

# The Playground Project

## Final Report



**California State University East Bay**  
Project Management 658, Spring 2023

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## Introduction

**EastBay Consulting** is hired to create a project plan for the Playground Project. EastBay Consulting consists of 8 Project Managers working together and presenting the Playground Project, the project to build a playground in the CAL STATE CSUEB Child Development Center, part of Hayward Parks and Recreation area.

We are a group of Project Managers with a wide variety of experience and creative approach. We pride ourselves on our hard work and quality of our projects. As a team we bring in wealth of experience and knowledge and provide our clients with the following competitive advantages and effective ability to offer the following services to our clients:

1. Planning and organizing: to define project scope, create a project plan, and organize project resources.
2. Time management: to manage time effectively to meet project deadlines.
3. Communication: to communicate effectively with project stakeholders, team members, and other interested parties.
4. Risk management: to identify potential project risks and develop plans to mitigate them.
5. Leadership: to provide direction, motivation, and support to project team members.
6. Budgeting and financial management: to manage project costs and budget resources.
7. Quality management: to ensure that project deliverables meet the required standards and quality.
8. Problem-solving: to identify and solve problems that arise during the project.
9. Negotiation: to negotiate effectively with project stakeholders and team members.
10. Adaptability: to adapt to changing project requirements and circumstances.

## **Project Scope**

Based on the initial request from the CSU East Bay the institution is requesting development of a project plan for construction of an age-appropriate playground in the area adjacent to the Child Development Center of the Hayward campus of Cal State East Bay. Currently the area is lacking a well-designed age-appropriate playground area.

## **Project Goal**

The goal of our project is to create a Playground Project Plan for CSUEB Hayward Parks and Recreational area to be completed within the 2024 Spring Semester.

Constructing a playground can seem overwhelming, but East Bay Consulting will lead you through the steps and provide you with the most executable plan for the project. Below we have identified the following components for a successful project execution.

## **Project Objectives**

The following are the Project Objectives that we have identified for the project:

- To generate a feasible Playground Project Plan, that can be used as a model for building playground(s) in Hayward Parks and Recreation area, based on a template created by EastBay Consulting Group
- To create a constructible project plan considering legal, stakeholder concerns, weather conditions, and budgeting considerations
- Achieve stakeholder understanding and support for the project
- To furnish an executable timeline and verified project completion document that outlines the detailed steps and activities required to complete this project.

## **Project Deliverables**

**EastBay Consulting** will provide CSU East Bay with a comprehensive and detailed plan that will serve as a roadmap for the Hayward Parks and Recreation Area to build the playgrounds from the beginning of the project to its completion. It will include the following elements: Project Scope and Objectives, Work Breakdown Structure, Resource Requirements, Project Schedule, Risk Management Plan, Communication Plan, Budget, and Financial Plan.

## **Identifying the Problem**

This project is focused on solving a problem of adding necessary, age-appropriate playgrounds throughout the Hayward Area, and specifically in CSU East Bay Child Development Center. It will help CSU East Bay to understand what is involved and what considerations need to be considered, guidelines to educate the community about the project under consideration, what resources are needed for the project to be successful.

## **Milestones**

Stakeholder meeting	1 month 20 days
Implementation meeting	2 months 10 days
Construction start	11 months 11 days
Opening ceremony	14 months 9 days

## Execution Steps

EastBay Consulting has identified the following standardized steps in order to complete a playground project. We have tailored the steps to meet the criteria of this specific project.

1. **Site selection and preparation:** This involves selecting a suitable site for the playground, preparing the ground, and ensuring that the site meets safety requirements.

Site Selection was identified prior to the start of the project as an area adjacent to the Child Development Center in CSU EAST BAY. It has been identified as an area that meets the construction requirement and safety requirements for the construction of the playground

2. **Design and Planning:** This involves creating a design for the playground that meets the needs of the community and the intended age group, and includes equipment such as swings, slides, and climbing structures.

Standard design has been approved by CSU EAST BAY and Hayward Parks and Rec and East Bay Consulting is following an approved engineering plan.

3. **Materials and Equipment selection:** This involves selecting the appropriate materials and equipment for the playground, including the types of materials used for surfaces, equipment, and fencing.

Cal State East Bay retains a list of preferred vendors and materials that will be utilized in the construction of the playground.

4. **Project Funding Sources and Budgeting:** This involves creating a budget for the playground project, including costs for materials, equipment, labor, and any additional expenses that may arise.

Funding Sources include Alameda County Disaster Recovery Funds, City of Hayward Parks and Recreation Funds and budget allocated for construction/repairs of the CSUEB Child Development Center.

5. **Project Management:** This involves managing the construction process, including overseeing the project timeline, ensuring that the project stays within budget, and ensuring that all safety requirements are met.

6. **Communication Plan:** East Bay Consulting will perform a survey, provide a data analysis and communication initiative to engage CSU East Bay student parents, residents and CSU East Bay with marketing information, construction notices, and other media regarding the playground project.

7. **Construction and Installation:** This involves building the playground, installing the equipment, and ensuring that all safety features are in place.  
East Bay Consulting will be responsible for project management, project plan and construction management for the playground project.
8. **Inspection and Testing:** This involves inspecting the playground and testing all equipment to ensure that it meets safety standards and is ready for use.  
Legal and construction inspections will be handled by CSUEB and assumed to be completed.
9. **Grand Opening:** This involves hosting a grand opening ceremony for the playground, inviting the community to come and use the new facility.

Throughout the playground construction project, it is important to work closely with stakeholders, such as local authorities, community members, and park users, to ensure that the playground meets the needs of the community and is a safe and enjoyable place for children to play.

## **Limitations and Exclusions**

**Funding Sources and Budget:** Funding for the project is identified through the State Grant that was awarded to Hayward Parks and Recreation Area to help offset and repair the damage after floods and wind in December 2022. ACGOV has announced that Hayward Area will receive grants to repair buildings and structures damaged by the rain and floods.

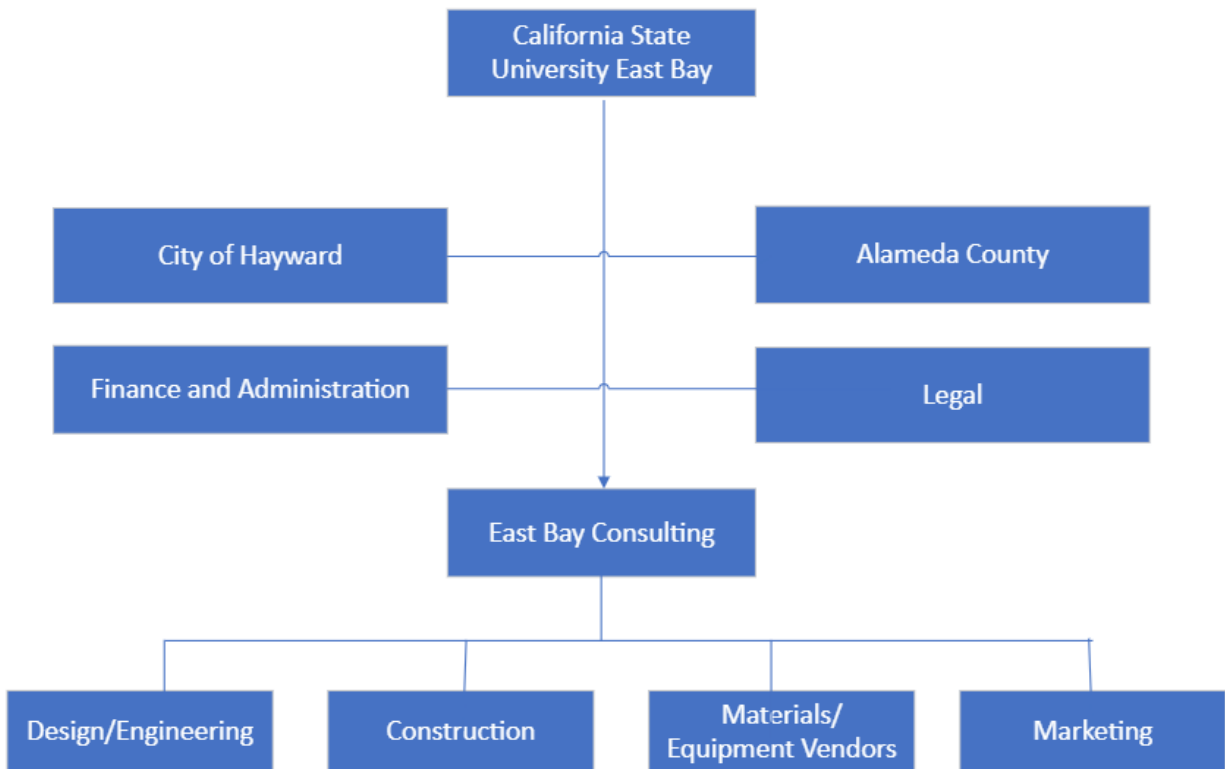
**Site Selection:** The site was identified prior to the start of the project as an area adjacent to the Child Development Center in CSU EAST BAY. It has been identified as an area that meets the construction requirement and safety requirements for the construction of the playground.

**Inspection and Testing:** This involves inspecting the playground and testing all equipment to ensure that it meets safety standards and is ready for use.

**Legal Procedures and Construction Inspections** will be handled by CSUEB staff and assumed to be completed.

## Project planning

### 1. Project organization



- A. California State University East Bay (CSUEB):** Before the project began, a location for Site Selection was chosen at CSU East Bay, close to the Child Development Center. It has been recognized as a location that satisfies the building and safety specifications needed to build the playground.

- B. City of Hayward:** By engaging with stakeholders and providing support for the project, the city can help the project organization achieve its goal and deliver value to the community.
- C. Alameda County:** Complies with applicable regulations and laws and contributes to the county's overall development and success. By engaging with stakeholders and providing support for the project, the county can help the project organization achieve its goals and deliver value to the community
- D. Finance and Administration:** This entails developing a budget for the playground project that accounts for expenditures for labor, materials, and other potential costs. Finding sources include the Alameda County Disaster Recovery Funds, the City of Hayward Parks & Recreation Funding, and the CSUEB Child Development Center construction/repair budget.
- E. Legal:** The legal department is essential to the organization of a project because it offers direction and help to make sure the project is protected from hazard and compliance with the law.
- F. East Bay Consulting:** It was contracted to develop a project plan for the playground project. The Playground Project is being presented by EastBay Consulting, a team of 7 project managers, and will be built at the CAL STATE CSUEB Child Development Center, which is a part of the Hayward Parks and Recreation area.
- G. Design/Engineering:** This involves creating a design for the playground that meets the needs of the student parents & community and the intended age group, and includes equipment such as swings, slides, and climbing structures. Standard design has been approved by CSU EAST BAY and Hayward Parks and Rec and East Bay Consulting is following an approved engineering plan.
- H. Construction:** This entails creating the playground, setting up the tools, and making sure all the safety precautions are in place. For the playground project, East Bay Consulting will oversee project management, project planning, and construction management.
- I. Materials/Equipment Vendors:** This entails picking out the proper playground supplies, such as the sorts of materials used for surfaces, swings, and fences. A list of recommended suppliers and supplies for the playground's construction is kept on file by Cal CSU East Bay.



- J. Marketing:** It plays a critical role in ensuring that a project's objectives are aligned with customer needs and communicated effectively to the target audience. By engaging with stakeholders and measuring performance, marketing can help the project organization achieve its goal and deliver value to its customers.

## 2. Project Resources

A school playground construction project requires a range of resources to ensure its successful completion. Here are some of the key resources required for a school playground construction project:

**1. Project Team:** A project team is a critical resource required for a playground construction project. This team typically includes a project manager, architects, engineers, contractors, and other professionals who are responsible for designing and building the playground.

**2. Materials:** Playground equipment, safety surfacing, fencing, and landscaping materials are all essential resources required for a playground construction project. The materials used must meet safety standards and be durable enough to withstand heavy use.

**3. Equipment:** A range of equipment is required for the playground construction project, including excavators, bulldozers, cranes, concrete mixers, safety equipment and other heavy equipment.

**4. Tools:** A variety of tools, including hand tools and power tools like measuring tools, shaping tools, digging tools, drills, saws, hammers, screwdrivers, wrenches, and shovels, are required for the construction of the playground.

**5. Transportation:** Transportation is an essential aspect of any construction project. It is required to move materials, equipment, and workers to and from the construction site like trucks, trailers, vans, forklift, and cranes.

**6. Permits and Approvals:** Before starting the construction of a school playground project, it is important to obtain the necessary permits and approvals from local and state

authorities like Building permits, zoning permits, environment permits and inspection approvals.

**7. Funding:** A comprehensive Funding is required that covers all the costs associated with the project, including labor costs, material costs, equipment rental or purchase costs, permit and approval fees, and any other miscellaneous expenses.

**8. Time:** Sufficient time is required to complete the construction of the playground, including time for design, procurement, construction, quality assurance, and handover and any unexpected delays or issues that arise during construction.

**9. Expertise and Experience:** Since the construction will happen in school expertise and experience in playground construction are required to ensure that the project meets safety standards and functions properly like quality control experts and safety experts.

**10. Communication and Coordination:** Effective communication and coordination between the project team, stakeholders, and contractors are essential to ensure the project's success. You will need to use communication and collaboration tools such as project management software, video conferencing tools, and email to keep everyone informed and engaged.

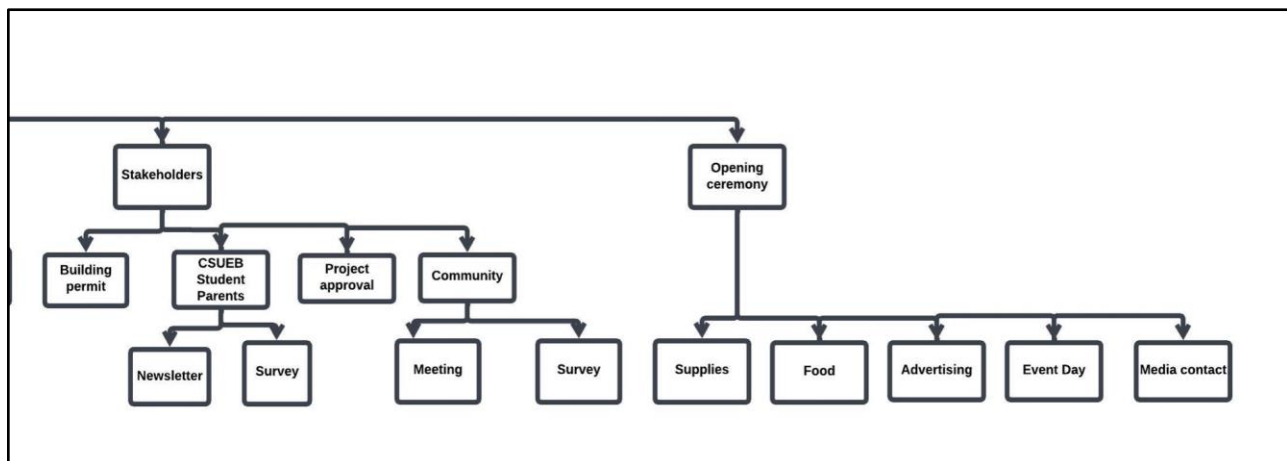
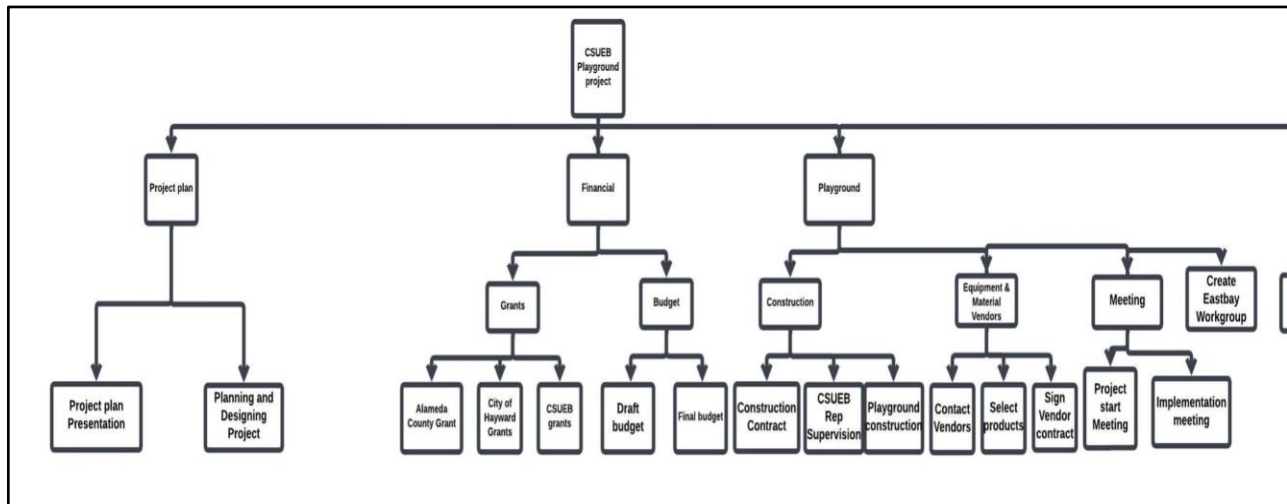
Overall, the resources required for a playground construction project must be carefully planned and managed to ensure that the project is completed on time, within budget, and to the required quality standards.

### **3. Work breakdown structure and organization breakdown structure:**

The work breakdown structure in construction is a hierarchical way of organizing a building project. The WBS is the structure and code that integrates and relates all project work like scope, schedule, and cost. After the scope and deliverable of the project is finalized, the work of the project is subdivided into smaller work elements. The structure from this process is called **WBS** (Work breakdown structure). All the work contained within the WBS is to be identified, estimated,

scheduled, and budgeted. The smallest level will have several work packages which is then grouped with type of work. This grouping of work package with organizational units are called cost accounts .So this integration of WBS with organizational structure is called **Organization breakdown structure(OBS)**.

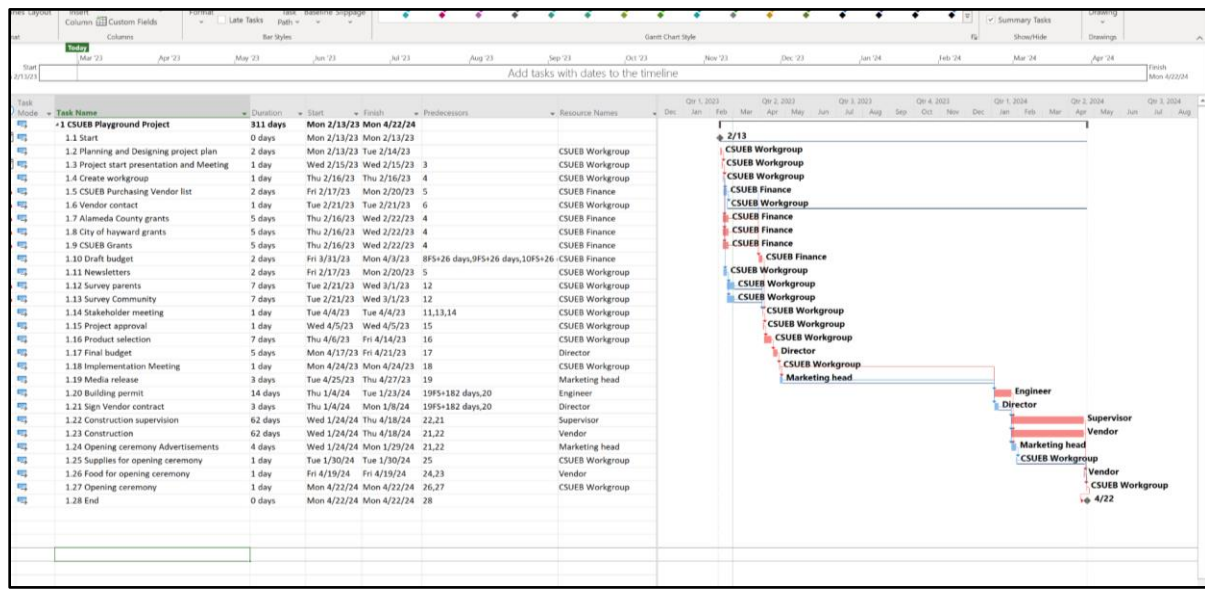
### WBS:



### Integration of WBS with OBS:



## Gantt Chart:

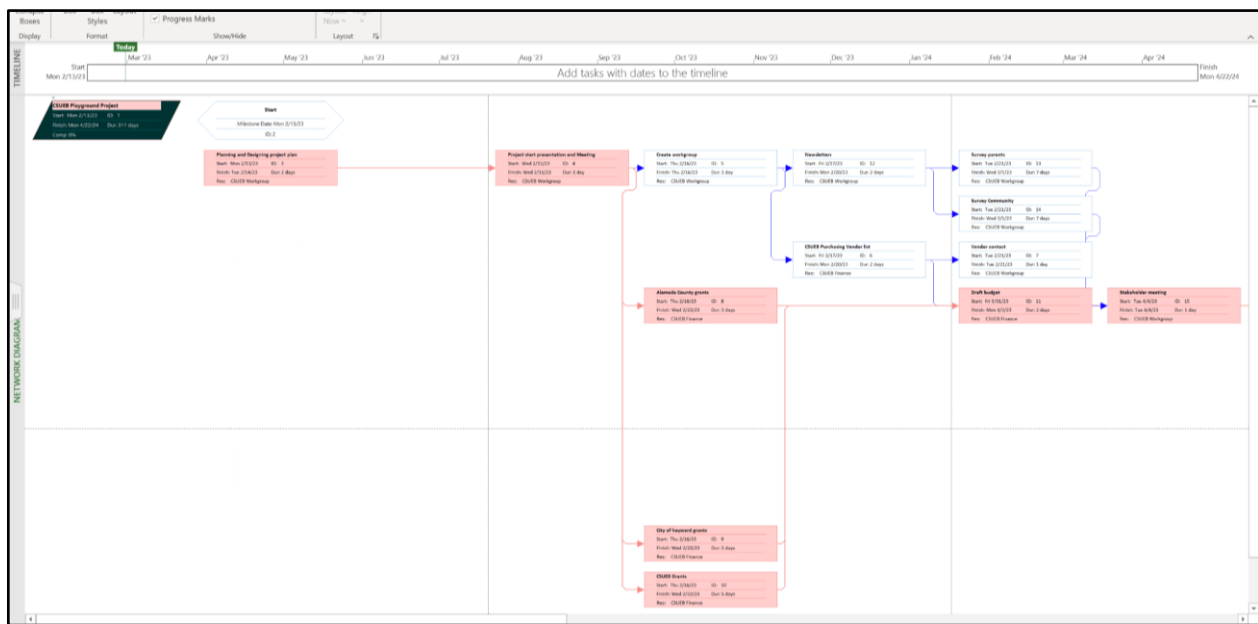


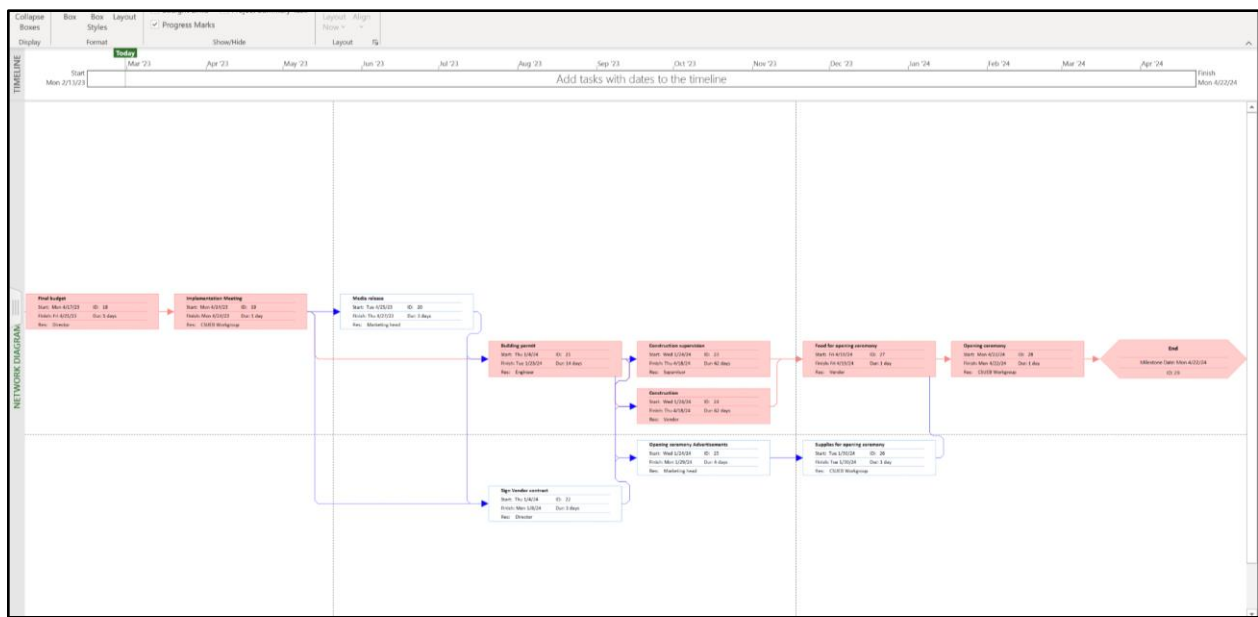
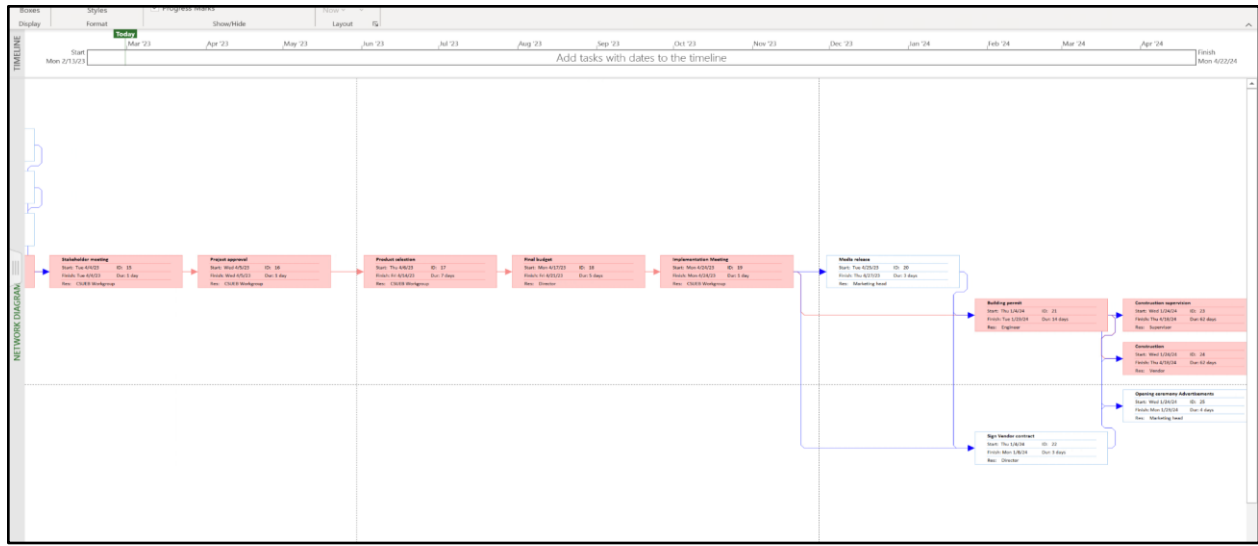
At the first stage of the playground project, all the subtleties are worked out. The first task is to design, plan, and detail all the actions that will be taken to complete the project. Following that, a project start meeting will be held to present the design plan. Then the workgroup is created after the meeting. The grants from Alameda County Disaster Recovery Funds, City of Hayward Parks and Recreation Funds, and the budget allocated for construction and repairs of the CSUEB Child Development Center are processed simultaneously once they start forming workgroups. A newsletter is also sent to the parents and community regarding this upcoming project. The management provides a list of vendors who are experts and have the necessary skills. The main stakeholders, like parents and communities, are kept updated regarding the project in the form of meetings and surveys. A draft budget plan is made based on the discussions with vendors, and a stakeholder meeting is organized after that. The members of the workgroup must obtain approval from the City of Hayward and survey the landscape to be used for the project. The materials and equipment needed for the construction are selected after the project's approval, and the final budget plan is designed in five days. The implementation meeting takes place after the final budget plan is finalized with the stakeholders and the project team. A media release regarding the playground

was made for three days to get feedback from the community. The team obtains the building permit and vendor contract to start the construction. The building approval, equipment, and materials will be ready in three weeks, and the construction will start after that. The construction takes place for four months. Once the construction is complete, the team will advertise the opening day ceremony. The supplies needed for the event are ordered after the completion of advertising, and the food orders for the opening ceremony are made three days before the ceremony. The playground project will start with the planning and designing of the project on February 2nd, 2023, and will finish with the opening ceremony event on April 22nd, 2024. The total project is estimated to be completed in 311 working days.

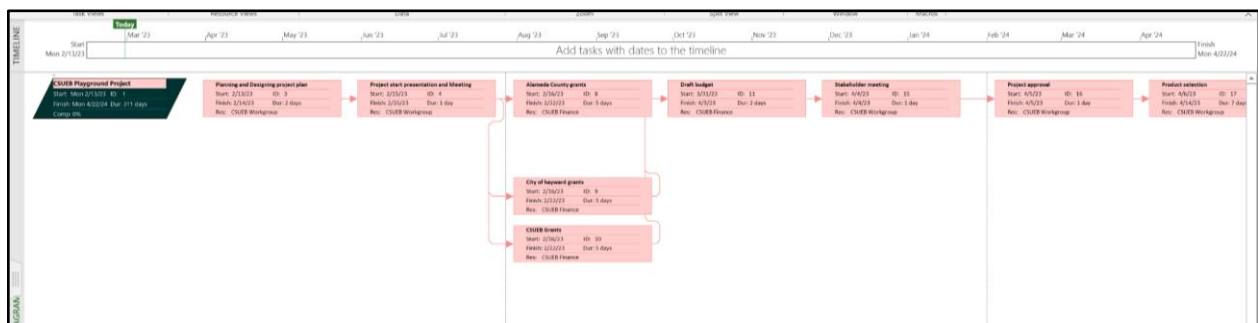
## Network diagram:

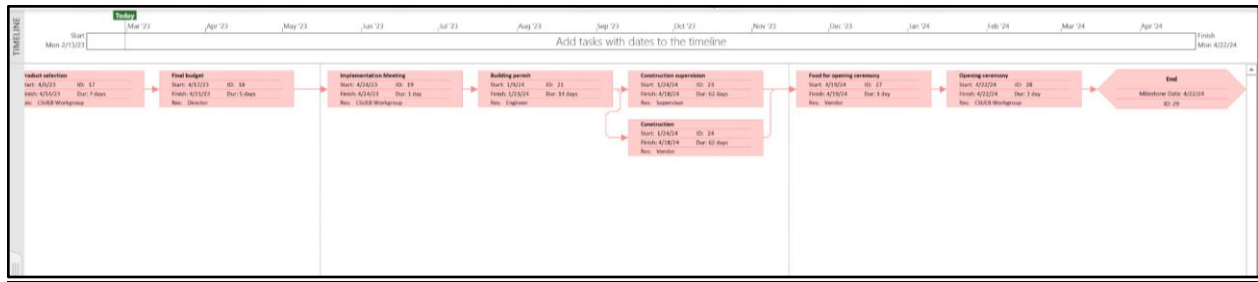
The project network diagram shows the sequence in which the activities/milestones of a project need to be completed. It is used to verify the scope of the project and track the progress of the activities from every phase till the completion of the project.





## Critical path:





The critical path of the project is

Planning and designing project plan→Project start presentation and meeting→Alameda County grants/City of Hayward grants/Alameda County grants→Draft budget→Stakeholder meeting→Project approval→Product selection→Final budget→Implementation meeting→Building permit→Construction/Construction supervision→Food for opening ceremony→Opening ceremony→End

## Cost Analysis and Budgeting

To understand how much a playground could cost, a general rule is to budget for about \$1000 per child. So, if you expect 50 kids to use the play area, you should budget for about \$50,000. The playground development costs should then be compared to the project budget. We are looking for a large playground with inclusive (accessible) features or a custom design, so we set a budget closer to \$150,000.

Incoming Funds:	Expenses:
Grants received from: <b>(\$150,000)</b> <ul style="list-style-type: none"> <li>Alameda County <b>(\$75,000)</b></li> <li>City of Hayward <b>(\$50,000)</b></li> <li>CSUEB <b>(\$25,000)</b></li> </ul>	Playground costs (Construction): <b>(\$100,000)</b> <ul style="list-style-type: none"> <li>Permit application and approval <b>(\$3,000)</b></li> <li>Labor <b>(\$90,000)</b></li> <li>Worker's Comp Insurance <b>(\$2,000)</b></li> <li>Landscaping costs to prepare ground <b>(\$5,000)</b></li> </ul>



	<p>Opening Ceremony costs: <b>(\$15,000)</b></p> <ul style="list-style-type: none"> <li>● Printed invitation and flyers <b>(\$500)</b></li> <li>● Goody bag/Swag bag costs <b>(\$3,000)</b></li> <li>● Rental equipment (tables, chairs, tablecloths, speakers, etc.) <b>(\$8,000)</b></li> <li>● Supplies necessary for the party (paper plates, plastic cutlery, napkins, table and other decorations, etc.) <b>(\$1,000)</b></li> <li>● Food, dessert, drinks, etc. <b>(\$2,500)</b></li> </ul>
	<p>Playground costs (Materials) <b>(\$35,000)</b></p> <ul style="list-style-type: none"> <li>● Poured playground surface <b>(\$12,000)</b></li> <li>● Swing Sets, Ladders, Activity Blocks, etc. <b>(\$15,000)</b></li> <li>● Sand (for a sandbox) <b>(\$1,000)</b></li> <li>● Assortment of toys available for the children to play with inside the sandbox <b>(\$2,000)</b></li> <li>● Wood chips <b>(\$1,000)</b></li> <li>● Turf (artificial grass) <b>(\$4,000)</b></li> </ul>

### Stakeholders

Stakeholders:	Roles:
CSUEB	<p>Client, Funding Resources;</p> <p>A public California State University local to the Bay Area in Northern California offering both undergraduate and graduate areas of study, including having a Child Development Center.</p>

Alameda County	Funding Resources; A county in Northern California that provides social services, health care, public protection, and general government programs for their residing residents.
City of Hayward	Funding Resources; A city in the East Bay of Alameda County falling under their jurisdiction, and providing those same or similar resources to their general population.
CSUEB Work Group (East Bay Consulting)	Project Manager; A work group consisting of 7 Project Managers working together on this project to build a playground in the CSUEB Child Development Center, part of Hayward Parks and Recreation area.

### **Timeframe/Schedule & Resources Allocation**

In this project, we have many major activities with one critical path, as stated above, throughout the designing, funding, and construction phases. The schedule of said major tasks can be seen below:

<b>Major Activities:</b>	<b>Finish Date:</b>	<b>Resource</b>
Planning and Designing Project Plan	02/14/2023	CSUEB Work group
Project start Presentation and Meeting	02/15/2023	CSUEB Work group

Alameda County Grants	02/22/2023	CSUEB Finance
City of Hayward Grants	02/22/2023	CSUEB Finance
CSUEB Grants	02/22/2023	CSUEB Finance
Draft Budget	04/03/2023	CSUEB Finance
Stakeholder Meeting	04/04/2023	CSUEB Work Group
Project Approval	04/05/2023	CSUEB Work Group
Product Selection	04/14/2023	CSUEB Work Group
Final Budget	04/21/2023	Director
Implementation Meeting	04/24/2023	CSUEB Work Group
Building Permit	01/23/2024	Engineer
Construction Supervision	04/18/2024	Supervisor
Construction	04/18/2024	Vendor
Food for Opening Ceremony	04/19/2024	Vendor
Opening Ceremony	04/22/2024	CSUEB Work Group

### Technical Challenges

The CSUEB Playground Project faces some technical challenges which are as follows,

- **Slope of site**
  - The slope of the play area matters because it will determine whether water will flow away or if there will be puddles/mud in and around the playground.
- **Type of soil**
  - There are different soil types, some soils retain more water than others which may affect drainage. There are also soils that don't hold water well and allow water to flow easier to

drainage. However, these types of soil loosen up and may affect the stability of the playground.

- **Vegetation**

- If there are trees around the playground location, the roots must be taken into consideration if digging is needed during construction. The roots may get damaged during digging, which may affect the stability of the trees. Also, if there are plants in the area, it is important to make sure pesticides are not being sprayed all over the place because they carry harmful chemicals that may be toxic for kids.

- **Underneath the playground**

- It is important to make sure there are no water, electrical, or gas pipes that can get damaged during construction nor that will require utility companies to conduct maintenance or fixtures in the future. This may affect the playground site or the playground structure.

**Scenarios/Risks:**

Risk	Scenario
Atmospheric River & Material Shortage	

In the CSUEB Playground Project we identified two risk scenarios that can have an impact on the completion of our project. The first being a risk of being hit with a specific weather condition called an "Atmospheric River " and the second scenario is the possible risk event of a material shortage. As each of these scenarios are unique and can heavily impact the project, we had to execute a risk management strategy that can effectively analyze and evaluate the risk in order to determine respective responses to each. It is important to note that there are four steps in the risk management process: Risk Identification, Risk Assessment, Risk Response Development, and Risk Response Control.

Risk Identification is the first step of the risk management process in which we analyze the project to identify the sources of risk in which we have concluded that there are two risk scenarios. The next step is to assess the two risks in terms of severity impact, likelihood of occurring and controllability. We used the risk severity matrix and the main risk assessment form to provide us a basis for prioritizing which risks to address. To best understand the risk severity matrix, we are looking at three factors, impact, probability, and detection to equal the risk value. Each of the three

dimensions is rated according to a five-point scale. Please see below for our assessment, followed by its respective risk response development and control.

### Scenario #1: Atmospheric River

Since the beginning of the year, California has been a victim of a series of storms being transported by an atmospheric river. An atmospheric river is a narrow, windy revision created by the Earth's atmosphere that transports moisture for thousands of miles that can consequently bring floods due to the heavy rain.

Risk Assessment Form				
Risk Event	Likelihood	Impact	Detection Difficulty	When
Atmospheric River	2	5	3	During Project

Risk Severity Matrix				
5				
4				
3				
2				
1				
	1	2	3	4

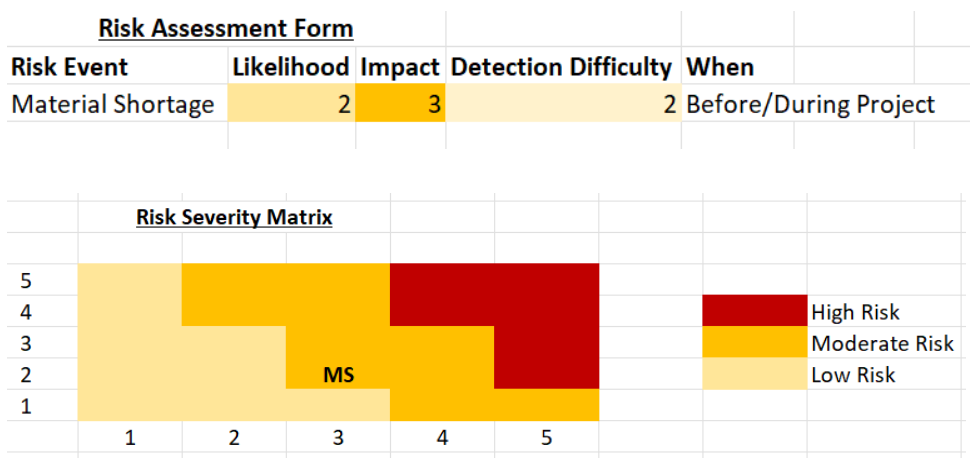
  

High Risk
Moderate Risk
Low Risk

After this risk event was identified and assessed, we then had to establish an appropriate response. We are unable to mitigate the risk as it is impossible to alter the weather, we cannot avoid the risk as the timing of it cannot be predicted so it will also be difficult to either delay the project with just an estimate of impact time, and we are unable to transfer risk. The only logical response in this case would be to accept the risk. As the team in charge of this project we made the conscious decision to accept the risk of the atmospheric river happening and in return we have established a budget reserve and plan to implement if the event does in fact occur. Upon establishing our response, we then formulated a contingency plan that we can then have in our tool belt to properly execute during our risk response control, which would be to use our budget reserve for overtime, and to purchase extra materials to maintain the quality of the materials we have already purchased and started to build.

Scenario #2: Material Shortage

The second event identified was the potential risk of a material shortage. Research done by Industry Leaders Magazine indicates that the global shortage of raw building materials has resulted in an increase in input prices and extended project times for construction activity. As more analysts continue to look forward, they expect impact on global supply chains affecting prices and lead time for concrete, cement, steel, lumber, insulation, drywall, and HVAC equipment in the coming year.



In the event of a material shortage, we will be implementing our strategy to mitigate the risk and our risk response control is to prepare all our materials in advance before the project begins and have inventory specialist perform weekly audits for accurate tracking data over our materials to have a live time view of the possibility of a need for new or different materials during the duration of the project. In addition, to avoid any delays if additional inventory is needed, we will make the conscious decision of buying extra materials in advance, and any material left over we will attempt to sell or reuse in future projects.

Reducing Project Duration:

California State East Bay University has requested for the project to be completed on April 8th, 2024, 14 days earlier from the original completion date of April 22nd, 2024, due to commencement ceremonies taking place throughout the month of May and the campus would like

to ensure proper time to clean dispose of construction materials in order to ensure the campus look at its best for families visiting their graduating students. Management has decided on a maximum budget of \$55,000 they are willing to spend in order to expedite the project. Based on the budget and time constraints, we have identified that crashing the following activities will reduce the project time:

Activity	Predecessor activity	Normal time	Maximum crash time	Normal cost	Crash cost	Extended crash cost
Building Permit	Implementation Meeting	14 days	4	\$214/day	\$350/day	\$1400
Construction	Building Permit	62 days	21	\$1,452/day	\$1,600/day	\$33,600
					<b>Total additional cost</b>	<b>\$35,000</b>

By paying an expedite fee for the approval of the building permit to reduce the permit process to 10 days instead of 14, and in order to reduce the construction normal time of 62 days to 41 days we would pay for overtime on the weekdays, and extending the work week to include weekends. This will give us the opportunity to reduce the project by 25 days with a total additional cost of **\$35,000**, and with that, we still maintain it to be \$20,000 under the budget given.

### **Achievements and Valuable Project Experience**

Throughout the project, several important lessons were learned, with the most impactful being the following:

- 1) Successfully addressed technical challenges during the construction of the playground, ensuring its functionality and safety.
- 2) Proactively prepared for natural disasters like atmospheric rivers and earthquakes, safeguarding the playground and its users by implementing proper construction methods and emergency response plans.

- 3) Effectively managed the project's budget, including contingency plans for emergency maintenance and reconstruction.
- 4) Demonstrated foresight in purchasing extra materials in advance, saving costs, and ensuring timely completion of the playground.

## **Conclusion**

The team developed a comprehensive step-by step project plan, and assessed risk management strategies to mitigate the risks, and formulated contingency plans to be prepared for any potential impact. Additionally, the project was required to be completed 14 days earlier than the original deadline, and the team had to identify which activities to crash to reduce the project duration within the given budget. Through the project, the team learned the importance of considering technical challenges, planning for disasters, and the significance of communication and teamwork to ensure successful project completion.

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