop Rules of Engagement

- Encourage “lively” discussion/feedback
- One conversation at a time
- Maintain schedule
- Develop as-needed “parking lot” for unresolved items

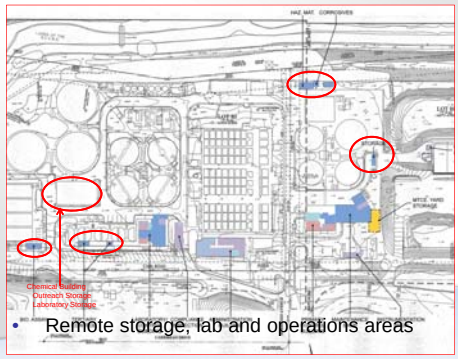
Purpose of the Space Needs Assessment

- Confirm the current and future space requirements of all non-process building functions
  - Administration
  - Compliance Inspection
  - Laboratory
  - Maintenance
  - Operations
- Analysis of functional area requirements
  - Address deficiencies
  - Potential shared use areas
  - Optimal adjacencies
- Create Master Plan Building Program

Site Survey – Non-Process Buildings

- Buildings Surveyed
  - Administration Building
  - Primary Control Building
  - Maintenance Shop
  - Instrumentation Shop
  - Laboratory/Control Building
  - Compliance Inspection

Site Survey – Non-Process Buildings



- Remote storage, lab and operations areas

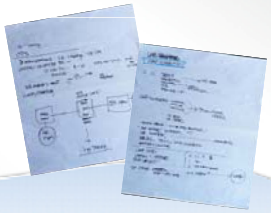
Site Survey – Non-Process Buildings

Program Summary

Current Use Plan Diagram

Space Needs Workshops

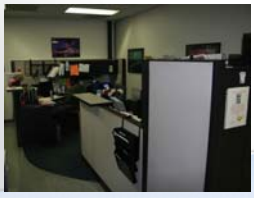
- **Purpose**
  - To confirm the functional and spatial requirements of support buildings occupants. The basis for the discussion was the current space use diagrams and summaries created from the site survey.
- **Workshop #1**
  - Operations
  - Maintenance
- **Workshop #2**
  - Laboratory
  - Compliance Inspection
  - Administration



Workshop Results

Administration

- Larger lobby for groups to gather
- Create separate copy/file area
- Standardize office and workstations
- Add workstations for interns



Workshop Results

Outreach/Sustainability

- Provide large, accessible public meeting space
- Consolidate event storage areas

Workshop Results

Staff Support Areas

- Expand Day Room & Kitchen
- Larger Men's Locker Room & Restroom

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Workshop Results

Compliance Inspection

- Consolidate Compliance Inspection functions into central building
- Area requirements decrease due to shared support space

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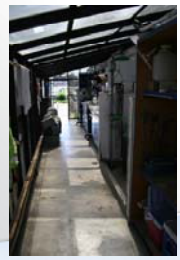
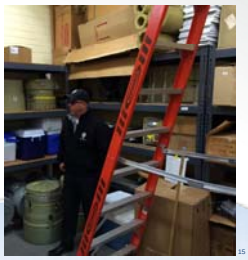
Workshop Results

Compliance Inspection Lab

- Increase space to provide adequate work and storage areas
- Share sample receiving space with Laboratory





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Workshop Results

Laboratory

- Increase Lab space for current & future testing requirements
- Add Sample Receiving area

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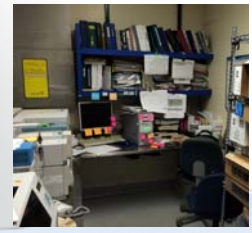
Workshop Results

Laboratory

- Add workstations for chemists and techs
- Consolidate all Lab office functions and create Lab 'data center' and work area



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Workshop Results

Laboratory

- Separate glass storage area from dishwashing, provide canopy hood over sink
- Locate DI system with vacuum and compressed air equipment

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Workshop Results

Operations

- Add computer work-stations and small meeting area
- Provide adequate space for Operators' workbench and equipment storage



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Workshop Results

Maintenance

- Increase shop area to separate functions


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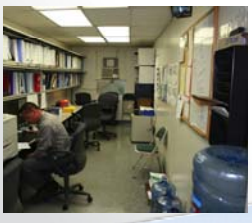
Workshop Results

Maintenance

- Add computer work-stations and small meeting area
- Increase storage area, provide easier access

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Workshop Results

Maintenance

- Create 'clean' Instrumentation Shop
- Consolidate Warehouse/Stores and Maintenance functions


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Space Needs Analysis

- **Analysis**
  - Review of stated area requirements
  - Comparison of similar facility area requirements
  - Identification potential shared use areas
  - Adjacency and access requirements
- **Confirm results of Analysis with Staff**
  - Review Program Summaries
  - Review Functional Area Diagrams

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Preliminary Program Summary Administration

Administrative Offices		
Area/Space	Existing Area (SF)	Future Area (SF)
General Public Areas		
Entry Lobby & Reception	190	350
Public Outreach & General Meeting space	445	800
Public Restrooms	0	400
Total	**635**	**1550**

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Preliminary Program Summary
Administration

Administrative Offices		
Area/Space	Existing Area (SF)	Future Area (SF)
Admin / Reception		
Staff Office Assistant	48	48
Staff Office Assistant	42	48
Copy Work Area	66	100
File/Mail	18	
Private Offices		
WPCP Division Manager	180	180
Regulatory Programs Division Manager	105	180
WPCP Operations Manager	105	120
Mtce & Facility Manager	180	120
Env. Program Manager	132	120
Senior Env. Engineer	102	120
Total	**978**	**1,036**

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Preliminary Program Summary
Administration

Administrative Offices		
Area/Space	Existing Area (SF)	Future Area (SF)
Open Office		
Environmental Engineering Coordinator	64	64
Intern/Temp. positions (3 @ 6' x 6')	0	144
Admin. Aide	64	64
Senior Staff Asst.	64	64
Total	**192**	**336**

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Preliminary Program Summary
Administration

Administrative Offices		
Area/Space	Existing Area (SF)	Future Area (SF)
Outreach/Sustainability		
Outreach Coordinator	80	80
Sustainablity Support Services	80	80
Files/Library Storage	100	100
Outreach/Sustainability storage	120	144
Total	**380**	**404**

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Preliminary Program Summary
Administration

Administrative Offices		
Area/Space	Existing Area (SF)	Future Area (SF)
Conference/Meeting Space		
Small Conference Room	0	150
Medium Conference Room	0	220
Library / File Storage	58	120
Archive File Storage	70	100
Total	**128**	**590**

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Preliminary Program Summary
Administration

General Staff Support Areas		
Area/Space	Existing Area (SF)	Future Area (SF)
Day Room / Training Room	425	750
Vending Machines	exterior	Incl above
Kitchen	110	200
Mud Room	65	160
Ice Machine	8	0
Uniform Storage	52	65
Men's Locker Room	720	1,050
Men's Restroom		
Women's Locker Room	454	455
Women's Restroom		
Staff Restrooms	0	400
Total	**1,834**	**3,080**

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Preliminary Program Summary
Administration

General Utility Areas		
Area/Space	Existing Area (SF)	Future Area (SF)
Server Room	40	750
Janitor's Room	21	50
Mechanical Room	11	140
Electrical/Tel com Equipment Area	34	140
Elevator & Elevator equipment room	0	240
Stairs	0	800
Total	**106**	**2,120**

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Space Needs Analysis
Preliminary Program Diagram Legend

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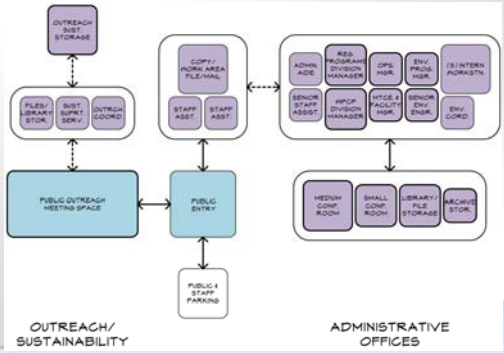
Preliminary Program Diagram



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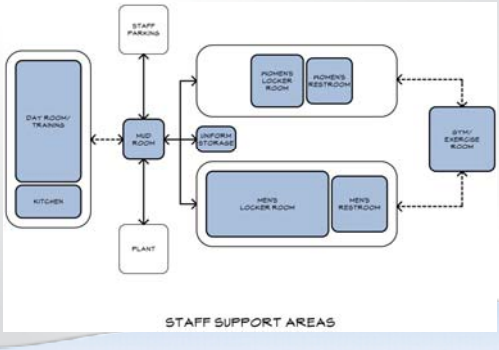
Preliminary Program Diagram



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Preliminary Program Summary
Operations

Operations Office		
Area/Space	Existing Area (SF)	Future Area (SF)
Principal Operator	0	80
Senior Operator	175	80
Senior Operator		80
Sr. Operator in-training		80
Process Control Specialist	0	80
Control Room	0	150
Operators Group Office	262	250
Map and Drawing Storage (shared with Mtce.)		0
Training workstations (shared with Mtce.)	0	0
Total	**437**	**800**

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Preliminary Program Summary
Operations

Staff Support Areas		
Area/Space	Existing Area (SF)	Future Area (SF)
Operator Work Bench Area	120	150
Operator Storage Lockers	170	200
Safety Carts Storage	150	200
Safety Equipment Storage	180	200
Total	**620**	**750**

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Preliminary Program Summary
Operations

General Staff Support Areas (1)		
Area/Space	Existing Area (SF)	Future Area (SF)
Restroom - Unisex	28	included in central building
Restroom/Locker Room	155	
Gym/ Exercise Room	415	
Total	**598**	**0**
(1) Currently located in Primary Control Building		

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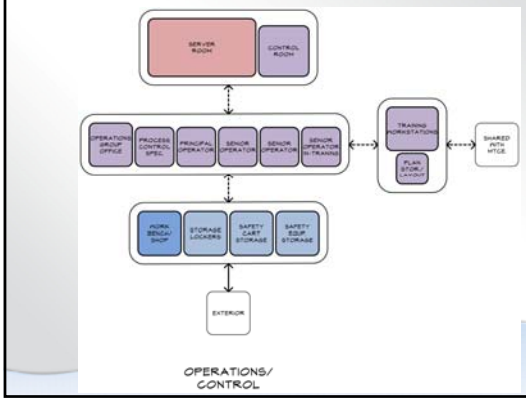
Preliminary Program Diagram



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Preliminary Program Summary Maintenance

Maintenance Office Area		
Area/Space	Existing Area (SF)	Future Area (SF)
Sr. Mechanic - Mechanical	92	80
Sr. Mechanic – Instrumentation/Electrical	92	80
Copy Work Area		
File Storage/Library/O&M manuals	100	100
Maintenance Group Office	184	250
Plan storage/layout (shared with Operations)	0	120
Training workstations (shared with Operations)	0	170
Total	**468**	**800**

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Preliminary Program Summary Maintenance

Maintenance Shop & Enclosed Storage Areas		
Area/Space	Existing Area (SF)	Future Area (SF)
Maintenance Shop		
Mechanics Work bench (7) @ 8'x8'	1617	2100
Pump Repair		
Fabrication		
Welding		
Machining		
Parts/Tool Storage	275	
Parts Storage	400	500
Storage Mezzanine	215	0
Equipment & Materials Storage	440	600
Total	**2,947**	**3,200**

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Preliminary Program Summary Maintenance

Instrumentation Shop		
Area/Space	Existing Area (SF)	Future Area (SF)
Instrumentation Tech.		
Instrumentation Tech.		
Instrumentation Tech. (future)	140	280
Parts/manuals/equipment storage		
Total	**140**	**280**

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Preliminary Program Summary Maintenance

Warehouse & Stores		
Area/Space	Existing Area (SF)	Future Area (SF)
Warehouse staff work area	382	120
Parts and Materials Storage		400
Total	**382**	**520**

Utility Areas		
Area/Space	Existing Area (SF)	Future Area (SF)
Mechanical Room (estimated)	0	50
Electrical Room (estimated)	0	50
Total	**0**	**100**

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Preliminary Program Summary Maintenance

Remote Storage		
Area/Space	Existing Area (SF)	Future Area (SF)
Equipment & Materials Storage (container)	tbd	incl. in Mtce. Shop area
Lubricant Storage and Recycling	tbd	
Hazardous Materials Storage	tbd	
Exterior Washdown Area	tbd	confirm
Trash/Recycling	tbd	tbd
Total	-	-

Yard Areas		
Area/Space	Existing Area (SF)	Future Area (SF)
Exterior Yard Storage (uncovered materials)	tbd	tbd
Trash/Recycling	tbd	tbd
Total	-	-

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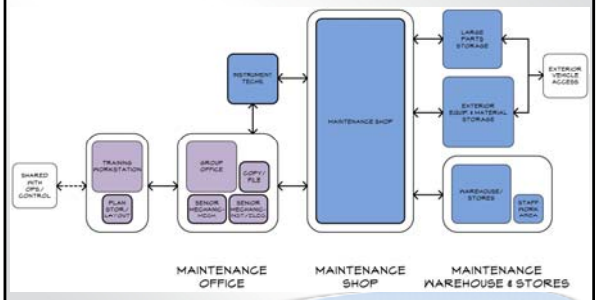
Preliminary Program Diagram



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Preliminary Program Summary Compliance Inspection

Compliance Inspection		
Area/Space	Existing Area (SF)	Future Area (SF)
Private Offices		
Compliance Inspection Supervisor	88	120
Open Office		
Compliance Inspector		64
Compliance Inspector		64
Compliance Inspector		64
Compliance Inspector	715	64
Copy/Work Area		100
Plan Review/Storage		100
File Storage		120
Mail		0
Total	**803**	**696**

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Preliminary Program Summary Laboratory

Laboratory Offices		
Area/Space	Existing Area (SF)	Future Area (SF)
Laboratory Manager	142	120
Sr. Chemist	175	80
Sr. Chemist		80
Chemists work stations	0	100
Lab Tech work stations	0	100
Copy, files library, meeting space	0	120
Total	**317**	**600**

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Preliminary Program Summary Laboratory

Laboratory and Support Areas		
Area/Space	Existing Area (SF)	Future Area (SF)
Chemistry Laboratory	1032	1200
Dishwashing & Dish storage	195	220
Walk-in Incubator (BOD storage)	0	100
Microbiology	170	300
Wet Chemistry	250	350
Organics (Instrumentation)	300	350
Metals Lab	180	300
Sample Receiving	0	175
Walk-in Refrigerator (sample storage)	0	36
Lab Storage	100	120
Lab Mechanical Room	30	54
Total	**2,257**	**3,205**

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Preliminary Program Summary Laboratory

Compliance Inspection Lab		
Area/Space	Existing Area (SF)	Future Area (SF)
Work station	342	450
Work Counter		
Sampler Washdown		
Equipment Storage		
Sample Receiving (shared with main Lab)	0	0
Total	**342**	**450**

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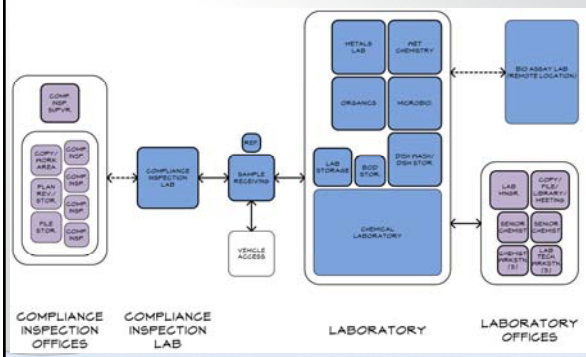
Preliminary Program Diagram



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Preliminary Program Summary

Area/Space	Existing Area (SF)	Future Area (SF)
Administration	4,253	9,116
Compliance Inspection	803	696
Laboratory	2,916	4,255
Operations	1,655	1,550
Maintenance	3,937	4,900
Subtotal	**13,564**	**20,517**
Unit Circulation - 20%	2,713	4,103
Subtotal – Net SF	**16,277**	**24,620**
Grossing Factor – 10%	1,627	2,462
Total Estimated Gross SF	**17,904**	**27,082**

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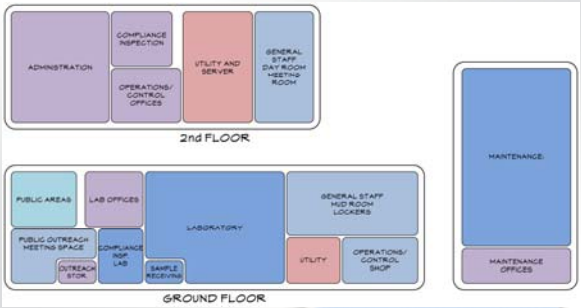
Access and Adjacency Diagram



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Next Steps

- **Incorporate Workshop Comments**
- **Develop Non-Process Building Plan Alternatives**
- **Review Alternatives at Site Planning Workshop**

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APPENDIX E – FINAL CONSOLIDATED BUILDING PROGRAMS AND SPACE NEEDS ASSESSMENT SUMMARIES

WPCP Administration/Operations/Lab Building

Consolidated Building - Space Needs Assessment Summary

No.	Area/Space	Function	Area (SF)			
			existing	Total	1st	2nd
General Public Areas						
	Entry Lobby	Primary staff and visitor entry	190	350	350	
	Public Outreach Meeting space	40 - 60 people, storage, AV accessible to public entry	445	650	650	
	Public Restrooms	Adjacent to Public Meeting Space	0	255	255	
		Unit Total estimated SF - Net	**635**	**1255**	**1255**	**0**
Administrative Offices						
	Admin / Reception					
	Staff Office Assistant	Work station 6'x8'	48	48	48	
	Staff Office Assistant	Work station 6'x8'	42	48	48	
	Copy Work Area	Copy, work area and supplies	66	100	100	
	File/Mail	Staff mail slots /vertical files	18			
	Private Offices					
	WPCP Division Manager		180	180		180
	Regulatory Programs Division Manager		105	180		180
	WPCP Operations Manager		105	120		120
	Mtce & Facility Manager		180	120		120
	Env. Program Manager	Adj. to Stormwater Sustainability Outreach	132	120		120
	Senior Env. Engineer (5)		102	120		120
	Future Staff		0	120		120
	Future Staff		0	120		120
	Future Staff		0	120		120
	Future Staff		0	120		120
	Solid Waste Director		0	200		200
	Solid Waste Manager		0	180		180
	Solid Waste Staff		0	80		80
	Solid Waste Staff		0	64		64
	Solid Waste Staff		0	64		64
	Open Office					
	Environmental Engineering Coordinator	Work station - 8'x8' (5)	64	64		64
	Intern/Temp. positions (3)	Work stations 3 @ 6'x8' - SF (1 existing)	48	144		144
	Admin. Aide	Work station - 8'x8'	64	64		64
	Senior Staff Asst.	Work station - 8'x8'	64	64		64
Outreach/Sustainablity	**Stormwater Sustainability Outreach**					
	Outreach Coordinator	Work station - 8'x10'	80	80		80
	Sustainablity Support Services	Work station - 8'x10'	80	80		80
	Files/Library Storage	Dedicated to Outreach/Sustainability	100	100		100
	Outreach/Sustainablity storage	ground level, easy access to vehicles (1)	215	215	215	
Meeting Space	**Conference/Meeting Space**					
	Small Conference Room	Meeting space 6 - 8 people	0	150		150
	Medium Conference Room	Meeting space 10 - 12 people	0	220		220
	Library / File Storage	Active File storage, resource library	116	115		115
	Archive File Storage	Archive storage,	164	165		165
		Unit Total estimated SF - Net	**1973**	**3565**	**411**	**3154**
		Open Office - Unit Circulation Factor - 15%		**535**	**62**	**473**
		Unit Total SF - Net + Circulation		**4100**	**473**	**3627**
Compliance Inspection						
	Private Offices					
	Compliance Inspection Supervisor		88	120		120
	Open Office					
	Compliance Inspector	Work station 8'x8' (E)	64	64		64
	Compliance Inspector	Work station 8'x8' (E)	64	64		64

	Compliance Inspector	Work station 8'x8' (E)	64	64		64
	Compliance Inspector	Work station 8'x8' (E)	64	64		64
	Compliance Inspector	Work station 8'x8' Future	0	64		64
	Compliance Inspector	Work station 8'x8' Future	0	64		64
	Copy/Work Area	Copy, work area and supplies	100	**100**		100
	File Storage	Near central files, but no public access	100	**100**		100
	Plan Review/Storage	Layout table, drawing storage	0	**80**		80
	Mail	Staff mail slots and work counter	20	**0**		0
		Unit Total estimated SF - Net	**564**	**784**	**0**	**784**
		Open Office - Unit Circulation Factor - 15%		**118**	**0**	**118**
		Unit Total SF - Net + Circulation		**902**	**0**	**902**
Laboratory						
	Wet Chemistry	Testing and processing of water samples, add 3 fume hoods	1215	**2200**	2200	
	Dishwashing & Dish storage	RO system, autocave, storage shelving, canopy hoods	200	**220**	220	
	BOD storage unit	walk-in incubator or freestanding incubators	54	**48**	48	
	Microbiology	2x (e) bench space	170	**250**	250	
	Organics (Instrumentation)	Add fume hood	325	**450**	450	
	Metals Lab	separate room, add Lg. canopy hoods, 2 - 48" fume hoods	180	**300**	300	
	Sample receiving / Entry	Processing & storage of samples, shipping/receiving	100	**175**	175	
		Walk-in refrigerator 6'x6'	42	**40**	40	
	Lab Storage	Equipment & supplies (2)	100	**150**	150	
	Lab Mechanical Room	separate room for D.I, vaccum , compressor, etc.	50	**50**	50	
Laboratory Offices						
	Laboratory Manager	Private Office (3)	142	**120**	120	
	Sr. Chemist	workstation, 8' x 10'	175	**80**	80	
	Sr. Chemist	workstation, 8' x 10'		**80**	80	
	Chemists work stations	(3) workstations, 6' x 6'	incl in Lab	**108**	108	
	Lab Tech work stations	(3) workstations, 6' x 6'		**108**	108	
	Copy, files library, meeting space		0	**120**	120	
Compliance Inspection Lab						
	Work station	Computer workstation, files, manual storage	342	**450**	450	
	Work Counter	Testing and processing of water samples				
	Sampler Washdown	Raised large sink, access to exterior				
	Equipment Storage	Shelving, racks, ice machine 4)	90			
		Unit Total estimated SF - Net	**3185**	**4949**	**4949**	**0**
Operations/Control						
	Offices					
	Principal Operator	work station, 8' x 10'	0	**80**		80
	Senior Operator	work station, 8' x 10'	175	**80**		80
	Senior Operator	work station, 8' x 10'		**80**		80
	Sr. Operator in-training	work station, 8' x 10'		**80**		80
	Process Control Specialist	work station, 8' x 10'	0	**80**		80
	Control Room	2 -3 people , workstations for each phase		**150**		150
		Tertiary Control (in Lab/Control Bldg.)	400			
		Secondary Control (Filter stations (2 @ 127 SF)	254			
		Control (No. side of WPCP adj. w/MCC)	125			
	Operators Group Office	Computer work stations (3 -4), meeting table for up to 10,	262	**250**		250
	Map and Drawing Storage	share with Mtce.		**120**		120
	Training workstations	Computer work stations (2 - 3)	0	**85**		85
	Operations Staff Support Areas					
	Operator Work Bench Area	1 @ Chem Building, 1 @ Primary Control	240	**240**	240	
	Operator Storage Lockers	tools, equipment storage	200	**200**	200	
	Safety Carts Storage	need charging station , adj. to entry, mud room	150	**150**	150	
	Safety Equipment Storage	near Carts	180	**180**	180	
		Unit Total estimated SF - Net	**1986**	**1775**	**770**	**1005**
General Staff Support Areas						
	Day Room / Training	Lunch/break room, 30 people (mtg/training in large mtg room)	425	**600**		600
		Vending machines, incl. in Day room	exterior	**0**		
	Kitchen	Food/beverage storage and preparation, coffee (8)	140	**150**		150

	Mud Room	Wet weather gear/boot coat storage	65	**160**	160	
	Ice Machine	Include in Mud Room	8	**0**	0	
	Uniform Storage	Clean/Dirty Uniform Storage	52	**65**	65	
	Men's Locker Room (7)	Staff locker room O+CI 2x37 (field staff) = 74 lockers + 6 gen.	880	**1,050**	1050	
		Showers 5 + 1 ADA				
	Men's Restroom	Staff restroom 3 - WC , 2- Urn, 4 sinks				
	Women's Locker Room	Staff locker room 24 lockers, 3 showers ok	454	**455**	455	
	Women's Restroom	Staff restroom				
	Staff Restrooms	2 single occ. @ second floor (6)	85	**160**		160
	Gym/ Exercise Room	Staff exercise area (optional)	415	**400**		400
		Unit Total estimated SF - Net	**2524**	**3040**	**1730**	**1310**
General Utility Areas						
	Server Room	Server room 22' x 14'-11", near Control Room	40	330		330
	Janitor's Room	Custodial equipment and supply storage	20	30		30
	Mechanical Room	Water Heater, boiler, assumes roof mounted or exterior HVAC units	80	140		140
	Electrica/Tel conl Equipment Area	Electrical panels, transformer	60	80		80
	Elevator, elevator equipment room	8 x8 elevator, 8 x 10 equipment room	0	244	144	100
	Stairs	2 stairs - 10 x 20 , 2 floors	0	800	400	400
		Unit Total estimated SF - Net	**200**	**1624**	**544**	**1080**
		Total estimated SF - Net	**11067**	**17644.4**	**9721**	**7924**
		Grossing Factor (25%)	2767	4411	2430	1981
		Total estimated SF - Gross	**13834**	**22055**	**12151**	**9905**

WPCP Maintenance Warehouse Building

Consolidated Building - Space Needs Assessment Summary

	Area/Space	Function	Area (SF)	
			existing	Proposed
Maintenance				
	Maintenance Offices			
	Sr. Mechanic - Mechanical	work station, 8' x 10'	92	80
	Sr. Mechanic - Instrumentation/electrical	work station, 8' x 10'	92	80
	Copy Work Area	Copy, work area and supplies	100	100
	File Storage/Library/O&M manuals			
	Maintenance Group Office	Computer work stations (3 -4), meeting table for up to 10,	184	250
	Plan storage/layout	Shared with Ops, in Admin. Building	0	0
	Training workstations	Computer work stations (2 - 3) in Group Office	0	85
	Maintenance Shop & Enclosed Storage Areas			
	Maintenance Shop	Machining and pump repair, metal working, welding, fabrication	1925	2300
	Mechanics Work bench (7) @ 8'x8'			
	Pump Repair / Rebuild Shop			
	Fabrication			
	Welding	separate area/control fumes		
	Machining			
	Parts/Tool Storage	Small parts, manual and electric tool storage	275	275
	Parts Storage	Enclosed storage room, roll up door access	400	850
	Equipment & Materials Storage	Container (2)	320	
	Equipment & Materials Storage	Equipment and parts (2)	200	
	Lubricant Storage and Recycling	Lubrication, oil, paint and misc. storage (2)	350	300
	Shop Storage (Mezzanine)	(100 SF archive file - 150 SF mtce. parts/manuals)	150	0
	Equipment & Materials Storage	Roofed, fenced enclosure, adj. to Shop	440	600
	Instrumentation Shop	clean shop'	140	200
	Instrumentation Tech.	Workbench		
	Instrumentation Tech.	Workbench		
	Instrumentation Tech. (future)	Workbench		
	Parts/manuals/equipment storage	Shelving		
	Warehouse & Stores			
	Warehouse staff work area	Workstation, files, counter area	382	80
	Parts and Materials Storage	Shelving		420
	Utility Areas (1)			
	Unisex Restroom	single occ.	0	85
	Mechanical Room	Mechanical equipment	80	80
	Electrical Room	120V office, 240V & 120V Shop Space	30	30
		Total estimated SF - Net	**5160**	**5815**
		Grossing Factor (20%)	1032	1163
		Total estimated SF - Gross	**6192**	**6978**

WPCP - Administration

Space Needs Assessment Summary

No.	Area/Space	Function/Notes	Area (SF)		Deficiency/Space Adjustment
			existing	future	commnents
1.0	**General Public Areas**				
	Entry Lobby & Reception	Primary staff and visitor entry(1)	190	**350**	Larger for public access to meeting space
	Public Outreach Meeting space	60 people, storage, AV accessible to public entry	445	**650**	
	Public Restrooms	Adjacent to Public Meeting Space, M + W	0	**255**	M+W, multiple occ.
2.0	**Administrative Offices**				
	Admin / Reception				
	Staff Office Assistant	Work station 6'x8'	48	**48**	Standardize work station
	Staff Office Assistant	Work station 6'x8'	42	**48**	Standardize work station
	Copy Work Area	Copy, work area and supplies	66	**100**	Consolidate, provide additional work area, existing undersized (P)
	File/Mail	Staff mail slots /vertical files	18		
	Private Offices				
	WPCP Division Manager		180	**180**	Standardize office size
	Regulatory Programs Division Manager		105	**180**	
	WPCP Operations Manager		105	**120**	
	Mtce & Facility Manager		180	**120**	
	Env. Program Manager	Adj. to Stormwater Sustainability Outreach	132	**120**	
	Senior Env. Engineer (5)		102	**120**	
	Future Staff		0	**120**	
	Future Staff		0	**120**	
	Future Staff		0	**120**	
	Future Staff		0	**120**	
	Environmental Services Director		0	**200**	Additional office space
	Solid Waste Manager		0	**180**	
	Solid Waste Staff		0	**80**	
	Solid Waste Staff		0	**64**	
	Solid Waste Staff		0	**64**	
	Open Office				
	Environmental Engineering Coordinator	Work station - 8'x8' (5)	64	**64**	
	Intern/Temp. positions (3)	Work stations 3 @ 6'x8' - SF (1 existing)	48	**144**	Add two intern positions
	Admin. Aide	Work station - 8'x8'	64	**64**	
	Senior Staff Asst.	Work station - 8'x8'	64	**64**	
	Stormwater Sustainability Outreach				
	Outreach Coordinator	Work station - 8'x10'	80	**80**	
	Sustainablity Coordinator	Work station - 8'x10'	80	**80**	
	Files/Library Storage	Dedicated to Outreach/Sustainability	100	**100**	
	Outreach/Sustainablity storage	ground level, easy access to vehicles (1)	215	**215**	Consolidate storage from multiple locations
	Conference/Meeting Space				
	Small Conference Room	Meeting space 6 - 8 people	0	**150**	
	Medium Conference Room	Meeting space 10 - 12 people	0	**220**	
	Library / File Storage	Active File storage, resource library (3)	116	**115**	Consolidate materials from multiple locations
	Archive File Storage	Archive storage (4)	164	**165**	Consolidate storage from multiple locations
3.0	**General Staff Support Areas**				
	Day Room / Training	Lunch/break room, 30 people (mtg/training in large mtg room)	425	**600**	Increase size to meet code requirements for occupancy, space for vending @interior
		Vending machines, incl. in Day room	exterior	**0**	
	Kitchen	Food/beverage storage and preparation, coffee (8)	140	**150**	Existing kitchen inadequate for staffing levels

	Mud Room	Wet weather gear/boot coat storage	65	**160**	Existing space inadequate for shared use
	Ice Machine	Include in Mud Room	8	**0**	shared use space
	Uniform Storage	Clean/Dirty Uniform Storage	52	**65**	accessible to Men's + Women's, consolidate
	Men's Locker Room (7)	Staff locker room O+CI 2x37 (field staff) = 74 lockers + 6 gen.	880	**1,050**	increase lockers 44 > 82
		Showers 5 + 1 ADA			increase showers 4 > 6
	Men's Restroom	Staff restroom 3 - WC , 2- Urn, 4 sinks			
	Women's Locker Room	Staff locker room 24 lockers, 3 showers ok	454	**455**	increase lockers 21 > 24
	Women's Restroom	Staff restroom			
	Staff Restooms	2 single occ. @ second floor (6)	85	**160**	existing restrooms are non accessible
	Gym/ Exercise Room	Staff exercise area (optional) (7)	415	**400**	
		Total estimated SF - Net	**5,132**	**7,860**	
Y.1	**Covered Patio**	Outdoor lunch/break area	600	**600**	

(1) Currently located in Chemical Storage Building

(2) Currently located in Primary Control Building, second floor

(3) Currently located in Primary Control Building, second floor, and Day Room

(4) Currently located in Primary Control Building, first floor and Mtce. Shop mezzanine

(5) Currently located in Compliance Inspection temporary building

(6) Currently located in Primary Control Building, first & second floor, non ADA compliant

(7) Currently located in Admin. Bldg & Primary Control Building, second floor

(8) Currently located in Admin. Bldg & Compliance Inspection temporary building

WPCP - Operations

Space Needs Assessment Summary

No.	Area/Space	Function	Area (SF)		Deficiency/Space Adjustment
			existing	future	commnents
1.0	**Operations Office**				
	Principal Operator	work station, 8' x 10'	0	**80**	future position
	Senior Operator	work station, 8' x 10'	175	**80**	
	Senior Operator	work station, 8' x 10'		**80**	
	Sr. Operator in-training	work station, 8' x 10'		**80**	
	Process Control Specialist	work station, 8' x 10'	0	**80**	future position
	Control Room	2 -3 people , workstations for each phase		**150**	reduce space needs by consolidation of all control areas
		Tertiary Control (in Lab/Control Bldg.)	400		
		Secondary Control (Filter stations (2 @ 127 SF)	254		
		Control (No. side of WPCP adj. w/MCC)	125		
	Operators Group Office	Computer work stations (3 -4), meeting table for up to 10,	262	**250**	Spaces could be integrated with control room
	Map and Drawing Storage	share with Mtce.		**120**	
	Training workstations	Computer work stations (2 - 3)	0	**85**	
2.0	**Operations Staff Support Areas**				
	Operator Work Bench Area	1 @ Chem Building, 1 @ Primary Control	240	**240**	
	Operator Storage Lockers	tools, equipment storage	200	**200**	
	Safety Carts Storage	need charging station , adj. to entry, mud room	150	**150**	
	Safety Equipment Storage	near Carts	180	**180**	
		Total Occupied SF - Net	**1986**	**1775**	

(1) In Lab/control Building, near filters, and remote location,north side of WPCP with MCCs

WPCP - Maintenance

Space Needs Assessment Summary

No.	Area/Space	Function	Area (SF)		Deficiency/Space Adjustment
			existing	future	commnents
1.0	**Maintenance Office Area**				
	Sr. Mechanic - Mechanical	work station, 8' x 10'	92	80	Standardize workstation
	Sr. Mechanic - Instrumentation/electrical	work station, 8' x 10'	92	80	Standardize workstation
	Copy Work Area	Copy, work area and supplies	100	100	
	File Storage/Library/O&M manuals				
	Maintenance Group Office	Computer work stations (3 -4), meeting table for up to 10,	184	250	Currently undersized for staffing levels
	Plan storage/layout	Locate in Admin/Ops Building	0	0	
	Training workstations	Computer work stations (2 - 3)	0	85	
2.0	**Maintenance Shop & Enclosed Storage Areas**				
	Maintenance Shop	Machining and pump repair, metal working, welding, fabrication	1,925	2300	increase in SF for separation of welding area (health/safety), working clearances around equipment.
	Mechanics Work bench (7) @ 8'x8'				
	Pump Repair / Rebuild Shop				
	Fabrication				
	Welding	separate area/control fumes			
	Machining				
	Parts/Tool Storage	Small parts, manual and electric tool storage	275	275	
	Parts Storage	Enclosed storage room, roll up door access	400	850	consolidate parts and materials storage areas, provide access directly to Shop. Coordinate with Warehouse for inventory control.
	Equipment & Materials Storage	Container (2)	320		
	Equipment & Materials Storage	Equipment and parts (2)	200		
	Lubricant Storage and Recycling	Lubrication, oil, paint and misc. storage (2)	350	300	
	Shop Storage (Mezzanine)	(100 SF archive file - 150 SF mtce. parts/manuals)	150	0	locate file archive to Admin building
	Pipe Storage	Roofed, fenced enclosure, adj. to Shop	440	600	Inadequate, increase in SF of exterior covered space
3.0	**Instrumentation Shop**	**in temporary building**		200	
	Instrumentation Tech.	Workbench	140		
	Instrumentation Tech.	Workbench			
	Instrumentation Tech. (future)	Workbench			future position, 60 SF additional
	Parts/manuals/equipment storage	Shelving			
4.0	**Warehouse & Stores**	**from Primary control**			
	Warehouse staff work area	Workstation, files, counter area	382	80	Standardize workstation
	Parts and Materials Storage	Shelving		420	Constrained space, increase to consolidate storage and control inventory.
		Total estimated SF - Net	**5050**	**5620**	

(1) In remote location,north side of WPCP

(2) Remote storage areas, see Site Survey

WPCP - Compliance Inspection

Space Needs Assessment Summary

No.	Area/Space	Function	Area (SF)		Deficiency/Space Adjustment
			existing	future	commnents
1.0	**Public Areas**				
	Entry	Primary staff and visitor entry	30	**0**	No separate entry, shared space
2.0	**Compliance Inspection**				
	Private Offices				
	Compliance Inspection Supervisor		88	**120**	Standardized Office space
	Open Office				
	Compliance Inspector	Work station 8'x8' (E)	64	**64**	
	Compliance Inspector	Work station 8'x8' (E)	64	**64**	
	Compliance Inspector	Work station 8'x8' (E)	64	**64**	
	Compliance Inspector	Work station 8'x8' (E)	64	**64**	
	Compliance Inspector (Future)	Work station 8'x8' (E)	0	**64**	Future staff need, additional space
	Compliance Inspector (Future)	Work station 8'x8' (E)	0	**64**	Future staff need, additional space
	Copy/Work Area	Copy, work area and supplies	100	**100**	
	File Storage	Near central files, but no public access	100	**100**	
	Plan Review/Storage	Layout table, drawing storage	0	**80**	Required area, currently not provided
	Mail	Staff mail slots and work counter	20	**0**	Central mail area, shared space
		Total SF - Net	**594**	**784**	

WPCP - Laboratory

Space Needs Assessment Summary

No.	Area/Space	Function	Area (SF)		Deficiency/Space Adjustment
			existing	future	commnents
1.0	**Public Areas**				
	Entry Corridor	Primary staff and visitor entry	100	**0**	No separate entry required, shared space
2.0	**Laboratory Offices**				
	Laboratory Manager	Private Office (1)	142	**120**	Standardized office size
	Sr. Chemist	workstation, 8' x 10'	175	**80**	Standardized workstation size
	Sr. Chemist	workstation, 8' x 10'		**80**	Standardized workstation size
	Chemists work stations	3 - workstations, 6' x 6'	incl in Lab	**108**	Existing Lab has no dedicated space for lab techs and chemist workstations.
	Lab Tech work stations	3 - workstations, 6' x 6'		**108**	
	Copy, files library, meeting space		0	**120**	Existing lab has no dedicated space for shared library, files or meeting space.
3.0	**Laboratory**				
	Wet Chemistry	Testing and processing of water samples,pilot testing	1215	**2200**	Add canopy hood for disposing of samples,additional bench space for pilot testing, number of tests, staging of tests
	Dishwashing & Glassware storage	RO system, autoclave, storage shelving, canopy hoods	200	**220**	Canopy hood required at dishwashing sink to capture contaminants. Slight increase in room size for additional sink area, equipment and carts.
	BOD storage unit	walk-in incubator	54	**48**	6'x8' walk-in incubator, in lieu of freestanding units
	Microbiology	Waste water and fresh water sample processing	170	**250**	Water and waste water processing should be separate, need additional space for 2 work areas with biological safety hoods to capture contaminants.
	Organics (Instrumentation)	Add fume hood	325	**450**	Currently use fume hoods in other areas, inefficient. Need additional space for fume hood, testing needs & pilot testing
	Metals Lab	Separate room required, add Lg. canopy hoods, 1 - 48" fume hood	180	**300**	Increased testing needs since lab built, temp. hoods inadequate. Need 1 fume hood + l large canopy hood. Space should be enclosed with walls.
	Sample receiving	Processing & storage of samples, shipping/receiving	0	**175**	Currently no dedicated space. Shared space with Compliance Inspection. Walk-in refrigerator in lieu of freestanding units. 2 refrigerators currently, 1 exterior to lab.
		Walk-in refrigerator 6'x6'	42	**40**	
	Lab Storage	Equipment & supplies, gas cannisters (2)	100	**150**	Current storage distributed in dish room, mech room,chem building, and exterior to builidng
	Lab Mechanical Room	separate room for D.I, vaccum , compressor, etc.	50	**50**	similar to other Lab facilities.
4.0	**Compliance Inspection Lab**	**adj. to Lab, near C.I. Office area**			
	Work station	Computer workstation, files, manual storage	342	**450**	Undersized for current functions, increase work counter area
	Work Counter	Testing and processing of water samples			
	Sampler Washdown	Raised large sink, access to exterior			Currently located in Chemical Building & Admin. Building
	Equipment Storage	Shelving, racks, ice machine (3)	90		
		Total SF - Net	**3185**	**4949**	

(1) Currently located in Compliance Inspection Portable

(2) Currently located in Chemical Storage Building & exterior to building

(3) Currently located in Chemical Storage Building & Admin. Building

5.0	**Remote Bio Assay Lab**	**Remote Location adjacent to Process Area**			
	Workcounter	Testing and processing of water samples	470	**600**	If required, Bio Assay Lab would require additional space for testing needs. Must be located adjacent to process area.
	Sample Storage				
	Tanks				

APPENDIX F – DUBLIN SAN RAMON SERVICES DISTRICT LABORATORY – SITE VISIT MEMORANDUM

SITE VISIT MEMORANDUM

Project:	Project Name	**Conf. Date:**	June 30, 2014
Client:	City of Sunnyvale	**Issue Date:**	July 2, 2014
Location:	Dublin San Ramon Services District (DSRSD)	**Project No.:**	9265A.00
Purpose:	Dublin San Ramon Services District		
Attendees:	**DSRSD:** Raj Gumber (Raj)		
	Carollo: Nitin Goel		
	Burks Toma Architects: Karen Burks, Steven Korovesis		
Distribution:	Jamel Demir, Nitin Goel and Katy Rogers		

Discussion:
The following is our understanding of the subject matter covered in this site visit. If this differs from your understanding, please notify us.

Background

Dublin San Ramon Services District (DSRSD) owns and operates the DSRSD Wastewater Treatment Facility (Facility) which serves approximately 131,900 people from the City of Dublin, the City of Pleasanton, and the southern portion of the City of San Ramon. The Facility provides secondary treatment consisting of screening, grit removal, primary clarification, activated sludge, secondary clarification, and disinfection using sodium hypochlorite. The Facility also has four concrete lined holding basins with a total capacity of 22 million gallons with 2 feet of freeboard for flow equalization. Sludge is thickened by dissolved air floatation, anaerobically digested, conditioned in onsite facultative sludge lagoons for approximately four years, and then injected into the soil at an onsite DSRSD-owned disposal area. The average dry weather flow of the Facility is 15 MGD.

Laboratory Background

The DSRSD laboratory was constructed in 1995. DSRSD Laboratory staff conducts the wastewater and recycled water testing for the DSRSD Wastewater Treatment Plant and the drinking water testing for Zone 7**.** There were 7 laboratory personnel in 2006; however, due to economic downturn, there are currently only 5 personnel. The breakdown of personnel is shown below:

- 1 Laboratory Supervisor
- 2 Chemists
- 2 Laboratory Technologists

As per Raj, due to staff reduction the workload per personnel has increased.

The DSRSD laboratory consists of the following main areas:

1. Microbiological Lab
2. BOD Area

3. Inductively Coupled Plasma Mass Spectrometry (ICPMS) Area
4. Wet Chemistry Area
5. IC and Gas Chromatography – Mass Spectrometry (GCMS) Area
6. Office and Analyst Sitting Areas
7. Supply Room

The main laboratory areas are briefly discussed below:

1. Microbiological Laboratory
DSRSD performs the fecal coliform (10 samples per month), total coliform (30 samples per month), and Enterococcus bacteria (10 samples per month) analysis in the microbiological laboratory. There is one dedicated incubator for analysis of each microorganism. No hoods were provided or required in the microbiological area.

Figure 1 Microbiological Laboratory

2. BOD Area

One standby incubator and one duty incubator were located in the BOD area. DSRSD performs BOD (45 samples per month) analysis of the influent and effluent wastewater .

Figure 2 BOD Area

3. Inductively Coupled Plasma Mass Spectrometry (ICPMS) Area

Inductively coupled plasma mass spectrometry is a type of mass spectrometry that is capable of detecting metals and several non-metals that are present at very low concentrations. This is achieved by ionizing the sample with inductively coupled plasma and then using a mass spectrometer to separate and quantify those ions. DSRSD utilizes the ICPMS instrument to measure lead, arsenic, nickel, etc.

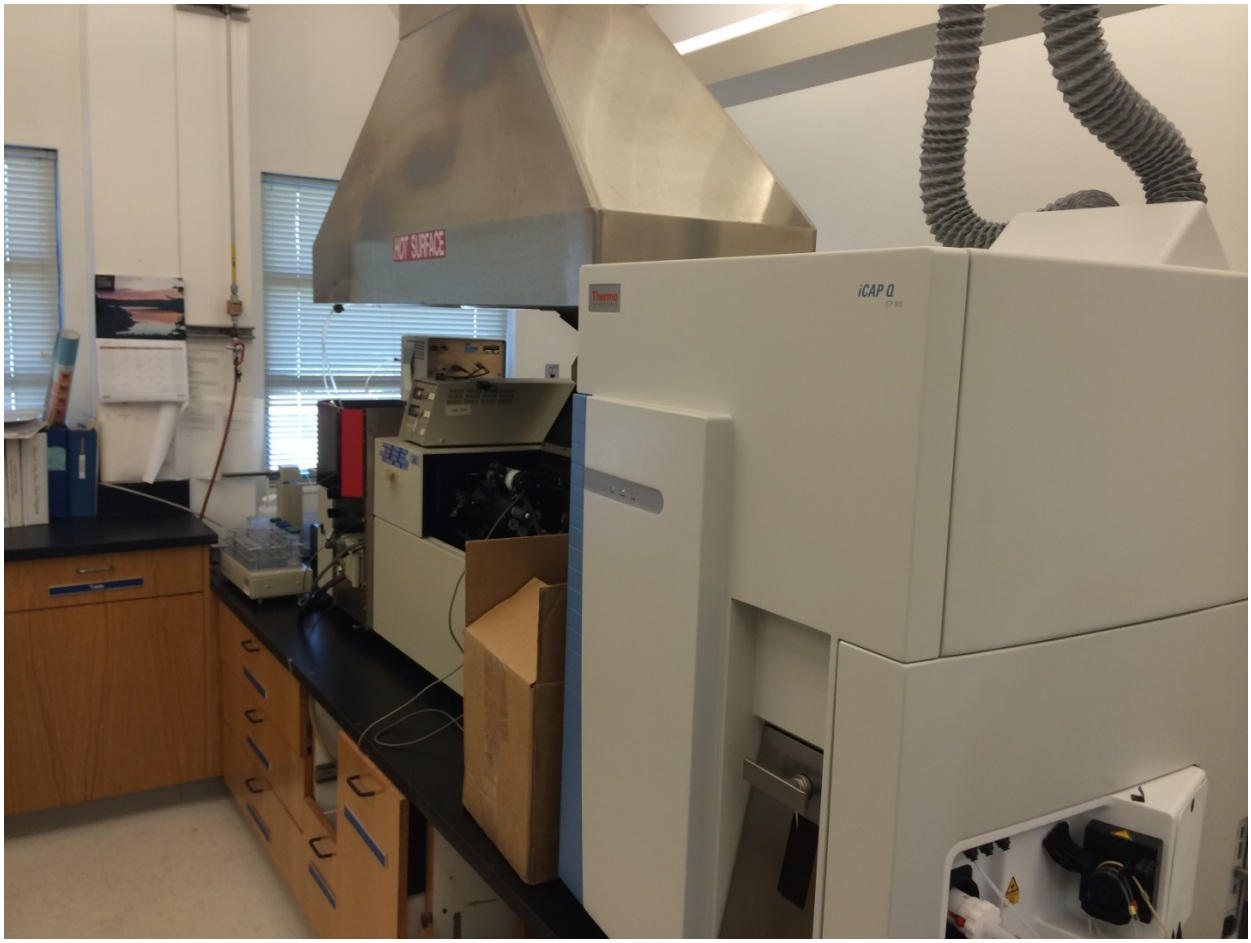

Figure 3 Inductively Coupled Plasma Mass Spectrometry (ICPMS) Area

4. Wet Chemistry Area

Wet chemistry is a term used to refer to chemistry generally done in the liquid phase. It is also known as bench chemistry because many of the tests performed are done at a laboratory bench. Traditionally, it involves the use of laboratory glassware, such as beakers and flasks, and excludes quantitative chemical analysis using instrumentation. DSRSD measures the pH, ammonia, turbidity, TSS, etc. in the wet chemistry area. For digestion of metals, cyanides, and phenols, five fume hoods are located in the wet chemistry area.

Figure 4 Wet Chemistry Area

5. IC and Gas Chromatography – Mass Spectrometry (GCMS) Area

IC chromatography is a process that allows the separation of ions and polar molecules based on their affinity to the ion exchanger. DSRSD utilizes the IC instrument to measure the nitrate, sulfide, and fluoride in the water and wastewater samples. Similarly, DSRSD utilizes the GCMS instrument to measure the volatile compounds and THMs.

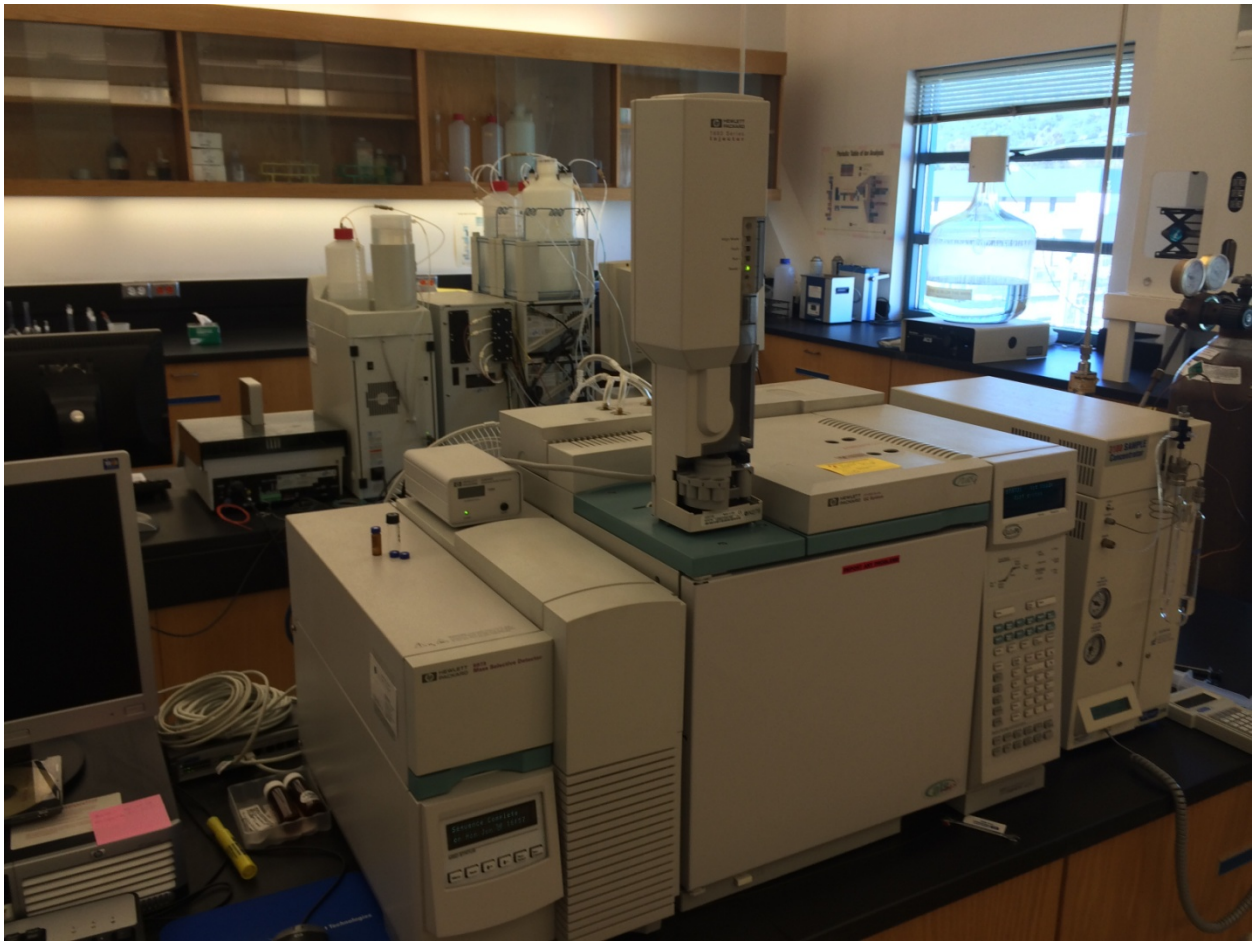

***Figure 5** IC and Gas Chromatography – Mass Spectrometry (GCMS) Area*

6. Office and Analyst Sitting Areas

The supervisor office area and analyst sitting areas are located next to the microbiological lab. One office is currently empty.

Figure 6 Office and Analyst Sitting Areas

7. Supply Room

The supply room is located next to the BOD room. The reagents and spare equipment are stored here.

Figure 7 Supply Room

Outsourced Samples

DSRSD needs to analyze the samples based upon the permit limit. Not all the samples are processed in the DSRSD Laboratory. The DSRSD Laboratory outsources the following samples for analysis to an outside lab:

1. Oil and Grease
2. Priority pollutants
3. Biosolids
4. Nutrients (various forms of nitrogen and phosphorus)

Summary of Observations/Findings

1. The DSRSD laboratory, equipment and storage spaces are well organized and appear equivalent in functionality and area to those proposed for the Sunnyvale WPCP.
2. The number and location of fumehoods and canopy hoods create efficient, safe working space and consistent with those proposed for the Sunnyvale WPCP.
3. The laboratory office space is generous for the current staff of five.