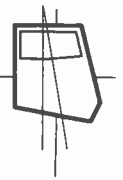
Ohlone College Newark Center for Technology & Health Sciences

# Master Plan

12–17–03



MBT Architecture



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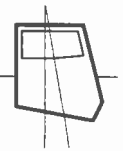


## 1.0 | Executive Summary

*Contents and Significant Features of the Master Plan*

The Executive Summary lists the individual sections and contents of the Ohlone College Newark Center for Technology and Health Sciences (OCNC) Master Plan. The master plan is organized in the eight separate sections described below. The planning effort was undertaken in a five-part approach described in Sections 3 – 7. The basis for that approach and planning methodology are described in the Introduction, Section 2. The anticipated time for design and construction is detailed in Section 8. The separate sections and their contents include the following:

### Introduction- Section 2

The college's Board of Trustees has provided primary review and guidance, approving the key components of the planning effort, the land use plan and the campus plan, and formally adopted the master plan on 17 December 2003.

The process of assessment and evaluation has been a collaborative undertaking by the design team, with Ohlone Community College District administrators, planning and support staff. In addition, reviews have been undertaken with Ohlone College faculty and staff, representatives of the City of Newark and members of the community including the specially designated Bond Oversight Committee.

The Ohlone College Newark Center for Technology and Health Sciences ("the Center") Master Plan is a direct outgrowth of Ohlone College's Educational Master Plan. Instructional and service requirements were tentatively identified prior to passage of the general obligation bond that funded construction. These requirements were later updated to reflect current educational needs. As documented, these provide the substantial basis for physical planning.

### Site Analysis- Section 3

The Site Analysis section identifies site constraints and existing conditions. A summary description of site features and landscape conditions is provided. A review of site climatic conditions and environmental issues, including wildlife, vegetation and the wetlands are also included. (An Environmental Impact Report, currently in preparation will be completed based on the scope and content of the master plan.)

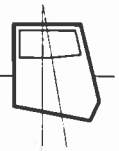
Site analysis has been ongoing, and has included contact with federal, state and regional agencies, the City of Newark and utility entities. A summary analysis of known or anticipated site constraints was developed as a part of the process, and has been incorporated in the drawings and diagrams of the master plan.

Drawings and diagrams reflect the completed survey for the site, and a preliminary soils (Geo-technical) report has been completed. Current landscape conditions are described in physical and cultural context. Location and availability of utilities completes this section.

### Land Use Plan- Section 4

The Land Use Plan was undertaken to assist the Board of Trustees in evaluating the site's potential. These criteria were addressed:

- To assess basic site capacity
- To assess possible educational partnerships
- To test areas and locations for partnership uses
- To determine campus location relative to other uses
- To test potential configurations of the campus plan



- To depict reasonable assumptions for growth
- To inform the final master development plan

This planning process established conceptual parameters for development, and principal elements of land use on the site. The land use plan was reviewed and adopted on 17 December 2003. The "recommended plan", demonstrates particular advantages for future development. The land use plan incorporates the general planning assumptions described in Section 4.1 with the general areas and specific elements listed in Sections 4.2 and 4.3.

### Campus Plan- Section 5

The campus plan was presented and approved on 17 December 2003. Primary goals and objectives for the District, College and community include:

- Building design will acknowledge municipal requirements,
- Building design will respond to climate and energy use,
- Building design will accept current and anticipated technology,
- Campus design will be characterized by a compact building organization with significant presence on Cherry Street.

The campus plan also reflects desired building concepts and key building relationships, such as building composition, location within a campus circulation loop and shaping of open space. Circulation for vehicles and pedestrians are shown within the campus plan as well, including bus, service, and emergency vehicles, as well as parking. Finally, the campus plan reflects the landscape and utility infrastructure concepts, including outdoor uses and open space requirements.

### Campus Standards- Section 6

Development standards for the campus, buildings, site planning, signage and lighting are presented in Section 6. The overarching goal of these standards is to ensure the development of a cohesive campus consistent with the goals of the master plan, both now and in the future as the campus grows. Equally important is for the campus to have meaningful relationships to the surrounding neighborhood.

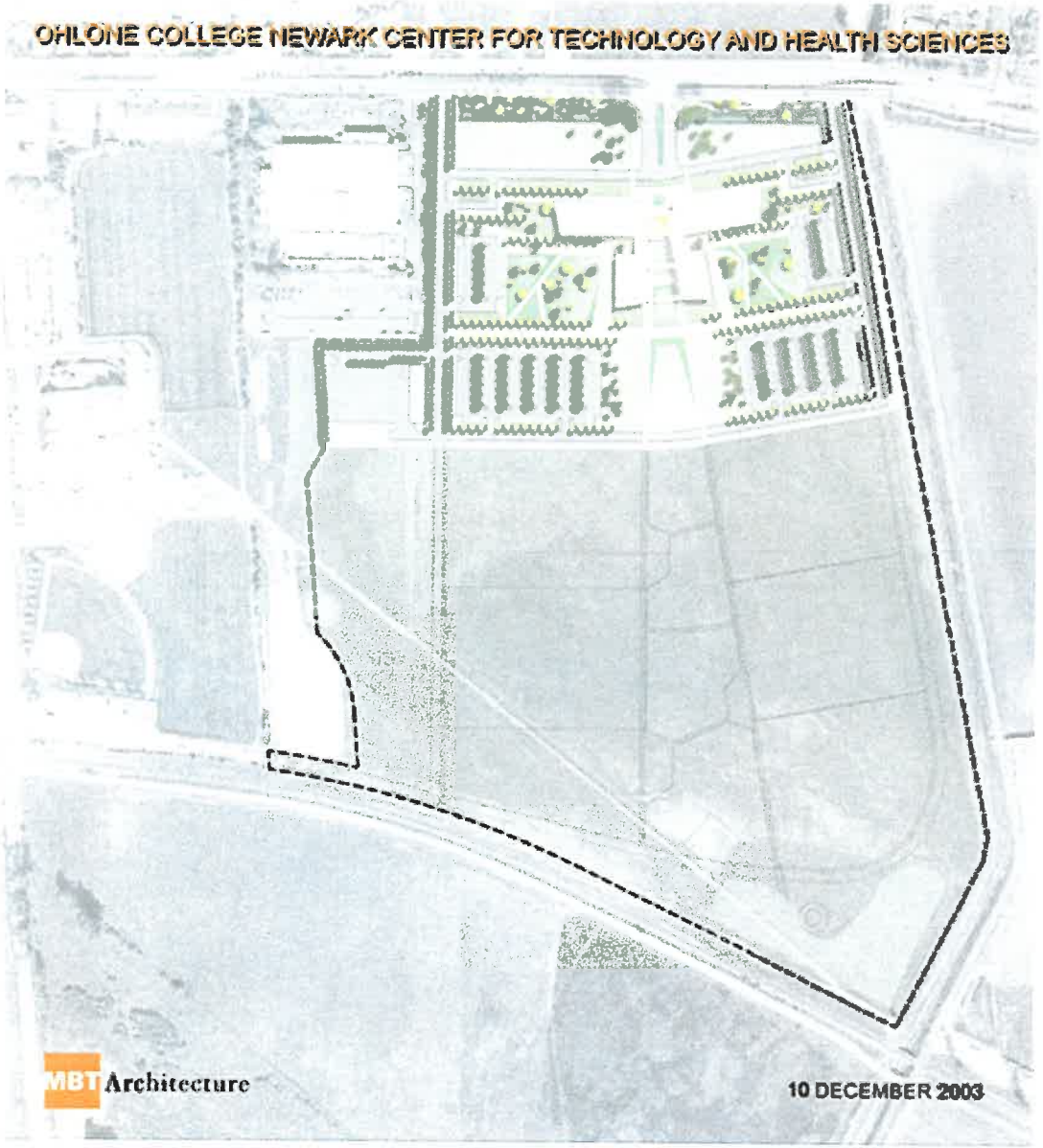
### Design Guidelines- Section 7

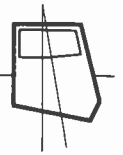
Design Guidelines are used to define architectural character and building materials and systems. These guidelines will apply to the initial campus construction and to all subsequent construction on the academic and partnership sites. They are described in detail to insure that subsequent development meets or exceeds these standards.

### Summary Schedule- Section 8

The Summary Schedule describes the anticipated time required to entitle, design and construct the OCNC initial campus construction.

**Illustrative Plan- (Reduced Copy)**
*Campus Location and Initial Construction Scope*





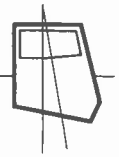
## 2.0 | Introduction

*Basis for Master Plan Investigation*

The Ohlone College Newark Center for Technology and Health Sciences (OCNC) Master Plan is a direct outgrowth of Ohlone College's Educational Master Plan. Instructional and service requirements were identified during the educational planning process and documented after passage of the general obligation bond that funded construction. Reliance on those processes and procedures provides the substantial basis for physical planning:

### Project Scope and Conditions

- **Land must be developed for Educational Purposes**
  The area required for the Ohlone College Newark Center for Technology and Health Sciences only represents a part of the total site area. The bond requires that other uses that can be considered must be educational in nature or must directly support the college's educational mission. (Note that compatible uses may be vocational or functional support types.)
- **Program detail may have changed since the original Bond Issue**
  Building area and contents had been established prior to the master plan. Changes in the Educational Master Plan have resulted in a revised program for the Newark Center.
- **Budget is limited to Bond Appropriation**
  Project construction costs have been identified in the bond appropriation. Additional State, District or private funding may be available.
- **Construction is scheduled to be complete by September 2007**
  Date for Campus completion is similarly established as a requirement of bond funding.



### Project Programs

The OCNC program constitutes approximately 150,000-gross square feet (GSF). An area breakdown by program component is provided in Section 5.12. The following groups are represented in the new campus.

### Academic

- Business & Technology
- Exercise Science & Wellness
- Health Sciences
- Learning Resource Center
- Science & Environmental Science
- General Education

### Administrative Support

- Student Services
- Maintenance & Shop Facilities
- Bookstore
- Administration
- Cafeteria
- Information Services
- Admissions & Records
- Security

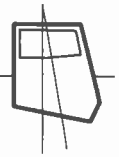
### Recommended Project Costs

Preliminary project costs were established in order to obtain bond funding. At the completion of the master plan, an updated budget was prepared to align costs with the specific development requirements of the Cherry Street site. A detailed costs summary and recommended budget adjustments were presented, and adopted by Board of Trustees review on 25 June 2003.

A comparison of the original and adjusted budget is shown in the list below, with primary costs allocated by category. The most significant change occurred with the reassignment of Group II equipment costs to building and site construction.

The bond-funded construction budget was based on state-based cost guidelines. Although a reasonable basis for estimating, the assigned budget fell below the Board's expectations for building and campus quality. With the potential furnishing and equipment requirements for the new campus unknown at that time however, a relatively large Group II budget had been proposed. Better definition of construction requirements and the associated furniture and equipment needs provided the basis for cost adjustment within the overall parameters of the bond budget.

| **Project Costs (in thousands)** | **Bond** | **12.17.03** |
|---|---|---|
| Construction and Oversight | $ 51,802 | $ 57,527 |
| Site Acquisition and Fees | $ 26,594 | $23,720 |
| Plans (to include HazMat) | $ 5,313 | $ 6,035 |
| Group II Furniture and Equipment | $ 16,466 | $ 7,718 |
| **Total Project Costs** | **$100,175** | **$95,000** |



## Project Schedule

Assumed dates are based upon master plan approval in January 2004.

| | Start | Complete |
|---|---|---|
| **Master Plan:** | **09/12/04** | **12/17/04** |
| **Site Package:** | **01/12/04** | **04/15/05** |
| **Building Package:** | **01/12/04** | **07/18/05** |
| **Site Construction:** | **04/15/05** | **07/12/05** |
| **Building Construction:** | **07/18/05** | **09/04/07** |

## 2.1 | Project Overview

*Summary description of Master Plan methodology*

The Newark Center master-planning process was conducted in five-separate phases, identified and approved at the 17 December 2003 presentation, these are as follows:

### 1. Site Analysis-Identify Constraints and Opportunities

**Participants**

- Design Team: MBT Architecture, Conger Moss Guillard (CMG) Landscape, Sandis Humber Jones (SHJ) Civil Engineering, Alfa Tech Mechanical, Electrical, Plumbing and Telecommunications
- Owner's Consultants: Stegeman & Kastner (S&K), Treadwell & Rollo (T&R) for Geo-technical and environmental consulting

**Approach**:

- Investigate site constraints (Easements, entitlements, engineering, etc)
- Confirm jurisdictional authority and agency requirements
- Establish environmental criteria

**Result**:

- Identification of optimal site area(s) for development
- Support of site development concepts
- Guiding of site and building design

### 2. Land Use Plan- Demonstrate Opportunities

**Participants:**

- Board of Trustees, Administration, Faculty, Staff & Students
- Design Team: MBT Architecture, CMG Landscape, SHJ Civil Engineering
- Owner's Consultants: S&K
- Community

**Approach:**

- Investigate models for future build-out of the campus and educational partners
- Prepare comparative plans for complete site development
- Evaluate entitlement process for development options
- Select approach in collaboration with stakeholders

**Result:**

- Identification of optimal campus location in relationship to related uses

### 3. Campus Plan- Creating Community

**Participants:**

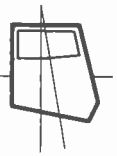
- Board of Trustees, Administration, Faculty, Staff & Students
- Design Team: MBT Architecture and all consultants
- Owner's Consultants: S&K and Environmental consultants
- Community

**Approach:**

- Investigate program requirements and institutional goals
- Incorporate economic and environmental criteria
- Develop preliminary cost modeling
- Review design with regulatory agencies
- Develop plans in collaboration with college and district
- Investigate alternate campus plans

**Result:**

- Selection of validated campus plan



### 4. Standards and Guidelines- Future Expectations

**Participants:**

- Design Team: MBT Architecture and consultants
- Owner's Consultants: S&K and other consultants

**Approach:**

- Evaluate building materials and systems
- Review selections with district
- Compare and confirm anticipated costs
- Adopt standards for proposed and future construction
- Develop guidelines for future building and site development

**Result:**

- Development of text and graphics describing standards and guidelines

### 5. Illustrative Plan

**Participants:**

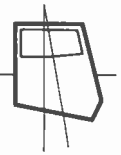
- Board of Trustees, Administration, Faculty, Staff & Students
- Design Team: MBT Architecture and consultants
- Owner's Consultants: S&K and other consultants
- Community

**Approach:**

- Provide analytical materials (drawings, diagrams, etc.) in document format
- Present and summarize evaluative criteria for selected development
- Establish expectations for site design and architectural development

**Result:**

Development of text and graphics for final presentation of the plan to the Board, municipal, state and federal agencies and the general public



## 2.2 | Project Goals and Objectives

*Direction from the President, Trustees, Administration and Community*

Goals and Objectives were developed in collaboration with the Board of Trustees, Ohlone College faculty, staff, and students, representatives of the City of Newark and members of the community including the specially designated Bond Oversight Committee.

The master plan is guided by goals and objectives established with these participants. "Goals" are those over-arching concepts that influence conceptual development. "Objectives" describe specific aspects of physical development

### General Goals of the Master Plan

The master plan addresses general requirements for the planning, location and sequence of construction for the OCNC. The five-part process described in the preceding section identifies and supports these goals:

- **To assess basic site capacity**
- **To investigate limits or constraints on development**
- **To assess requirements for potential educational partnership uses**
- **To test areas and locations for educational partnership uses**
- **To determine optimal campus location relative to other uses**
- **To test potential configurations of the campus plan**
- **To depict reasonable assumptions for growth**
- **To establish development guidelines and performance standards for all future development**
- **To create an illustrative plan that expresses the values developed in the planning process.**

### Specific Objectives of the Master Plan

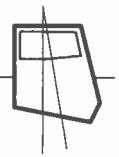
Specific objectives for development recognize the principles established above while directly addressing these physical conditions:

- **Identity and Visibility.**
  Ohlone College Newark Center must have strong identity and visibility from Cherry Street, the only current vehicle access and primary source of municipal identity.

- **Efficient use of existing infrastructure.**
  Development of the site will occur over time. The initial construction should maximize utilization of the Cherry Street frontage and existing infrastructure for utilities. The existing entrance and partially developed intersection on Cherry Street to access the campus should be utilized.

- **Traffic control.**
  For traffic control purposes, there should be a signalized intersection for the main entrance to campus from Cherry Street. Provision for two left turning lanes into the main entrance each with about 16 cars of stacking should also be provided.

  For future expansion purposes, a full traffic study would be completed to assess the need for a second signalized entrance



from Cherry Street or a signalized entrance from Mowry Avenue.

- **Parking.**
  Separate parking will need to be provided along the frontage of Cherry Street for the Washington Hospital & Ohlone College Health Services facility.

  Parking for Ohlone College students and staff will be provided in the center of the site with convenient access to the academic facilities. Ten minutes walking time has been assumed as maximum distance between initial phase academic components.

- **Building design**
  While allowing for separate parking, entrances and signage for the Health Clinic and other possible partnership uses, building design will otherwise be uniform and consistent with a single campus identity. Functional separation will be created without compromising the single overall college identity in design and appearance.

- **Loop road.**
  A loop road will be provided for ease of access and also public safety.

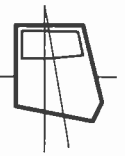
- **High density.**
  The campus design will incorporate a high density of built structures and land use approach.

- **External connections.**
  Connections to established civic uses, including the Silliman Center and Newark Memorial High School, as well as privately owned parcels adjacent to the new campus, will be strengthened by campus design and programming at the site.

- **Ecosystem approach.**
  An ecosystem approach has been applied to the site and facility planning activity. The Ohlone College Newark Center for Technology & Health Sciences will be developed with a clear identity based on the advancement of 21st-century technology within an ecologically sustainable paradigm. Reclamation and stewardship of the east bay estuary will be supported by Ohlone College utilizing the Newark Center as a training site and reclamation staging area. This theme will resonate with the architecture of the campus.

- **Sustainability.**
  Campus design will incorporate sustainable architecture principles, and will be based on LEED® certification for the new facilities. The campus facilities will in themselves become teaching resources as they interpret and inform the users as to how they create their own energy, recycle materials, provide safe and comfortable learning environments, and operate efficiently as public buildings.

- **Learning Community.**
  Campus design will create a "sense of place" through a central social hub as well as connecting corridors featuring ancillary services and amenities. The initial building construction and related site development will be both functionally complete and complete in general appearance. Subsequent construction will build on the planning framework and the physical character established in this phase.



- **Landscape features.**
  Landscape design will follow the ecosystem model and the estuary theme. A central park will be created which flows through the campus, accommodates storm water retention needs, and connects the wetlands area to the south with the buildings to the north.

- **Future expansion.**
  The master site plan will be developed with expandability features for both the initial construction grid on the northern portion and the transitional development grid on the southern portion of the site. The selected land use plan offers multiple strategies for campus expansion and accommodation to changing conditions without conceptual modification. Flexibility is a primary goal in conceptual development of these areas.

- **Partnerships.**
  Two partnership ventures have been investigated. Washington Hospital will lease space for a health clinic and student health service on the site. This facility will be integrated with the college's training programs in nursing and allied health sciences. Kidango, Inc. will construct childcare and early childhood education facilities on the site. Discussions are being held with other potential partners including universities, corporations, other public agencies and retail services. All partnership ventures, current and future, will have their facilities integrated into the architectural design and standards for the campus and will be functionally compatible with college purposes and uses of the site.

- **Integrated Educational Plan.**
  Planning and development of the Ohlone College Newark Campus is being conducted through an integrated District-wide planning process. An Educational Master Plan and budget, staffing and facilities operations plans are being prepared for 2004-2007 in order to effectively transition to the new facilities financed by Bond Measure A. Some adjustments or modifications to the initial educational plan for the Newark Campus will be made part of the updated master plan and will be incorporated in the design phase of project development.

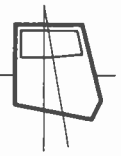
- **Demonstrate the culture and core values of Ohlone College.** Buildings will reveal the nature and the content of the instructional programs and support services that will occupy the facility.

- **Encourage Interaction.** All buildings will be physically and aesthetically linked to promote collaboration and communication throughout the entire campus.

- **Provide physical cohesion.** The adoption of standards for building forms and materials, and the development of a unifying landscape will contribute to physical quality and identity. Standards should produce a harmonious, not a homogenous environment.

- **Extend these values in subsequent construction projects**. All subsequent projects should respect the established context and maintain the overall character of Ohlone College Newark Center for Technology & Health Sciences.

- **Create a park-like central landscape.** This area will become the center of an intellectual community. Meaningful relationship between building and adjacent landscape is valued.



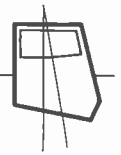
- **Establish useful outdoor areas.** Building should provide the opportunity to develop plazas, courtyards, and walks by its relationship to adjacent structures.

- **Create well-defined pedestrian links to, and within the campus.** Pathways provide both the physical cohesion and a sense of approachability essential to the core values and goals of Ohlone College.

- **Create a well-defined internal road system**

  An important organizing element, the perimeter road provides definition to the campus as a visible edge, and enhanced by planting, serves as an important contributor to campus identity.

- **Develop the site natural environment.** Identify, restore and protect native habitat areas. These conservation efforts will be assisted by research undertaken by the college, and combined with the development of dedicated outdoor instruction areas.



## 2.3 | Review and Approval Process

*Regulatory Agencies and Review Entities*

The Board of Trustees has approved the key components of the planning effort, the land use plan and the campus plan. In addition, reviews have been undertaken with Ohlone College faculty and staff, representatives of the City of Newark and members of the community including the specially designated Bond Oversight Committee.

The Design Team prepared a summary analysis of known or anticipated site constraints on 19 February 2003. Site analysis has been on-going, and has includes contact with the following agencies:

**Federal Agencies**

- United States Army Corps of Engineers (USACOE)

**State Reviews**

- California Department of Fish & Game (DF&G)
- Division of the State Architect (DSA)
- State Fire Marshal (SFM)
- Department of Toxic Substance Control (DTSC)

**Regional Reviews**

- Alameda County Flood Control District
- Alameda County Water Control Board
- Alameda County Mosquito Abatement District
- Metropolitan Transportation District
- Regional Water Quality Control Board

**City of Newark Reviews**

- Public Works
- Parks & Recreation
- Planning
- Fire Marshal
- Neighborhood Groups

**Utilities**

- Union Sanitary District
- Pacific Gas & Electric (PG&E)
- SBC
- Alameda County Water District (ACWD)

**Other**

- Tri-Cities Waste Management Inc.

## 2.4 | Master Plan Participants

*Primary participants in development of the Plan*

The process of assessment and evaluation has been a collaborative undertaking, by the design team, with Ohlone Community College District faculty, administrators, planning and support staff. Principal participants in the overall planning and review effort are:

### Ohlone Community College District Board of Trustees

Dan Archer, President

Robert Brunton, Trustee

Ruthe Foster, Vice President

Bill McMillin, Trustee

Nick Nardolillo, Trustee

John Weed, Secretary

Garrett S. Yee, Trustee

Katherine Bui, Student Board Member

### Ohlone Community College District Administration

Dr. Douglas Treadway, College President and Superintendent

Deanna Walston, Vice-President Business Services/ Deputy Superintendent

James Wright, Vice-President Instruction

Lisa Waits, Vice-President Student Services

Simon Barros, Director of Facilities

### City of Newark

Alberto Huerzo, City Manager

John Becker, Assistant City Manager

Clay Colvin, Economic Development Manager

Bill Lichtenberger, Fire Marshal

Willem Wolbertus, Senior Civil Engineer

### Stegeman & Kastner

*Bond Program Manager*
Don Eichelberger, Senior Vice President and Project Manager
Fritz Kastner, Chairman of the Board

### Consultant to Stegeman & Kastner

David Neuman, University Architect, Stanford University

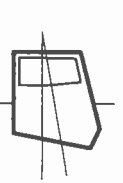
### Planning, Design and Engineering

### MBT Architecture

*Architecture and Planning*
Karen Cribbins-Kuklin, AIA, Principal-in-Charge
Joel Karr RA, Project Manager
Stevens Williams, AIA, Project Designer
Rene Calara, Designer

### Conger Moss Guillard

*Landscape Architecture*
Kevin Conger, Principal-in-Charge
Christopher Guillard, Project Manager



**Sandis Humber Jones**
*Civil Engineering*
Ken Olcott, Principal
Joe Leach, Project Engineer
Eric Gordon, Project Engineer

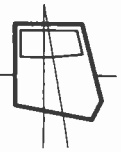
**SOHA**
*Structural Engineering*
Stephan Lau, S.E. Principal Structural Engineer
Sikander Hayat, Project Structural Engineer

**Alfa Tech Consulting Engineers**
*Mechanical, Electrical and Plumbing Engineering*
Michael Lucas, Principal-in-Charge,
Hormoz Janssens, Project Manager & Mechanical Engineer

**Code Resource**
*Code Compliance*
Gale Bate, Building & Fire Code Consultant

**Thorburn Associates, Inc.**
*Acoustics and Noise Control*
Steven Thorburn

**Davis Langdon Adamson**
*Cost Estimating*
Martin Gordon, Principal-in-Charge
Alice Nguyen, Managing Principal
Sam Evison, Cost Consultant



## 3.0 | Site Analysis

*Investigative Process*

Site analysis was conducted as the first phase of the master planning process. Generally, this effort can be described within three categories.

### Physical Constraints

These areas of investigation have addressed existing physical conditions:

- A site survey was undertaken to determine the physical extent of the site, the property boundaries and any easements or encumbrances that restrict physical development.
- A geo-technical investigation was undertaken to determine the nature of the soils found on the site. The soils report identifies problematic conditions that might limit the placement of buildings and provides critical data for structural design.
- Utility services are investigated to determine availability, size and type, source locations and the private or public entities providing these services.

### Regulatory Requirements

The review and approval process has been described in Section 2.3. At the site investigative level the most immediate regulatory issues relate to natural features, specifically, wetland areas. Though small wetland-type features are found in several locations a recorded wetland subject to United States Army Corps of Engineers (USACOE) jurisdiction is located at the site's southeast corner.

In addition, soil contaminants resulting from long-term agricultural use were identified, requiring mitigation measures that are subject to review by the California Department of Toxic Substance Control (DTSC).

### Cultural Conditions

Cultural conditions include educational goals, current local conditions and historical factors.

- Current educational goals offer the strongest paradigm for physical development. Briefly stated, the site and the buildings serve to demonstrate the curriculum, with strong emphasis on technological and environmental instruction. These goals are described in greater detail in Chapter 4 of the master plan.
- Current local conditions vary distinctly at each of the property boundaries. The distinctly different nature of these uses and their potential relationship has strongly influenced land use planning and the location of the campus.
- Historical factors include both natural systems and human intervention on the site. This understanding has influenced site development and landscape features. These points of reference are described and diagrammed in Section 3.5 of this chapter.

Further description of site conditions, requirements, and the analytic process, is provided in the following parts of this section.

## 3.1 | Site Constraints / Existing Conditions

*Summary Description of Site Components*

Site constraints include physical and climatic conditions. The investigation was conducted as the first step of the master planning process and can generally be described within three categories:

### Physical Conditions

The natural environment surrounding the site includes the salt flats nearby. A generally flat and undifferentiated landscape, much of it fill that was imported over the centuries. The ecosystems have been dramatically influenced by the residential development to the northeast and northwest. These neighborhoods are lushly planted districts, with heavy use of irrigation.

The site itself has virtually no large vegetation due to its historical and current agricultural use. The only trees are located at the Cherry Street boundary. This frontage area has been developed as part of the City of Newark's Landscape and Lighting District (LLD). The consistent character of this landscape is intended to visually unify development parcels in this area. A continuous earth berm is richly planted with sod, shrubs and mature trees, intended to visually screen parking areas on the site beyond.

### Climatic Conditions

The Newark climate is mild, with temperatures generally falling within a limited range (50- to 85-degrees F summer and 40- to 75-degrees F winter). This allows reasonable potential for external building circulation and promotes the usefulness of outdoor areas for year round use. This should not however, keep us from recognizing other environmental conditions such as high winds and seasonal rains, nor obscure the fact that the OCNC, like most community colleges, will benefit from concerted internal focus.

Annual rainfall is typically 22 inches or less, generally occurring in winter months. Cool ocean breezes and morning mist mitigate this relative aridity at coastal locations, but extremely regular afternoon wind can be quite harsh. These factors create somewhat specialized conditions for plant materials. While this climate can permit installation of tropical, or other exotic plant species, species better suited to coastal conditions are recommended.

Prevailing winds are generally from the bay, in an easterly direction. The impact of these prevailing winds on the use of outdoor spaces such as breezeways and courtyards should be carefully considered. Shady areas unprotected from the wind can be uncomfortably cold on relatively mild days. Heating and cooling of inland areas generate offshore breezes. These breezes introduce moisture with salt content, a condition that should be recognized in the selection and detailing of metal elements on buildings in this zone.

Rooftop air intake has been proposed as a means of achieving the required building efficiency. Prevailing wind conditions and anticipated variation will be considered when wind testing is performed during the initial design phases of this project. Appropriate orientation for air intake, and necessary horizontal or vertical separation from exhaust stacks and idling vehicles will be determined from the air quality study.

### Site Conditions

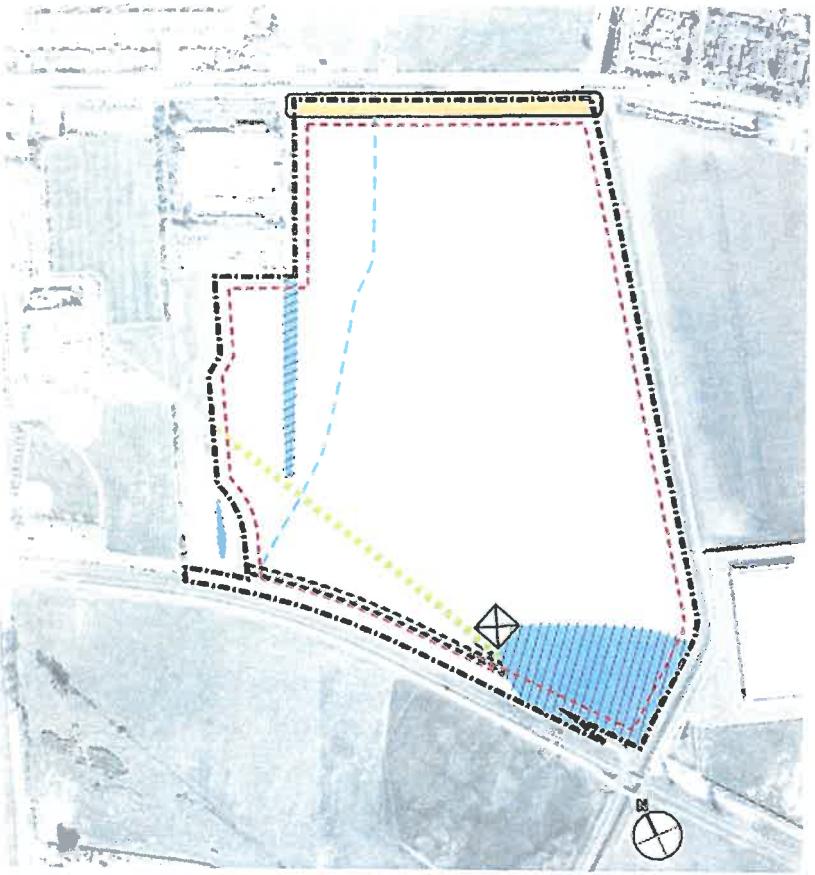
The diagrams on the following pages depict significant internal factors and external relationships that have influenced the planning process.

## Site Constraints Diagrams

*Existing Conditions*

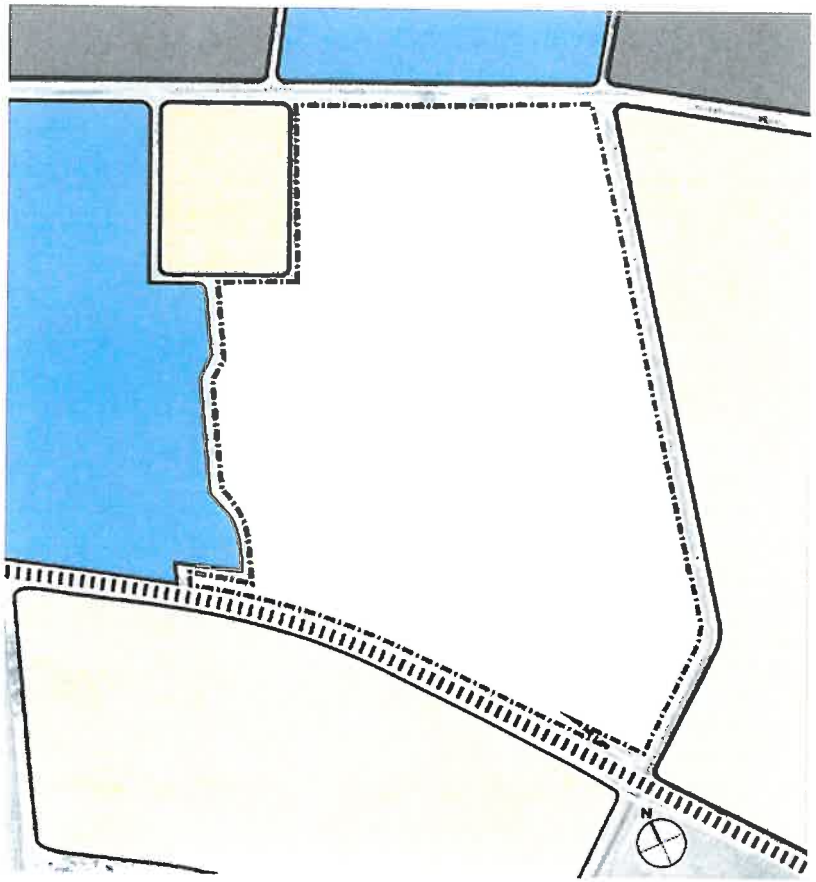
### Setbacks, Easements and Physical Conditions:

Setbacks are shown in dotted red line, with the Cherry Street landscape zone (LLD) in orange. Other important features include Old Station Road (dashed green line), wetlands (hatched blue area), monitoring well (yellow) and the 500-year floodplain line (light blue).



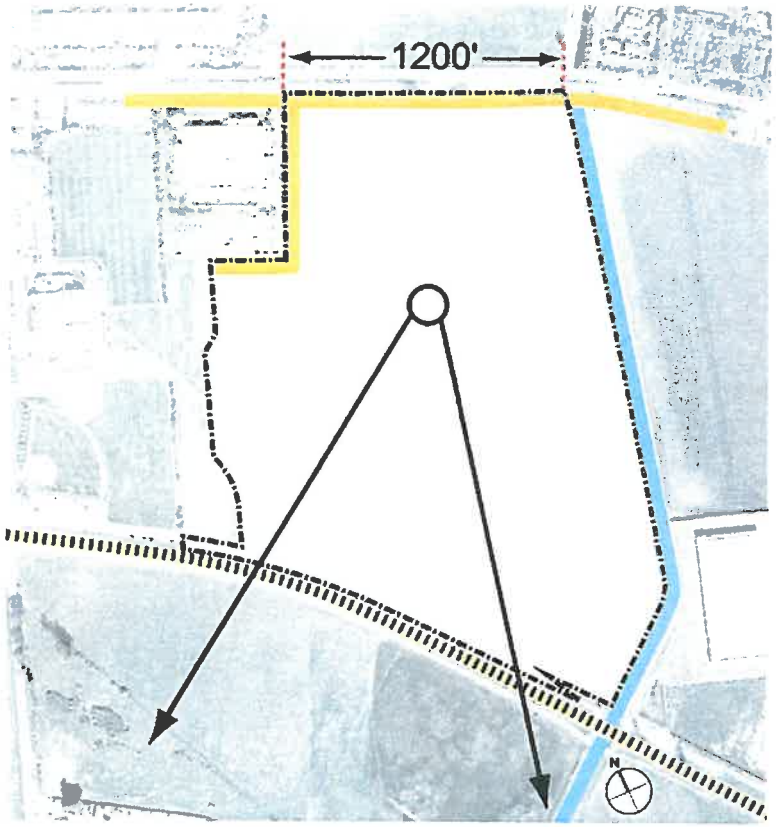
### Adjacent Uses:

Orange indicates industrial uses and includes the Agilent (northwest) and Sobrato sites to the east.
Blue indicates civic includes the High School and the Silliman Center.
Dark gray indicates residential neighborhoods northwest of Cherry Street
Green indicates future residential and recreational uses per the municipal plan



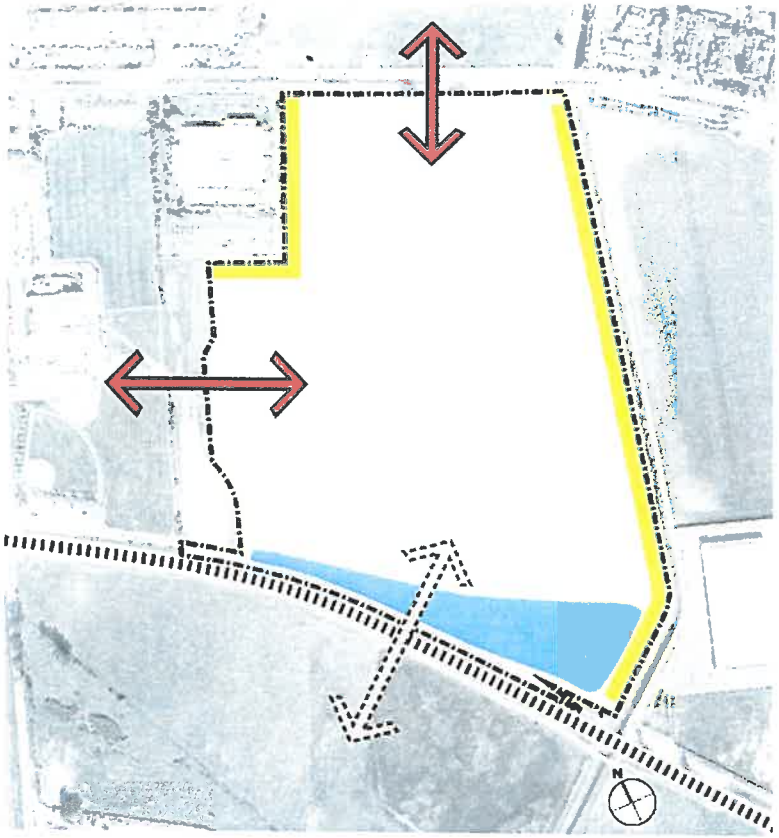
**Boundaries:**

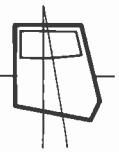
Cherry Street frontage (top) is the primary approach and the most distinct boundary. The flood control channel (blue) separates the adjacent Sobrato parcel, while the railroad tracks demarcate the south. Views from the site are oriented over the railroad tracks.




**Connections:**

Strong potential civic connections can be made to the High School across Cherry Street, and to the Silliman Recreation Center (left). Possible future relationship may be established with future residential areas to the south. (Dashed line)





## 3.2 | Site Environmental Issues

*Current Level of Investigation*

A series of environmental surveys of the property have been conducted over the past decade and an Environmental Impact Report (EIR) is currently being preparation. While this study may ultimately lead to a negative declaration, the effort to identify significant natural characteristics of the site is ongoing.

### Wildlife and Vegetation

Non-native grasses dominate the undeveloped areas of the site. Native and non-native trees and shrubs are scattered throughout this grassland. All areas have been historically subject to severe disturbance. The farming operations on the site have continued to upturn the topsoil, but have not eliminated all protected plant species from the site.

Wildlife may include invertebrates (crayfish), fish (mosquito fish), reptiles (striped salamanders), and a variety of birds. No exhaustive, seasonal studies have been performed on the site for native species, and will be required in the Environmental Impact Report.

All species observed are relatively common, anticipated to be present by the survey team and did not require extraordinary measures. However, there are some mitigations that will likely be required.

### Wetlands

Three-wetland areas with potential for California Department of Fish and Game (DF&G) and USACOE jurisdictional review can be found on the site. Delineation of these areas will be verified. Potential impact from current proposed development will be confirmed and mitigation measures proposed.

Although there are additional wetland-type features on the site, the USACOE has agreed that none of them were originally mapped, and will not require mitigations. However, although these are not technically recognized as wetlands, DF&G will require mitigations or relocation of native species. The area at the southwest area of the site will, however, be required to be preserved in its current condition.

Though the USACOE does not have jurisdiction elsewhere on the site, the DF&G will require mitigation for any endangered species of both plant and wildlife habitats. There may be striped salamanders as well as other varieties of bay life and several endangered plant species on the site. These can be moved or mitigated, and will be included in the studies in the Environmental Impact Report.

### Pesticides

The site is known to contain pesticides in the topsoil, which is an after effect of long-term agricultural use. The district is currently contracting with the DTSC to identify and enact appropriate mitigation measures. Mitigation may involve off hauling of the contaminated soil layer, or capping the layer in place.

## 3.3 | Site Survey

*Narrative Description*

### Boundaries

The site is bounded by Cherry Street (a public street) to the north; a site currently owned by Agilent Technologies to the northwest; the George M. Silliman Community Center to the west; Union Pacific Railroad tracks to the south; and an Alameda County maintained earthen flood control channel on the east.

The benchmark for the property is from the FIRM map noted as RM40 and described as a U.S. Coast and Geodetic Survey brass disk, stamped U877, set in top of a concrete post projecting 0.3-feet above ground, at the Mowry Landing Road crossing of the Southern Pacific Railroad (now Union Pacific), 81.5-feet southeast of the road line, 33.5-feet southwest of the southwest rail of tracks.

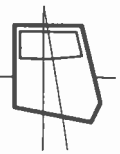
The basis of bearings for the boundary is the bearing of north 66d17'02" west, between monuments found on the monument line for Cherry Street, as shown on parcel map 5647, filed in book 187 of maps, pages 85 and 86.

### Easements

As shown on the Boundary and Topographic Survey by Sandis Humber Jones, the site is encumbered by various easements including drainage easements for adjacent properties (for the benefit of the Agilent property and for the Silliman Center property). While the drainage patterns may be realigned to accommodate the proposed site development, the existing easements should be vacated and the proposed easements dedicated for clarity.

### Additional easements include:

- Sewer pipeline easement to Union Sanitary District recorded November 13, 1963, series no. AU187569, reel 1044, image 948.
- Pipeline easement to East Bay Dischargers Authority recorded July 13, 1978, series no. 78-133219, reel 5483, Image 597.
- Slope maintenance easement to Alameda County Water District recorded December 6, 1982, series no. 82-184763.
- Drainage easement to Alameda County Water District recorded December 6, 1982, series no. 82-184764.
- Public utility easement over northerly 14-feet, as per parcel pap 4409.
- Landscape and sidewalk easement over northerly 50-feet as per parcel map 4409.
- Drainage easement to Avantek, Inc (currently Agilent Technologies) recorded December 18, 1984, series no. 84-249256.
- Drainage easement to City of Newark recorded December 8, 1986, series no. 86-309239.
- Water pipeline easement to Alameda County Water District recorded November 7, 1989, series no. 89-302227.
- Traffic signal easement as per parcel map 5647.
- Easement for public utilities in the southwest portion of the property as per parcel map 5647.
- Easement for public utilities and other public purposes as per parcel map 5647.
- Unrecorded PG&E easement for pole lines (which no longer exist) as per parcel map 5647.



- Public utility easement at southerly property corner as per parcel map 5648.
- Drainage easement to City of Newark recorded December 28, 1989, series no. 89-348305.
- Pole line easement to PG&E recorded December 6, 1989, series no. 89-328309. (Easement is not listed as a title report exception).

The property excludes a land-locked parcel owned by Alameda County Water District. This parcel includes a well that has been historically used for irrigation and aquifer monitoring purposes. While this may have been its traditional use, testing of the water quality during various seasons should be performed to determine its compatibility with the proposed development and potential use as irrigation water.

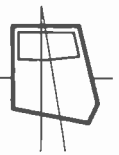
### Topography

Except for the landscape mounding along Cherry Street, the site generally slopes from Cherry Street southward to the southeast corner of the site to a field inlet that drains into the channel. An additional topographic feature is an overland drainage channel that conveys storm runoff from the Agilent property to another drainage channel that conveys water from the Silliman Center towards the southeast corner of the property.

According to documents and discussion with Mr. Bob Smith from the USACOE, there are documented wetlands on the site near the southeast corner of the property. In the event that wetlands need to be "relocated" due to the development, a permit from USACOE will be required. If the area is less than a half-acre, the USACOE will issue a nationwide permit. For areas greater than 0.5-acres, the USACOE issues an individual permit. In either case, the wetlands will need to be replaced at an approximate ratio of twice the area disturbed.

The flood zone for the property is based upon the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the City of Newark, dated February 9, 2000, community panel number 060009 0005 F. According to this map, the site lies within a few flood zones. The majority of the site lies within zones X (unshaded) and X (shaded). Zone X (unshaded) represents areas determined to be outside of the 500-year flood plain. Zone X (shaded) denotes areas within the 500-year flood plain; areas within the 100-year flood plain with average water depths of less than 1-foot or a drainage area of less than 1-square mile; and areas protected by levees from 100-year flood. According to the FIRM map there is a narrow strip of property along the eastern property line within Zone AE, which denotes areas where base flood elevations have been determined.

According to the FIRM map, the lowest flood elevation in the channel is 12-feet. According to Mr. Willem Wolbertus of the City of Newark Public Works department the flood zone within the channel (near the railroad bridge) was lowered to 9-feet with the analysis done for the Stevenson Point Technology Park, southeast of the project site. This elevation has yet to be determined with the Alameda County Flood Control District. The 3-foot differential will have an impact on the release of the 100-year flood event through the southeast corner of the project and the fill that will be require to protect future developments on the southern portion of the property.



## 3.4 | Soils (Geo-technical) Report

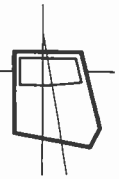
*Current Level of Investigation*

As indicated in Section 7.4, "Structural Systems", of this report, soils investigation is ongoing but has not been completed at this time. However, soils data does exist dating to May 1990, which was performed for the planned Sun Microsystems development.

In addition, a report titled "Preliminary Geologic Hazard Evaluation and Geo-technical Investigation"; dated 14 July 2003 has been completed. It provides preliminary information, absent current detailed soils boring data, but including a detailed analysis of existing data. To support the conclusions, a limited number of borings and cone tests were also performed at locations on the site suspected of presenting potential future planning issues.

The natural soils underlying the site consist generally of 1.5- to 6.0-feet of dark brown to dark gray-brown clay, which is subject to expansion, underlain by silty clay layers interlayered with thinner layers of clayey silt, silt, and sandy silt. Silty sand layers 1- to 2-feet thick were encountered at depths of 13- to 15-feet. Sand layers were encountered at depths of 35- to 40-feet. Groundwater was detected in a range from –5- to –7-feet below the surface. Although this preliminary report cannot provide conclusive information on groundwater levels, a base assumption of groundwater at –5-feet from grade has been provisionally adopted.

As the site has been under continuous farming operations, the top 12- to 18-inches of the soil is loosely tilled, with a high content of organic materials. This layer also contains residual agricultural pesticide contaminants described in the previous Section.



## 3.5 | Historical/ Cultural Conditions

*Existing and Historical Landscape Features*

The site has been significantly disturbed through agricultural production and other utilitarian uses. An essentially flat topography and the absence of large vegetation might suggest an absence of character. Historical investigation provides a better understanding, however. The ecological and cultural history informs site development and is a strong contributor to campus identity.

### Windrows

These rows of trees refer to local agricultural history. They continue a functional tradition by providing a shield to the strong afternoon winds. As with original secondary use in defining field borders, they provide vertical boundaries to outdoor areas, and create an organizing system for pedestrian circulation.

### Groves

These groves of trees likewise allude to the site's former agricultural use. Planted on a point grid similar to an orchard, these groves provide shading and a green canopy for the parking areas. While this is an important aesthetic contribution, the groves contribute to the cooling of the heat-island effect that is typical of large paved areas.

### Fields

Historical photographs depict significant variation in the size and orientation of crop-growing areas on the site. This surprising irregularity, angularity and super-imposition contribute to the development of paved areas and paths and the texture of low planting areas. Building roof forms relate to this pattern as well.

### Historic Mowry Station Road

This dirt path that is the remnant of a piece of significant history on this site will be expressed in landscape elements. The road once connected the downtown area of Newark with the train station, at the southeastern limit of the site.

### Sag Ponds/ Vernal Pools

Soil subsidence produces areas of biological richness related to the seasonal changes in ground water. Two small wetland areas, while a somewhat arbitrary result of agricultural use, will be removed as part of campus development. These are too small to qualify as true, recorded wetlands, but nevertheless illustrate the type of landscape that might historically have been found on this site. Water feature areas will recall these elements.

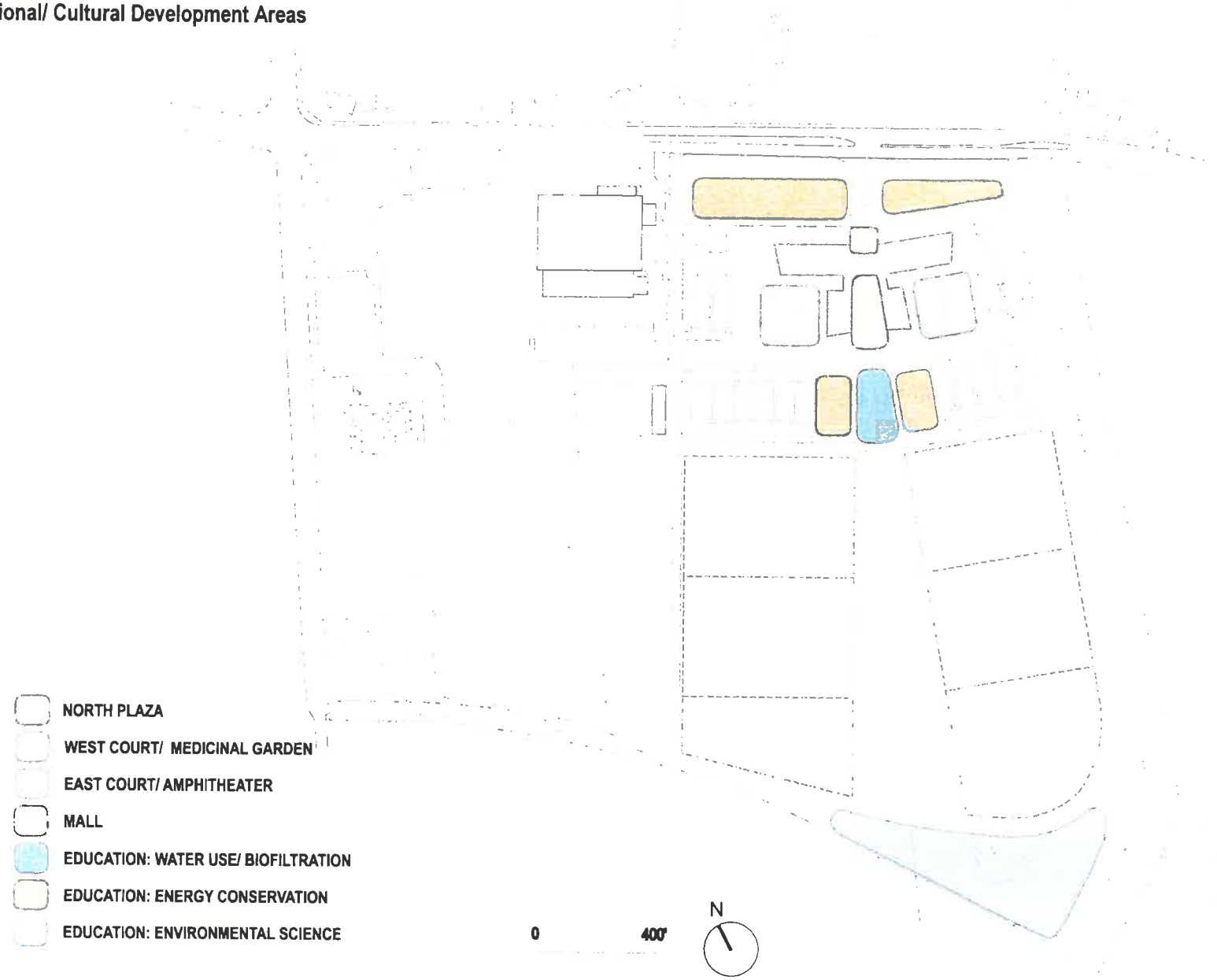
### Mounds

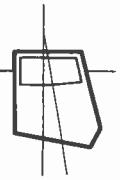
Though not found on this site, shell mounds remain which defined the landscape around this portion of the San Francisco Bay. These are important potential contributors to landscape character. Inclusion will reflect considerations of cost and visual connection between buildings and outdoor use areas.

### Southern Horizon

An ecological view outward from the campus provides an historic context in which to view the distant horizons of the bay, the salt flats, and the mountains. This unbounded perspective provides the axial organization of the campus, and a metaphorical reference to the limitless potential of the intellect.

## 3.5 | Educational/ Cultural Development Areas





## 3.6 | Site Utilities and Proposed Connections

### General

Utilities to the site will be "looped" and located in the perimeter roadway to provide for future expansion of the campus and to minimize disruption and road repairs, where feasible. However, this may not be possible for each utility and alternative scenarios will be developed and evaluated against the project budget during Schematic Design.

### Water

The Alameda County Water District (ACWD) operates and maintains the public water mains in Cherry Street, Mowry Avenue and on the east side of the flood control channel. On Cherry Street, the existing east access has a 12-inch stub for water service. There is a 12-inch stub for water service at the western access drive. Both are connected to the 16-inch water main in Cherry Street.

The design of the project should include a "loop" system with connections to both stubs. The operation and maintenance of the loop system for future development will depend upon the District's desire to be a water provider (bill and meter each lot individually from a "master" meter at Cherry Street) or have ACWD assume the ownership, maintenance and operation of the water system as a public water line. This second option will require dedication of a public waterline easement for such purposes. Additionally, by developing an onsite public water system, the requirement for two costly "master" meters at each of the connections on Cherry Street would be eliminated. Individual "lot" meters will be required for domestic and irrigation systems. For the fire service, an ACWD approved standard for a double detector check valve and associated assembly will be required for each parcel.

Upon further investigation regarding available flow and pressure on Cherry Street, an additional connection to the 12-inch public main on the east side of the flood control channel may be required with a future phase of development, depending on user demands.

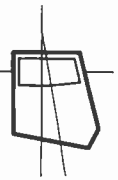
Based upon a meeting with ACWD, it was suggested that the District be aware of a future reclaimed water main to be constructed. This water could be used for irrigation and would likely require a "reclaimed water main" onsite to reconnect to the previously constructed irrigation meters.

Fire hydrants will be required onsite by the State Fire Marshal. Subject to final approval, the hydrants will be placed a maximum distance of 300-feet apart, and 50-feet maximum distance from building fire department connections.

### Storm Drainage

Alameda County Flood Control and Water Conservation District (ACFCD) own and maintain the flood control channel to the east of the project. There are two existing outfalls from the project site into the channel: a 48-inch outfall near the southeast corner of the property and an undetermined sized outfall just south of the "Unrecorded PG&E easement shown on parcel map 5647".

Regulation of the storm drainage for the site is by ACFCD and by the State Regional Water Quality Control Board (RWQCB). For storm runoff, ACFCD has determined that the post-development flows for the 100-year storm event should not exceed the 100-year pre-development flows. In addition, the design criteria for the onsite storm drain system will be the 25-year storm event. Detention basins will be designed based upon the post-development flows to the drainage channel not exceeding the pre-development flows. The basins will also be sized to convey runoff from the Agilent Technologies site and the Silliman Center site.



The detention basins will also be utilized to comply with water quality standards as developed by the RWQCB. This standard requires that storm runoff from parking lots, roofs and sidewalks be "treated" in a way to collect the oils and sediment prior to discharge into a drainage facility (i.e., creek or regulated flood control channel). The "treatment facilities" will include "grassy swales" and the grass-lined detention basin. The outlet for the detention basin will be designed to treat the 2-year storm and discharge over a 48-hour period prior to its discharge to public waterways or aquifers. This will be accomplished through the use of weirs and orifices.

### Sanitary Sewer

Operated and maintained by Union Sanitary District (USD), the sanitary sewer main in Cherry Street is 18-inches in diameter and is approximately 10-feet deep. There is another 12-inch public sanitary sewer main that runs along the southern property line in a public sanitary sewer easement and is approximately 11-feet deep. This 12-inch main flows eastward to the Cherry Street lift station. The lift station discharges via twin, 33-inch force mains westward along the project's southern frontage in an East Bay Dischargers Authority easement. USD has communicated that the Cherry Street pump station has been planned for relocation but that this should not adversely impact the development of the site.

For the proposed District development, the buildings will discharge to the 12-inch main along the southern property line, which, according to USD, is currently operating at 10-percent of its capacity.

Any future development of additional site areas will be subject to USD review and approval.

### Electric & Gas

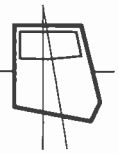
Pacific Gas & Electric (PG&E) owns and maintains the gas main in Cherry Street. There is an existing 4-inch stub in the eastern access. The gas service will require a public utility easement from Cherry Street to the gas meters, similar to the water service, where PG&E will operate and maintain the gas line from the street to the meter.

The electric service from the site may come from Cherry Street or from the southern property line where PG&E has several vaults and an underground duct bank in a 10.5-foot public utility easement.

For both gas and electric service to the campus, coordination with PG&E early in the project is imperative.

### Signalized Intersection

Currently, the access point in the center of the Cherry Street frontage has been "wired" for a future signal. According to the City of Newark, there are approved plans for the signal construction and they should be incorporated into the final site design. This intersection will remain in its current location, forming the primary entry to the site.



## 4.0 | Land Use Plan

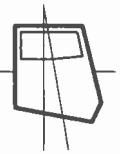
*Basis for Physical Planning*

A land use study was undertaken concurrently with the initial phase of site investigation. The primary focus of land planning was to assess the potential for overall site development. This includes expansion of the core campus over time, and potential other educational partnership uses not specifically campus related.

The Land Use Plan was undertaken to assist the Board of Trustees in evaluating the site's potential. These primary criteria were addressed:

- **To assess basic site capacity**
- **To assess likely partnership uses**
- **To test areas and locations for partnership uses**
- **To determine campus location relative to other uses**
- **To test potential configurations of the campus plan**
- **To depict reasonable assumptions for growth**
- **To inform the final master development plan**

Conceptual parameters for development, the principal elements of land use planning, the various concepts explored, and the adopted Land Use Plan are described in the following sections.



## 4.1 | Land Use Goals and Objectives

*Direction from Participants*

The Land Use Plan is guided by goals and objectives established with all participants in the master planning process. "Goals" are those over-arching concepts that influence conceptual development. "Objectives" describe specific aspects of physical development.

### Land Use Goals

- **Flexibility:**

  Future campus educational programs and population are undetermined. The selected land use plan must offer multiple strategies for campus expansion, and accept changing conditions without conceptual modification. Overall site area exceeds the initial needs of the Newark Center. Flexibility is a primary goal in conceptual development of these areas.

- **Partnership:**

  The studied uses and adopted plan accept the premise of integrated development of other complementary education partnerships on the site, by land-lease or other means. Potential partners must be compatible with the educational mission of the college. These include separate educational, vocational, and functionally compatible support-type uses.

- **Variety:**

  Proposed partnership uses may range from relatively small (less than 10,000-gross square feet (gsf)) to relatively large (greater than 100,000-gsf). Partnership types may vary as well, with uses ranging from child care to training type buildings. The selected plan must have the ability to support these diverse site uses.

- **Identity:**

  The Ohlone College Newark Center for Technology & Health Sciences must be visible from Cherry Street, the only current vehicle access, and primary source of municipal identity.

- **Completeness:**

  The initial buildings and related site development should be both functionally complete for anticipated uses as well as complete in general appearance. Subsequent construction will build on the planning framework and the physical character established in this phase.

- **Connections:**

  Strengthening external connections to established civic uses, such as the Silliman Center and the High School, and to other privately owned parcels can benefit the campus. The land use plan will identify potential vehicle and pedestrian connections.

- **Community Goals:**

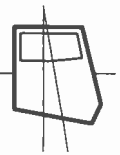
  Where possible and within the limits of bond-funded construction, community goals should be incorporated within the land use plan. Those goals were strongly directed to community connection and to environmental stewardship.

- **Municipal Interests:**

  The studied uses and adopted plan should recognize the interests of the City of Newark. In general, revenue-generating uses (Commercial, R&D, etc) are preferred by the City of Newark for this zone, but such development on this site cannot be considered until the Bond Measure debt is discharged.

### Land Use Objectives

The Newark Center benefits from the variety of adjacent uses: Cherry Street and the High School to the north, Mowry Avenue and the Silliman Recreational Center to the west, the railroad corridor to



the south, the flood control channel, and existing and anticipated development to the east. The specific relationship to these sites provides a strong conceptual framework for land use planning. In work sessions with the Board of Trustees, the following were identified as primary objectives:

### Cherry Street Relationships:

- **Develop strong college presence on Cherry Street**
  Ohlone College will be visible and directly accessible from Cherry Street.
- **Avoid placement of parking fronting Cherry Street**

  The landscape area fronting Cherry Street, and providing a foreground to the college development should remain free of parking areas.
- **Develop Unified Landscape for the Street Frontage**
  Site landscape development for adjacent partnership uses will display character similar to the campus.

### Newark High School relationship:

- **Anticipate Strong Connection across Cherry Street**
  Provide pedestrian crossing at Cherry Street on grade at the signalized intersection or via a pedestrian bridge overpass.

### Silliman Center relationship:

- **Provide direct pedestrian access**
  Shared use of the municipal recreational center is desirable and can be enhanced by a connecting pathway.
- **Recognize proximity of recreational uses**
  Locate college uses adjacent to existing municipal fields to minimize potential noise and activity conflict.

### Agilent Site Development:

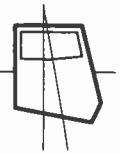
- **Anticipate potential partnership uses**
  Though not defined, future activities on this parcel may include compatible private sector or municipal or institutional uses.
- **Accommodate direct pedestrian access**
  Locate buildings and paths to support pedestrian traffic between this site and the campus.
- **Assume future consolidation of Cherry Street access**
  The current side-by-side location of access drives at Cherry Street, though permitted, is inappropriate for long-term development of both sites. Consolidation of these entries will reduce conflict and allow potential development of a left turn lane at this location.

### Mowry Street Connection:

- **Provide direct vehicle access**
  Connection to Mowry Street is highly desirable. Vehicle access, connecting to the campus perimeter roadway is planned and may be considered as an additive alternate in the initial development. (Note that proximity to tracks imposes some limits on access.)
- **Future development at Mowry south of the rail corridor**
  While no development is imminent, future projects that may include housing or recreational uses (golf course) are anticipated. The Mowry connection will strengthen campus connections to this area.

### Sobrato Parcel:

- **Likely Location for off-site partnership uses**
  Despite separation by the flood control channel, future private development of this site may offer opportunities for educational and vocational partnerships. Connection between the sites is desirable.
- **Compatible location for on-site partnership uses**

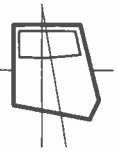


Recognizing the strength of this adjacent use, the site's eastern border is seen as a good location for similar on-site development.

- **Flood control channel may form part of future landscape development**
  Anticipate future development of the flood control channel as a distinctive landscape zone supporting partnership site identity and environmental goals.

### Rail Corridor Proximity:

- **Recognize safety issues and vibration/acoustic conflicts**
  The rail corridor places limits on development, both in the form of required setbacks and as a neighboring use that is incompatible with the nature of the campus. Proximity to the tracks represents some degree of hazard and a significant increase in construction costs to accommodate the noise and vibration mitigation.
- **Best location for site open space**
  With limited opportunity for construction, land adjacent to the rail corridor offers the best opportunity for necessary site open space. Storm water detention has been assigned to this location, adjacent to the existing wetland.



## 4.2 | Land Use Options

*Instructional Methods and Considerations for Design*

The Land Use Study is the second component of the master planning process. This places the primary focus on the location of the core campus, but includes the consideration of various potential uses and conceptual modeling of the site area that might be required to support them. Land use categories and the planning requirements are listed below:

| | | | | |
|---|---|---|---|---|
| **Property Boundary Area:** | **SF:** | **3,560,746** | **Acres:** | **81.74** |
| **Constraints:** | | | | |
| **- Monitoring Well** | SF: | 12,000 | Acres: | .28 |
| **- Easements & Setbacks** | SF: | 282,371 | Acres: | 6.48 |
| **- Wetlands** | SF: | 119,037 | Acres: | 3.35 |
| **Available Site Area** | **SF:** | **3,147,338** | **Acres:** | **72.25** |
| **Initial Phase Construction:** | | | | |
| **Buildings & Covered Areas** | SF: | 150,000 | Acres: | 3.44 |
| **Initial Construction** | | | | |
| **Core Reserve** | SF: | 210,000 | Acres: | 4.82 |
| **Roadways and Drives** | SF: | 213,922 | Acres: | 4.91 |
| **Parking Lots** | SF: | 237,358 | Acres: | 5.45 |
| **Landscape & Open Area** | SF: | 510,089 | Acres: | 11.71 |
| **Initial Construction Total** | **SF:** | **1,306,994** | **Acres:** | **30.00** |
| **Remaining Site Area:** | **SF:** | **1,844,838** | **Acres:** | **42.35** |

### Initial Construction Requirements

Descriptive language included with the bond measure in conjunction with the current educational plan establishes the scope of initial construction. The primary obligation is to provide the necessary area for campus buildings (150,000-gsf); integrated partnership construction (20,000-gsf); and parking areas (580-stalls) needed to support the current educational master plan. Remaining initial phase development area includes the roadways and drives, landscape areas, pedestrian plazas and circulation, and stormwater detention area needed to support campus development.

### Campus Expansion Area

The college proposed a conceptual growth model used to reserve site area for campus expansion. The underlying assumption is based on an expansion growth projection to 8,700-full time equivalent (FTE), approximately the number at the existing Fremont campus. To maintain continuity with the initial construction, the core campus includes a reserve area capable of accommodating the building and site area for this construction. As depicted in the diagrammatic site plan, parking requirements for the initial construction can be met by expansion onto additional site area, the construction of a series of raised deck structures, or by multi-level parking garages.

### Partnership Sites

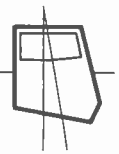
This term describes site development and building area created to house other uses that could contribute to the success of the education program by educational, functional or vocational affinity, or could contribute revenue through land lease or property rental.

Two partnership ventures have been investigated to date: Washington Hospital will lease space for a health clinic and student health services on the site. This facility will be integrated with the college's training programs in nursing and allied health sciences.

Kidango, Inc. will construct childcare and early childhood education facilities on the site.

Discussions are being held with other potential partners including universities, corporations, other public agencies and retail services. All partnership ventures, current and future, will have their facilities integrated into the architectural design and standards for the campus and will be functionally compatible with college purposes and uses of the site.

While no use is ultimately beyond consideration, the provisions of the bond measure specifically require compatibility with the college's educational program until removal of the bond debt. The matrix on the following page evaluates uses that have been considered.



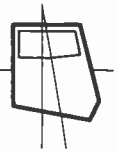
Use

Values/Priorities

| Use | Directly Benefits Education Program /Supports Educational Mission | Recruit & Retain | Image & Identity | Potential Synergy/Partnerships | Financial Feasibility | Long Term Flexibility/Options | Revenue Generation | Supports Community Goals | Entitlement (City sympathetic to use) |
|---|---|---|---|---|---|---|---|---|---|
| ***BUSINESS USES*** | | | | | | | | | |
| Housing - Student/Staff Housing | - | + | + | N.A. | + | - | - | - | ? |
| Parking | - | - | - | + | ? | + | + | - | v |
| Clinic/ Health Center | + | + | v | + | v | v | v | + | + |
| Training/Vocation Center | + | + | v | + | - | + | - | - | + |
| Conjoint Educational Facility | + | + | + | + | v | + | + | + | + |

Use

Values/Priorities



| | Directly Benefits Education Program /Supports Educational Mission | Recruit & Retain | Image & Identity | Potential Synergy/Partnerships | Financial Feasibility | Long Term Flexibility/Options | Revenue Generation | Supports Community Goals | Entitlement (City sympathetic to use) |
|---|---|---|---|---|---|---|---|---|---|
| ***BUSINESS USES Continued*** | | | | | | | | | |
| Conjoint Industrial Facility | | | | | | | | | |
| | | | | | | | | | |
| Related Commercial | - | + | + | + | + | + | + | v | ? |
| *Bookstore* | | | | | | | | | |
| *Food Court* | | | | | | | | | |
| *Copy Store/Postal Annex* | | | | | | | | | |
| | | | | | | | | | |
| Childcare | + | + | + | + | + | - | - | + | + |
| | | | | | | | | | |
| Golf Driving Range - Interim Use | - | v | - | v | + | + | + | v+ | ? |

Values/Priorities

| Use | Directly Benefits Education Program /Supports Educational Mission | Recruit & Retain | Image & Identity | Potential Synergy/Partnerships | Financial Feasibility | Long Term Flexibility/Options | Revenue Generation | Supports Community Goals | Entitlement (City sympathetic to use) |
|---|---|---|---|---|---|---|---|---|---|
| | Values/Priorities | | | | | | | | |
| ***BUSINESS USES Continued*** | | | | | | | | | |
| | | | | | | | | | |
| Agriculture - Interim | - | - | - | - | + | + | v | - | v |
| | | | | | | | | | |
| ***CIVIC USES*** | | | | | | | | | |
| Joint-Use Library | + | + | + | + | - | - | - | + | + |
| | | | | | | | | | |
| Bay Trail | + | + | + | + | - | - | - | + | + |
| Habitat Areas | | | | | | | | | |
| | | | | | | | | | |
| Amphitheater | v | + | + | v | - | - | - | + | + |

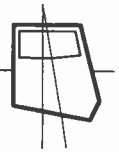
| | Directly Benefits Education Program /Supports Educational Mission | Recruit & Retain | Image & Identity | Potential Synergy/Partnerships | Financial Feasibility | Long Term Flexibility/Options | Revenue Generation | Supports Community Goals | Entitlement (City sympathetic to use) |
|---|---|---|---|---|---|---|---|---|---|
| ***CIVIC USES Continued*** | | | | | | | | | |
| | | | | | | | | | |
| Transit | - | + | + | - | - | - | - | + | ? |
| | | | | | | | | | |
| ***OCNC USES*** | | | | | | | | | |
| Expansion | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | |
| Athletics | + | + | + | v | + | v | + | + | + |

**Key:**

**+** Symbol indicates that the use successfully meets the evaluative criteria for this category

**v** Symbol indicates that the use adequately meets the evaluative criteria for this category

**-** Symbol indicates that the use does not meet the evaluative criteria for this category



## 4.3 | Land Use Components

*Description of Primary Features*

The land use plan provides the overall development framework for the campus plan and for future development. In testing options and ultimately adopting a land use plan, these key components most influenced conceptual planning:

### The Core Campus

The core campus defines the primary buildings of the Ohlone College Newark Center for Technology & Health Sciences (approximately 150,000-gsf), the related parking areas (580 stalls), and the central landscape. The core campus design will incorporate a high density of built structures and consolidated land use approach. Construction of these elements requires about 30-acres and is the primary obligation of the bond measure.

This learning community will enjoy a "sense of place" through a central social hub as well as connecting corridors featuring ancillary services and amenities. Campus design will incorporate sustainable architecture and will be based on LEED® certification for the new facilities. The campus facilities will in themselves become teaching resources as they interpret and inform the users as to how they create their own energy, recycle materials, provide safe and comfortable learning environments, and operate efficiently as public buildings.

### Site Circulation (Perimeter Roadway)

Developing a well-defined vehicle circulation system is essential to define the core campus, to accommodate future academic uses, and to allow access to future development sites. Construction of a completed loop portion of this road system is required to support the bond-funded activities.

For traffic control purposes, two parallel 8- to 10-car "stacking" lanes at the main entrance to the campus are required.

### Recreational Uses

Outdoor recreational areas also form part of the bond-funded construction scope. For the initial phase, this development is restricted to the construction of a par course. This course will be located outside the perimeter roadway.

### Partnership Uses

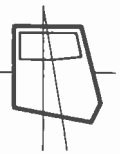
Remaining site area has been identified for partnership uses. As described in Section 4.1, these uses will be varied, and have been partially defined at the time of master planning. Creating a land use plan suitable for this variety, sharing identity with the college has been the primary focus of land use planning. A description of potential relationships is provided in the following section.

### Stormwater Detention and Drainage

Site open space has been reserved to accommodate surface drainage and detention of storm water. Seeking to maximize the potential aesthetics and intellectual value of these engineering elements, this has been considered a key landscape feature.

Subsequent landscape design will follow the ecosystem model and the estuary theme. A central park will be created which flows through the campus, accommodates storm water retention needs, and connects the wetlands area to the south with the buildings to the north.

### Consolidated Ecosystems



An ecosystem approach has been applied to the site and facility planning activity. The Ohlone College Newark Center for Technology & Health Sciences will be developed with a clear identity based on the advancement of 21st-century technology within an ecologically sustainable paradigm. Reclamation and stewardship of the east bay estuary will be supported by Ohlone College utilizing the Newark Center as a training site and reclamation staging area. This theme will resonate with the architecture of the campus.

The site contains several designated wetland areas. The primary wetland, located at the site southeast corner, covers about 2.8-acres. The schedule impact of regulatory procedures and general sensitivity to these features requires strategic evaluation in the planning process.

The character of these particular areas is generally unremarkable, characterized by non-native plant species. Pending completion of the biological resource survey, the assumption is however, that they may sponsor endangered or protected species. Though unconfirmed, this may be the likeliest location for cultural resources on the site as well. If left untouched, or unaltered, these areas do not require jurisdictional review. Smaller designated areas on the site may be successfully consolidated with the larger area to form a single zone.

## 4.4 | Land Use Concepts

*Conceptual Basis for Planning*

Land use planning involved development of conceptual models to test site capacity and development strategies. After a generally open planning effort, the various approaches could be seen categorically as one of the models described below. While the land use components described in the preceding section were used for all planning models, the defining difference in each study is described below

### Distinct Plan

Here, the core campus was presented as distinctly different in character from future development. Two campus test fits were presented to demonstrate this approach, achieving obvious difference in character through axial orientation and by radial geometry. The essential difference however, was that in this approach, the campus occupied the Cherry Street frontage, producing a "front-to-back" division that limited visibility for the partnership sites.

### Separate Plan

In this scheme, a defining roadway separated the core campus and the adjoining partnership area. Both areas shared Cherry Street frontage in this "side-by-side" approach, but both were constrained to expand in a linear fashion, toward the back of the site. While shared visibility was valued, the effective segregation of uses limited flexibility.

### Integrated Plan

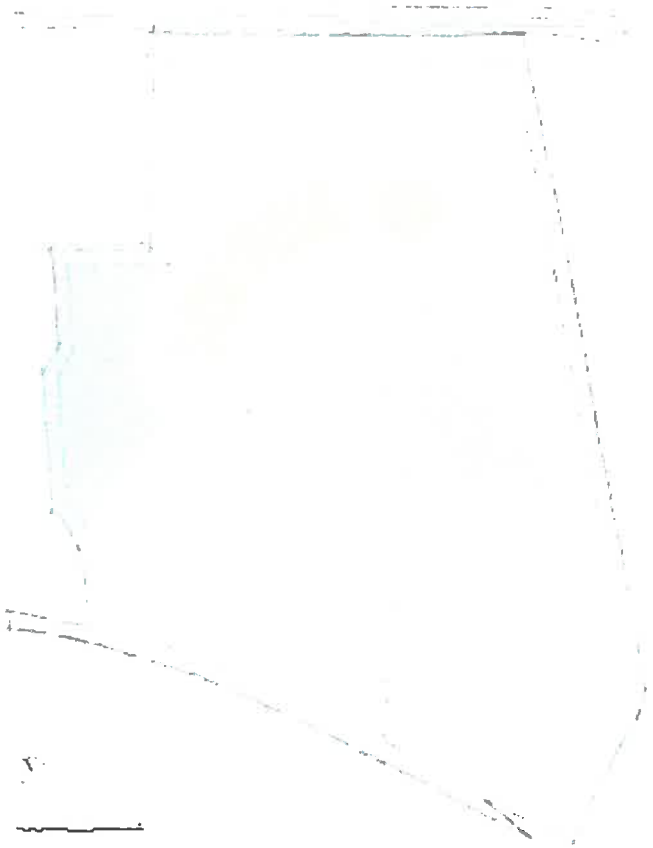
Where distinctive geometry or a roadway had promoted physical separation, the integrated plan united campus and partner sites in a street grid system.

After review of the three preliminary concepts on 19 March 2003, and subsequent reviews of redefined goals, The Board of Trustees directed the Design Team to proceed using these assumptions:

- **Further evaluate "Separate" and "Integrated" schemes.**
- **Establish strong Ohlone presence on Cherry Street.**
- **Recognize potential connection to Silliman Recreation Center.**
- **Distinguish dedicated wetland from undeveloped areas.**
- **Clear vehicular circulation system**
- **Evenly distribute parking.**
- **Park between access roads and campus.**
- **Reduce parking lot visibility from Cherry Street.**

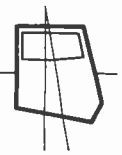
The "Adopted Land Use Plan" described in the following Section is the result of this direction.

DISTINCT



SEPARATE

# INTEGRATED



## 4.5 | Adopted Land Use Plan

*Assumptions for Campus Site Planning*

### Features of the Plan

The Land Use Plan was reviewed on 31 March 2003, and reintroduced at a Board of Trustees workshop on 10 December 2003. Three schemes were considered: the refined "Separate" and "Integrated" concepts, and a third concept that combined the most valued characteristics of the earlier schemes. Called the "Recommended Plan", this plan allowed for flexibility of future development, while giving the campus prominence on the Cherry Street frontage.

The Land Use Plan incorporates the general planning assumptions described in Section 4.1 with the general areas and specific elements listed in Section 4.2 and 4.3. After studying the options described in Section 4.4, these directives from the Board of Trustees and College administration have been followed:

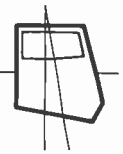
- **Integrate physical planning with the educational plan.** Planning and development of the Ohlone College Newark Center for Technology & Health Sciences is being conducted through an integrated district-wide planning process. Educational Master Plans, budget, staffing and facilities operations plans are being prepared for 2004-2007 in order to effectively transition to the new facilities financed by Bond Measure A. Some adjustments or modifications to the initial educational plan for the Newark Center will be made part of the updated master plan and will be incorporated in the design phase of project development.

- **Establish strong college presence on Cherry Street**
  The campus is clearly visible form Cherry Street, with Health Services, the Café and the Learning Resource Center (LRC) located at this side. While potentially serving partnership uses, these program areas are physically connected. Separate parking, entry and signage will be provided for the health clinic, but building design will be otherwise uniform and consistent with a single campus identity. Functional separation will be created without compromising the single overall college identity in design and appearance.

- **Reduce Cost of Development for Initial Construction.**
  Development of the site will occur over time. Initial development should maximize utilization of the Cherry Street frontage and existing infrastructure for utilities.

  Cost savings resulting from the re-aligned vision of the Newark Center in concert with the educational master plan result from a reduction in overall square footage by roughly 15-percent. Other educational missions and needs may reduce that amount, but the overall savings are estimated at approximately 5-percent.

- **Utilize existing Cherry Street Entrance.** The existing entrance and partially developed intersection on Cherry Street to access the campus should be utilized.



- **Recognize potential connection to Silliman Recreation Center.**
  A connecting pathway provides connection to the recreational center. There are no playing fields planned as part of the Newark Center development, and therefore, easy pedestrian access to the existing recreational facilities adjacent to the site is needed.

- **Distinguish dedicated wetland from undeveloped areas.**
  Designated site open space is restricted to the wetland. Other open space includes the detention areas described in Section 4.2. These will be maintained to reduce potential wetland status.

- **Clear vehicular circulation system**
  The main vehicular circulation, called the perimeter roadway provides direct and easily visible connection to all parts of the core campus.

- **Evenly distribute parking**
  All initial construction parking is in surface lots. These extend along both sides of the campus, fronting directly on buildings.

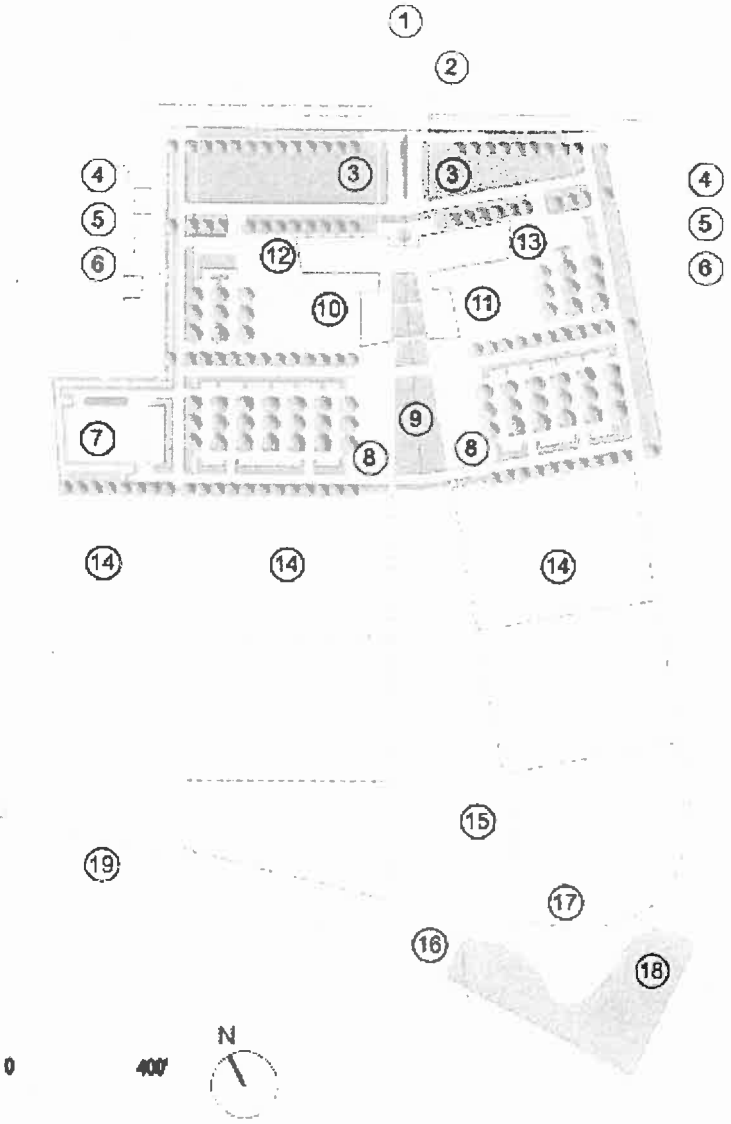
- **Park between access roads and campus.**
  All initial construction parking is contained between the perimeter roadway and the campus buildings. Parking for Ohlone College students and staff will be provided in the center of the site with convenient access to the academic facilities. Separate parking will be provided for the Washington Hospital & Ohlone College Health Services facility, and may be further defined as other partners join the campus.

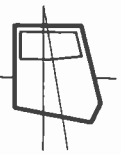
- **Reduce parking lot visibility from Cherry Street.**
  To reduce visibility, campus buildings extend across the lots facing Cherry Street. Windrow tree plantings will further reduce visibility from the site interior.

- **Adopt Strategy for Future expansion.**
  Expandability is provided for both initial construction on the northern portion and transitional development on the southern portion of the site. The selected land use plan offers multiple strategies for campus expansion and accommodation to changing conditions without conceptual modification. Flexibility is a primary goal in conceptual development of these areas.

## Adopted Land Use/ Site Plan

1. Cherry Street Entry
2. Relocated Bus Stop
3. Front Landscape
4. Shuttle Drop Off
5. Dedicated Parking
6. General Parking
7. Service/ Maintenance
8. Campus Expansion
9. Storm Water Detention
10. Campus Expansion/
11. Campus Expansion/
12. Initial Phase: LRC/ Education
13. Initial Phase: HS/ Education
14. Site Reserve
15. Future Detention/ Landscape
16. Landscape Buffer
17. Future Interpretive Exhibit
18. Recorded Wetland
19. Mowry Street Connection





## 5.0 | Campus Plan

*Planning Process and Results*

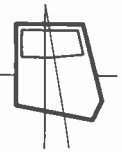
Located in conformance with the land use plan, the campus plan recognizes the adjacencies and developmental concerns of the partnership concept. Shared expectations include respect for the ecologic and cultural histories of this particular site, strong connections to existing and future neighboring uses, and distinctive identity for the college.

Goals and objectives are further articulated in Section 5.1. The adopted plan met these criteria and offered particular advantages for growth and flexibility, both for the core campus and for the partnership sites. Campus components described in Section 5.2 were identified during this process.

Section 5.3 illustrates conceptual basis for campus development. Using the adopted land use plan as a basis for location, the general goals and specific components were carried forward in a more closely defined planning study. Section 5.4 locates and depicts these within a specific planning framework.

The image of the campus will be primarily defined by the relationship of the buildings to their immediate surroundings. Sections 5.5, 5.6 and 5.7 describe the conceptual basis for building location and organization within the overall planning concept. The basic means of vehicular and pedestrian circulation and the nature of those elements are described in Sections 5.8 and 5.9. Landscape concepts are described in Sections 5.10

The site infrastructure needed to support these is described in Section 5.11. While conceptually well defined, limits of the bond-funded budget will require further strategic analysis to fully determine the extent of utility routing and system capacity.



## 5.1 | Campus Plan Goals and Objectives

*District, College and Community Expectations*

### Building Design will reflect Municipal Requirements

Although this project falls under the sovereign purview of the Division of the State Architect (DSA) and the State Fire Marshal (SFM), it is the general intent that the buildings will follow what would be the municipal and other code requirements for the site were it under City of Newark jurisdiction. Some of the infrastructure and other requirements are also under the formal jurisdiction of city agencies, but all elements of the project will be filed with appropriate local, regional, state, and federal agencies with an interest in the project, whether they have formal oversight or not. Future development sites on the property may fall under City of Newark jurisdiction, unless built for academic uses.

### Building Design will respond to Climate and Energy Use

The buildings are designed with long-term energy efficiency and low life-cycle costs in mind. Additionally, the nature of the immediate locale suggests strong responses to the windy conditions, salty air and ground water, and other local conditions. Landscape as well as building orientation, cladding, and mechanical heating, ventilation, and cooling systems, will all take account of the climate, designed with optimum efficiency and lowest lifetime costs.

Campus design will incorporate sustainable architecture principles and will be based on Leadership in Energy and Environmental Design (LEED®) certification as administered by the United States Green Building Council (USGBC) for the new facilities. The campus facilities will in themselves become teaching resources as they interpret and inform the users as to how they create their own energy, recycle materials, provide safe and comfortable learning environments, and operate efficiently as public buildings.

### Building Design will Accept Current and Anticipated Technology

The campus is seen as a model of community college developments for the 21st-century. The "media enabled classroom" is at the core of this approach. Digital technology, including computer, Internet and distance learning systems, and audiovisual (AV) and TV projection capability, will be integrated into the design. Adaptability for efficiency in building systems will be accommodated.

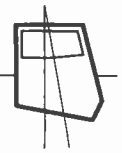
### The Campus is characterized as Unified Buildings

The initial campus is conceived as functionally distinct, but interconnected buildings. Initial project buildings will be physically adjacent, or connected by second story bridges to allow the passage of emergency vehicles or fire hoses to the central campus.

The design will be uniform and consistent with a single campus identity. Functional separation will be created without compromising the single overall college identity in design and appearance.

### The Learning Resource Center (LRC)/ Library is Within OCNC Building Mass

The Learning Resource Center (LRC) will be fully integrated into the architecture and language of the rest of the campus. It will have massing that is related to the scale and character of the other buildings. In the event of expansion, , the enlargement of the building allows the same architectural expression, and will blend



with the campus, while also providing its own identity to Cherry Street, as a recognizable symbol to the community.

### Dedicated Athletics areas are not likely to Expand

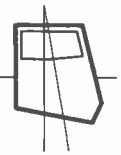
The athletics program being provided at the Ohlone College Newark Center for Technology & Health Sciences is not meant to remove or replace the program currently offered at the Fremont Campus. The program at the OCNC will consist of physical therapy related exercise rooms, other health study related facilities, and a small communal exercise room with free weights, and some cardiovascular equipment. There is no high-bay type full gymnasium planned for the Newark Center. The current intent of the Board is to focus most athletic activity at the main campus.

### Gymnasium/ Athletics areas are contiguous with Academic Uses

The result of the issues outlined above is that the athletic uses should be viewed as a part of the academic culture, and not as a separated set of functions. The physical education being provided is of an academic nature, so it will be co-located with academic uses. The indoor athletic areas will consist of exercise and physical therapy rooms, and the like.

### Health Services is Visually Prominent on Cherry Street

The Health Services Center will be located at the front of the site, in the most prominent position facing Cherry Street, and easily accessible from the main thoroughfare. The conjoined educational nature of the student Health Services office and the Washington Hospital Ambulatory Clinic will make the physical co-location a logical outgrowth of the planning process.



## 5.2 | Campus Plan Components

*Primary Physical Elements that form the Campus*

The character of the campus plan will be defined by several distinctive elements. Taken as a whole, the intent is that the overall feel will be one of harmony with natural surroundings, respect for the ecologic and sociological histories of this particular site, and strong identity for the college.

### 1. Entry Plaza

Located at the front of the campus facing Cherry Street will be a plaza that extends along the north face of the building. This will provide a highly visible "front door" for the City of Newark, serve as a drop off and bus stop entry point, and become a place for student interaction. It will be composed of both paved and planted areas with places for students to wait, or gather informally.

### 2. Student Services Building

The Student Services Building will be an important focus for first-time visitors and for academic life on the OCNC campus. It is the most prominent building seen from the main entry, welcoming visitors with open expression and clear contents. Large glass areas providing transparency and a warm evening glow- an appropriate beacon to the community- will make this a highly visible part of the campus.

### 3. Café / Bookstore

The café and bookstore, within and adjacent to the Student Services Center, will provide an important gathering place, and a setting for casual interactions and exchange of ideas. It will occupy a place of importance, between the Student Services Center and the Learning Resource Center, linking those two functions and providing a common environment for socializing.

### 4. Learning Resource Center

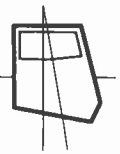
The LRC was prominently located both to provide convenient student access and community visibility The Learning Resource Center (LRC) reveals the two distinct natures of the contemporary library- a digital-era information repository and a primary point of campus social interaction. As a communications hub, the building needs to accommodate and anticipate increasingly sophisticated information technologies and delivery methods. As a cultural center, it must represent an increasingly diverse student body and the collective aspirations of an intellectual community.

### 5. Student Union Terrace

Located at the "heart" of the campus, adjacent to the café, an indoor/outdoor terrace provides a central gathering place as the hub of student activity. It will occupy a place of importance between the Learning Resource Center and the Student Services Center. Acting as both an important "stage" for activities of significance to campus life, and as a place of prominence, it will create a focus at the main entry to the campus.

### 6. East Quad

The East Quad creates an outdoor gathering and study area for specific student activity and includes areas where students and professors alike will be able to lunch on the lawn, or read, or gather. It will provide an important outdoor setting for academic and community activities that are frequently neglected in Community College settings. Although many of the students of the OCNC will be commutation students, their sense of community and connection with other students still plays an important role in their growth, socialization, and study.



### 7. West Quad

The West Quad serves as the "sister" space to the East Quad, creating an outdoor gathering space specific to the program of the building program, including studying and gathering.

### 8. South Quad

Serving as the primary pedestrian entrance to the campus for students arriving from the parking areas, the South Quad will be the primary outdoor gathering space, enjoying visual and physical connections to the ecologically designed open space of the larger open space. The South Quad will provide gathering areas for meeting and people watching, as well as areas for casual recreation activities that are often a part of academic student life.

### 9. Education Building (Technology Focus)

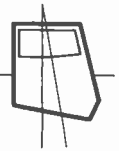
The staple element of the new OCNC campus will be the "media enabled classroom of the future". This classroom will integrate current technology, and allow for unknown future technologies in learning. As the Internet and technology have exploded, educational systems and methods have grown along with them. The media enabled classroom allows for distance, and Internet instruction that is highly interactive. It also will accommodate, with its high ceilings and control of natural light, any of a wide variety of future unforeseen developments in technology.

### 10. Education Building (Science Focus)

The Science focused typical lab building will include wet and dry teaching lab environments for chemistry, biology, and life sciences. The typical lab is flexible, allowing reconfiguration based on specific science needs and changing technologies. The width of each lab space can change by simply relocating a single, non-load bearing wall.

### 11. Education Building (Health Science/ Fitness)

The health science program that is to be relocated to this campus will occupy the building which also houses the Washington Hospital Clinic. The spaces will generally be generic classroom functions. However, the specialized functions of exercise rooms and physical therapy facilities will also be housed in this building. The need for specialized space to meet these needs will be minimal. In general, though the function of the rooms is quite different, there will not be a specific need for high-bay space or long span structure.



### 12. Access Road (to Monitoring Well)

The Alameda County Water District owns an existing monitoring well within the site. The OCNC must provide access easement to the Water District. Currently, the access is provided via a dirt path that is the remnants of the old station road, cutting diagonally across the southern portion of the site. However, this specific location is not a requirement, as long as the water district is allowed full access to the well.

### 13. Campus Green Detention Basin

Storm Water detention is a major driver of site organizational issues. The detention basins that are required by the Water Quality Control Board are discussed in section 3.6 with the Civil Engineering Narrative, and illustrated in this section, on page 5.11.2. As an important educational and sustainable landscape feature, the storm water basin landscape will be emphasized as a visually interpretive "Campus Green" landscape element.

### 14. Wetland Consolidation

Existing Wetlands have been designated by the U.S. Army Corps of Engineers, and must be preserved. The current Army Corps map shows an area at the southeast corner of the site. These wetlands cannot be disturbed, and will remain, in perpetuity.

### 15. Partnership Use- Childcare Center

A childcare center is an excellent partner use that has been suggested. Kidango, Inc. has expressed interest in locating in this development. Childcare would be made available to students at the campus on a priority basis, but would not preclude use by outside, private parties. Typically, the childcare industry prefers sites that are somewhat remote, not visible from a major street, and that have the feeling of safety. Several potential locations in the current master plan would allow for such a use. However, the idea of an intergenerational care facility connected to the Washington Hospital Clinic has also been suggested, and may require co-location within the building mass. Further investigation is currently underway.

### 16. Partnership Use- Medical Clinic

A medical clinic as a partnership use would support the health care and life sciences programs of the college, and could provide internship and training opportunities for students in those programs. The clinic would typically prefer a fairly visible location, but could also be part of a larger facility.

## 5.3 | Adopted Campus Plan

*Extent of Phase I Construction*

The Bond Measure has defined construction as occurring within three basic areas- Site Service, Site Development and Buildings. Within that context, the concepts and the primary elements used to achieve this are as follows:

### Underground Utilities (Site Service)

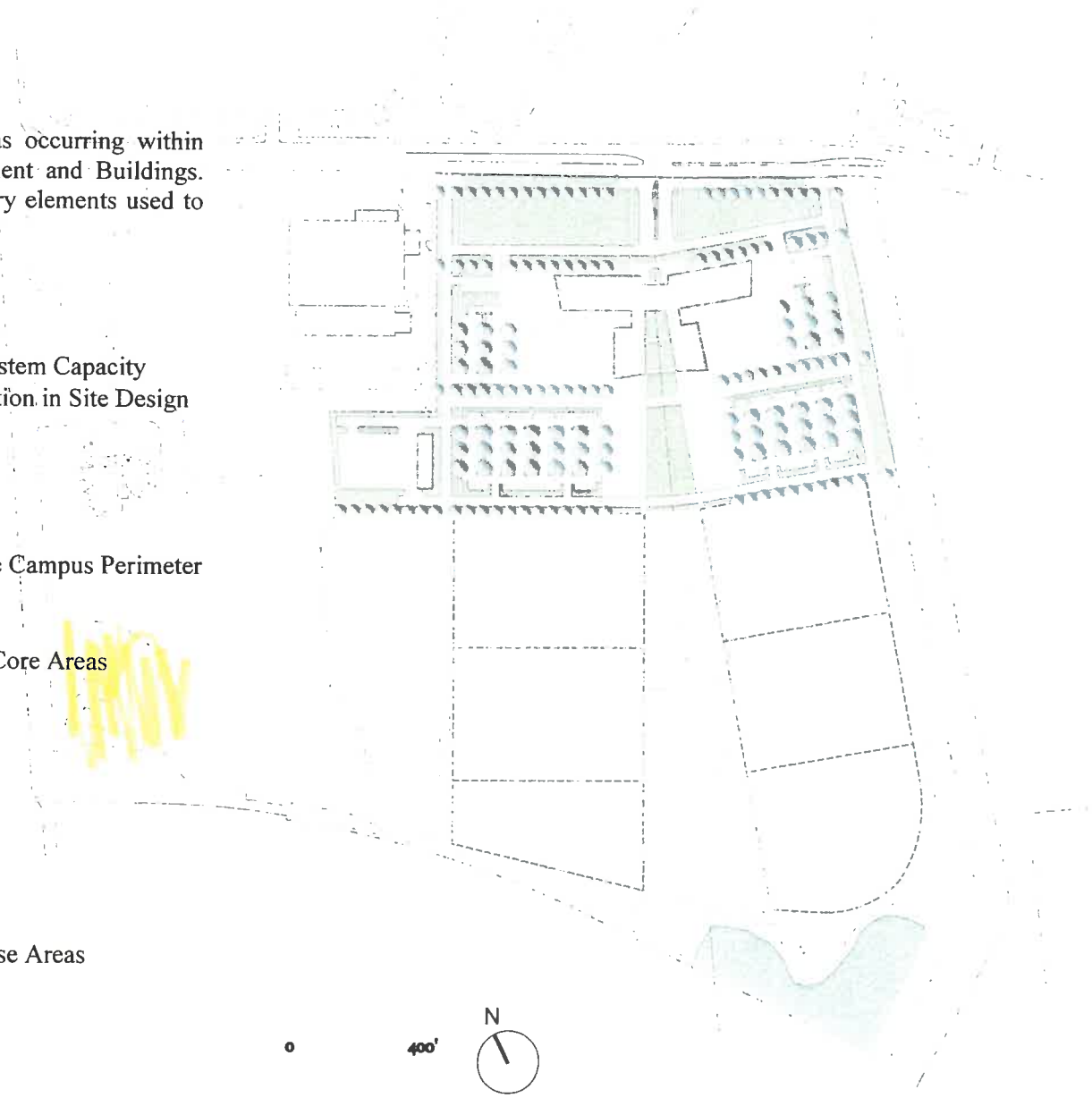
- Construct as Funded/ Design for Growth
- Strategic Approach to Utility Routing and System Capacity
- Effective Incorporation of Stormwater Detention in Site Design

### Paving & Planting (Site Development)

- Use Roads to Define the Campus Perimeter
- Provide Direct Site Access and Entry
- Employ Vehicular Circulation to Define Core Campus Perimeter
- Identify Future Roadway Connections
- Provide Public Transportation Access
- Use Landscape Elements to Define Campus Core Areas
- Screen Parking Areas
- Define or Limit Site Open Space
- Provide appropriate Outdoor Use Areas

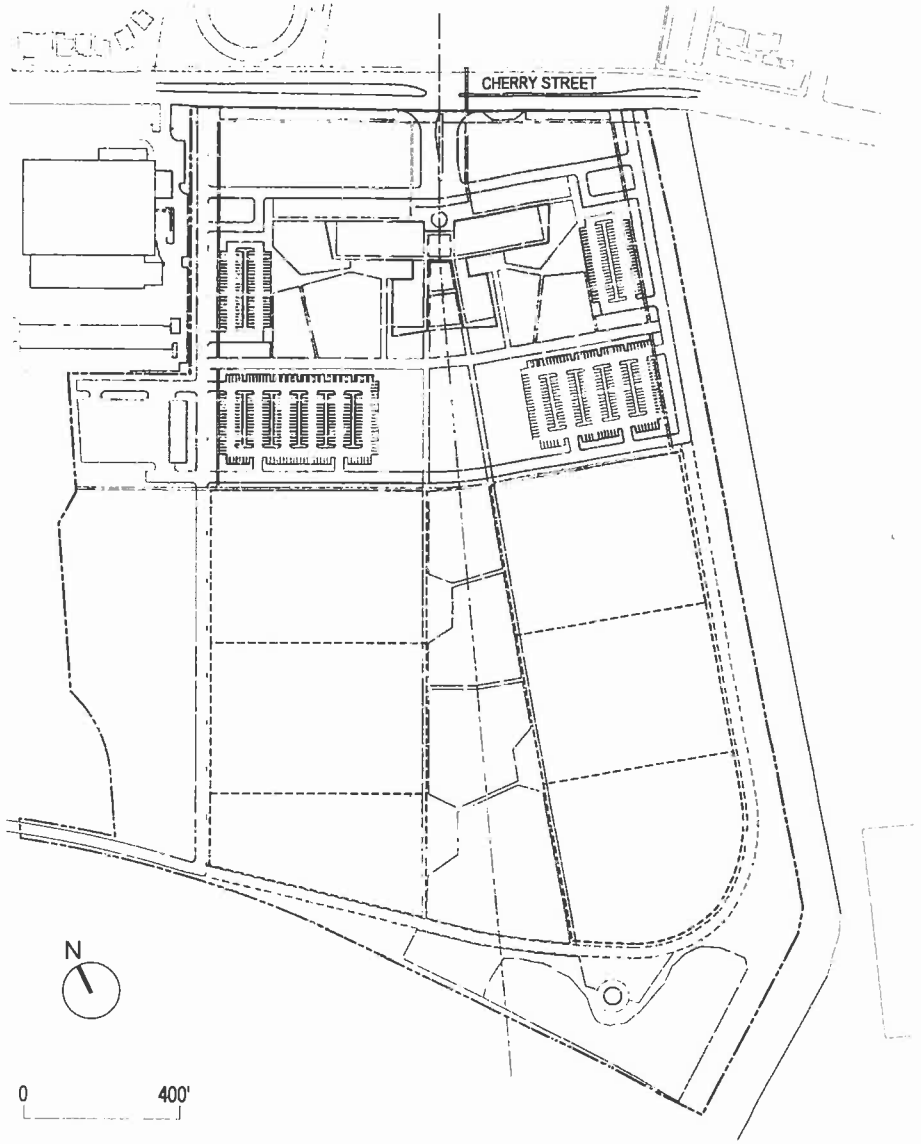
### Buildings

- Visually Unify the Campus
- Create Identity on Cherry Street
- Provide Social Interaction Areas
- Locate to Create Core Landscape/ Outdoor Use Areas
- Design for Flexibility
- Identify Expansion Potential



### Planning Grid Concept.

The grid has been used as foundation for conceptual development, and will be used to assign areas for future growth.

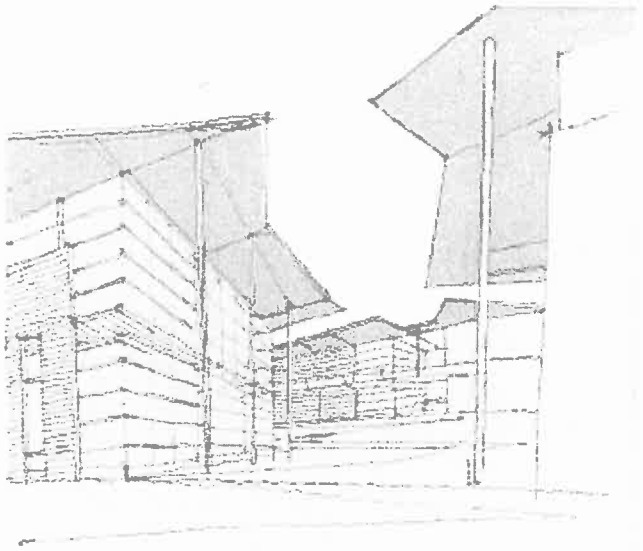


## 5.4 | Building Concepts

*Building Massing and Physical Character*

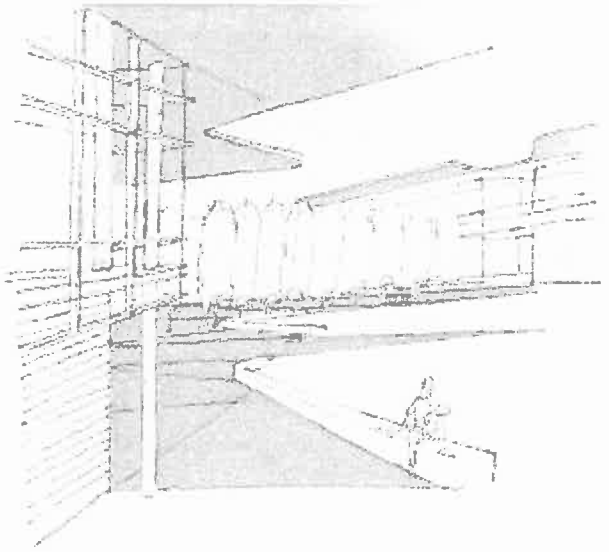
### Roof

Roof profile will be developed to contrast the relatively simple massing of the building areas. Roof overhangs will provide covered connection between buildings and will be developed to define outdoor use areas.



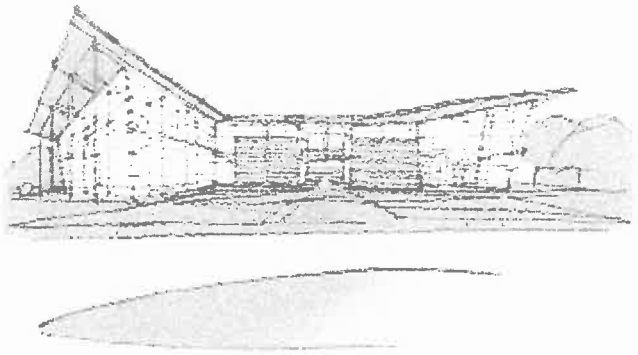
### Outdoor Use Areas

The sculptural quality of the roof can be reinforced by physical connection to the adjacent landscape. The building organization remains a simple, direct expression of the program contained between these two planes.



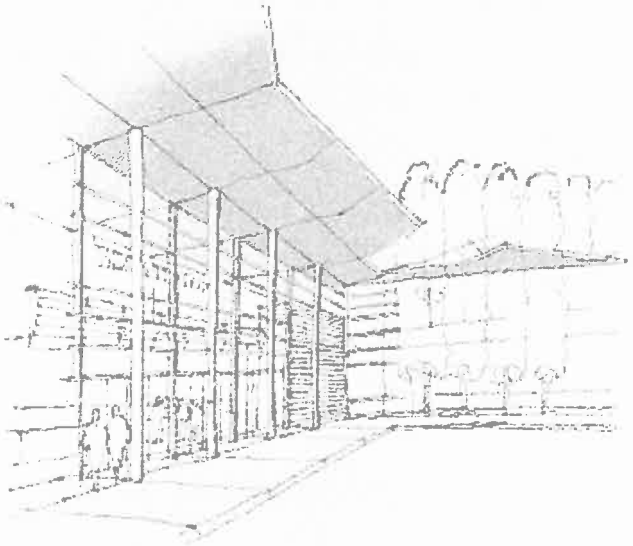
### Form and Massing

Roof forms are used to unify and enliven the building composition. A combination of wall materials is visible below and will be assigned to express program areas within. Large glazing areas will be strategically located in response to program and orientation and to reflect the construction budget.



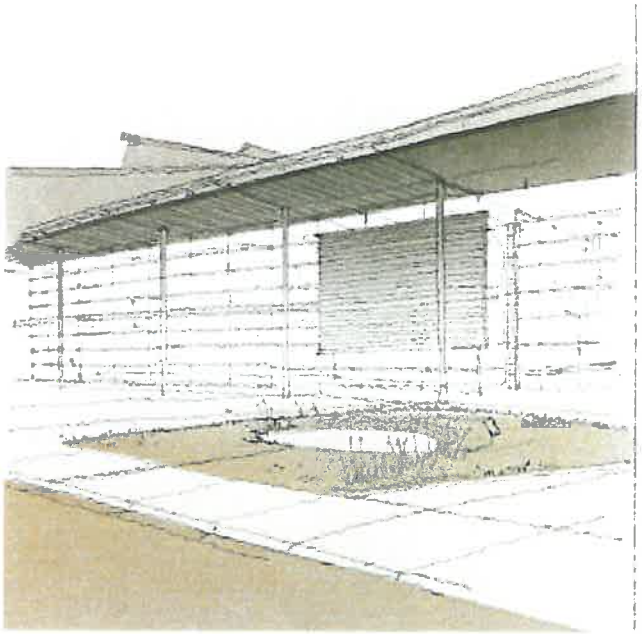
### Entries

Canopies that project above glass areas will signal primary entries. Building contents and activities will be clearly identifiable beyond.



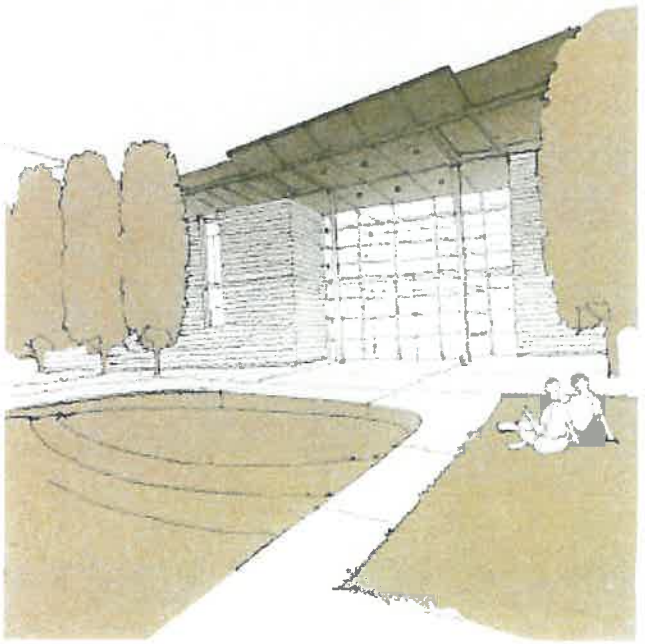
### Entry Plaza

The Entry plaza includes paved areas both capable of accommodating the foot traffic at this public transit point and providing outdoor use areas for the Student Services and Learning Resource Center.



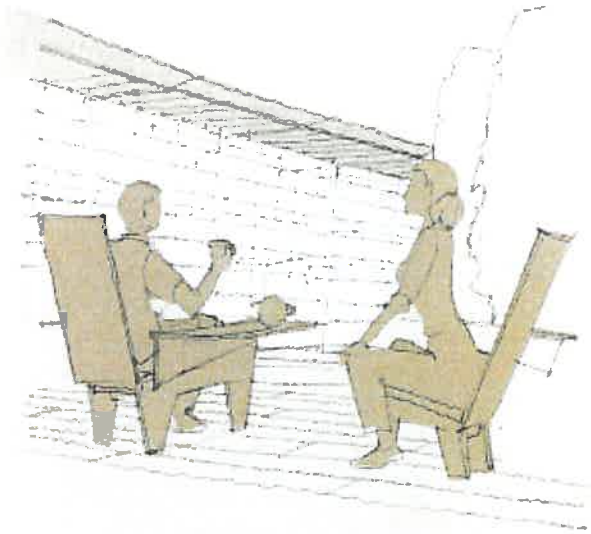
### "Central Park" Amphitheatre

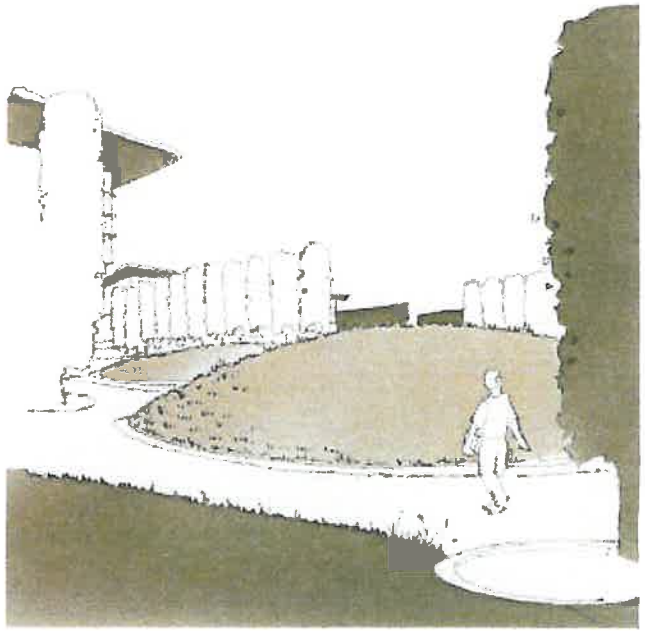
The outdoor amphitheater provides the largest capacity point for assembly at OCNC. Connecting directly to the Café/ Atrium beyond, the paved area adjacent to the building will serve as a podium during special events.



### Porch

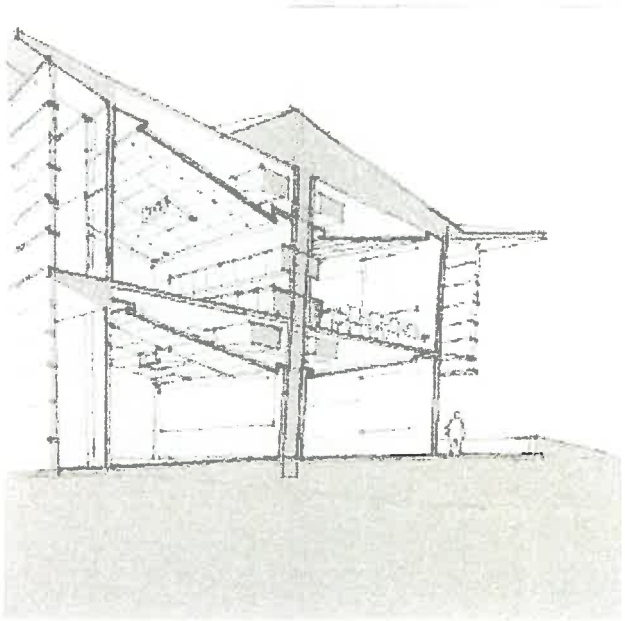
All participants in the planning process recognized the value of the OCNC to the local community- both as an educational component and as a focal point for community life. Ease of access and a general sense on openness are recognized by this fundamental concept- that the center serves as a front porch for the City of Newark.





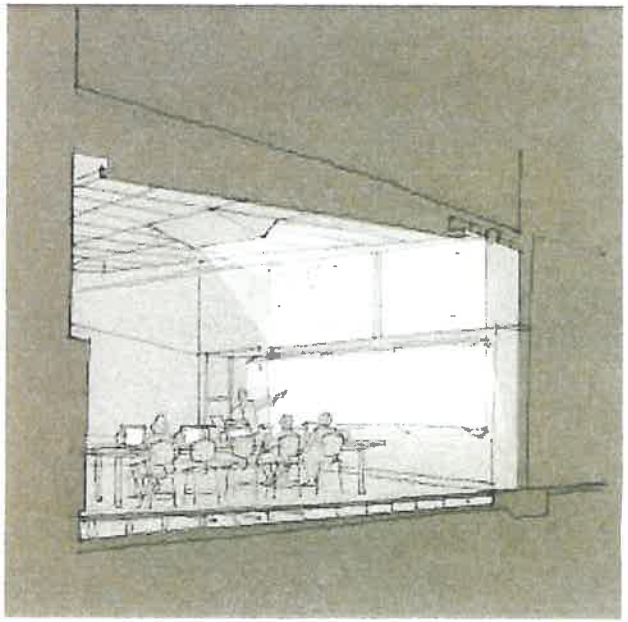
### Response to Climate

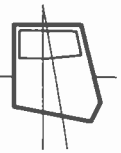
Outer full or partial glazed corridors are not mechanically conditioned. Passively vented, these provide weather protection and a buffer to the true thermal barrier of the interior corridor walls. Ceilings are sloped, configured to provide adequate area for graphic projection at the front while reducing the room volume for conditioned air.



### Classrooms

Building Design will be based on the most appropriate expression of the learning environment. Functional and volumetric considerations for the media-enabled classroom are primary considerations in the form and location of campus buildings.





## 5.5 | Building Relationships

*Direction from the Board of Trustees*

### Unified Building Composition

As a single campus, the Ohlone College Newark Center will be compositionally designed as a single entity. The buildings will each have unique elements, but will be designed in the same architectural vocabulary. Landscape materials and architectural elements of the campus will be unified and consistent in material, color palette, texture, scale, and relationship to one another.

### All Buildings Located Within the Access Drives

The "central campus loop drive" which encircles the main campus is intended to contain all the buildings that will be a part of the Phase I as well as the possible future Phase II developments. This "loop drive" provides access to all buildings from the perimeter, resulting in a non-vehicular, protected campus "green" at the center.

### All Buildings are Connected

Architecturally, all the buildings will be visually connected, be it through the use of breezeways, trellis elements, or other architectural expressions. Although actually attaching the buildings would prohibit fire truck access, a connection can be created.

### Building[s] Shape Open Space

The central campus "green" will be an architecturally exciting space, shaped by the buildings that surround it. The landscape will support the strength of pedestrian connections, and enrich the outdoor experience of the space. The architectural building surfaces that form the outdoor space will be rich and varied. Modulation of the surfaces, and subtle angling of the surfaces will create a dynamic composition, and a more active and engaging sense of space.

### Buildings may be One, Two and Three Stories

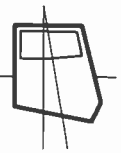
The basis for the current design concepts assumes that the buildings are, for the most part, two stories. However, there will be no prohibition of one- or three-storied buildings. In their context, if appropriate, the height of the buildings in stories may provide a texture to the forms that is needed. In particular, the partnership sites will be allowed to develop as determined by future use and site capacity. The intent is to maintain the maximum site coverage and capacity as allowed by the EIR and current or emerging city zoning requirements for the site.

### Double-height Entry - Atrium type Space

The main entry points at the front of the campus, in the Student Services Center and the Learning Resource center will be double high, atrium type spaces. This will increase the sense of grandeur and airiness without substantial cost impacts. This technique will also result in much more dramatic looking buildings, particularly when lit at night. Where possible, smaller double high spaces will also be provided in other buildings.

### Assembly Room

A raked-floor type auditorium was evaluated during the Master Planning effort. While well suited for large lectures and special presentations, the highly specific nature of the space was seen to be at odds with specific components of the Educational Master Plan and general goals for building flexibility. Subsequent building and site design will further evaluate rooms or outdoor areas that might serve this purpose.



## 5.6 | Building Organization

*Instructional Methods and Considerations for Design*

The Master Plan proposes a campus organization that responds to various specific criteria in assigning preliminary sizes and location for buildings. These planning assumptions are listed below.

### Program Distribution (Function)

The current Educational Master Plan indicates that the campus can be broadly categorized as three primary components. The three components are expressed assignable square foot (ASF) are- the net usable area contained within the buildings interior walls- for these general uses:

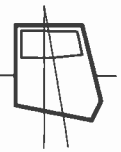
| | | |
|---|---|---|
| Technology/Health Sciences | 40,350 | 40.4% |
| Administrative and Support | 38,180 | 38.3% |
| Flexible Space | 21,250 | 21.3% |
| Total ASF | 99,780 | 100.0% |

Assuming a net-to-gross ratio of approximately 66.5%, the gross square foot (GSF) are is approximately 150,000 square feet. This program cohesion within a relatively large area offers the potential to develop the campus as multiple buildings or a single building with distinctive parts.

The Educational Master Plan further provides assignable square foot area for specific functional activities:

| | |
|---|---|
| Computer and Information Technology | 8,190 |
| Health Sciences | 13,950 |
| Environmental Science & Technology | 6,510 |
| Integrated Learning Center | 7,145 |
| General Education | 14,105 |
| Exercise Science & Wellness (PE) | 11,700 |
| Learning Resources Center | 13,310 |
| Student Services | 2,430 |
| Administration | 2,380 |
| Information Services | 2,420 |
| Bookstore | 1,950 |
| Cafeteria | 2,010 |
| Restrooms | 7,200 |
| Registrar | 280 |
| Contract Education | 1,710 |
| Maintenance & Shop Facilities | 4,490 |
| Totals | 99,780 |

Each has distinctly different periods of occupancy, public access, and technical requirements. The diversity of these requirements and the general conditions needed for an academic complex were then considered from a regulatory perspective.



### Code Analysis (Economy)

Code analysis presents the strategic opportunity to meet life safety requirements while preserving the greatest degree of flexibility and economy of construction. The California Building Code categorizes buildings by Construction Type- the primary materials that constitute the structure and cladding, and by Occupancy- the nature of a building's use.

Construction Type is assigned numerically from Type I, the most stringent, to Type V, the least restrictive. Type I buildings are restricted to concrete and steel materials, while Type V buildings can accept a wider range of materials, including wood framing. Each type must then meet specific criteria for life safety. These criteria establish methods of exiting; finish materials and requirements for fire protection.

Occupancy Type is assigned by letter designation to indicate the primary activities in a building. In general, the activities at the Newark Center correspond to two of these types: A and B. Type A is assigned to Assembly uses- meeting rooms, the large lecture hall, classrooms accommodating more than 50 people, and most areas of the Learning Resource Center. Type B is a comprehensive designation that can be assigned to all other areas, including smaller classrooms and laboratories, offices and support areas.

Combining these Occupancies with potential Construction types resulted in the approach described in Section 7.3. Briefly summarized, separating the Campus program area into at least three distinct buildings accommodates the necessary areas for the campus, while preserving the key qualities of flexibility, adaptability, openness, and economy.

### Site Coverage (Access and Aesthetics)

Building separation can be achieved by two methods: by creating permanent rated walls that divide a building, or by providing levels of physical distance between buildings. Because of the very high number of surface parking spaces, consolidating building area results in a site plan that is visually dominated by parking lots, with increased travel distance to the Core Campus Buildings. By physically separating buildings by approximately 80', program identity, ease of access and visibility can be provided by open circulation and a high level of glazing.

Physical separation based on function and economy provided the means to create a high quality physical feature - the Central Landscape Area. This will unify the core campus around landscape- a characteristic of academic settings recognized by the Board of Trustees. This area combined with windrow plantings and landforms will provide protected area for interaction and assembly.

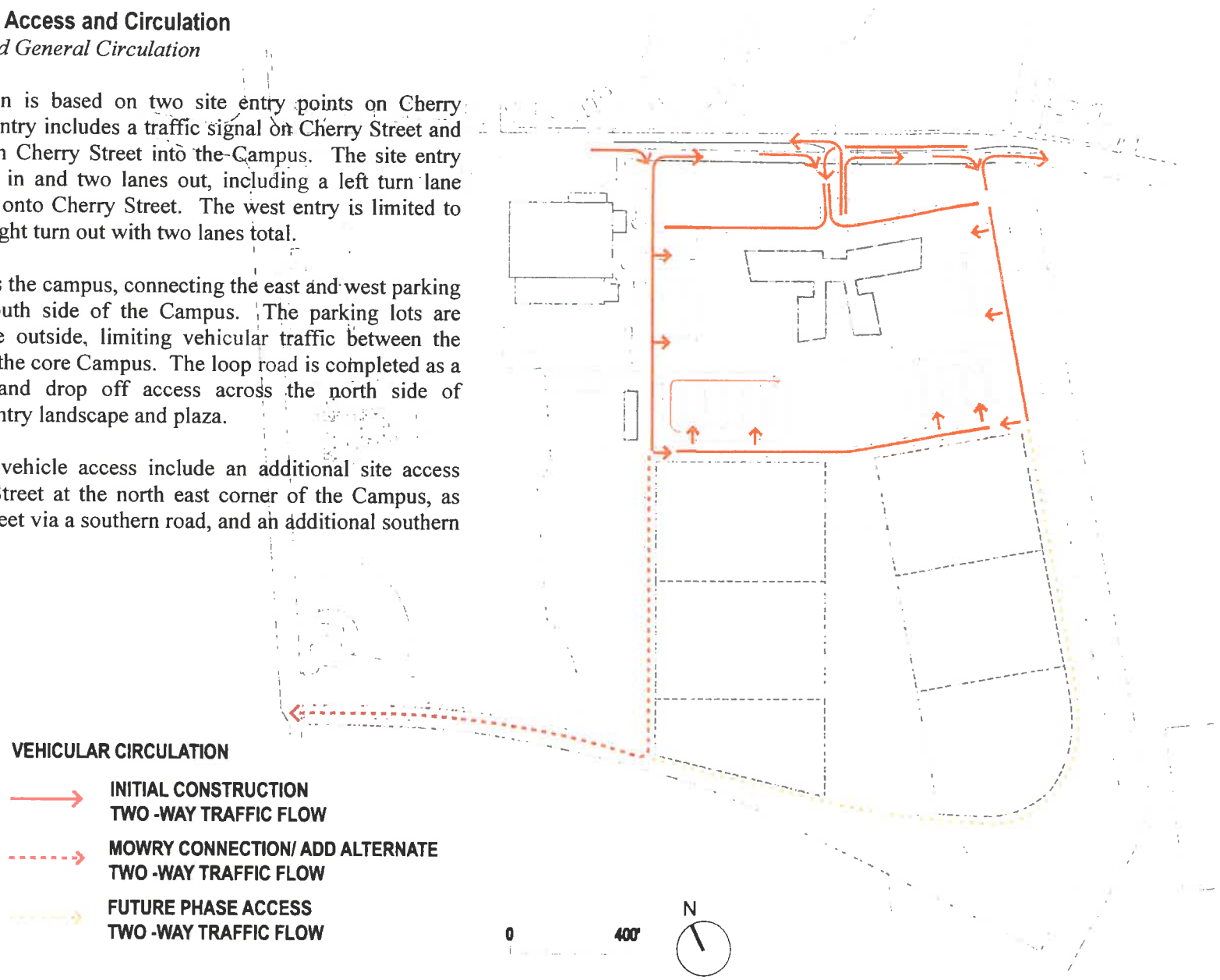
## 5.7 | Vehicular Access and Circulation

*Access and General Circulation*

Vehicle circulation is based on two site entry points on Cherry Street. The east entry includes a traffic signal on Cherry Street and left turn lane from Cherry Street into the Campus. The site entry includes one lane in and two lanes out, including a left turn lane from the Campus onto Cherry Street. The west entry is limited to right turn in and right turn out with two lanes total.

A loop road serves the campus, connecting the east and west parking lots across the south side of the Campus. The parking lots are accessed from the outside, limiting vehicular traffic between the parking areas and the core Campus. The loop road is completed as a secondary route and drop off access across the north side of Campus, thru an entry landscape and plaza.

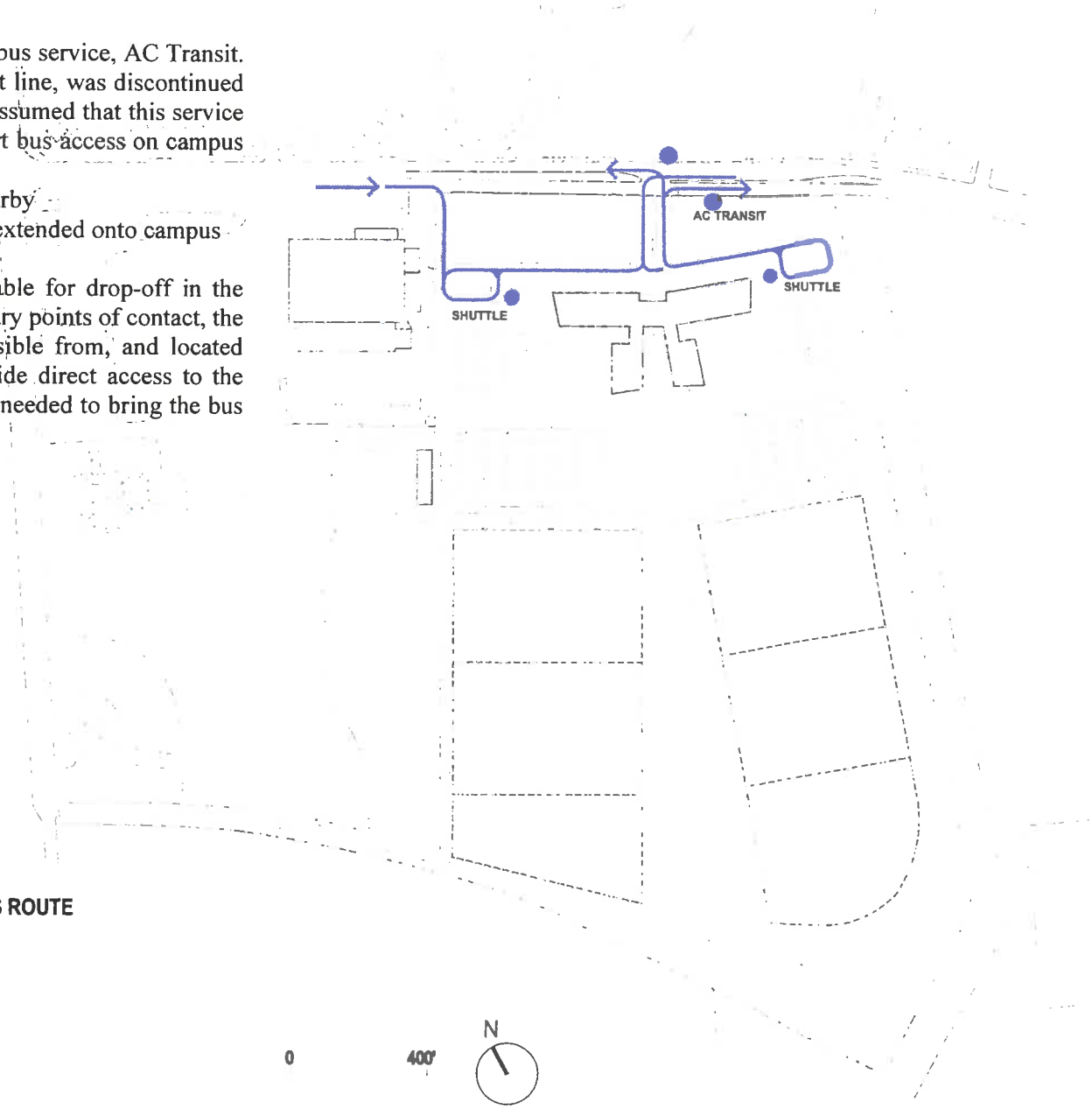
Future phases of vehicle access include an additional site access point on Cherry Street at the north east corner of the Campus, as well to Mowry Street via a southern road, and an additional southern loop extension.



## Public Bus Circulation

Local public transportation is provided by a bus service, AC Transit. Access to the site was via their Cherry Street line, was discontinued as of 4 January 2004. The master plan has assumed that this service may be offered two different ways to support bus access on campus once the building is complete:
Option 1: Extend a spur off the loop line nearby
Option 2: Use a two-ended line with a loop extended onto campus

The site plan has identified two areas suitable for drop-off in the initial phase construction. These serve primary points of contact, the Library and the Clinic, and are directly visible from, and located within the perimeter roadway. These provide direct access to the buildings and minimize the number of turns needed to bring the bus onto the campus.

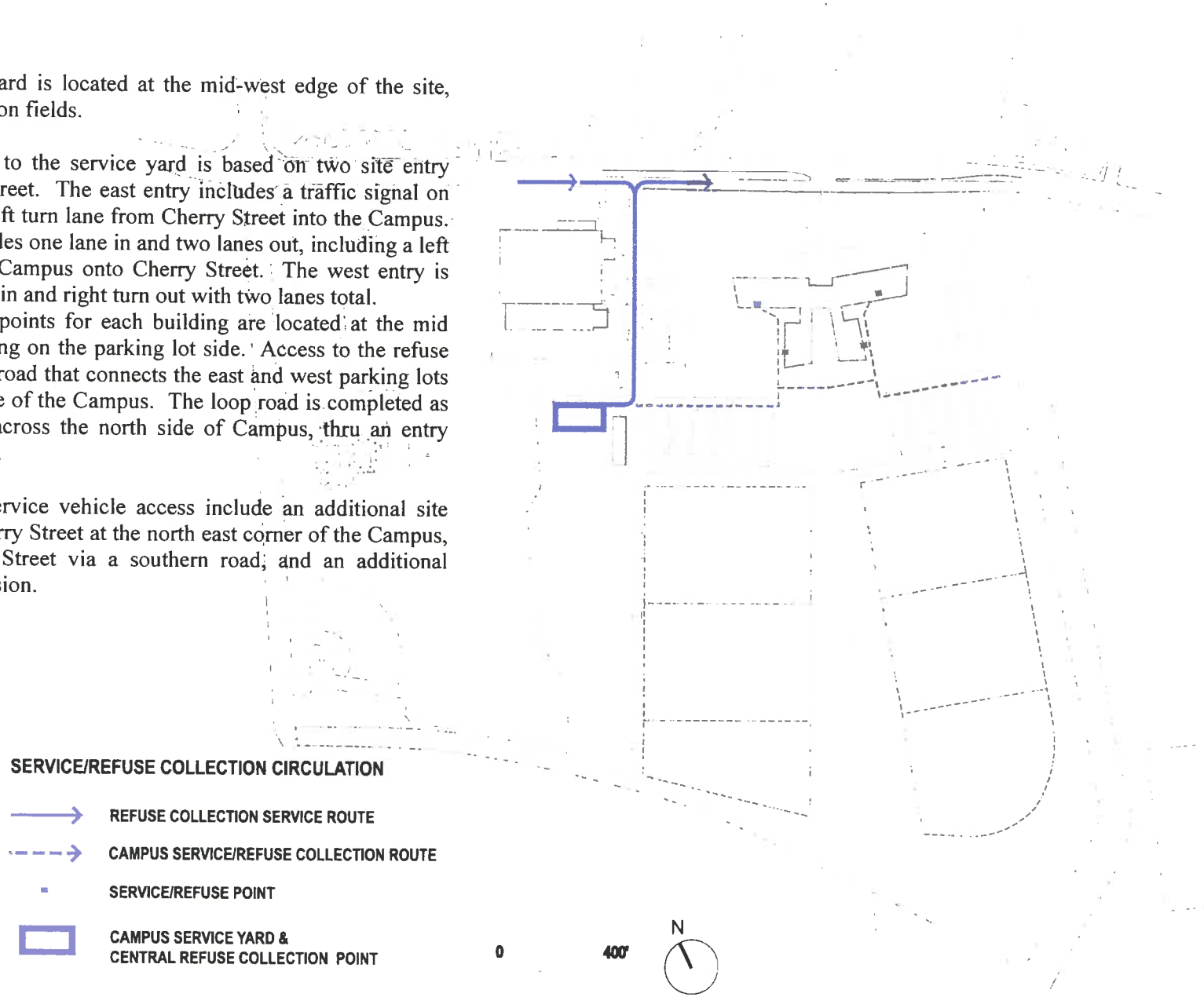


## Service Access

A central service yard is located at the mid-west edge of the site, north of the recreation fields.

Vehicle circulation to the service yard is based on two site entry points on Cherry Street. The east entry includes a traffic signal on Cherry Street and left turn lane from Cherry Street into the Campus. The site entry includes one lane in and two lanes out, including a left turn lane from the Campus onto Cherry Street. The west entry is limited to right turn in and right turn out with two lanes total.
Service and refuse points for each building are located at the mid point of each building on the parking lot side. Access to the refuse points is via a loop road that connects the east and west parking lots across the south side of the Campus. The loop road is completed as a secondary route across the north side of Campus, thru an entry landscape and plaza.

Future phases of service vehicle access include an additional site access point on Cherry Street at the north east corner of the Campus, as well to Mowry Street via a southern road; and an additional southern loop extension.

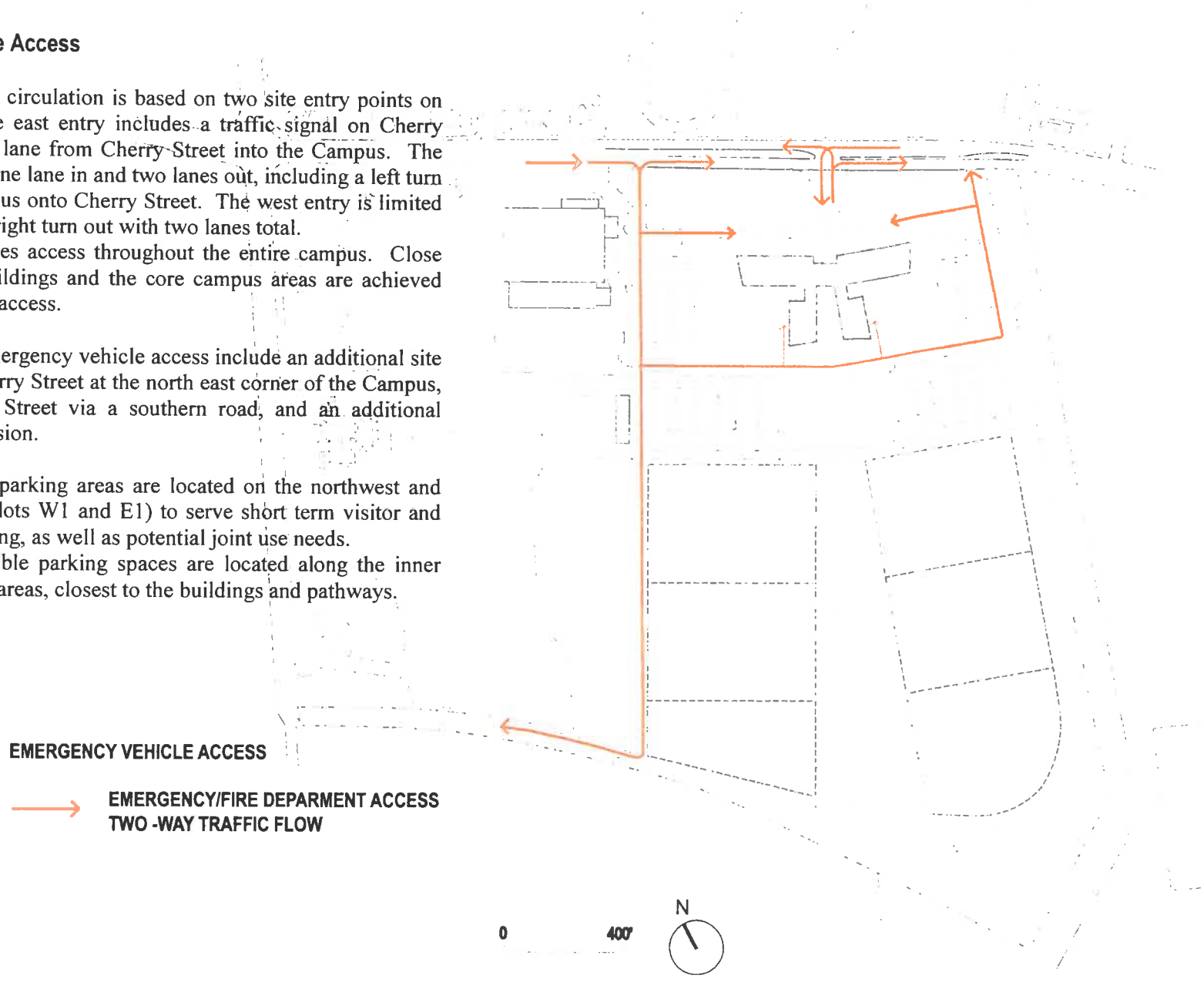


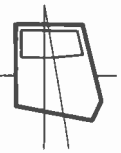
## Emergency Vehicle Access

Emergency Vehicle circulation is based on two site entry points on Cherry Street. The east entry includes a traffic signal on Cherry Street and left turn lane from Cherry Street into the Campus. The site entry includes one lane in and two lanes out, including a left turn lane from the Campus onto Cherry Street. The west entry is limited to right turn in and right turn out with two lanes total.
A loop road provides access throughout the entire campus. Close proximity to all buildings and the core campus areas are achieved through parking lot access.

Future phases of emergency vehicle access include an additional site access point on Cherry Street at the north east corner of the Campus, as well to Mowry Street via a southern road, and an additional southern loop extension.

Separate dedicated parking areas are located on the northwest and north east corners (lots W1 and E1) to serve short term visitor and administrative parking, as well as potential joint use needs.
Universally Accessible parking spaces are located along the inner edge of the parking areas, closest to the buildings and pathways.





## 5.8 | Roadways, Parking Areas and Pedestrian Circulation

*Planning Objectives*

- **Perimeter Access Drive**
  The basic organization of the site is for vehicular distribution around a perimeter drive, which feeds into parking lots. This arrangement allows for a student who drives to campus to never have to cross traffic to get from the parked car to the buildings. Along with the fact that the campus is organized as concentric rings, the innermost being the campus "green", the traffic flow around the site, and within the parking lots will be easily and intuitively understandable.

- **Minimize Parking Visibility**
  The desire is for this campus to be lushly planted and not appear as a shopping center in a sea of parking. To that end, the landscape plan includes 10' wide planting strips between each range of parking rows. This will allow for the planting of high canopy overhead trees which create a softening effect to the parking areas as well as provide active shading to reduce the heat island effect.

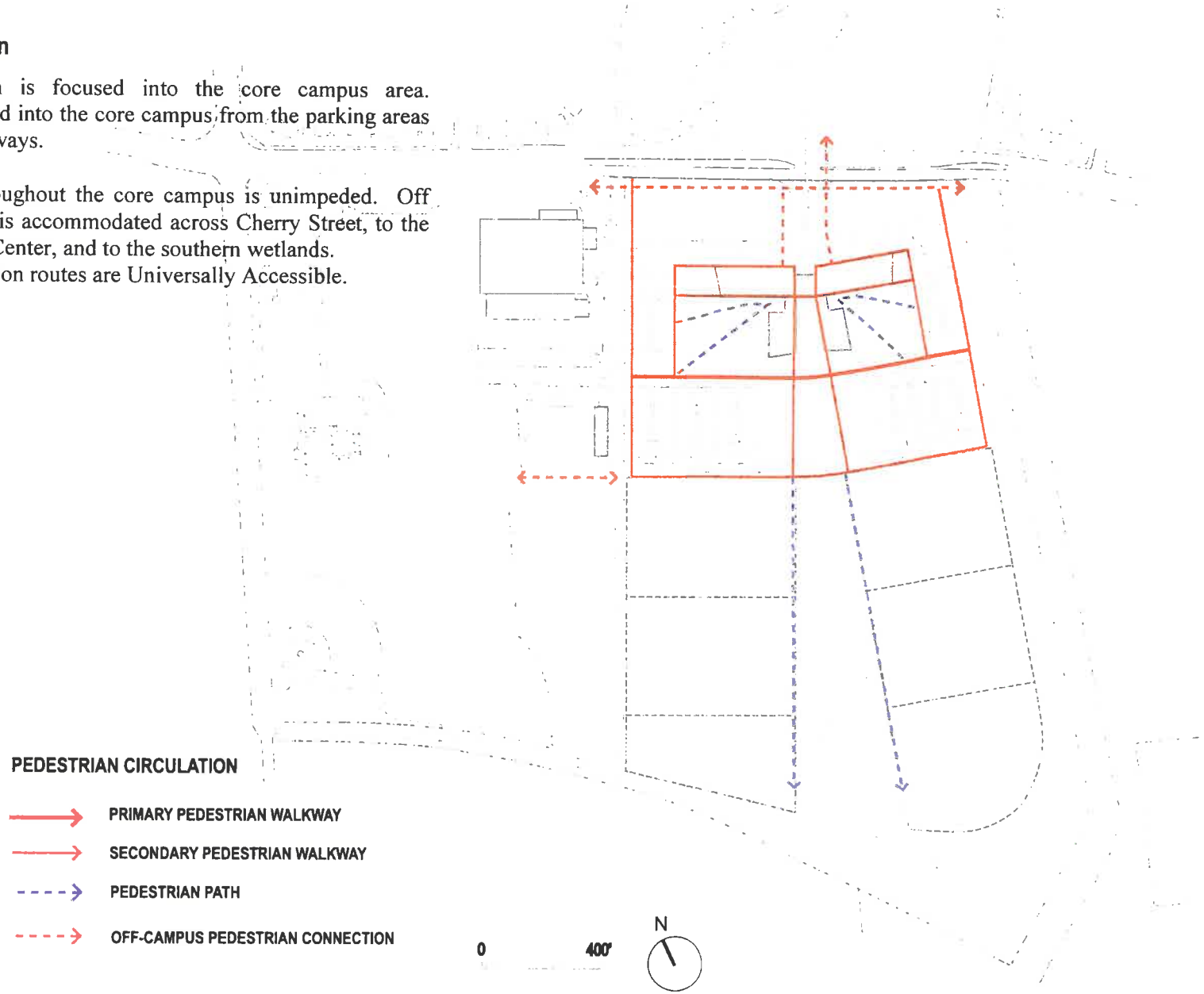
- **Distribute Parking Uniformly**
  A primary objective of the Board of Trustees was to distribute parking evenly throughout the campus, in order to make the classrooms easily accessible. The parking is arranged uniformly ringing the campus (except on the Cherry Street frontage). There are no more than three ranges of parking from the furthest parking space to the nearby building.

- **Park between Access Drives and Buildings**
  All the parking will be inside the loop road, and outside the main campus "green". This results in a protected inner court, devoid of traffic, while still keeping all the parking easily accessible from both the buildings and the loop road. The intention to minimize the parking visibility with lush planting also results in a park-like setting surrounding the buildings.

## Pedestrian Circulation

Pedestrian circulation is focused into the core campus area. Pedestrians are directed into the core campus from the parking areas via the windrow walkways.

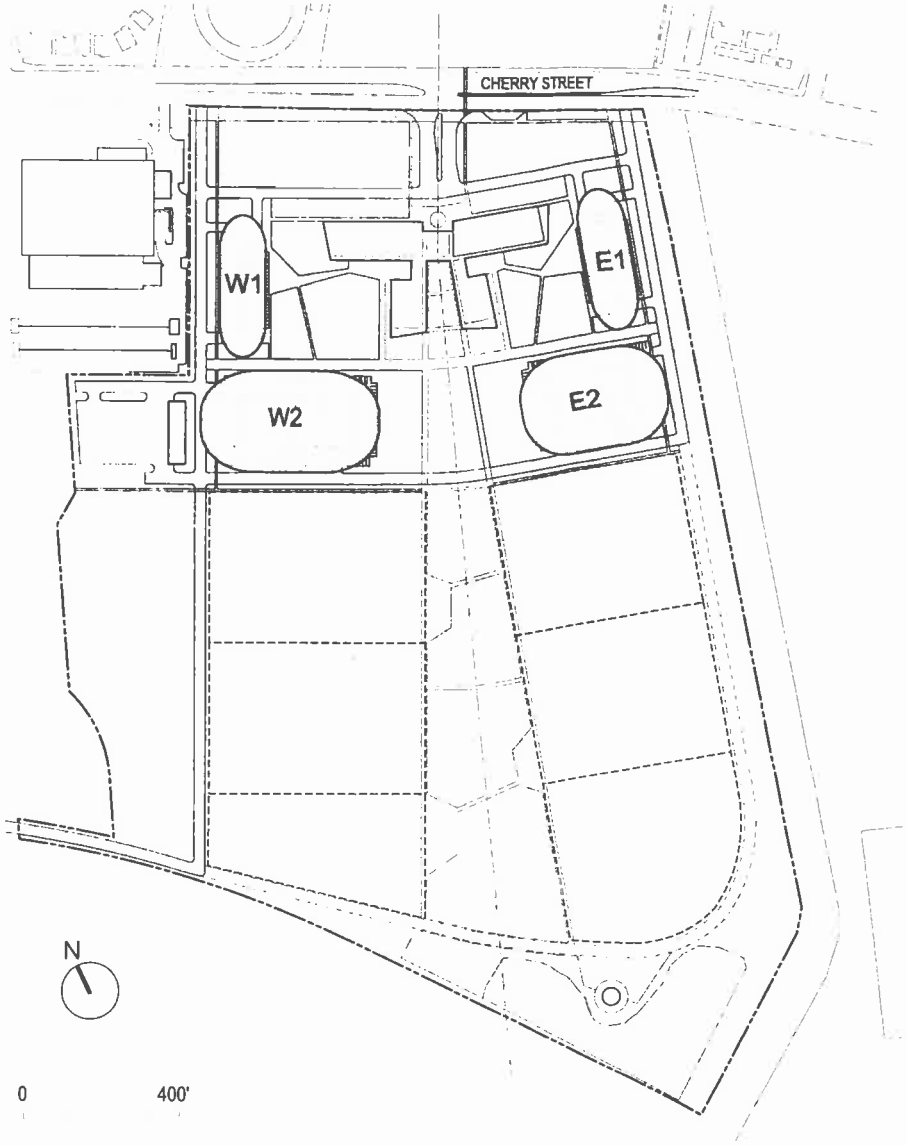
Pedestrian access throughout the core campus is unimpeded. Off site pedestrian access is accommodated across Cherry Street, to the Silliman Community Center, and to the southern wetlands.
All pedestrian circulation routes are Universally Accessible.



## Parking – Phase 1

Primary parking areas are located on the east and west sides of the core campus. A loop road serves the campus, connecting the east and west parking lots across the south side of the Campus. The parking lots are accessed from the outside, limiting vehicular traffic between the parking areas and the core Campus. (Note that the parking count shown below is preliminary only. Totals shown exceed the minimum number required for the Initial Phase campus and are shown to reflect potential requirements for partnership uses.)

The loop road is completed as a secondary route and drop off access across the north side of Campus, thru an entry landscape and plaza.

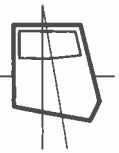



**PARKING AREAS**

**CAMPUS PARKING TOTAL: 699 CARS**

**WEST SIDE PARKING TOTAL: 380 CARS**
**W1: 121**
**W2: 259**

**EAST SIDE PARKING TOTAL: 319 CARS**
**E1: 121**
**E2: 198**



## 5.9 | Site Landscape Areas

*Conceptual Components*

A functional and memorable Campus Landscape is based on the combination of wonderful experiences and beautiful images. The identity of the Campus Landscape is the accrual of these experiences and images overlaid onto the "sense of place", which is inherent in the nature of the site and its relationship to the Bay Area ecology and history. Key components of the OCNC landscape concept are:

- **The Windrows**
  Tall and narrow trees mitigate seasonal winds and create an overall landscape structure across the site, defining a series of "rooms" and marking pedestrian access routes into the core campus.

- **The Groves**
  Broad canopy trees set in a formal arrangement define the edges of the Campus Core and frame the Cherry Street view of the campus. In the parking areas the trees reduce heat, glare and wind, transforming utilitarian environments into pleasant landscaped spaces.

- **The Entry Landscape**
  A broad and beautiful landscape and plaza area creates a strong identity for the Campus on Cherry Street. Trees and sculptural mounds flank a central entrance landscape, which creates a foreground to the view of the Main Campus Buildings.

- **The Core Campus Core**
  The green core serves as the "Heart" of the campus, where student activity is concentrated and encouraged in a sophisticated academic landscape. The following Section, "Outdoor Use Areas" describes uses and activities.

- **The Southern Horizon**
  From an ecological view, the OCNC campus is uniquely situated- an interesting and compelling location within the context of the San Francisco Bay Area landscape. The transitional plains and grasslands that are located between the Bay's edge and the foothills are ecologically rich and aesthetically beautiful. Although the Bay is not visible from the OCNC site, the open horizon to the south and the presence of the Bay in this direction are powerful and undeniable, creating a "sense place" on the OCNC campus that profoundly connects it to the greatest natural and cultural resource in the region.

- **Mowry Station Road**
  Land patterns created through cultural and natural forces are remarkably resilient through history. The existing pump/well service road easement is located atop the historic Station Road, which directly served Mowry Train Station, and which currently provides access from the Silliman Community Center to the Bay.

## Outdoor Use Areas

## Core Campus Outdoor Use Areas

Core Campus areas are designed to encourage a wide range of student activities related to the needs of an academic environment.

### Entry Plaza

An elegant linear plaza marks the main entrance to the OCNC campus. Visitor entrance, drop-off, orientation and gathering will occur in this prominent location.

### Student Union Terrace

This is the hub of social student life on campus. Adjacent to the cafe, bookstore and student services, this plaza will accommodate primary social activity as well as special events.

### Quads

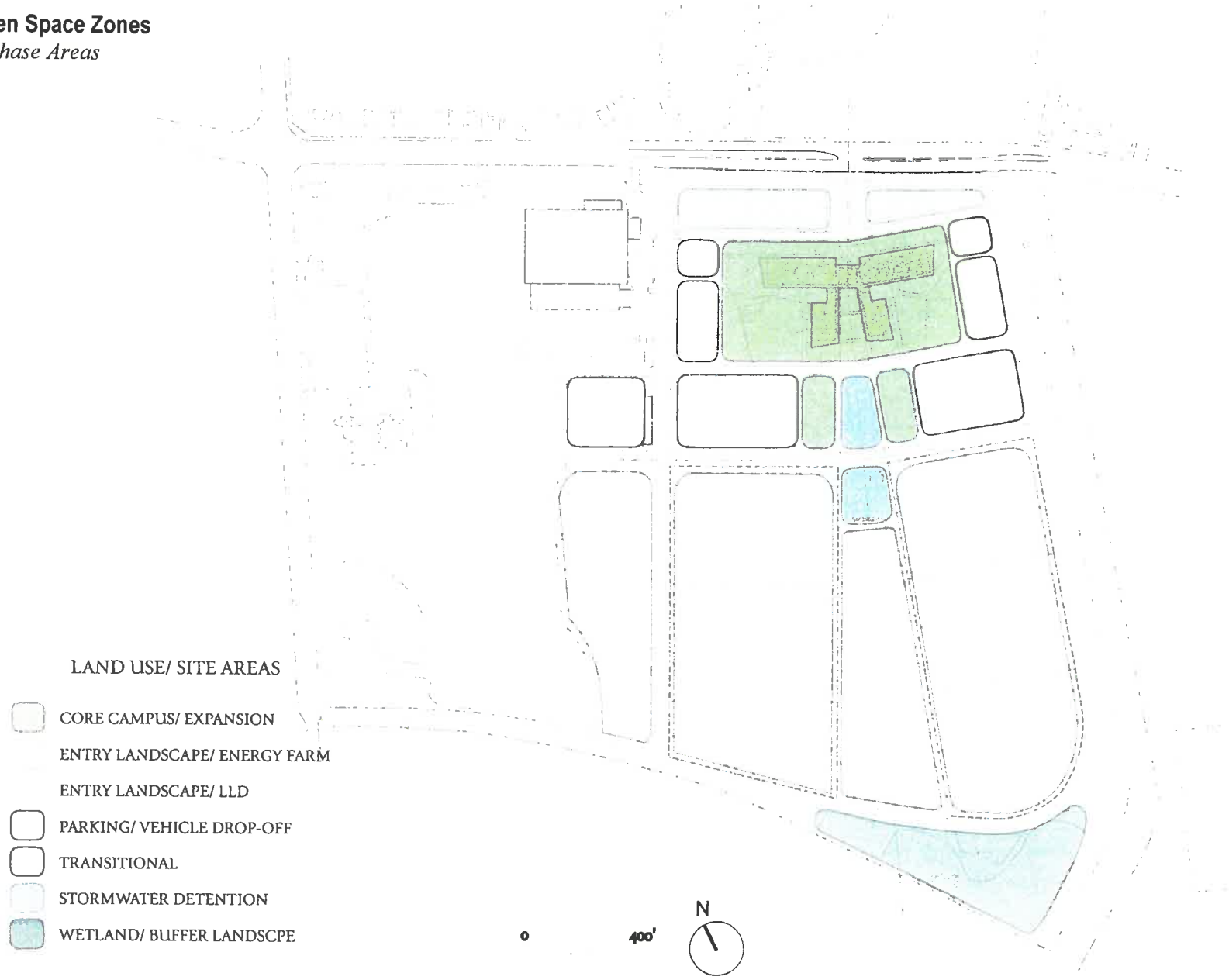
A series of multi purpose gathering spaces that allow informal daily activities, quiet and protected spaces for individual and group studying as well as formal organized events.

### Campus Green

An ecological landscape element that serves as a sustainable storm water detention basin, creates a connection to the existing wetlands, and provides educational value; the Campus Green will be the symbol of an ecological landscape approach at the heart of the larger site.

## 5.10 | Site Open Space Zones

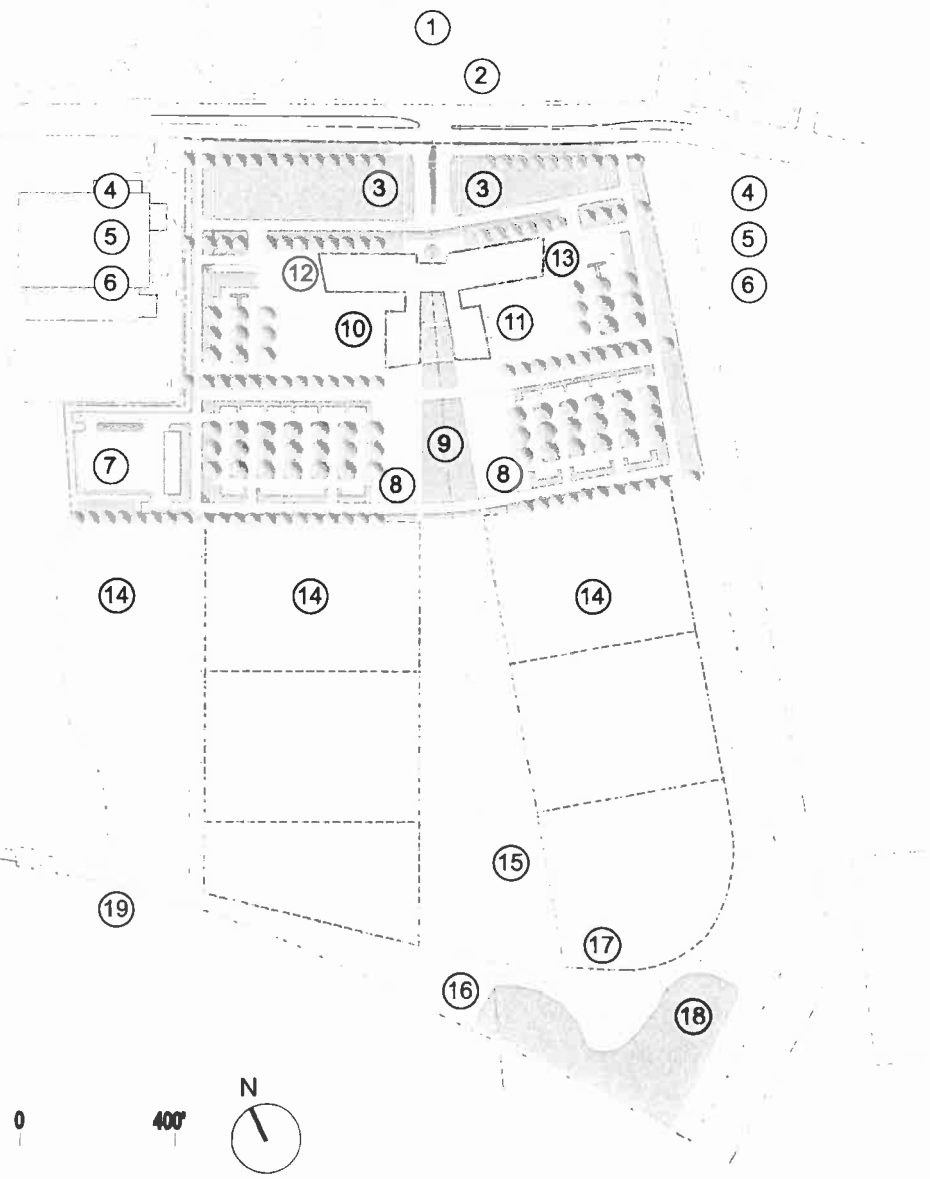
*Initial Phase Areas*



## 5.10 | Site Open Space Components

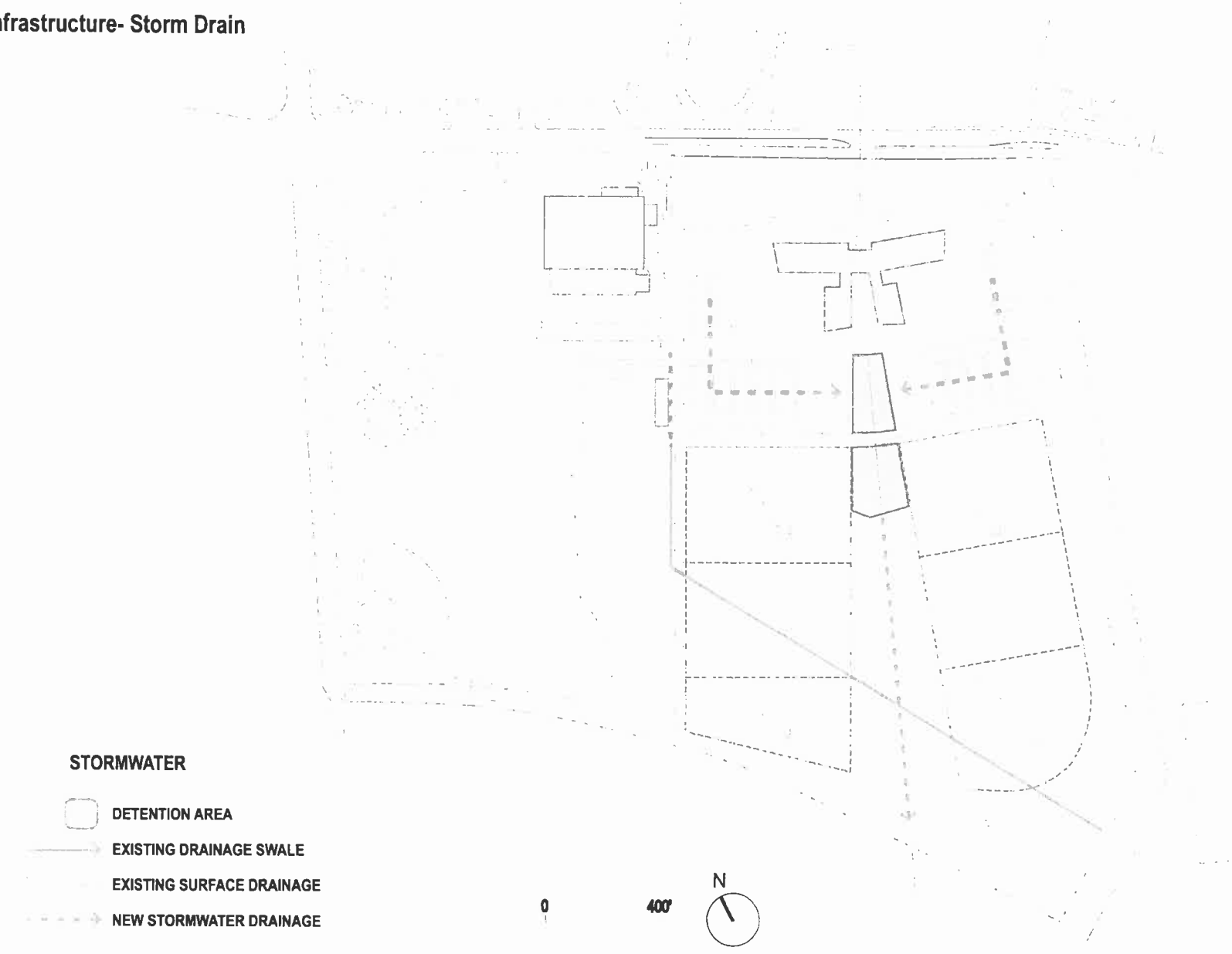
*Initial Phase Areas*

1. Cherry Street Entry
2. Relocated Bus Stop
3. Front Landscape
4. Shuttle Drop Off
5. Dedicated Parking
6. General Parking
7. Service/ Maintenance
8. Campus Expansion
9. Storm Water Detentoion
10. Campus Expansion/
11. Campus Expansion/
12. Initial Phase: LRC/ Education
13. Initial Phase: HS/ Education
14. Site Reserve
15. Future Detention/ Landscape
16. Landscape Buffer
17. Future Interpretive Exhibit
18. Recorded Wetland
19. Mowry Street Connection

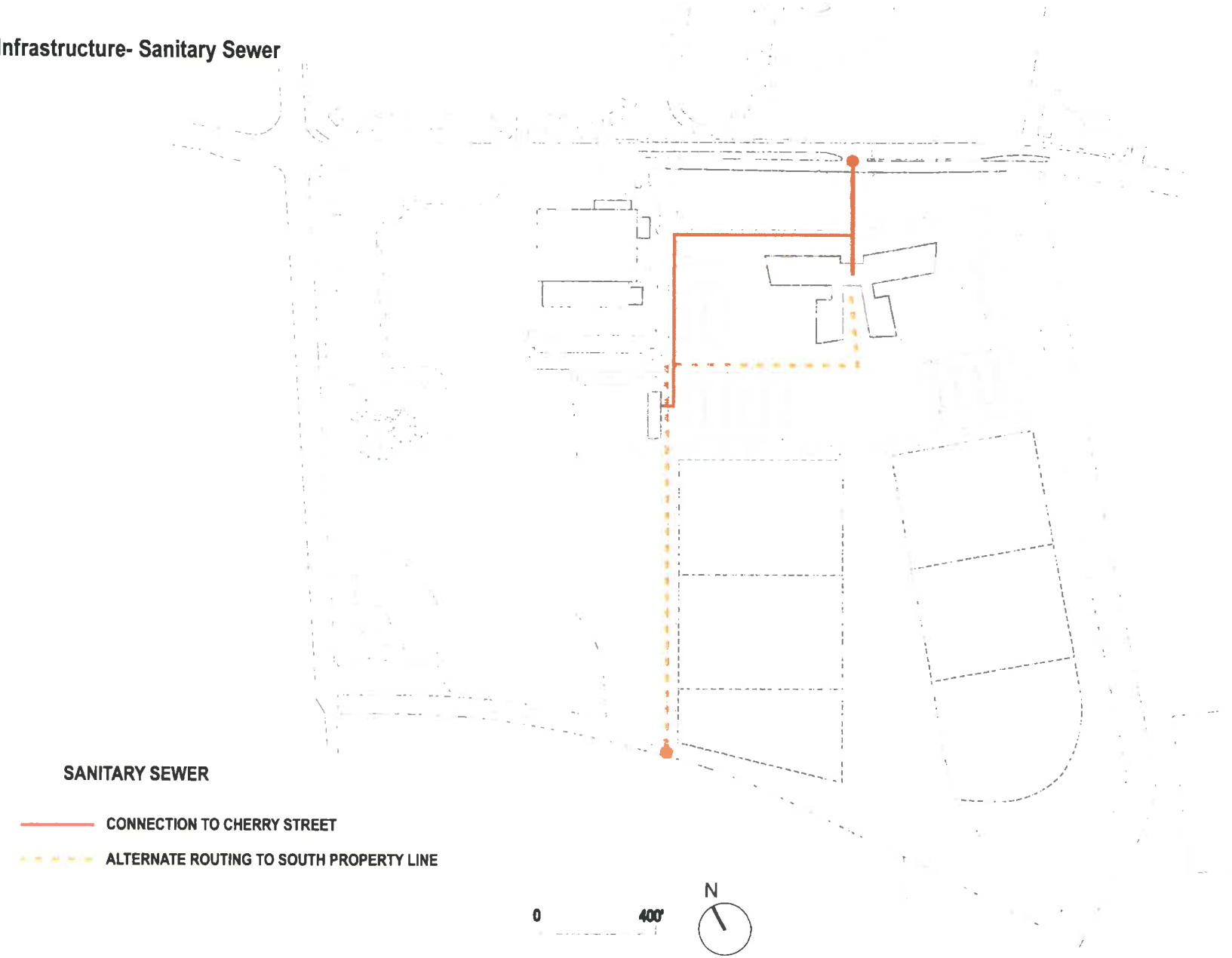


## 5.11 | Site Infrastructure- Domestic Water

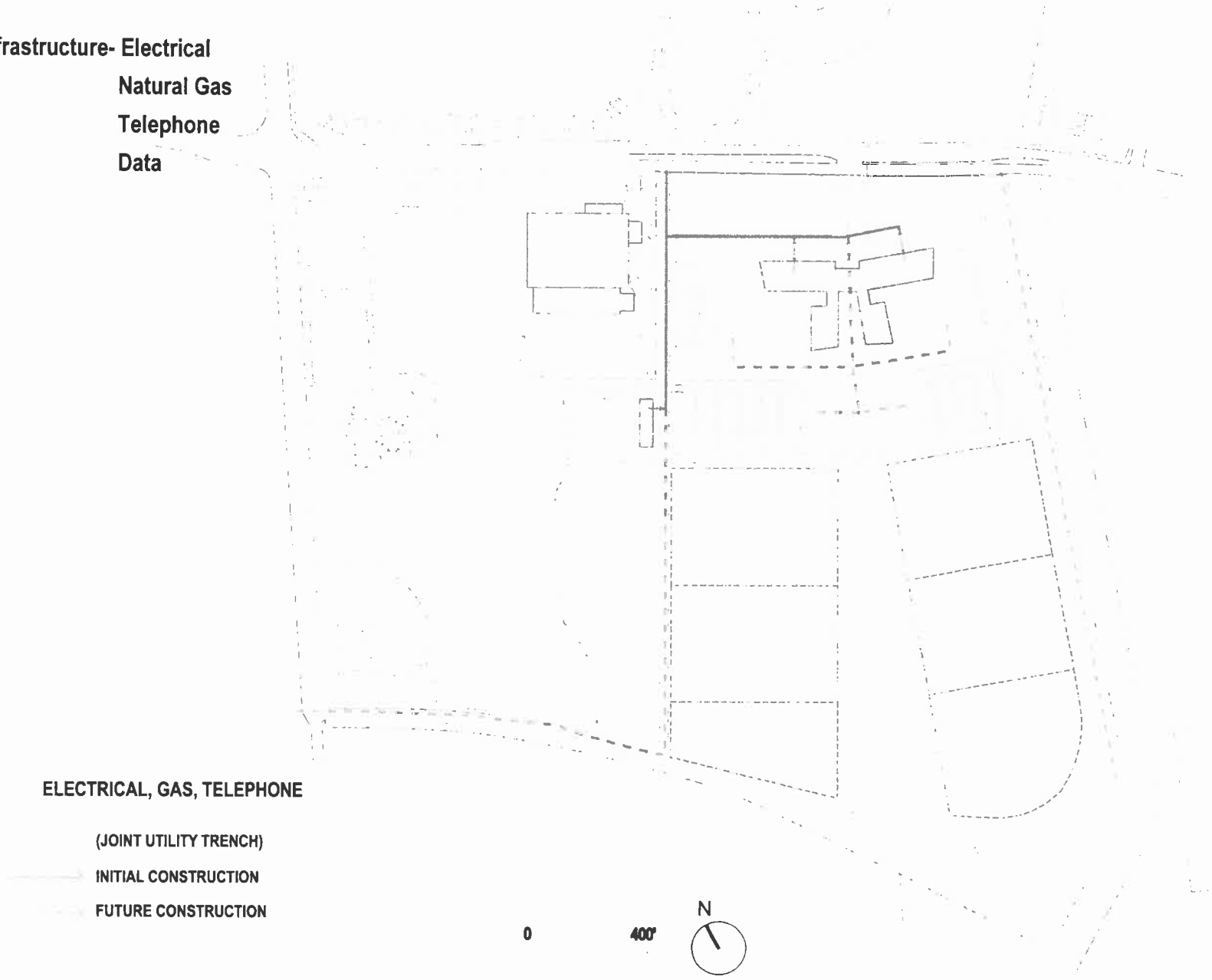
## 5.11 | Site Infrastructure- Storm Drain



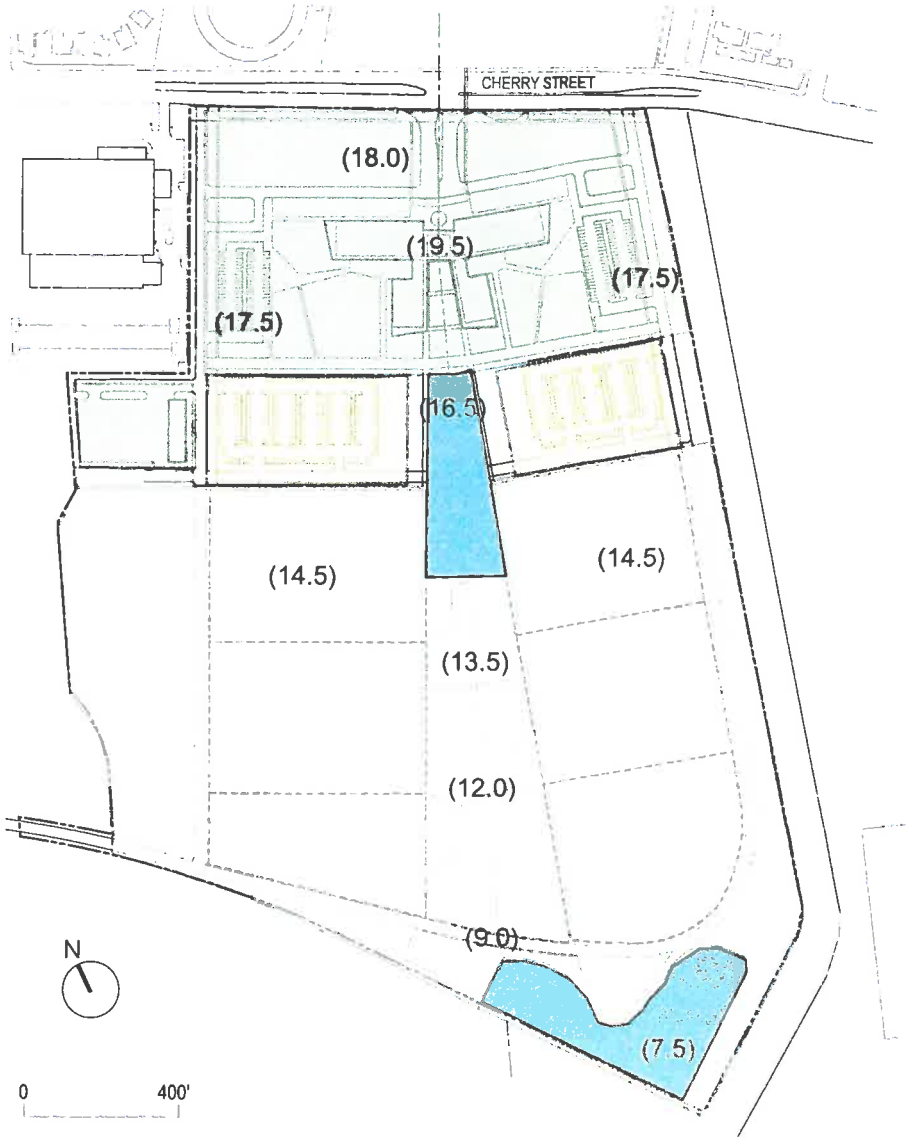
## 5.11 | Site Infrastructure- Sanitary Sewer



## 5.11 | Site Infrastructure- Electrical
Natural Gas
Telephone
Data



## 5.11 | Site Infrastructure- Site Grading




SITE GRADING STRATEGY

+15 EXISTING GRADE
(15) PROPOSED GRADE

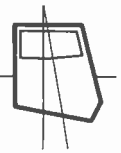
CAMPUS CORE LEVEL PAD

PARKING SLOPED PAD

UNDISTURBED AREA

STORMWATER DETENTION BASIN DEPTH AS REQUIRED

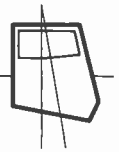
WETLAND



## 5.12 | Program Summary

*Summary of Gross Square foot program*

| | |
|---|---|
| Computer and Information Technology | 8,190 |
| Health Sciences | 13,950 |
| Environmental Science & technology | 6,510 |
| Integrated Learning Center | 7,145 |
| General Education | 14,105 |
| Exercise Science & Wellness (PE) | 11,700 |
| Learning Resources Center | 13,310 |
| Student Services | 2,430 |
| Administration | 2,380 |
| Information Services | 2,420 |
| Bookstore | 1,950 |
| Cafeteria | 2,010 |
| Restrooms | 7,200 |
| Registrar | 280 |
| Contract Education | 1,710 |
| Maintenance & Shop Facilities | 4,490 |
| **Total (ASF)** | **99,780** |
| **Total (GSF)** | **150,000** |



## 6.0 | Campus Standards

*Conceptual Basis of Selection*

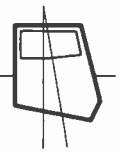
Campus Standards establish siting and development requirements for future buildings of the OCNC academic campus and for the adjacent educational partnership sites.

Building Standards (Sections 6.1, 6.2) establish siting and development standards for future academic and partnership buildings. Visual continuity was seen as critical by the Board of Trustees and is established here. Variability in form and massing is united by a fixed color and material palette. That same coherence is further provided by the following sections of this chapter.

Site Planning Standards (Sections 6.3 - 6.12) provide a framework to ensure that basic infrastructure elements such as roadways, parking lots, landscape and outdoor use areas, site utilities and will be functionally integrated throughout the site.

Signage Standards (Section 6.13) maintain the identity of Ohlone College Newark Center for Technology & Health Sciences and to ensure that subsequent partnership development meets or exceed these standards. Exterior signage is intended to lend dignity and character to the campus, and by incorporating materials used in the buildings themselves to provide important smaller-scale elements on the site.

Lighting Standards (Section 6.14) will assure that site lighting supports the landscape, building and signage design concepts. Lighting is used to define outdoor use areas, to articulate natural and built features, and to address site safety and security. These guidelines are undertaken within LEED® standards to minimize environmental impact.



## 6.1 | Building Height and Massing

*General Requirements for Design*

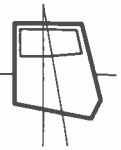
The core campus development area fronts on Cherry Street, is bounded by the perimeter roadway, and opens to the central landscape and surface drainage corridor. Buildings are massed to define the central landscape, concentrating social functions on the interior, garden side. Buildings are separated for economy in construction, and to create thresholds between parking areas and the central landscape. The buildings will further define these transition points to provide entry courts and outdoor seating areas.

The most social functions of the campus- Student Services, the Café/ Bookstore, and the LRC will be located at the front and center of the campus. The overall site massing strategy is to reinforce the importance of these interaction areas with the greatest height and liveliest massing.

Bond funding requirements require relatively high efficiency ratios (net to gross area). Programmatic expression must be relatively straightforward. Formal expression will be achieved through projecting roofs that provide passive cooling, weather protection, and define outdoor use areas.

### Development Standards for Height and Massing

- The OCNC campus is technically exempt from local ordinances establishing maximum height of buildings. Accordingly, the master plan does not impose height limits. However, it is the intent to generally comply with the underlying zoning and regulatory constraints that would exist on the site were it under the City of Newark jurisdiction.
- No Initial Phase buildings exceed 3-stories in height. The maximum height of any building on the site is 45-feet. This will accommodate two- to three-levels covered by sloping roof forms and would meet local requirements for overall height.
- Variation in height and massing is encouraged. Extending building elements such as stair or elevator towers to serve as landmark features is encouraged.
- Rooftop enclosures for mechanical apparatus will generally be part of the roof forms. If open roof screen areas are required, they will not be considered in overall building height. Height shall be as tall as necessary to completely screen mechanical equipment.
- Consistent floor heights are desirable for the initial campus buildings. Variation in the level of the building floor pads is accepted however, in order to utilize the natural topography of the site and to effectively reduce the need to import engineered fill and associated construction costs.
- Stepped and offset building planes will be employed to aid in climate control by passive shading, and to add visual interest and reduce scale.
- Buildings will be sited and configured to create pedestrian plazas and courts and to define the edges of the central landscape area.
- In the event of property transfer, the City of Newark's development standards will be adopted for those parcels.



## 6.2 | Building Setbacks

*General Requirements for Location*

Building Setbacks establish the fundamental relationships to adjacent buildings, to the street edge, to surrounding perimeter conditions, and to site features. Internally, building setbacks define the scale of pedestrian outdoor spaces and allow room for open space corridors. They are important externally because they set distances from which the project will be viewed from adjacent uses, such as the existing residential areas to the east.

### Development Standards for Setbacks

- No buildings shall be constructed within dedicated open space areas. Buildings may be constructed at all other locations corresponding to the requirements described below. (Open space areas include the consolidated wetland, storm water detention areas and the municipal landscape and lighting zone along the Cherry Street frontage.)
- Municipal requirements for setbacks from property lines or easements will be maintained for the academic core campus and for future educational partnership development parcels.
- Actual setbacks between buildings will be subject to the minimum health and safety standards contained in the California Building Code, the Uniform Fire Code, and subject to the State Fire Marshal.
- Buildings must maintain a minimum of 10-foot landscape setback from sidewalks except at the entry plaza locations.
- Buildings must maintain a minimum 40-foot setback form parking areas or roadways except at designated service points or drop-off areas.
- In the event of property transfer on the site, the City of Newark's development standards will be adopted for those parcels.
- Appropriate setbacks from property and open space lines should be established to allow for landscape and open space corridors, landscape buffers, preservation of desirable views and spatial separation from adjacent roadways.

## 6.3| Roadways and Drives

*General Requirements for Design and Construction*

Student, faculty and staff, and service access requires a comprehensive and integrated circulation system. The plan must accommodate private and public vehicles, bicycles, and pedestrian circulation to and from the site. Of equal importance, the circulation system will organize and connect the development zones while reinforcing the open space system. The vehicular circulation diagram illustrates the conceptual framework and direction this system requires.

In an effort to reduce overall traffic congestion, future projects must include a transportation management program to promote alternative transportation and reduce traffic. Programs that help to reduce traffic (e.g., direct shuttle service to BART, preferential carpool parking, and others) should be incorporated into the program. Transportation management programs shall include additional improvements such as the installation of bicycle racks at each building; installation of showers on the first floor of each building; and, installation of electric vehicle charging stations.

### Perimeter Roadway

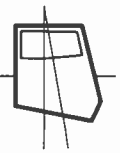
The perimeter roadway is the primary vehicular circulation route through the site. It provides definition to the core campus and links to future development zones. The roadway is generally "U"-shaped, bounding the core campus in the initial phase project, later extending to provide continuous internal site circulation, and access to partnership sites. Development standards for the perimeter road include:

- The perimeter road shall be 28-feet wide, curb to curb, with two 14-foot traffic lanes.
- An 8-foot wide planting strip shall be provided on both sides of the perimeter road throughout the project.
- A 6-foot wide concrete sidewalk will be provided on one side of the perimeter road throughout the project.
- Street trees will be aligned to create a canopy on this important roadway.
- Bicycles will share the perimeter road with vehicular traffic but will not have a marked bicycle lane.

### Access Drives

Access drives will link the perimeter road to the entry plaza and drop-off points, parking areas, and service entries. To minimize the number of these drives, shared access for compatible purposes is encouraged. A hierarchy of landscape, lighting, and signage is proposed and will be consistent throughout the site to aid in orientation. Development standards for access drives include:

- Access driveways should align across the internal perimeter road, where possible. If that condition is not possible, access driveways should be sited to maximize the line of sight and located a minimum of 150-feet apart, measured from centerline to centerline.
- Shared access drives for adjacent parcels is encouraged.
- Access drives should be located to minimize disruption of roadway landscape easements and utilities.



### Service Drive

A service drive will provide access from Cherry Street along the project east boundary. While not anticipated for the initial development, this drive has the potential to extend to all partnership sites in the east development zone. Development standards include:

- The service drive shall be the primary access for service, delivery, and garbage vehicles for the east development zones.
- Use of the service road is not restricted to service vehicles and may be used for general site access.
- Development of the partnership sites drainage is anticipated along this service drive, while maintaining a riparian character.

### Mowry Street Extension

The extension will connect the perimeter roadway to Mowry Street, south of the Silliman Center. The extension will lie parallel and adjacent to the railroad tracks to provide pedestrian and vehicle access from the vicinity of the center. Development standards include:

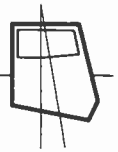
- A 10-foot planting strip and a 6-foot sidewalk will extend from the perimeter roadway to Mowry.
- A landscaped setback with informal screen planting and berms of sufficient height shall be designed to the roadway.
- A single row of street trees shall be provided on the street side of the sidewalk and path.
- Understory planting will consist of low shrubs and groundcover.

### Cherry Street Entries

Cherry Street is the only current means of direct site access. It connects the campus to downtown Newark and via Mowry or Stevenson to Interstate 880, a major North-South highway. New project entries at Cherry Street align with the internal perimeter roadway to form the primary intersections. The intent is to access the site directly, in a safe and efficient manner.

The initial construction entry consists of two-inbound and two-outbound traffic lanes, separated by a raised median and joining a signalized intersection. The second intersection consists of a right-in, right-out condition that may be expanded and signalized to accommodate the greater traffic volume of future development. Guidelines for the Cherry Street entries include:

- Entry paving will conform to City of Newark requirements for roads.
- A landscaped setback with informal screen planting and berms of sufficient height shall be designed to screen cars in adjacent parking areas.
- Adjacent sidewalk will be 6-feet wide and made according to City approved standards and materials.
- New pedestrian pathways will match dimension and color of existing, conforming to municipal standards for this location.



## 6.4| Parking Standards

*General Requirements for Design and Construction*

Parking will be provided at-grade for the initial development. The use of parking structures is encouraged for future construction to reduce surface pavement and preserve area for future building sites. Visitor parking accessible stalls and drop-off areas should be provided close to building main entries.

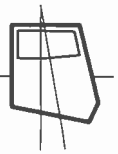
Parking shall be provided as required by the Newark Municipal Code.

Disabled parking stalls will be provided in the relative quantities and locations established by the Americans with Disabilities Act (ADA) and California Title 24.

In certain circumstances where shared use, efficiency or low employee density warrants a reduction in the city's minimum parking requirements, these considerations shall be subject to City of Newark review and approval.

Parking areas should provide a logical and safe circulation system for both vehicular and pedestrian traffic. Landscape elements should be used to help diminish the scale of paved areas, provide shade, and screen parking at perimeters. Development standards for parking include the following:

- Parking will not be permitted along the perimeter roadway.
- Unistall dimensions (18-feet x 8'-8") are used in lieu of standard and compact dimensions. If unistall spaces are used, all spaces (except accessible stalls) must be unistall. (Alternately, standard parking stall is 19-feet x 9-feet, and a compact stall is 16-feet x 8-feet.)
- All parking areas adjacent to the road shall have a minimum 10-foot landscaped setback.
- Layout parking in cohesive units related to specific buildings.
- Adjacent parcels may share circulation and access where possible.
- Planting design within parking lot perimeters should be compatible with adjacent landscape and open areas.
- Minimize single row parking; maximize parking in blocks and multiple rows.
- Incorporate pedestrian medians for safe pedestrian access to building entries.
- Avoid parking along building frontages.
- Where layout exceeds two-rows in depth, align rows in direction of pedestrian movement whenever possible.
- Overhang into adjacent landscape areas should be 2-feet for standard and unistall space, 1-½-feet for compact spaces. Overhangs are encouraged to reduce the overall pavement area.
- Landscape elements such as earth berms planted with shrubs and columnar trees should be used to screen views to the designated parking areas.
- Finish pavement grade at the perimeter should be at or below the street top of curb elevation adjacent to the parking.



## 6.5 | Grading and Drainage

The goals of grading and drainage for the site are to preserve, where possible, the existing topographic conditions, and to prevent any damage or disruption from flooding or erosion. Where possible, building placement should take advantage of the existing conditions and not seek to significantly alter the natural topography. Development standards for grading and drainage include:

- Drain parking areas with a sub-grade system.
- Drain each parcel without discharge onto adjacent lots.
- Submit an erosion control plan for proposed construction areas.
- Finish grading for all development areas should meet the existing grade at landscape easement areas.
- Finished floor elevations should be at least 1.0-foot above the baseline flood elevation at the subject site.
- Where appropriate, site planning should incorporate grassy swales for local treatment of surface runoff.
- Proposed grading and drainage shall not increase the pre-development volume of runoff to the Alameda County Flood Control channel to the east of the parcel.

## 6.6| Planting Areas

*General Requirements for Design and Construction*

Windrows are the primary landscape element throughout the site. Windrows organize the site into landscape "rooms", and create a large-scale order across the site. Windrow tree species differ depending on orientation.

- East-West Windrows: Lombardy Poplar
- North-South Windrows: Various Species

Parking areas are distinguished with broad canopy trees.

### Development Standards for Planting

1. Establish a tree canopy for parking lots.
2. Screen undesired views, such as service, site equipment and refuse collection areas with plant materials wherever possible.
3. Use plant materials to meet LEED ® standards: select low-water species and shade buildings and paved areas.
4. Minimum plant sizes:

| | |
|---|---|
| Street Trees | 24-inch box minimum |
| Shrubs | 5-gallon minimum |
| Vines and Ornamental Grasses | 5-gallon minimum |

### Development Guidelines for Planting

1. Repeat landscape elements to provide visual cohesion.
2. Use recommended plant materials listed in Appendix A.
3. Maintain unbuilt (future) building sites to present a neat appearance.
4. Use plant materials to screen parking areas.
5. Maintain the following minimum widths for sidewalks and planting areas adjacent to buildings:

   Building Front: 20-foot average to 10-foot minimum width.

   Building Side and Rear: 15-foot average to 10-foot minimum width.

A rich variety of landscape elements will provide a unique identity for the project. These elements are described in the following sections

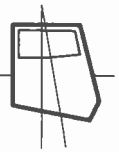
### Perimeter Road

The perimeter road is the main circulation element of the site. It is envisioned as a place where pedestrians, bicycles, and vehicles efficiently and safely circulate through the site. The roadway is reinforced with windrow tree plantings.

Landscape improvements integrate the project into the natural surroundings, unify the overall project with common landscape elements, and soften and beautify the human experience of the site while playing an integral part of the site project.

### Cherry Street Berm and Edge Condition

The landscape character of this zone will consist of formal groupings of broad canopy trees with native grass under story.



## Project Entries

- A hierarchy of entries into and within the property will be created, including the primary and secondary Cherry Street entries, the future service drive, and internal entries to the parking courts.
- The Cherry Street gateway will have a monument and landscape design to establish a point of passage and orientation. The character of the gateways will contrast the perimeter landscape buffer and reinforce the landscape features of the perimeter poad.
- The second Cherry Street entry will have more modest signage and character that reinforces the overall landscape framework while providing identity for these locations.
- The service drive entrance will be marked by signage, but should not utilize gateways, markers, or landscape, which would confuse its specific purpose.
- Individual parking courts will employ minor entry markers and landscape to support the gateway and landscape framework within the campus.

## Perimeter Landscape Buffers

Landscape buffers provide a visual boundary for the project by enhancing the view of the site from the surrounding residential communities and screening the site from adjacent industrial uses and highway frontage. They also provide internal screens between campuses, parking areas, and open spaces. Three types of buffers are envisioned for this site:

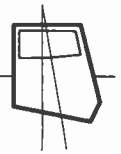
- Tall dense trees and shrubs to buffer the site from the wind. These buffers are along Cherry Street and the north and west property boundaries.
- Low open trees and shrubs to provide buffers between campuses and to allow view windows into the site in combination with the tall dense buffers along the west property line.
- Low shrubs will be used to visually screen parking and service areas. Plant palette will be comprised of native and drought tolerant species.

## Wetland Landscape

No changes to the existing wetland area are anticipated for the initial construction. The landscape character will vary according to issues of adjacency. Due to the fact that the earth has been systematically disturbed in this area, replanting with native vegetation may be undertaken in subsequent phases, to effectively recreate native habitat. Plant selection must be of locally specific native vegetation types determined by the biological and botanical survey.

## Interim Use Areas

The landscape character of this zone is generally unimproved, anticipating future development. Windrow planting of compatible species and aligned with the initial construction planting may be undertaken in a future budget, but other planting is restricted to non-irrigated grasses or groundcovers that may be necessary to stabilize the site. Agricultural uses similar to current practice may be continued for these locations, and sustainable landscape applications such as native grass propagation would be appropriate.

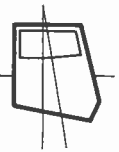


## 6.7| Irrigation Standards

*General Requirements for Design and Construction*

### Development Standards for Irrigation:

- All planted areas should be automatically irrigated.
- All irrigation details and specifications should, as a minimum, conform to City of Newark design standards.
- Roadway landscape easement irrigation is separate from parcel irrigation. However, parcel owners must irrigate the portions of the landscape easements between the hedges and their property lines. Stubs from the existing irrigation system in the easement should be joined.
- The irrigation system will be designed with water conservation in mind. A gray water system may be employed in the initial development, or at a later time, and irrigation design should not preclude its use.
- The landscape will be provided with water by means of spray irrigation to the turf areas and groundcover areas, gear driven rotors for more expansive turf and groundcover areas, drip irrigation for the large shrub mass areas, and bubblers to the trees.
- The spray system will be designed using spray heads with pressure compensating nozzles to achieve an even level of precipitation throughout the irrigation system. A state of the art irrigation controller will be specified for this project to control the water allocated to each valve grouped per individual hydrozone (based on plant type and exposure). This may include the incorporation of a master valve flow sensor combination, rain sensor and possibly an on-site weather station that features an anemometer for wind-speed measurements, a rain gauge to measure rain fall and e t (ET) tracking capabilities for precise evapo-transpiration calculations to develop accurate system run times minimizing waste of water resources.



## 6.8| Outdoor Use Areas

*General Requirements for Design and Construction*

Campus plan and building configuration present numerous opportunities for plazas, entry courts and connecting paths. These will reinforce building entry locations, create outdoor use areas and establish connections for vehicle drop-off and parking areas.

Entry courts encourage the extension of the landscaping up to, and even into, buildings. They combine with architectural entry features to create rich transition zones between the outdoor and indoor environments.

These areas provide garden-like settings for social interaction. Special paving, planting, and site furnishings that are attractive, durable, and consistent will be provided.

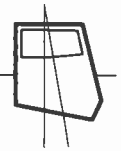
### Plazas and Courtyards

- Pedestrian use areas should be provided at building entries and adjacent to buildings. Entry courts that engage projecting entry features or entry features which extend into the building mass are encouraged to create transition zones between public and private spaces.
- Planters, low walls, and signs should enhance the sense of transition between the public and private realm and may extend into the building setback zone.
- Feature paving materials, planting, and site furniture should be provided at entries and outdoor use areas.
- Pedestrian entry courts should extend paving to the perimeter road to provide for convenient drop-off and pickup.
- Entry courts should provide space for required bicycle parking racks.

### Walkways

The campus offers the potential for varied pedestrian experiences. The central landscape corridor and the adjacent courtyards reinforce connections between buildings, and through the campus. Perimeter landscape at the perimeter road connects buildings and defines access drives and parking areas. Pathways provide access to campus open space.

- Pedestrian links should be provided between open space areas and the building entries.
- Walkway paving in the academic core campus will consist of minimal 5-foot wide concrete.
- Service walks may be constructed of asphalt, gravel or other material appropriate to the purpose.

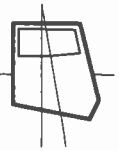


## 6.9| Site Furniture Standards

*General Requirements for Design and Construction*

Furnishings should reinforce the campus' park-like character. Site furniture guidelines establish visual continuity and high-quality standards for these elements.

- Selection, design and siting of the site furnishings should depend upon their function and aesthetic contribution to their surroundings.
- Site furnishing designs should be integrated with other site elements (i.e., walls, lighting, signage, etc.).
- The color, texture, form, material and detailing of furnishings should reinforce the design themes of each area as well as those of the project as a whole.
- Furnishings should be designed or selected for safety, durability, and ease of maintenance and replacement.



## 6.10| Service Area Standards

*General Requirements for Design and Construction*

Dedicated service and utility areas are necessary for effective building operations. Loading docks, service yards and associated areas will be screened from view of surrounding residential areas, streets, the perimeter road and project entry drives. These areas shall be located either inside closed buildings or behind a visual barrier.

All backflow prevention devices will be painted and screened from view. Screens shall consist of berms, walls, or plantings integrated into the landscape plan. Landscape screens shall include shrubbery selected by species and planting density to establish a complete screen within one year from the date of planting.

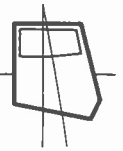
### Loading Docks

- Loading dock areas will be set back, recessed, and screened from view by walls, berms, or plantings.
- All screen enclosures will be designed as an integrated part of the building, constructed of durable materials with finishes and colors and compatible with the overall architectural character.
- Where possible, services and utilities should share the same enclosure.
- Transformers and other utility equipment located above ground shall be screened with planting, berms, or enclosures. Exterior mounted utility equipment should blend with its surroundings.
- Exterior on-site utilities (including drainage systems, sewers, gas lines, water lines, electrical, telephone, and communications wires and equipment) must be installed underground except, where required to be above ground by government agencies or utility companies.

### Refuse Collection Areas

Access to trash and recycling areas will be provided for all buildings. Each of these areas will be properly screened from view of surrounding residential areas, streets, the perimeter road and project entry drives. Trash and recycling collection areas shall be located either inside closed buildings, behind a visual barrier at the loading docks, or in dedicated, enclosed site structures. Specific location requirements will be confirmed with those companies providing collection services.

- Centralized trash and recycling collection will be accommodated in the corporation service yard, south of the Agilent site. All containers will be completely screened from view as described below.
- Secondary trash and recycling enclosure areas should be located for convenient deposit and collection of refuse. These should be screened from view of adjacent properties and streets.
- Where external from buildings, refuse collection areas should be fully screened from view by walls, berms, or plantings.
- All screening enclosures should be constructed of durable materials with finishes and colors that are compatible with the project's overall architectural character. Enclosure walls should be planted with vines to soften their appearance. The use of chain-link fence enclosures is specifically discouraged.
- Where possible, trash and recycling enclosures may share the same enclosure with site utilities.

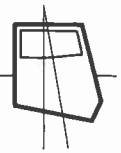


## 6.11| Walls and Fences

*General Requirements for Design and Construction*

These elements are intended to retain earth, to screen some service activities and provide security. Site walls define outdoor use areas, relate to building shapes and materials, and reinforce the distinctive, consistent identity of the project.

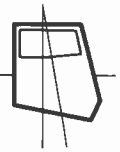
- All fences and walls should be in accord with the project's site and architectural character.
- High walls are discouraged. Fences should not be higher than 6-feet. Chain link fence is discouraged except where required for temporary barriers or at perimeter agricultural areas. When allowed, it will be dark color vinyl and planted with shrubs or vines.
- Service area walls will generally be formed of integrally colored, split-face concrete masonry, complimentary to building exterior walls.
- Decorative walls and seat-walls will be masonry or concrete, finished in textures and colors to compliment the buildings.
- Fencing and high walls between buildings is discouraged.



## 6.12| Site Utilities

Development Standards for Utilities are intended to prevent or minimize the visual presence of overhead, above ground utility and communication equipment. Guidelines include:

- Exterior on-site utilities including drainage systems, sewers, gas lines, water lines, electrical, telephone, and communications wires and equipment should be installed underground.
- On-site utilities should be designed and installed so that they are compatible with landscaping, paving, maintenance, construction activities or with other utilities.
- Proposed sanitary sewer facilities are subject to review and approval by Union Sanitary District.
- Proposed water systems are subject to review and approval by the Alameda County Flood Control & Water District.



## 6.13| Signage

*General Requirements for Design and Construction*

These guidelines provide a comprehensive system for environmental graphics. Signage creates campus identity, provides way-finding methods, reinforces visual cohesiveness, and makes human-scale contribution as site furniture.

Signage standards are provided for both site areas and buildings. Site signage includes freestanding campus entry and building or parcel monuments, visually and materially integrated with landscape and building design. Building signage includes numbering and occupant identification, fully integrated with architectural features.

Future signage not covered by this document shall follow the intent of the guidelines and the specific requirements of the City of Newark.

### Campus Entry Signage Standards

The campus project entries will be located initially at Cherry Street and ultimately at Mowry, south of the Silliman Center. The campus name and street number will be mounted on site walls flanking the entry roadways. A dedicated service entrance will be similarly configured of smaller components, with appropriate restrictive identification.

- Materials: site walls of stone, precast concrete and metallic elements.
- Signage: cast-in concrete or raised metal.
- Color: to match or be compatible with building wall colors.
- Illumination: ground-mounted linear light source.
- Installation: integrated with paving and plant materials.

### Partnership Site Entry Signage Standards

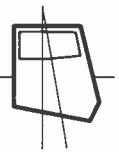
Site identification will be located at the perimeter road and oriented to the roadway. The tenant or lessee's name will be mounted on a site wall at the perimeter of the road, and will be similar in character to the campus entry signage.

- Materials: site walls of stone, precast concrete and metallic elements.
- Signage: cast-in concrete or raised metal.
- Color: to match or be compatible with building wall colors.
- Illumination: opaque, halo-illuminated raised metal letters.
- Installation: integrated with roadway/ sidewalk paving and plant materials.

### Partnership Site Signage Standards

Parcel identification will occur at access drives located on the perimeter road. The tenant name, logo and building number will be mounted on site walls flanking the access drives. These will be similar in character and configuration to the partnership entry signs described above, using smaller components.

- Materials: site walls of stone, precast concrete and metallic elements.
- Signage: cast-in concrete or raised metal.
- Color: to match or be compatible with building wall colors.



- Illumination: ground-mounted linear light source.
- Installation: integrated with paving and plant materials.

### Building Signage Standards

Building signage includes three basic types: Occupant identification, address markers and regulatory and directional monuments. Signage of the first two types will be mounted directly to building walls, integral to the composition of the façade and roof screens or penthouses. Monuments will be located on grade, at building entries.

### Occupant Identification Standards

Owner and tenant identification will occur on grade at the primary entry areas of all buildings. The name and logo will be mounted on freestanding monuments located near entry. Multiple tenants may be separately identified on a single building.

- Materials: signage panel: aluminum plate over honeycomb core, silk-screen graphics with polyurethane finish.
- Color: monument: metal or concrete compatible with building wall colors. Signage: corporate identifying color,
- Illumination: ambient, internal or ground-mounted linear light source.
- Installation: frame on concrete footing. Locate to avoid obstruction to accessibility and emergency egress.

### Address Marker Standards

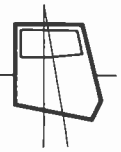
Address identification will occur on the facades of all primary buildings. The number will be mounted directly to building walls, integral to the composition of the façade.

- Materials: signage: raised metal channel or plate type.
- Color: compatible with building wall colors.
- Illumination: ambient or halo-illumination.
- Installation: pin-mount, integrated with façade

### Regulatory and Directional Signage Standards

Regulatory signage identifies dedicated parking spaces of various types: disabled, high occupancy vehicle and alternative fuel vehicles. Directional signage occurs at key decision points on campus roadways.

- Materials: posts: anodized aluminum. Panel: aluminum plate over honeycomb core, silk-screen graphics with polyurethane finish.
- Color: posts: clear anodized color. Panels and graphics: per comprehensive campus
- Illumination: ambient.
- Installation: posts set in sleeved concrete footings. Locate with clear sight lines, to avoid pedestrian obstruction, and to comply with all regulatory requirements.



## 6.14| Lighting Standards

*General Requirements for Design and Construction*

Lighting standards reinforce site landscape and building design concepts by assigning distinctive types to delineate use. The intent is to meet aesthetic goals, address LEED® standards, and meet municipal requirements and to provide a safe environment for pedestrians and vehicles.

### Perimeter Roadway Lighting

The campus drive is the central vehicular access and an important means of pedestrian circulation for the project. The quality of light and the character of light fixtures is an important consideration when establishing the functional importance and formal geometry of this feature.

Lamps provide general illumination form thirty-foot high light standards. Feature lighting associated with the signage system described in the Signage Section provides punctuation in this system.

### Parking Lot Lighting Standards

Development Standards for Parking Lot Lighting are provided to: create a uniform visual character for all parking areas; create a safe environment for nighttime use by employees; and to provide cohesive standards for future development.

- One style of fixture should be used throughout the project.
- Create uniform level of lighting throughout parking areas.
- Use metal halide lamps mounted at lower height than roadway lighting.

### Central Landscape Core Lighting

The central landscape corridor connects all buildings with the north and south site landscape areas. This area will use pedestrian scale light standards selected to achieve an intimate character.

Metal Halide lamps mounted on thirteen- foot tall standards will be more closely spaced.

Feature lighting will be employed in addition to highlight the features proposed for this area.

The intent is to more brightly light this area to enhance the color of plant materials, and to reinforce the importance of this feature as a connector.

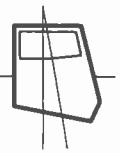
### Entry Plaza

These building entry areas will use the same metal halide lamps mounted on thirteen- foot tall standards described above.

Feature lighting for signage and ambient lighting from buildings establish these courtyards as the brightest components in the lighting system.

### Perimeter Landscape Areas (No Development Zone)

Lighting for these areas will be determined primarily by site security considerations. The intent is to discourage use and provide clear visibility in these areas. Lighting will be selected to avoid casting glare onto adjacent lots.

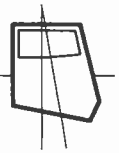


## Buildings Lighting Standards

Building lighting is used to accent and animate the architectural character and features of the buildings.

Development Guidelines for Building Lighting:

- Meet LEED® recommended standards for energy use.
- Provide a cohesive set of lighting standards for future development.
- Use indirect lighting or fixtures with full cut-off shield where possible.
- Service area lighting should be generally restricted to the service areas. Minimize light spillover into adjacent areas.
- Low, bollard type fixtures may be used to supplement ambient lighting near buildings and to define pathways in the vicinity.



## 7.0 | Design Guidelines

*General Applicability to the Master Plan*

Design Guidelines are used to define architectural character and building materials and systems. These guidelines will apply to the initial construction and to future construction on the academic and partnership sites. They are described in detail to ensure that subsequent development meet or exceed these standards.

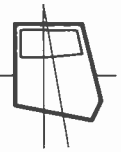
Building form is a direct expression of the instructional and service programs, shaped in response to local climatic conditions. Buildings orientation recognizes this context and has been planned to promote interaction at the core campus area.

Building components and materials will be selected to further acknowledge these relationships. In general, exterior materials are selected for durability and maintainability as well as aesthetic contribution to the campus.

Code, life safety and accessibility issues have been studied to determine general feasibility and potential cost implications of the design concept.

Major building systems: structural, mechanical and plumbing, electrical, data and acoustics and vibration are presented here for review and to begin cost modeling.

Sustainable design guidelines include both the comprehensive Leadership in Energy and Environmental Design (LEED®) certification process and general recommendations for sustainable or energy conservant design features that have proven successful on past projects.



## 7.1 | Building Form and Massing

*Basis of Design*

### Expression of Content

Contextual response is balanced with the goals of providing identity for the college. Without a well-defined local physical character, context can be seen as a response to climate and academic culture. The resulting architectural concept should reveal or express the building's contents.

By far the most direct and effective means to do this is by literal transparency, being able to see the inherently interesting activities associated with the instructional programs. The particular challenge here is that audiovisual (AV) projection systems may be daylight intolerant, and wall space provides valuable location for equipment and display. While strategic location of program elements can overcome this, a comprehensive solution is to approach all materials as contributors to this effort.

### Building Features

Open base is a component of the vertical hierarchy. A relatively glassy base establishes a greater connection with adjacent landscape and provides a sense of lightness.

Mid-level development is more neutral, differentiating between base and top. This level at the second and third stories is composed of window area and cementitious panels. Articulated shade elements respond to solar exposure and provide visual interest in this zone.

Dynamic profile is established at the roofline. Mechanical equipment screens and plenums are integrated with projecting shade canopies to form distinctive profiles. The relatively quiet character proposed for the building lower levels is given counterpoint by these lively elements. Variety in orientation is inherent in this concept.

Additive elements are building features that lend coherence and provide more intimate scale. These include external stairs, canopies and covered walks.

The following architectural guidelines establish standards that will remain applicable over the time period required for complete development of the site. The intent is to insure that buildings adhere to the overall objectives of the master plan, and meet a comprehensible set of aesthetic, technical and functional criteria.

### Cladding and Closure

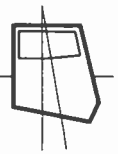
Material quality is an essential to successfully develop the features described above. Three primary components are used to clad the buildings:

- Precast concrete is the predominant exterior wall material.
- Storefront glazing system for windows and curtainwall areas contrasts this. Type and extent will vary by solar orientation.
- Applied metal elements: wall panels and projecting shade elements.

Additional materials: stone, masonry and tile may be employed as accent features.

Select and employ materials for correspondence with project environmental design standards. Material selection should correspond to LEED® criteria. Building exterior development will vary in response to climate.

Development Guidelines for Cladding and Closure are provided in the following sections.



## 7.2 | Building Components and Materials

Development of building form will be undertaken in the succeeding design phase. The selection of exterior materials contributes to this process, however, and should be established at a conceptual level. To initiate this, and to assist in cost modeling, key building areas and primary construction materials are described in the following section.

### Structural Steel

Structural steel is assumed to be the primary structural system for the buildings. The buildings will be Type II, 1-hour rated construction, which requires spray fireproofing on most of the structural members. There may be roughly 20-percent of the construction that is Type II non-rated construction, however. The associated fireproofing would therefore be deleted in such cases.

### Concrete Masonry

Concrete Masonry may be utilized at the corporation and service yard area for cladding. Polished split-face 4-inch x 16-inch units are planned. A cost alternative will be for Glass Fiber Reinforced Concrete Panels (GFRC).

### Storefront Glazing

The first and second floor glazing elements will be constructed of standard storefront glazing systems. Each floors glazing will be self supported, and not hung. The cantilevered slab edges will provide the support for the second floor glazing.

### Composite Metal Panels

Metal cladding systems are not seen as primary cladding but can provide an important contrast to the concrete systems described above. Composite metal panel systems may be used as feature elements in the building façade. Panel finish and color will be coordinated with storefront glazing systems. Penthouse enclosures will be integral with the shaped roofs, and will not require additional screening elements.

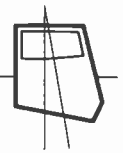
### Sunscreens

The Newark Center employs a simple but generally effective response to climate: the south, east and west faces are passively shaded. Perimeter circulation elements (walking decks, balconies) articulate portions of the buildings, and contribute to an overall shading strategy. Where open, these walkways have obvious purpose as extended shade elements. When enclosed, these walkways will be mechanically unconditioned, with passive ventilation to keep them cool.

Other cladding and closure methods will be considered. These may include a combination of extruded mullion caps, perforated metal screens and metal grilles.

### Roofs

Building roofs are intended to be of a "folded plane" nature. The framing will still be handled with light gage metal framing. For cost purposes, two roofing systems are thought to be potential: standing seam metal and built-up. Standing seam metal roofs will be prefinished "*Galvalume*" or similar type product, and relate to the metal panel and mullion systems described in the preceding paragraphs. The roofing of the mechanical equipment wells will be of concrete slab with built up roofing and a mineral cap sheet. A cost alternative will be for all built up roofing with white mineral cap sheet, smooth finish, and will require additional care of installation.



### Main Entry

The Newark Center site includes a variety of approach paths and rich connections to adjacent uses. The complex is typical in that respect of most academic settings. Generally, campus buildings allow or encourage access from a variety of points. Creating a strong visual identity and clearly defining the core campus are expressed goals of the College and the District. While acknowledging the need to access Newark Center from many points, the primary entry should be visible from the entry plaza, and offer clear connection to other buildings. This will be the principal visitor entry and the programmatic center for the complex.

Consistent with the role of the entry in the planning process, special features or materials may be employed here. In selecting these, it is important to remember the building's intellectual nature: formal manipulation is consistent with this role; overly rich finishes may be at odds with the academic tradition.

| | |
|---|---|
| Floor and base: | sealed colored concrete with hardwood base or vinyl tile with rubber base |
| Walls | painted gypsum wallboard with 50-percent feature wall material |
| Ceiling | acoustical tile, gypsum wallboard or metal panel |
| Doors | glass in curtain wall |
| Lighting | special lighting to provide proper illumination |

### Corridors

Corridors serve many functions in addition to their basic use for exit and access. These can become highly interactive areas, by incorporating adjacent areas for conversation and display. Interior glazing will provide indirect daylight, and connecting views to the classrooms.

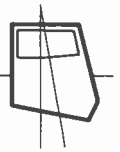
Corridors may be used for routing some utilities and building services. Exposing these systems and the use of feature ceiling materials such as accessible metal panels will physically distinguish these areas while allowing most maintenance access to occur outside of the instructional areas.

| | |
|---|---|
| Floor and base: | sealed colored concrete with hardwood base or vinyl tile with rubber base |
| Walls: | painted gypsum wallboard with glass as allowed at labs and offices |
| Ceiling: | exposed concrete with feature panels (metal) at lobbies |
| Lighting: | suspended direct/ indirect: |

### Stairs

Like corridors, stairs offer good potential for interaction. While these areas must be enclosed, perimeter location will encourage use, and they can become important sculptural elements in the building composition. After formal interest is satisfied, durability is the primary selection criteria for wall and floor materials. Stairs will be exposed steel frame with welded steel handrails.

| | |
|---|---|
| Floor and base: | precast treads |
| Walls: | painted gypsum wallboard |
| Ceiling: | painted gypsum wallboard |
| Special: | painted, steel stringers |



### Elevator Lobbies

These areas also provide opportunity for informal interaction. A freight/passenger elevator will be located in the Newark Center. There is the potential for another passenger elevator located adjacent to the 2nd floor and courtyard entry.

| | |
|---|---|
| Floor and base: | stone or plywood with hardwood base |
| Walls: | painted gypsum wallboard |
| Ceiling: | painted gypsum wallboard or metal panel |
| Lighting: | special lighting to provide proper illumination |

### Passenger Elevator

| | |
|---|---|
| Floor and base: | standard |
| Walls: | wood or metal |
| Ceiling: | wood or metal |
| Lighting: | special lighting to provide proper illumination |
| Special: | 3,500 Lbs, 250 feet per minute (FPM) |

### Freight Elevator

The freight elevator will be placed in proximity to the receiving area.

| | |
|---|---|
| Floor and base: | heavy duty |
| Walls: | sealed, cold-rolled steel |
| Doors: | textured stainless steel |
| Ceiling: | metal |
| Special: | 5,000 Lbs, 250 FPM |

### Teaching Laboratories

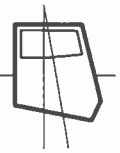
These rooms are described in detail in Section 5. These rooms must accommodate extended occupancy, providing occupant comfort in a technically demanding setting.

| | |
|---|---|
| Floor and base: | sheet vinyl with self-coving base or vinyl composition tile (VCT) with rubber base |
| Walls: | painted gypsum wallboard |
| Doors: | solid core wood with vision panel |
| Ceiling: | acoustic tile ceilings |
| Lighting: | suspended, direct/ indirect |

### Offices

There will be at least two room configurations. Offices will be furnished for one, two, or three occupants as described in Section 5.

| | |
|---|---|
| Floor and base: | Carpet with rubber base |
| Walls: | painted gypsum wallboard |
| Doors: | solid core wood |
| Ceiling: | acoustical tile |
| Lighting: | semi-recessed, direct/ indirect |



### Meeting Areas / Break Rooms

The various areas are typically characterized by high-interactive capacity. Where possible, location on the building perimeter will encourage use.

| | |
|---|---|
| Floor and base: | carpet with rubber base or vinyl tile with rubber base |
| Walls | painted gypsum wallboard |
| Doors | solid core wood |
| Ceiling | painted gypsum wallboard |

### Loading Dock / Mechanical Spaces

The loading dock has been located for access to the service road; this location can accommodate semi-tractor length vehicles without disruption to service road traffic.

| | |
|---|---|
| Floor and base: | sealed concrete |
| Walls | concrete masonry units (CMU), sealed and painted |
| Ceiling | exposed structure |
| Doors | 6'-0" metal doors; welded galvanized hollow metal frame, with vision panels |
| Lighting | overhead fluorescent fixtures |

## 7.3 | Code, Life Safety, Accessibility

*Assumptions for Building Design*

**Basis of Analysis:**

A. The California Building Code (CBC), 2001 edition is the basis of code analysis. (The 2001 amendments to the CBC were introduced in May 2002 and went into effect in November 2002.) It is assumed that, by the time of filing for this project, the 2003 code will have been adopted. An analysis at that time will be needed to determine whether this will have any substantial effect on code issues in the current design.

B. Applicable Codes:

| | | |
|---|---|---|
| 1. | California Building Code | 2001 CBC |
| 2. | California Mechanical Code | 2001 CMC |
| 3. | California Electrical Code | 2001 CEC |
| 4. | California Plumbing Code | 2001 CPC |
| 5. | California Energy Code | 2001 CEC |
| 6. | California Fire Code | 2001 CFC |
| 7. | California Elevator Safety Code | 2001 CESCC |
| 8. | CABO/ ANSI 117.1-98 | |

C. Code Uses:

1. Buildings will be Type II-1-hr, B occupancy, fully sprinklered.
2. There may be a component in the physical therapy/physical education areas for a combined Type II, A-3 occupancy.

**Occupancy Classifications:**

1. *Occupancy Group:* B offices with A-3 classrooms with occupant load greater than fifty.
2. *Occupant Load:* class laboratory / classroom

**General Building Limitations:**

*A. Location on Property:*

The general approach to planning will be to construct the Initial Phase as a single 150,000-gsf building, or as separate structures sharing area separation walls. If the single building approach is adopted, then the building will be surrounded by yards or public ways on four sides. CBC 503.1 applies and protection for exterior walls or opening is not required. The building will need to comply with applicable provisions for courtyards however. If the separate structures approach is taken, then the central courtyard will be subject to the sideyard provisions described above.

*B. Allowable Floor Area per CBC*

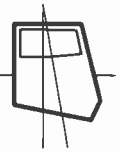
| | Total |
|---|---|
| Total Allowable for Type 'B' Building Areas | 144,000 |
| Total Allowable for Type 'A-3' Building Areas | 108,000 |
| Total Allowable Area GSF: | 248,000 |

Note: The area of any 1 or 2 story building of Group B occupancy shall not be limited if the building is provided with an automatic sprinkler system throughout and is surrounded by public ways or yards not less than 60-feet in width (Section 505.2)

3. *Maximum Height of Building* for B Occupancy, Type II-1-hr:

1. No. of stories permitted for Type II- 1 hr, B occupancy: 4
2. No. of stories permitted for Type II- 1 hr, A-3 occupancy: 2

Maximum height permitted: 65-feet



**Requirements Based on Type of Construction:**

*A. Type II Construction:*

*B. Fire Resistance Ratings of Structural Elements per CBC Tables 5- and 6-A:*

| | |
|---|---|
| 1. Bearing Walls – Exterior ('A-3'): | 2-hr NC less than 5-feet/1-Hr NC elsewhere |
| 2. Bearing Walls – Exterior ('B'): | 1-hour NC |
| 3. Bearing Walls - Interior: | 1-hour NC |
| 4. Nonbearing Walls - Exterior: | **same as bearing |
| 5. Structural Frame: | 1-hour |
| 5. Partitions - Permanent: | ***NC |
| 6. Shaft Enclosures: | 1-hour |
| 7. Floors and Floor-ceilings: | 1-hour Fire Rated |
| 8. Roofs and Roof-ceilings: | 1-hour Fire Rated |
| 9. Exterior Openings: | see sec. 602.3.2 |
| 10. Stairway Construction: and See sec. 602.4 | non-combustible |

* The exterior wall construction must be a minimum 4-hour rated construction when located less than 5'-0" from the assumed property line. Refer to table 5-A for requirements.

** Same as bearing except NR NC 40-feet or greater. Refer to CBC table 5-A and 6-A for requirements.

***Non-rated partitions are required to be constructed of materials required for 1-hour construction but are not required to be rated.

Note: Exterior Opening Requirements: openings less than 5-feet from assumed or real property lines are not permitted. 1-hour rating of openings is required when less than 20-feet to assumed or real property lines.

**Exiting Requirements:**

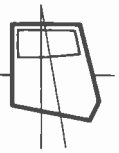
A. Per Section 304.2.2.1 for Group B Occupancy, every laboratory having a floor area of 200-square feet (sf) or more requires at least two separate exits or exit access doors and all portions of the room shall be within 75-feet of an exit. Per Exception 4 to Section 1004.2.2, only one such access to exit may be through an intervening room; all other access to exits must be directly from the lab to an exit corridor. See tables below for occupant load calculations and exit width requirements.

B. Exterior Exit balconies:
Existing exit balconies are permitted in an atrium. Up to 100-feet travel distance as allowed by Section 1004.2.5 may be an open exit access balcony within an atrium. Up to 50-percent of an atrium may exit through a horizontal exit.

C. Corridors:
Most circulation areas will probably be rated corridors rather than hallways since laboratories over 200-sf require 2-exits. One exit must connect directly to a rated exit enclosure. Laboratories are also required to be within 75-feet of an (rated) exit. Any break areas will need approval from the State Fire Marshal if placed in rated corridors.

D. Hallways:
Discrete office areas could have hallways in lieu of corridors if separated from (rated) corridors.

E. Stairways:
Require 0.3-inches width per occupant emergency access per CBC Table 10B.



### Accessibility Requirements

Stairs, door hardware, and restrooms in the building will be compliant with the Americans with Disabilities Act (ADA) and California Title 24 requirements. The access to upper floors is via elevators in the building. Note that in strict interpretation, existing stairs are not required to meet current code if elevators are provided that meet ADA requirements. This must be confirmed with Ohlone Community College District's disabled access policy and Division of the State Architect Access Compliance (DSA) requirements.

### Plumbing Fixture Count

The basis of design is the 2001 CBC. It is within the jurisdiction of Ohlone Community College District to determine if the 2001 CBC or the 2001 UPC is applicable. Fixture counts for each code will vary.

### Plumbing Fixture Count per 2001 CBC:

Plumbing fixture requirements are as determined by the 2001 CBC Chapter 29. For purposes of these calculations, values for "B" and "A-3" occupancies other than Group E (educational facilities) have been used.

Note: Areas excluded from occupancy calculations include equipment, storage rooms, circulation, etc.

Total building net occupied square footage for the Newark Center to be teaching labs is to be determined.

Occupant load factor per CBC table A-29-A for educational facilities other than Group E: 50sf / occupant for teaching labs

Plumbing Fixture Load Calculation:
8,866 sf/50 sf = 177 for each sex

Total Fixtures required for each sex (for teaching lab occupant load of 177):
Water closets (WC) at 1 per 40 = 4.4
Lavatories at 1 per 40 = 4.4

Total drinking fountains required:
Drinking fountain at 1 per 150-occupants = 177 / 150 = 1.18

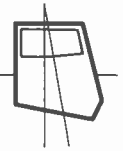
Occupant load factor per CBC table A-29-A for "B" Occupancy:
200sf / occupant for labs and office space

Occupant load factor per CBC table A-29-A for educational facilities other than Group E: 50sf / occupant for teaching labs

Plumbing Fixture Load Calculation:
sf/ 200 sf = for each sex
sf/50 sf = for each sex

Fixtures required for each sex (for teaching labs and office occupant load of 204): WC - 3 per 36-55 + 1 per 50 = total
Lavatories at 1 per 2 WC = 3.0

Fixtures required for each sex (for teaching lab occupant load of 86):
WC at 1 per 40
Lavatories at 1 per 40

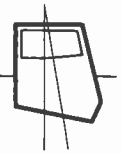


## Note Regarding Chemical Inventory

Ohlone Community College District will provide a hazardous materials inventory for review by DSA:

Based on review of the hazardous materials inventory a determination will be made as to whether the quantities of the various categories of materials all fall within the permitted quantities for classification of the building as Group B occupancy. This will, however, require that amounts in excess of legal maximums for Group B occupancies (if any) will have to be stored in separate "H" closets. A detailed chemical inventory analysis will be required, prior to filing for permit.

The campus will establish procedures for the regular pick up and disposal of hazardous materials from the teaching laboratories. These materials will be stored to allow for secondary containment in the event of accidental spills.



## 7.4 | Structural Systems

*Basis of Structural System Design*

### Introduction

The proposed Newark Center will be comprised of 1- to 4- architecturally and functionally integrated, but structurally independent, buildings. The new facility will provide 150,000 square feet of mixed-use floor space and include the following structures:

- Three structurally-separated, 2-story classroom buildings with a combined floor area of 150,000 square feet.

All buildings will be designed and constructed to comply with the applicable requirements for Type II construction.

According to the Geo-technical report, referenced later, the existing site is generally flat and underlain by expansive soils. The water table ranges from 7-feet to 11-feet below the existing grade. In view of the relatively light anticipated column and wall loads, a spread-footing foundation system is considered viable for all buildings. However, a foundation system utilizing driven precast-concrete piles may be used in lieu of spread footings if warranted by the loading conditions in any of the buildings.

As the site is located in a region of high seismicity, all buildings will be designed to resist code-prescribed lateral forces. The probability of geologic hazards such as soil liquefaction, lurching and lateral spreading at the building site is deemed by the Geo-technical report to be very low or remote.

### Superstructure Framing Options

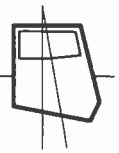
In general, the superstructure of each building may be constructed using any of the several possible structural framing systems. These structurally viable alternative framing systems include:

1. Option 1: Metal deck roofs and floors (with concrete topping at floors) supported on a 3-dimensional steel moment frame for both gravity and lateral loads.

   A steel moment-frame system offers maximum flexibility in architectural program by allowing large, unobstructed floor spaces. However, since it is generally difficult (and costly) to achieve high lateral stiffness for moment frames, buildings of this type undergo relatively large lateral displacements during an earthquake and there is usually a greater possibility of damage to the non-structural elements (ceilings, glass walls, windows, ducts, pipes, etc.). The construction cost of this system is typically higher than the other framing systems, primarily due to the larger and heavier members required and the high cost of moment connections.

2. Option 2: Metal deck roofs and floors (with concrete topping at floors) supported on steel beams and columns for gravity loads and by steel braced frames for lateral loads.

   A braced frame system helps cut the construction costs significantly by eliminating the need for costly beam-to-column moment connections and the heavier member sections required in Option 1. Most beams and columns in the building primarily resist gravity loads while braced frames, acting in conjunction with various beams and columns, resist the lateral loads. Since the building's lateral displacements are greatly reduced during an earthquake as compared to a moment-frame structure, the non-structural elements in a braced frame building enjoy a higher



degree of protection against damage. Architecturally, a braced frame system does place certain constraints on space utilization, but selecting an appropriate bracing configuration can easily accommodate door openings through braced bays.

3. Option 3: Concrete slab roofs and floors supported on concrete beams and columns for gravity loads and by concrete or masonry shear walls for lateral loads.

   Conceptually, a shear wall building works similar to a braced frame structure: beams and columns primarily support the gravity loads while shear walls resist the lateral forces. A concrete building typically has greater mass than a steel-framed structure and therefore requires heavier foundations. Shear walls also place major restrictions on space utilization and limit the flexibility to reconfigure floor space during future alterations. As for braced frames, however, door openings can be easily accommodated through the shear walls. Given the sizes of proposed buildings at the Newark Center, the construction costs for concrete shear wall structures are likely to be somewhat higher than for steel braced-frame buildings, though they are anticipated to be fairly competitive.

In view of the discussion above, a steel braced-frame structural system is considered to be the most suitable option for all buildings. This system is likely to place some restrictions on the architectural program, but is anticipated to be the least costly to construct. The discussion in subsequent sections assumes that the primary structural system in all buildings will consist of steel braced frames.

### Gravity Framing System

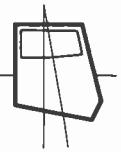
The roof system in all buildings will typically consist of 1-1/2-inch deep, 18-gage metal deck supported on a steel beam-girder-column framing system. In building areas such as gymnasium and cafeteria, where large column-free spaces may be required or considered desirable, the metal deck will be supported on steel beams that, in turn, are supported by long-span steel trusses. Alternatively, the metal deck may be supported directly on long-span, open-web steel joists, thereby eliminating the need for steel beams and trusses. The metal deck in all roof areas will be overlain rigid insulation and built-up roofing.

The suspended (second) floor in each building will be constructed of 3-1/4-inch thick normal weight concrete fill over 3-inch deep, 18-gage metal deck, which will be supported by the steel beam-girder-column framing system. Welded headed-studs will be provided over all beams and girders to achieve composite action for gravity loads and shear transfer between concrete and steel framing under lateral loads.

The wide-flange steel columns will be generally located on a 30-foot square grid, but this spacing may be different in areas such as the gymnasium and cafeteria, where longer spans may be necessary.

The first floor in all buildings will typically consist of a 6-inch thick reinforced concrete slab-on-grade. Closely spaced control joints will be provided in the slab for crack control. The slab will be underlain by a vapor barrier, a 2-inch sand layer and 4-inches of crushed rock. This prepared subgrade will be underlain by 18-inches (minimum) of non-expansive engineered fill. Placement of slab over prepared subgrade and engineered fill will require excavation of the upper 2-feet of the existing site soils.

All walls (interior and exterior) in each building will be of non-structural construction.



### Lateral Force Resisting System

The vertical lateral-load-resisting system in each building will consist of steel braced frames placed at selected locations along both principal directions. The roof and suspended floor(s) acting as horizontal diaphragms will provide distribution of lateral forces to the braced frames. Several bracing configurations – including chevron (inverted V), diagonal (X), eccentric (connection point does not occur at beam mid-span or ends), etc. – will be investigated to allow maximum flexibility for the architectural program. Both tube sections and wide-flange steel shapes will be considered for bracing members.

Bracing elements will be selectively covered up by finishes or painted and left exposed depending on architectural design objectives.

### Foundations

Recommendations for the foundation system described herein are based on the Geo-technical report titled *"Geo-technical Investigation, Proposed Newark Campus – Phase I, Newark, California."* This report was prepared for Sun Microsystems, Inc. by Wahler Associates and is dated May 1990. Recommendations of this report will be reviewed by the Geo-technical engineer in view of the current code requirements and updated as necessary.

The foundation system in each building will consist of isolated spread footings under columns and interconnecting grade beams. This will result in a well-integrated foundation system that will effectively transfer the superimposed loads to the underlying soil and help minimize differential settlements.

All footings will be placed over 2-feet (minimum) of non-expansive engineered fill. Excavation and removal of the native soil will be required for placement of the engineered fill.

### Design Criteria

The structural design of all buildings at the Newark Center will be performed in accordance with the applicable provisions of the *2001 California Building Code (CBC)*. The buildings will be specifically designed to resist wind and seismic lateral loads. Design values of applicable live loads, wind loads and seismic loads will be determined as prescribed in the 2001 CBC.

### Structural Materials

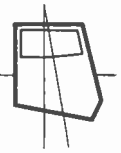
***Concrete***

- Normal-weight concrete with minimum compressive strength of 4,000 pounds per square inch (psi) at 28-days will be used for construction of slabs-on-grade, grade beams and spread footings.

- Normal-weight concrete with minimum compressive strength of 4,000 psi at 28-days will be used for the metal deck fill at suspended floors.

***Concrete Reinforcing***

- ASTM A615, Grade 60 deformed rebar, typical.
- ASTM A706 rebar, when welding is required.
- ASTM A185 welded wire fabric.

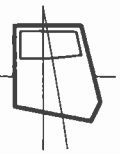


*Structural Steel*

- Shapes, bars, and plates: ASTM A572, Grade 50, typical.
- Wide flange shapes < 19 pounds/foot, C shapes, and angles: ASTM A36.
- ASTM 992 Grade 50 for lateral frames.
- Structural tubing: ASTM A500 Grade B.
- Pipes: ASTM A53.
- High strength bolts:
  - ASTM A325 Type X connection, typical.
  - ASTM A325 Type SC connection, at moment connections.
  - ASTM A490 Type SC connection, at brace end connections where appropriate.
- Machine bolts: ASTM A307, typical.
- Anchor bolts:
  - ASTM A307 at typical columns.
  - ASTM A354 Grade BD at braced frame columns.
- Headed studs: ASTM A108.
- Welding electrodes: E70xx.

*Metal Deck*

- Metal decking and accessories: ASTM A446, Grade A.
- Welding electrodes: E60xx.



## 7.5 | Mechanical & Plumbing Systems

*Assumptions for Systems Selection and Design*

The purpose of this document is to define the mechanical & electrical systems design criteria for the OCNC campus buildings.

### Mechanical Systems:

#### Chilled Water System

High efficiency evaporative condensing chillers (ECC's) will be located on the roofs of the buildings. The six ECC's will be mainifolded in sets of two to provide back up and redundancy. ECC manifolds will be isolated with normally closed manual valves. ECC sets will provide chilled water to roof mounted air handling units (AHUs). The chilled water system will be designed for constant flow with a primary pump for each chiller and three way valves at the air-handling units.

#### Air Handling System

The air handing system shall consist of roof mounted, double wall, modular air handling units connected to duct systems with variable air volume boxes (VAV). The air-handling units supply and return air fans shall be provided with variable frequency drives (VFD) and inlet flow measuring stations. AHUs shall be provided with cooling coils, heating coils, and energy recovery coils. VAV boxes shall have reheat coils.

#### Energy Recovery Systems

The air-handling units will be provided with energy recovery coils upstream of the AHU cooling and heating coils. Energy will be recovered from the classroom return system and will pre-heat or pre-cool the outside air make up to the classroom AHU, prior to the activation of the AHUs heating or cooling coils. The energy recovery coils will be piped to matching energy recovery coils in the classroom ductwork returns, prior to the roof discharge location. Interconnecting pipe work will have connections to facilitate future energy conserving systems.

#### Hot Water System

Natural gas fired forced draft boilers with two primary hot water pumps, will be located on the roof of each of the four buildings. The central hot water systems will provide hot water piped to each roof mounted AHU, and VAV reheat coils located throughout the buildings.

#### Fume and Laboratory Hoods

Fume and laboratory hoods will have dedicated exhaust systems with fireproof motors. Make up air will be provided through the base building AHU / VAV system.

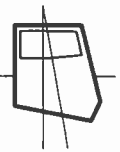
#### General Exhaust Systems

A common exhaust fan will serve restrooms, and janitor closets. Otherwise individual exhaust fans will be provided. Utility type fans will be mounted on spring vibration isolators and steel bases, as required, supported from concrete housekeeping pads. Curb mounted exhaust fans will be provided with internal vibration isolators for fan-drive assembly.

General exhaust fans will be utility type roof curb mounted with back draft damper. General exhaust ductwork will be of galvanized steel construction, 2-inch water gauge (WG) pressure classification.

#### Cafeteria and Kitchen Systems

Cafeteria and kitchen systems will be provided with dedicated kitchen hood supplies with grease hood exhaust systems. Cafeteria systems will be dedicated100-percent outside air (OA) with energy



recovery coils in cafeteria exhaust piped to energy recovery coils in the cafeteria AHU OA intake section.

### Building Automation System

The building automation system (BAS) for the mechanical systems shall be direct digital control (DDC). The system shall be fully integrated and have an open communications protocol to facilitate communications with other systems and provide gateways for communication with mechanical equipment with pre-wired stand-alone control systems. The system architecture shall include a workstation with color graphics system displays, and a systems network with all required controllers for complete monitoring and control of the mechanical system.

### Energy Conservation Options Under Consideration

### Option1: Class Room Ventilation Air Recovery Systems

This system is described above and is included currently as part of the base building systems.

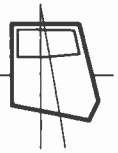
The AHUs will be provided with energy recovery coils upstream of the AHU cooling and heating coils. Energy will be recovered from the classroom return system and will pre-heat or pre-cool the outside air make up to the classroom AHU, prior to the activation of the AHU's heating or cooling coils. The energy recovery coils will be piped to matching energy recovery coils in the classroom ductwork returns, prior to the roof discharge location. Interconnecting pipe work will have connections to facilitate future energy conserving systems.

### Option 2: Underground Chilled Water Thermal Storage

Underground thermal storage tanks would be located in parts of the campus. Chilled water would be generated at night and at times when the ambient wet bulb temperature was favorable. The thermal storage system will take advantage of running the Evaporative Condensing Chillers (ECC's) at times when the utility rates are most attractive.

### Option 3: Geothermal Earth Coupled Systems

Geothermal earth coupled systems would be used in a limited way for areas requiring 24-hour air conditioning (AC) and or heating. These would function when the main building systems were off. These systems would support such programs as computer rooms, and telephone equipment rooms, etc. Water source heat pumps would be located in the spaces and piped to either ground water wells with re - injection capabilities, or polybutelyne piping buried 5- to 8-feet below grade. It is not anticipated that these systems would exceed a total tonnage of more than 200-tons.



## Plumbing Systems

### Cold and Hot Water Systems

Cold water and hot water supply system will be sized based on water demand per fixture called for in the California Plumbing Code with fixture quantities as indicated in Appendix C.

Hot water temperatures:

Restrooms and Break rooms: 110-degrees F

Cold-water hose bibb will be provided in men and women's restroom, below the counter.

Floor mounted janitor's sink will be provided, one per floor.

Water meter and pressure reducing valve will be provided at the entry of the water service to the building complex.

Hot water hose bibbs will be provided near chillers to facilitate maintenance.

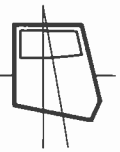
Multiple natural gas fired boilers will generate hot water (one for each building).

Local instantaneous under counter type electric water heaters may be provided for small remotely located fixtures requiring hot water.

Double check backflow preventers will be provided on make-up water supplies to chilled water system, heating water system and humidifiers.

Materials:

Hot and cold piping: 3-inch and smaller piping will be type K or L hard drawn copper tubing; 4-inch and larger piping will be schedule 40 galvanized steel pipe, ASTM A53.



### Sanitary Waste

A sanitary waste and vent system will be provided for all fixtures and equipment. All fixtures connected to this system will be trapped, internally or externally, and vented to atmosphere.

All sanitary waste piping and drains will be sized in accordance with the California Plumbing Code.

Floor drains with trap primers will be provided in restrooms, and elsewhere as required.

Below Grade: Cast iron, hubless pattern with 304 stainless steel clamps and neoprene rubber sleeve gaskets.

Above Grade: Cast iron, hubless pattern with 301 stainless steel clamps and neoprene rubber sleeve gaskets. Optional, for 2-1/2-inches and smaller, type DWV copper piping.

### Storm Drainage

A storm drainage system will be provided for each building to convey rainwater from primary and overflow roof drains.

Roof drains and storm drainage piping will be sized in accordance with the California Plumbing Code for 1.5-inches per hour (0.0166 gallons per minute (GPM)/square foot (SF)).

Install roof storm drainage in accordance with Factory Mutual (FM) Global Data Sheet 1-54.

Below Grade: Cast iron, hubless pattern with 304 stainless steel clamps and neoprene rubber sleeve gaskets.

Above Grade: Cast iron, hubless pattern with 301 stainless steel clamps and neoprene rubber sleeve gaskets. Optional, for 2-1/2-inches and smaller type DWV copper piping.

Equipment Drain System

Elevator pits will be provided with a dry sump, sump pump, and underground drain to a holding tank located outside of each building.

Rooftop air conditioning unit condensate drains will be terminated over roof storm drains.

Mechanical equipment drains, from chillers, heat exchangers and cooling towers, will be indirectly drained to sanitary waste system. Heat exchanger hot water drain will be provided with temperature regulator to limit effluent temperature to 140-degrees F or less.

Below Grade: cast iron, hubless pattern with 304 stainless steel clamps and neoprene rubber sleeve gaskets.

Above Grade: cast iron, hubless pattern with 301 stainless steel clamps and neoprene rubber sleeve gaskets. Optional, for 2-1/2-inches and smaller type DWV copper piping.

### Natural Gas

Natural gas will be provided to serve the natural gas fired boilers and the domestic instantaneous water heaters. Pipe will be schedule 40 black iron piping.

## 7.6 | Automatic Fire Sprinkler Systems

*Assumptions for Systems Design*

Newark Center will have a building-wide fire sprinkler system. Apart from general life safety concerns, incorporation of the sprinkler system will accommodate the high quantity assembly-type program area (classrooms) and reduce the need to fire-retardant treat the steel frame. The absence of sprinklers in a laboratory building is a life safety hazard.

The codes and standards listed below are minimum requirements. Nothing is to prevent the architect, engineer, or consultant from exceeding the applicable requirements.

### Applicable Codes:

California Building Code (Title 24, Part 2), 2001

California Fire Code (Title 24, Part 9), 2001

California Referenced Standards Code (Title 24, Part 12), 2001

### Reference Standards and Guidelines:

NFPA 13: Installation of Sprinkler Systems, latest edition

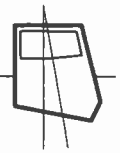
NFPA 24: Installation of private fire service mains and their appurtenances, latest edition

### Automatic Fire Sprinkler System(s):

A qualified design-build fire protection contractor will provide an automatic fire sprinkler system. This contractor's design will be based on performance specifications acceptable to the State Fire Marshal, and instructions on plumbing plans.

### Fire Protection Piping Materials:

Riser or cross-mains will be ASTM A 795 Steel Piping schedule 40 black steel pipe. All other sprinkler piping will be either ASTM A 795 schedule 40 black steel pipe, or ASTM B 88 Type K copper tube installed in an approved manner. Connections or fittings shall be threaded, flanged, grooved or welded.



## 7.7 | Electrical Systems

*Assumptions for Systems Selection and Design*

New electrical services will be established for each building. Design and construction will be in accordance with Pacific Gas & Electric (PG&E) standards and applicable codes.

PG&E systems constructed under this project will consist of primary cable extensions, pad-mounted transformers at each building, secondary cabling, all substructures, and excavation.

Service entrance busways will be provided where the service size exceeds 2500-amps at 480-volts. Busways will terminate at the PG&E padmounted transformer.

Common PG&E transformers will serve multiple buildings where practical and where main electrical rooms are in close proximity. The PG&E transformer installation will include concrete pad, protective bollards, and ground rods.

### Main Electrical Switchboards

New switchboards will be rated 480/277 volt 3-phase 4-wire; dead front; indoor, front accessible individually in vertically arranged module sand rear accessible and services. Switchboards will comply with all applicable provisions of UL891 and NEMA PB-2 for low voltage distribution switchboards; consider group mounting in the final design and no rear access (cost compare).

Equipment 3000-amps short circuit ratings will be determined from utility company available fault data. Exact fault current available at the point of service to be verified with P.G. & E. during design.

Switchboards will be constructed with silver-plated copper bars of 98-percent conductivity sized for 1000-amps per square inch current density. The main circuit breaker will be insulated case type with adjustable long-time delay and ampere setting, short-time delay and pickup, adjustable instantaneous pickup. Ground fault pickup and delay with trip indicator. Alternate option: Bolted pressure switch. Feeder breakers will be fully rated, group mounted, molded case type.

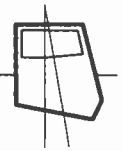
Underground service entrance sections will be provided for services up to 2500-amps for termination of incoming underground service conductors per P.G. & E. standards. Provide compartment for secondary utility metering.

The main switchboard will incorporate a surge protective device (SPD) listed per Underwriters Laboratory (UL) 1449 2nd edition for B2 location and exposure and integral to main switchboard.

Campus metering will be provided in addition to utility company required metering and provide multi-function microprocessor based mater for monitoring of system power and energy.

**Preliminary switchboard schedule:**

| | | |
|---|---|---|
| 1. | Library: | 800-amp 480/277 V |
| 2. | Classroom 1: | 1200-amp 480/277 V |
| 3. | Gym + Shop: | 800-amp 480/277 V |
| 4. | Student Services: | 800-amp 480/277 V |



## Grounding

Each electrical service will be provided with a code compliant grounding electrode system. A wall mounted ground bus in each electrical room will be the collecting point for all grounding electrode conductors. Exothermic connections will be made to this bus.

The grounding electrode system will consist of building steel, concrete encased conductor (Ufer), water main, and driven ground rods. Grounding electrodes will be interconnected and bonded to the main ground bus.

A single #3/0 grounding conductor will be extended to the TMGB from the electrical room ground bus.

Separate equipment grounding conductors will be included in all raceways and branch circuits. This includes 120/208-volt receptacle circuits, 277-volt lighting circuits, and motor circuits.

## Power Distribution System

Step down dry-type distribution transformers will be located in local electrical rooms to supply area 120/208-volt receptacle loads. Transformers will be dry type, 220-degree C insulation, 150-degree C rise, NEMA TP-1 compliant.

Panel boards will be indoor, surface mounted, with copper bus. Provide panel directory and nameplates; door-in-door construction with separate hinge. Panel to be fully rated, series rating not permitted.

120/208-volt panel boards will be located adjacent to step down transformers. 277/480-volt panel boards will be located in main electrical rooms and where the distance to outer lighting outlets exceeds 200-feet.

## General Purpose Power Density criteria:

This should match the drawing load summary

1.Corridors And Circulation Areas
- a. Lighting- .8 watt/sf
- b. Receptacle- 0.5 watt/sf

2. Classrooms
- a. Lighting- 1.5 watts/sf
- b. Receptacle- 3 watts/sf

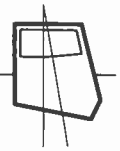
3. Computer labs
- a. Lighting- 1.2 watts/sf
- b. Receptacle- 10 -15 watts/sf

4.Mechanical/ Electrical Rooms
- a. Lighting- 1.0 watt/sf
- b. Power- Actual load connected or motor H.P.

5.Officea. Lighting 1.3 watt/sf
- b. Power 2.0 watts/sf

6. IT rooms:
- a. Lighting- 1.6 watt/sf
- b. Power- 20 watts/sf

7. Conference rooms
- a. Lighting- 1.6 watt/sf
- b. Power- 2 watts/sf not 75?



Demand Factors (.9 power factor)

1. Lighting - 100% of total VA (continuous load)
2. Receptacles - 100% of first 10 kVA plus 50% balance of total load Motors
3. 125% of largest motor plus sum of 100% of all motors.
4. Fixed Equipment - 100% of total VA.

## Lighting Systems

Design lighting levels will be consistent with IESNA and comply with Title 24 for allowable power densities.

Target illumination levels in average maintained foot-candles (fc) (measure on 30-inches above floor horizontal plane) will be:

| | |
|---|---|
| Mechanical/electrical rooms- | 30 fc |
| Office spaces- | 30-50 fc |
| Corridors- | 15-20 fc |
| Classrooms- | 30-50 fc |
| Computer labs- | 30-50 fc |
| Storage- | 15-20 fc |
| Restrooms- | 15-20 fc |

Dual level building master lighting will be provided in all spaces per Title 24 where the power density exceeds 0.8 watts /sf, more than one fixture is used, and the room measures more than 100-square feet. Corridors are excluded from the dual level-switching requirement.

In general fixtures will be lamped with T5 32 watt 4100K lamps. Ballasts will be electronic, HPF, <10-percent THD, with a ballast factor of at least 0.93.

Lighting controls will comply with Title 24 and consist of low voltage relays programmed by time clock for area occupancy. Local low voltage switches will be provided for user override of preset controls. Relay panels will be located in electrical rooms and will be connected to the campus BAS system for remote interface.

Lighting Fixtures will consist of the following:

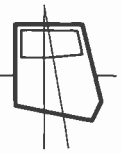
Offices:2 x 4 foot recessed 3-lamp fluorescent with parabolic diffuser or direct/indirect fixture
Corridors:2 x 2 foot recessed 2 –lamp fluorescent with acrylic prismatic lens or down lights
Classrooms: linear continuous row indirect fluorescent using T 5 lamping with perforated diffusers.
Linear continuous row indirect fluorescent using T 5 lamping 1 x 4 foot suspended 2 lamp industrial fixture slotted for 10-percent uplight
Stairwells: 1 x 4 foot 2-lamp surface mounted fixture with opal lens

Site lighting systems will pole mounted high-pressure metal halide fixtures. Pole height will be approximately 28-feet above grade (this will be confirmed and verified with the City). A rectangular fixture housing may be selected however this will be confirmed with the architect. Site lighting levels will meet or exceed IESNA recommended illumination. Consideration will be given to more stringent local codes and ordinances.

Campus pathway lighting may take the form of low height bollards using metal halide or lower height poles (e.g., 12-foot poles). Site lighting will be controlled via photocell and time clock through local relay panels.

## Emergency Egress Lighting

Selected fixtures will be equipped with integral battery units to achieve 90-minutes of illumination during loss of normal power. Integral test switches and pilot lights will be provided.



Emergency fixtures will be unswitched and located to illuminate the egress pathway to achieve code required illumination (1-fc average) and uniformity ratios (10:1). For 3-lamp emergency fixtures the center lamp will have battery power.

Exit Lighting fixtures will be low wattage LED type. The housing will be white aluminum stencil face housing with green letters.

In multi-use conference and lecture halls where the occupancy load exceeds 50, emergency lighting will be locally controlled with automatic sensing of normal power failure conditions. Should power fail at any time the emergency lighting will be energized to full output.

### Fire Alarm Signaling Systems

Each building will have a local fire alarm and control panel (FACP). The system will be microprocessor based and addressable.

A local annunciator will be located at the point of fire department entry to the building.

Space smoke detectors will be located per code and where door holders are required. Duct smoke detectors will be located where airflow exceeds 2,000-cubic feet per minute (cfm).

Pull stations will be located at exit doors.

Evacuation devices will consist of strobe and horns. Devices will be located in corridors, restrooms, classrooms, conference rooms, and similar public or meeting places. Provide synchronized strobe devices.

Firewater valve tamper switches and related water flow switched will be monitored at the FACP. The site PIV will be supervised.

### Branch Circuit Wiring and Raceway

Wiring systems will consist of color coded solid copper conductors for sizes #12 and smaller and stranded copper for sizes #10 and larger. For circuiting greater than 100-feet at 208/120-volts: use #10 AWG.

Use plenum cabling where acceptable for fire alarm and similar low voltage systems.

Raceway systems will consist of EMT conduit through except where subject to damage use RS or IMC. Final connection to motors: liquid tight flexible metal conduit.

Maintain the integrity of fire rated partitions and floors with UL listed fire stopping methods and materials.

### Mechanical Systems Interface

Distribution equipment will be located in mechanical rooms and on rooftops to serve fans, chillers, and related equipment. Motor control centers will be considered where control and distribution can be centralized.

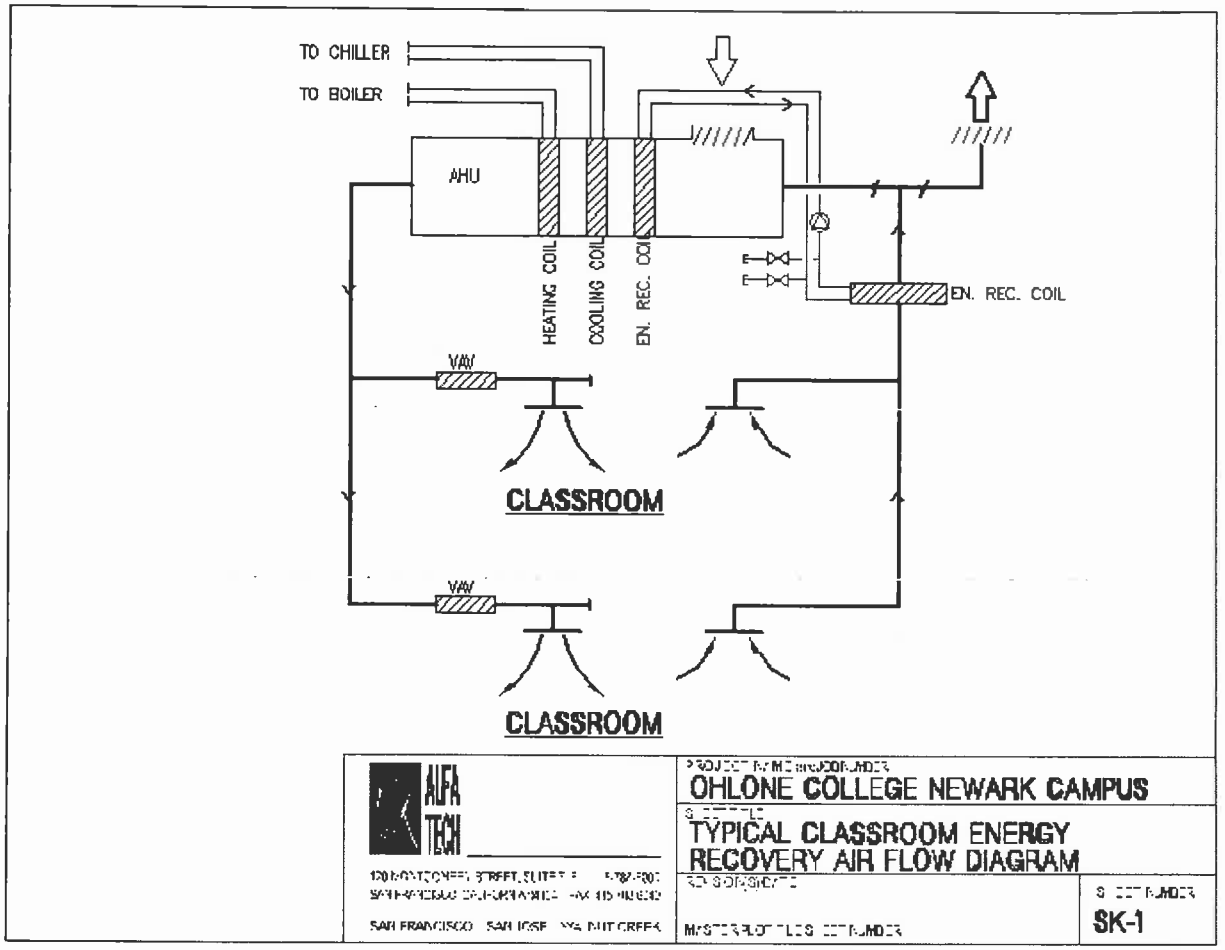
The typical voltage source configuration to motor loads will be 480-volts 3-phase 3-wire. Motors with a nameplate rating 75-horsepower (HP) and greater will have VFD controllers or equivalent reduced voltage starting.

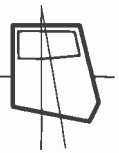
Provide 120-vold receptacles within 25-feet of mechanical equipment. Provide power to BMS control panels.

Provide power to new fire-smoke dampers. Duct detector relay base will shutdown related fan.

Provide local disconnect switches at each motor where the control panel does not include an integral switch.

Provide an energy management system compatible with the CSI controls system used at the Fremont campus, which allows remote access to the controls.





## 7.8| Acoustic and Noise Control

**Goals**
This is a design guide for controlling:
- Noise and vibration generated by air-handling systems, plumbing systems, and mechanical and electrical equipment
- The transfer of noise between rooms
- The build up of sounds within rooms
- Noise from mechanical systems impacting outdoor use spaces

These basic acoustical recommendations will be expanded in greater detail as the project develops.

The acoustical design shall follow the recommendations based on the Acoustical Society Of America's guide *"CLASSROOM ACOUSTICS -- A resource for creating learning environments with desirable listening conditions"*.

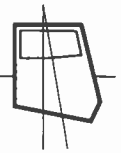
**Background Noise Levels and Air Velocities for Ductwork**
The air velocity should decrease at each duct branch from the fan discharge until the full velocity is reduced to that defined below. All ducts must be sized to account for the internal lining to meet these criteria. Do not place dampers directly behind the face of the terminal units; locate dampers a minimum of 10-feet upstream of diffusers. At 90-degree bends use airfoil turning vanes. Final duct branch air velocities must not exceed the following criteria by more than 100-feet per minute (fpm).

Recommended program noise criteria for the space types are as follows:

| Noise Criteria | Space Type | Maximum Air Velocity at the Diffuser |
|---|---|---|
| NC 25 | Distance Learning / Video Conferencing<br>Auditoriums / Theatres (Any space with open microphones or seats more than 200-people) | 325-fpm |
| NC 30-35 | General Classrooms<br>Conference Rooms | 380-fpm |
| NC 35 | Seminar Rooms<br>Small Meeting Rooms<br>Private Offices | 450-fpm |
| NC 40 | Open Plan Offices<br>Cafeterias<br>Laboratory Classrooms | 600-fpm |
| NC 45 | Hallways<br>Restrooms and Other Public Spaces | 800-fpm |
| NC 50-55 | Fume hoods noise levels at a distance of 5-feet from the sash, with sash open at operational height. | |

Noise criteria are discussed in the 1999 ASHRAE HVAC Applications Handbook, Chapter 46, titled, "Sound and Vibration Control".

Mechanical and electrical equipment, including ducts and water pipes, must not directly contact the ceiling or walls of spaces with criteria of NC 25 or less. Ducts, pipes, and conduit must not pass through these spaces. Drinking fountains and toilets must also be located away from these spaces.



**Air-Handling Systems**
Locate AHUs above storage, equipment, or machine rooms; do not locate the AHUs above spaces having criteria of NC 30 or less. Use separate AHU fan coil and fully ducted supply and return systems for the video conference room and other spaces which require "after hours use" for meetings with other sites.

The air-handling units must be supported on springs incorporating neoprene pads. The isolators are to be selected on the basis of static and dynamic load including thrust and rotational inertia. Each isolator must be selected independently for the load distribution of the equipment. Specifications are to require isolation hardware selections to be submitted and reviewed.

Provide the following minimum clearances:

- 48-inches between the rotating equipment and spaces having NC 25 or less criteria
- 15-inches above ductwork for spring hangers
- 2-inches clear under vibration-isolated equipment

**Fans**
When centrifugal fans are to be specified, backward inclined (airfoil) or forward curve blades are preferred. When applicable, internal cabinet insulation should be specified. Allow enough room at the inlet and discharge for at least 5 equivalent duct dimensions of straight ducting. Inlets and discharges directly beneath the fan wheels are discouraged.

The mechanical specifications are to include an octave band maximum sound power level for each major piece of mechanical equipment.

**Ducts**
For spaces with noise criteria less than NC 30, use internally lined sheet metal ductwork to serve rooms from the corridor (i.e., locate all duct trunks over corridor and only branch into room being served). Exposed duct should not be considered in such spaces.

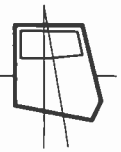
**Supply Air Ductwork**
Ductwork attached to the fan discharge should be connected with a flexible connector. Allow room for a 5-foot-long silencer near the fan. Allow for up to 2-inch-thick acoustical lining within 25-feet of the fan. Ductwork should have smooth transitions not exceeding 10-degrees. Use long radius elbows and straight ducts at the entry into all rooms. Avoid using bullhead tees. Turning vanes are to be the airfoil type.

Spring-type vibration isolation hangers are required for a minimum of 25-feet of lineal duct distance from the fan. From 25- to 50-feet, neoprene hangers are to be used.

**Return Air**
Return air should be ducted from spaces with noise criteria less than NC 30. Allow for return air duct branches to be lined with a minimum of 1-inch-thick acoustical lining as required.

Spring-type vibration isolation hangers are required for a minimum of 20-feet of lineal duct distance from the fan. From 20- to 40-feet, neoprene hangers are to be used.

**Variable Volume (VAV), Terminal Boxes, and Fan Coil Units**
Terminal boxes are not permitted in or above spaces having a noise criterion less than NC 30. The boxes serving spaces less than NC 30 should be located in adjacent corridor or storage area, and be 'up-sized' to minimize noise. Do not use fan-powered VAV boxes. All boxes require 10-feet of acoustically lined duct downstream prior to the diffuser.



**Diffusers, Registers, and Grilles**
Specify diffusers with an appropriate NC rating. Supply and return air outlets are required to meet the noise criteria. Diffuser test reports conforming to ADC 1062 Air Diffusion Council Test Code which contains octave band sound power levels, are to be submitted for spaces having NC 25 rating and less.

All ductwork serving spaces with noise criteria of NC 25 to 35 is to be lined for a minimum of 10-feet prior to the outlets. Dampers must be a minimum of 10-feet upstream of all outlets. Spaces with noise criteria of NC 25 and less require special consideration.

**Plumbing Systems**
Plumbing and rainwater leaders shall not be located within the ceiling or walls of spaces having a noise criterion of NC 25 or less. Regulate domestic water line pressure to 50-psig. Branch piping should have a maximum velocity of 6-feet per second (fps). Specify spring-loaded check-valves and water-hammer arresters.

Waste pipes are to be isolated using neoprene insulated clamps and resilient waffle pads under supports. Attach support only to one side of the double-wall framing. Cast iron waste pipe is recommended.

Sprinkler piping should be routed along corridors with a single penetration into each space.

**Penetrations**
Ducts penetrating the building structure should have a clear distance around their perimeter of 1-inch, $\pm$1/4inch. This perimeter void must be packed with glass-fiber batts at both ends and caulked airtight with a non-shrinking, non-hardening, flexible acoustical sealant. A backer rod should be used to caulk again.

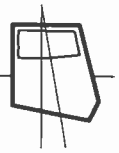
Piping penetrations less than 3-inches in diameter should be sealed. Larger pipes should be treated similar to ducts.

**Piping Isolation**
Vibration isolates all pipes except vents, gas, and sprinkler lines.

A. Ridge metal-to-metal contact between pipes and their supports or the structure is not permitted.
B. Small pipes (less than 3-inches in diameter) require neoprene mount or hanger isolation for the first 25-feet from prime mover
C. Small pipes beyond 25-feet require resilient sleeves at the point of attachment (i.e., neoprene condensation insulation, or pre-formed glass-fiber pipe, or insulated hangers.
D. Large pipes (3-inches in diameter and greater) require spring isolators with neoprene pads for the first 25-feet from a prime mover.
E. Large un-insulated pipes beyond 25-feet require neoprene mount or hanger isolation.
F. Waste pipes and rainwater leaders are to be attached using neoprene mounts or resilient sleeves.
G. Domestic water lines less than 1-inch in diameter can use proprietary resilient attachments or can be treated as small pipes beyond 25-feet (see "C" above).
H. Use flexible piping to connect all vibration-isolated rotating equipment.

**Electrical Equipment**
Transformers, motors, inverters, and UPS systems should have their maximum sound level specified at one meter in situ. They should be remotely located from acoustically critical spaces and be vibration-isolated. Neoprene-in-shear mounts should be used as vibration isolators.

Lighting dimmers should be remotely located in an enclosed room and vibration-isolated by means of neoprene-in-shear mounts.



Fluorescent or high-intensity lighting should not be used in spaces with NC 15 to NC 20 noise criteria unless ballasts are remotely located or are solid-state electronically controlled. Ballasts should be quiet, premium, or "A" sound-rated.

Rigid conduit must not bridge independent acoustic isolation walls. If bridging is necessary, flexible conduit is required. All mechanical and electrical equipment that is vibration-isolated should have flexible conduit connections.

Special detailing will be required for recessed fixtures, conduit, and electrical boxes in sensitive acoustical spaces.

**Sound Isolation**
To control the transfer of noise between critical spaces the following walls should be full height acoustical walls.

- Office party walls, walls around meeting rooms and other walls with a lower level of sound isolation requirements.
- Classroom walls with doors.
- Walls around acoustically critical spaces, mechanical rooms, distance learning rooms, should be double studded walls.
- Doors into classrooms, conference rooms, labs, and mechanical areas should be solid core acoustical doors with full perimeter gasketing.

**Room Acoustics**
To control the build up of sound within the classrooms, conference and meeting rooms, ceiling tiles should have a high Noise Reduction Coefficient (NRC) rating of 0.90 or higher.

To control the build up of sound within acoustically critical spaces such as distance learning rooms, gyms, auditoriums, etc. where speech communication is required, treatments should be made to follow the reverberation time guidelines as outlined by the ASA classroom acoustics guidelines.

To reduce discreet echoes in rooms that are larger than 60-feet in depth, (front of room to back of room) the rear wall should be treated with a sound absorptive system with a high rating of 0.90 or higher.

**Exterior Noise Control**
Continuous noise levels from exterior sources shall be controlled to the noise criteria rating level established for the space.

Transient noise levels are to be controlled to a level 10 NC points higher than that established for the space for no longer than 10-percent of the time, and to a level 5 NC points higher, for no longer than 33-percent of the time.

Fixed noise sources (roof top units, compressors, transformers, etc) are to be controlled to a noise level of NC 45 at exterior locations that are accessible to the public.

## 8.0 | Summary Schedule

OHLONE COLLEGE NEWARK CENTER FOR TECHNOLOGY & HEALTH SCIENCES

Mon 12/8/03

| ID | Task Name | Duration | Start | Finish |
|---|---|---|---|---|
| 1 | Deliver Final Master Plan Report to Ohlone | 1 day | Wed 12/10/03 | Wed 12/10/03 |
| 2 | Publish Final Report | 1 day | Wed 12/10/03 | Wed 12/10/03 |
| 3 | Site Package | 240 days | Mon 11/17/03 | Fri 10/15/04 |
| 4 | Develop base site plan | 46 days | Mon 11/17/03 | Fri 1/16/04 |
| 6 | Develop mass excavation and grading plans | 30 days | Mon 1/19/04 | Fri 2/27/04 |
| 5 | Develop utility plan(s) | 56 days | Mon 1/19/04 | Fri 4/2/04 |
| 7 | Site Construction Documents completed | 0 days | Fri 4/2/04 | Fri 4/2/04 |
| 8 | Approvals, Bidding & Award | 140 days | Mon 4/5/04 | Fri 10/15/04 |
| 9 | Submit Working Drawings to Board | 1 day | Mon 4/5/04 | Mon 4/5/04 |
| 10 | DSA Review of Working Drawings | 59 days | Tue 4/6/04 | Fri 6/25/04 |
| 11 | DSA Back check CD's | 26 days | Mon 6/28/04 | Fri 7/30/04 |
| 12 | State Fire Marshall Review | 46 days | Mon 5/3/04 | Fri 7/30/04 |
| 13 | Alameda County Fire Protection District Review | 74 days | Tue 4/6/04 | Fri 7/16/04 |
| 14 | Board Approval to Release Bids | 10 days | Mon 5/3/04 | Fri 5/14/04 |
| 15 | State Backcheck Review | 30 days | Mon 5/3/04 | Fri 6/11/04 |
| 16 | Prepare Detail Bid Instructions Package | 25 days | Mon 6/14/04 | Fri 7/16/04 |
| 17 | Bid Period | 54 days | Mon 7/19/04 | Thu 9/30/04 |
| 18 | Review Bids Received | 10 days | Fri 10/1/04 | Thu 10/14/04 |
| 19 | Board Award Contract | 1 day | Fri 10/15/04 | Fri 10/15/04 |
| 20 | Building Package | 376 days | Mon 2/16/04 | Mon 7/25/05 |
| 21 | Schematic Design | 66 days | Mon 2/16/04 | Fri 5/14/04 |
| 22 | Board Approval of Design Concept | 15 days | Mon 3/22/04 | Fri 4/9/04 |
| 23 | Design Development | 80 days | Mon 5/10/04 | Fri 8/27/04 |
| 24 | Board Approval of Design Development | 15 days | Mon 8/9/04 | Fri 8/27/04 |
| 25 | Distribute Drawings | 0 days | Fri 8/27/04 | Fri 8/27/04 |
| 26 | Construction Documents | 96 days | Mon 8/30/04 | Fri 1/7/05 |
| 27 | Prepare Detail Contract Package | 66 days | Mon 12/27/04 | Fri 3/25/05 |
| 28 | Submit Working Drawings to Board | 21 days | Mon 10/4/04 | Mon 11/1/04 |
| 29 | DSA Review of Working Drawings (Reduced for outside plan check) | 50 days | Mon 1/10/05 | Fri 2/18/05 |
| 30 | State Fire Marshall Review | 46 days | Mon 1/24/05 | Fri 3/25/05 |
| 31 | DSA Back check CD's | 25 days | Mon 3/28/05 | Fri 4/29/05 |
| 32 | Other Agency Reviews | 84 days | Mon 1/24/05 | Thu 5/19/05 |
| 33 | Board Approval to Release Bids | 20 days | Mon 4/24/06 | Fri 5/20/06 |
| 34 | State Approval to Release Bids | 1 day | Mon 5/2/05 | Mon 5/2/05 |
| 35 | Advertise Project | 19 days | Tue 5/3/05 | Fri 5/27/05 |
| 36 | Bid Period | 30 days | Mon 5/30/05 | Fri 7/8/05 |
| 37 | Review Bids Received | 10 days | Mon 7/11/05 | Fri 7/22/05 |
| 38 | Board Award Contract | 1 day | Mon 7/25/05 | Mon 7/25/05 |
| 39 | Construction | 749 days | Mon 10/18/04 | Thu 8/30/07 |
| 40 | Site Construction | 165 days | Mon 10/18/04 | Fri 6/3/05 |
| 41 | Building Construction | 499 days | Tue 7/26/05 | Fri 6/22/07 |
| 42 | Completion | 0 days | Thu 8/30/07 | Thu 8/30/07 |
| 43 | Move-In/Commissioning | 49 days | Mon 6/25/07 | Thu 8/30/07 |

November Nov | December Dec | January Jan | February Feb | March Mar | April Apr | May May

12/10 | 4/2 | 4/5

MBT Architecture
Full Architectural Schedule.mpp

Page 1

OHLONE COLLEGE NEWARK CENTER FOR TECHNOLOGY & HEALTH SCIENCES

Mon 12/8/03

| ID | Task Name | Duration | Start | Finish |
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| 1 | Deliver Final Master Plan Report to Ohlone | 1 day | Wed 12/10/03 | Wed 12/10/03 |
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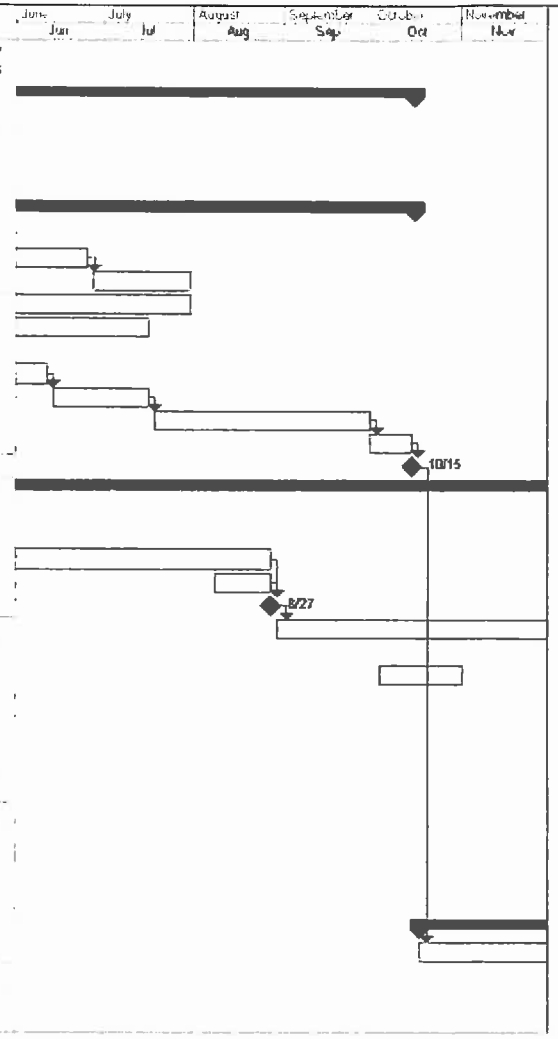
| 13 | Alameda County Fire Protection District Review | 74 days | Tue 4/6/04 | Fri 7/16/04 |
| 14 | Board Approval to Release Bids | 10 days | Mon 5/3/04 | Fri 5/14/04 |
| 15 | State Backcheck Review | 30 days | Mon 5/3/04 | Fri 6/11/04 |
| 16 | Prepare Detail Bid Instructions Package | 25 days | Mon 6/14/04 | Fri 7/16/04 |
| 17 | Bid Period | 54 days | Mon 7/19/04 | Thu 9/30/04 |
| 18 | Review Bids Received | 10 days | Fri 10/1/04 | Thu 10/14/04 |
| 19 | Board Award Contract | 1 day | Fri 10/15/04 | Fri 10/15/04 |
| 20 | Building Package | 376 days | Mon 2/16/04 | Mon 7/25/05 |
| 21 | Schematic Design | 66 days | Mon 2/16/04 | Fri 5/14/04 |
| 22 | Board Approval of Design Concept | 15 days | Mon 3/22/04 | Fri 4/9/04 |
| 23 | Design Development | 80 days | Mon 5/10/04 | Fri 8/27/04 |
| 24 | Board Approval of Design Development | 15 days | Mon 8/9/04 | Fri 8/27/04 |
| 25 | Distribute Drawings | 0 days | Fri 8/27/04 | Fri 8/27/04 |
| 26 | Construction Documents | 96 days | Mon 8/30/04 | Fri 1/7/05 |
| 27 | Prepare Detail Contract Package | 66 days | Mon 12/27/04 | Fri 4/22/05 |
| 28 | Submit Working Drawings to Board | 21 days | Mon 10/4/04 | Mon 11/1/04 |
| 29 | DSA Review of Working Drawings (Reduced for outside plan check) | 50 days | Mon 1/10/05 | Fri 3/18/05 |
| 30 | State Fire Marshall Review | 45 days | Mon 1/24/05 | Fri 3/25/05 |
| 31 | DSA Back check CD's | 25 days | Mon 3/28/05 | Fri 4/29/05 |
| 32 | Other Agency Reviews | 84 days | Mon 1/24/05 | Thu 5/19/05 |
| 33 | Board Approval to Release Bids | 20 days | Mon 4/24/06 | Fri 5/20/06 |
| 34 | State Approval to Release Bids | 1 day | Mon 5/2/06 | Mon 5/2/06 |
| 35 | Advertise Project | 19 days | Tue 5/30/06 | Fri 6/27/06 |
| 36 | Bid Period | 30 days | Mon 5/30/05 | Fri 7/8/05 |
| 37 | Review Bids Received | 10 days | Mon 7/11/05 | Fri 7/22/05 |
| 38 | Board Award Contract | 1 day | Mon 7/25/05 | Mon 7/25/05 |
| 39 | Construction | 749 days | Mon 10/18/04 | Thu 8/30/07 |
| 40 | Site Construction | 195 days | Mon 10/18/04 | Fri 8/5/05 |
| 41 | Building Construction | 499 days | Tue 7/26/05 | Fri 8/24/07 |
| 42 | Completion | 0 days | Thu 8/30/07 | Thu 8/30/07 |
| 43 | Move-In/Commissioning | 49 days | Mon 6/25/07 | Thu 8/30/07 |

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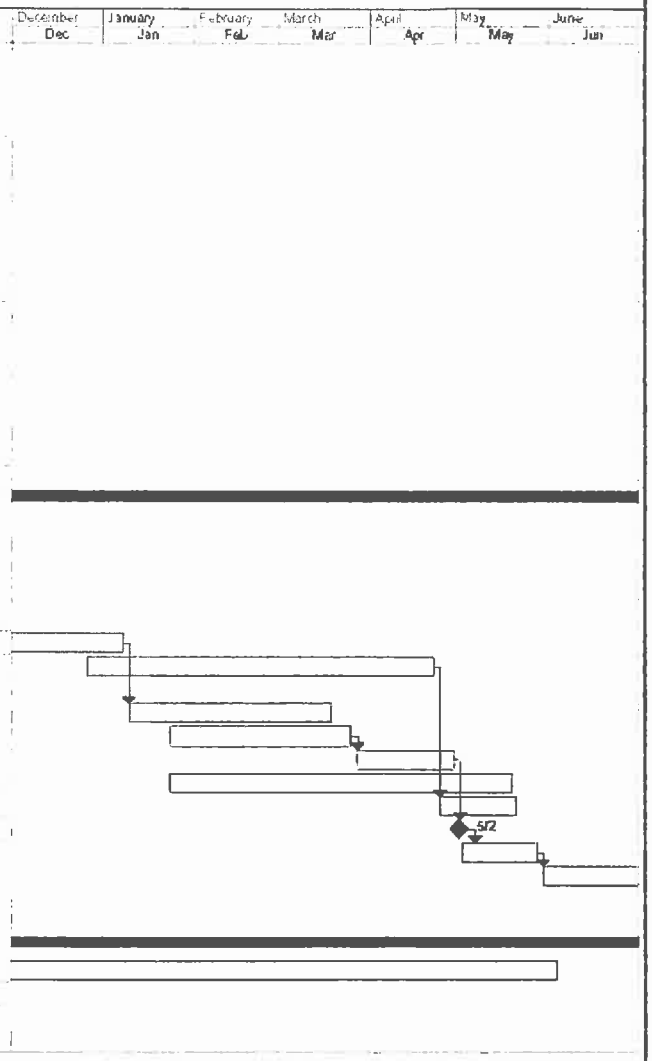
OHLONE COLLEGE NEWARK CENTER FOR TECHNOLOGY & HEALTH SCIENCES

| ID | Task Name | Duration | Start | Finish |
|---|---|---|---|---|
| 1 | **Deliver Final Master Plan Report to Ohlone** | **1 day** | **Wed 12/10/03** | **Wed 12/10/03** |
| 2 | **Publish Final Report** | **1 day** | **Wed 12/10/03** | **Wed 12/10/03** |
| 3 | **Site Package** | **240 days** | **Mon 11/17/03** | **Fri 10/15/04** |
| 4 | Develop base site plan | 46 days | Mon 11/17/03 | Fri 1/16/04 |
| 6 | Develop mass excavation and grading plans | 30 days | Mon 1/19/04 | Fri 2/27/04 |
| 5 | Develop utility plan(s) | 36 days | Mon 1/19/04 | Fri 4/2/04 |
| 7 | Site Construction Documents completed | 0 days | Fri 4/2/04 | Fri 4/2/04 |
| 8 | **Approvals, Bidding & Award** | **140 days** | **Mon 4/5/04** | **Fri 10/15/04** |
| 9 | Submit Working Drawings to Board | 1 day | Mon 4/5/04 | Mon 4/5/04 |
| 10 | DSA Review of Working Drawings | 59 days | Tue 4/6/04 | Fri 6/25/04 |
| 11 | DSA Back check CD's | 26 days | Mon 6/28/04 | Fri 7/30/04 |
| 12 | State Fire Marshall Review | 46 days | Mon 4/5/04 | Fri 7/30/04 |
| 13 | Alameda County Fire Protection District Review | 74 days | Tue 4/6/04 | Fri 7/16/04 |
| 14 | Board Approval to Release Bids | 10 days | Mon 5/3/04 | Fri 5/14/04 |
| 15 | State Back check Review | 30 days | Mon 5/3/04 | Fri 6/11/04 |
| 16 | Prepare Detail Bid Instructions Package | 25 days | Mon 6/14/04 | Fri 7/16/04 |
| 17 | Bid Period | 54 days | Mon 7/19/04 | Thu 9/30/04 |
| 18 | Review Bids Received | 10 days | Fri 10/1/04 | Thu 10/14/04 |
| 19 | Board Award Contract | 1 day | Fri 10/15/04 | Fri 10/15/04 |
| 20 | **Building Package** | **376 days** | **Mon 2/16/04** | **Mon 7/25/05** |
| 21 | Schematic Design | 66 days | Mon 2/16/04 | Fri 5/14/04 |
| 22 | Board Approval of Design Concept | 16 days | Mon 3/22/04 | Fri 4/9/04 |
| 23 | Design Development | 80 days | Mon 5/10/04 | Fri 8/27/04 |
| 24 | Board Approval of Design Development | 15 days | Mon 8/9/04 | Fri 8/27/04 |
| 25 | Distribute Drawings | 0 days | Fri 8/27/04 | Fri 8/27/04 |
| 26 | Construction Documents | 95 days | Mon 8/30/04 | Fri 1/7/05 |
| 27 | Prepare Detail Contract Package | 66 days | Mon 12/27/04 | Fri 4/22/05 |
| 28 | Submit Working Drawings to Board | 21 days | Mon 10/4/04 | Mon 11/1/04 |
| 29 | DSA Review of Working Drawings (Reduced for outside plan check) | 50 days | Mon 1/10/05 | Fri 3/18/05 |
| 30 | State Fire Marshall Review | 45 days | Mon 1/24/05 | Fri 3/25/05 |
| 31 | DSA Back check CD's | 25 days | Mon 3/28/05 | Fri 4/29/05 |
| 32 | Other Agency Reviews | 84 days | Mon 1/24/05 | Thu 5/19/05 |
| 33 | Board Approval to Release Bids | 20 days | Mon 4/25/05 | Fri 5/20/05 |
| 34 | State Approval to Release Bids | 1 day | Mon 5/2/05 | Mon 5/2/05 |
| 35 | Advertise Project | 19 days | Tue 5/3/05 | Fri 5/27/05 |
| 36 | Bid Period | 30 days | Mon 5/30/05 | Fri 7/8/05 |
| 37 | Review Bids Received | 10 days | Mon 7/11/05 | Fri 7/22/05 |
| 38 | Board Award Contract | 1 day | Mon 7/25/05 | Mon 7/25/05 |
| 39 | **Construction** | **749 days** | **Mon 10/18/04** | **Thu 8/30/07** |
| 40 | Site Construction | 185 days | Mon 10/18/04 | Fri 6/3/05 |
| 41 | Building Construction | 499 days | Tue 7/26/05 | Fri 8/24/07 |
| 42 | Completion | 0 days | Thu 8/30/07 | Thu 8/30/07 |
| 43 | Move-In/Commissioning | 49 days | Mon 6/25/07 | Thu 8/30/07 |

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OHLONE COLLEGE NEWARK CENTER FOR TECHNOLOGY & HEALTH SCIENCES

Mon 12/8/03

| ID | Task Name | Duration | Start | Finish |
|---|---|---|---|---|
| 1 | Deliver Final Master Plan Report to Ohlone | 1 day | Wed 12/10/03 | Wed 12/10/03 |
| 2 | Publish Final Report | 1 day | Wed 12/10/03 | Wed 12/10/03 |
| 3 | Site Package | 240 days | Mon 11/17/03 | Fri 10/15/04 |
| 4 | Develop base site plan | 46 days | Mon 11/17/03 | Fri 1/16/04 |
| 5 | Develop mass excavation and grading plans | 30 days | Mon 1/19/04 | Fri 2/27/04 |
| 6 | Develop utility plan(s) | 58 days | Mon 1/19/04 | Fri 4/2/04 |
| 7 | Site Construction Documents completed | 0 days | Fri 4/2/04 | Fri 4/2/04 |
| 8 | Approvals, Bidding & Award | 140 days | Mon 4/5/04 | Fri 10/15/04 |
| 9 | Submit Working Drawings to Board | 1 day | Mon 4/5/04 | Mon 4/5/04 |
| 10 | DSA Review of Working Drawings | 59 days | Tue 4/6/04 | Fri 6/25/04 |
| 11 | DSA Back check CD's | 26 days | Mon 6/28/04 | Fri 7/30/04 |
| 12 | State Fire Marshall Review | 46 days | Mon 5/31/04 | Fri 7/30/04 |
| 13 | Alameda County Fire Protection District Review | 74 days | Tue 4/6/04 | Fri 7/16/04 |
| 14 | Board Approval to Release Bids | 10 days | Mon 5/3/04 | Fri 5/14/04 |
| 15 | State Backcheck Review | 30 days | Mon 5/3/04 | Fri 6/11/04 |
| 16 | Prepare Detail Bid Instructions Package | 25 days | Mon 6/14/04 | Fri 7/16/04 |
| 17 | Bid Period | 54 days | Mon 7/19/04 | Thu 9/30/04 |
| 18 | Review Bids Received | 10 days | Fri 10/1/04 | Thu 10/14/04 |
| 19 | Board Award Contract | 1 day | Fri 10/15/04 | Fri 10/15/04 |
| 20 | Building Package | 376 days | Mon 2/16/04 | Mon 7/25/05 |
| 21 | Schematic Design | 65 days | Mon 2/16/04 | Fri 5/14/04 |
| 22 | Board Approval of Design Concept | 15 days | Mon 3/22/04 | Fri 4/9/04 |
| 23 | Design Development | 80 days | Mon 5/10/04 | Fri 8/27/04 |
| 24 | Board Approval of Design Development | 15 days | Mon 8/9/04 | Fri 8/27/04 |
| 25 | Distribute Drawings | 0 days | Fri 8/27/04 | Fri 8/27/04 |
| 26 | Construction Documents | 96 days | Mon 8/30/04 | Fri 1/7/05 |
| 27 | Prepare Detail Contract Package | 86 days | Mon 12/27/04 | Fri 4/22/05 |
| 28 | Submit Working Drawings to Board | 21 days | Mon 10/4/04 | Mon 11/1/04 |
| 29 | DSA Review of Working Drawings (Reduced for outside plan check) | 50 days | Mon 1/10/05 | Fri 3/18/05 |
| 30 | State Fire Marshall Review | 45 days | Mon 1/24/05 | Fri 3/25/05 |
| 31 | DSA Back check CD's | 25 days | Mon 3/28/05 | Fri 4/29/05 |
| 32 | Other Agency Reviews | 84 days | Mon 1/24/05 | Thu 5/19/05 |
| 33 | Board Approval to Release Bids | 20 days | Mon 4/25/05 | Fri 5/20/05 |
| 34 | State Approval to Release Bids | 1 day | Mon 5/2/05 | Mon 5/2/05 |
| 35 | Advertise Project | 19 days | Tue 5/3/05 | Fri 5/27/05 |
| 36 | Bid Period | 30 days | Mon 5/30/05 | Fri 7/8/05 |
| 37 | Review Bids Received | 10 days | Mon 7/11/05 | Fri 7/22/05 |
| 38 | Board Award Contract | 1 day | Mon 7/25/05 | Mon 7/25/05 |
| 39 | Construction | 749 days | Mon 10/18/04 | Thu 8/30/07 |
| 40 | Site Construction | 148 days | Mon 10/18/04 | Fri 5/13/05 |
| 41 | Building Construction | 499 days | Tue 7/26/05 | Fri 8/24/07 |
| 42 | Completion | 1 days | Thu 8/30/07 | Thu 8/30/07 |
| 43 | Move-In/Commissioning | 49 days | Mon 6/25/07 | Thu 8/30/07 |


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OHLONE COLLEGE NEWARK CENTER FOR TECHNOLOGY & HEALTH SCIENCES

Mon 12/8/03

| ID | Task Name | Duration | Start | Finish |
|---|---|---|---|---|
| 1 | Deliver Final Master Plan Report to Ohlone | 1 day | Wed 12/10/03 | Wed 12/10/03 |
| 2 | Publish Final Report | 1 day | Wed 12/10/03 | Wed 12/10/03 |
| 3 | Site Package | 240 days | Mon 11/17/03 | Fri 10/15/04 |
| 4 | Develop base site plan | 46 days | Mon 11/17/03 | Fri 1/16/04 |
| 6 | Develop mass excavation and grading plans | 30 days | Mon 1/19/04 | Fri 2/27/04 |
| [illegible] | Develop utility plan(s) | 56 days | Mon 1/19/04 | Fri 4/2/04 |
| 7 | 5% Construction Documents completed | 0 days | Fri 4/2/04 | Fri 4/2/04 |
| 8 | Approvals, Bidding & Award | 140 days | Mon 4/5/04 | Fri 10/15/04 |
| 9 | Submit Working Drawings to Board | 1 day | Mon 4/5/04 | Mon 4/5/04 |
| 10 | DSA Review of Working Drawings | 59 days | Tue 4/6/04 | Fri 6/25/04 |
| 11 | DSA Back check CD's | 26 days | Mon 6/28/04 | Fri 7/30/04 |
| 12 | State Fire Marshall Review | 46 days | Mon 5/3/04 | Fri 7/9/04 |
| 13 | Alameda County Fire Protection District Review | 74 days | Tue 4/6/04 | Fri 7/16/04 |
| 14 | Board Approval to Release Bids | 10 days | Mon 5/3/04 | Fri 5/14/04 |
| 15 | State Back check Review | 30 days | Mon 5/3/04 | Fri 6/11/04 |
| 16 | Prepare Detail Bid Instructions Package | 25 days | Mon 6/14/04 | Fri 7/16/04 |
| 17 | Bid Period | 54 days | Mon 7/19/04 | Thu 9/30/04 |
| 18 | Review Bids Received | 10 days | Fri 10/1/04 | Thu 10/14/04 |
| 19 | Board Award Contract | 1 day | Fri 10/15/04 | Fri 10/15/04 |
| 20 | Building Package | 376 days | Mon 2/16/04 | Mon 7/25/05 |
| 21 | Schematic Design | 66 days | Mon 2/16/04 | Fri 5/14/04 |
| 22 | Board Approval of Design Concept | 15 days | Mon 3/22/04 | Fri 4/9/04 |
| 23 | Design Development | 80 days | Mon 5/10/04 | Fri 8/27/04 |
| 24 | Board Approval of Design Development | 15 days | Mon 8/9/04 | Fri 8/27/04 |
| 25 | Distribute Drawings | 0 days | Fri 8/27/04 | Fri 8/27/04 |
| 26 | Construction Documents | 96 days | Mon 8/30/04 | Fri 1/7/05 |
| 27 | Prepare Detail Contract Package | 66 days | Mon 12/27/04 | Fri 4/22/05 |
| 28 | Submit Working Drawings to Board | 21 days | Mon 10/4/04 | Mon 11/1/04 |
| 29 | DSA Review of Working Drawings (Reduced for outside plan check) | 50 days | Mon 1/10/05 | Fri 3/18/05 |
| 30 | State Fire Marshall Review | 45 days | Mon 1/24/05 | Fri 3/25/05 |
| 31 | DSA Back check CD's | 25 days | Mon 3/28/05 | Fri 4/29/05 |
| 32 | Other Agency Reviews | 84 days | Mon 1/24/05 | Thu 5/19/05 |
| 33 | Board Approval to Release Bids | 20 days | Mon 4/25/05 | Fri 5/20/05 |
| 34 | State Approval to Release Bids | 1 day | Mon 5/2/05 | Mon 5/2/05 |
| 35 | Advertise Project | 19 days | Tue 5/3/05 | Fri 5/27/05 |
| 36 | Bid Period | 30 days | Mon 5/30/05 | Fri 7/8/05 |
| 37 | Review Bids Received | 10 days | Mon 7/11/05 | Fri 7/22/05 |
| 38 | Board Award Contract | 1 day | Mon 7/25/05 | Mon 7/25/05 |
| 39 | Construction | 749 days | Mon 10/18/04 | Thu 8/30/07 |
| 40 | Site Construction | 195 days | Mon 10/18/04 | Fri 6/3/05 |
| 41 | Building Construction | 499 days | Tue 7/26/05 | Fri 8/22/07 |
| 42 | Completion | 0 days | Thu 8/30/07 | Thu 8/30/07 |
| 43 | Move-In/Commissioning | 49 days | Mon 6/25/07 | Thu 8/30/07 |

March Mar | April Apr | May May | June Jun | July Jul | August Aug

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