**Project Overview**

We are seeking a developer or team to build a web-based application using **Replit** with a **Supabase backend** to track construction project budgets, locations, schedules, and labor assignments. The app will be used internally by a public works construction company with varying roles: **Admin, Foreman, Superintendent, and Project Manager**.

This version does **not require mobile optimization**, but the system architecture should allow for it in the future. The interface should use a **flat UI design**, support **simultaneous multi-user access**, and allow exporting to **PDF and Excel**. Future iterations may include **notifications and alerts**.

**Core Modules**

**1. Project Management**

Each project includes:

* ProjectID (unique)
* Project Name
* Start & End Dates
* Default Superintendent
* Default Project Manager

**2. Budget Management**

Each project has a budget (uploaded from excel) composed of line items with the following fields:

* Line Item Number
* Line Item Name
* Unconverted Unit of measure
* Unconverted QTY
* Actual QTY
* Unit Cost
* Unit Total
* Converted QTY
* Converted Unit of measure
* Cost Code (e.g., Demo/Ex, Concrete, GNRL, etc.)
* PX (production rate)
* HRS (hours)
* Budget total
* Billing
* Labor, Equipment, Trucking, Dump Fees, Material, Subcontractor costs (each own column)

**Budget Notes:**

* Some line items are broken down into parts (e.g., 4.1, 4.2) with summed subtotals.
* QTYs often begin in LF or SF and are converted to CY or Tons.
* Budget line items may be updated or removed post-creation.

**3. Location Tracking**

Each project includes multiple locations. Each location has:

* LocationID = ProjectID\_LocationName
* Location Name
* Location Start Date
* Location End Date (manually entered or auto-updated from schedule)
* Complete Status (checkbox)

**Location-Specific Budget:**

* Mirrors the project budget’s structure and formulas
* Allows adjustment of QTYs or HRS per location.
* Subtracts from the overall project budget so should have view to see remaining budget
* Actual QTYs can be entered.
  + Future functionality may allow daily tracking of QTYs.

**4. Scheduling Engine**

Each location has **Scheduled Tasks**, which align with budget Cost Codes. Each task includes:

* TaskID = LocationID\_TaskName
* TaskType (e.g., Form, Pour, Demo/Ex + Base/Grade, Asphalt)
* Task Name (e.g., Form Day 1 of 3)
* Task Date
* Start- Finish Date (fist day of task type for the location – last day of task type)
* Cost Code
* Super
* Foreman
* Employees Assigned
* Scheduled Hours
* Actual Hours
* Start/Finish Times
* Work Descriptions & Notes

**Task Rules:**

* Tasks scheduled sequentially with dependencies by default (changing one date updates following ones).
* Skip weekends by default but can manually override.
* Certain types (Form + Pour and Demo/Ex + Base/Grade) can be combined or split.
* Schedule auto-generated based on cost code hours ÷ 40 hours/day, rounding up.
  + *task per day* *only when the cost code has non-zero hours* for the location

**Employee & Crew Databases**

**Employee Table**

* TeamMemberID
* Name
* Email
* Phone
* Crew
* EmployeeType (Driver, Apprentice, Freelancer, Core)
* Foreman (Yes/No)

**Crew Table**

* Crew Name

**5. Employee & Crew Assignment**

Each task can have EmployeeAssignments:

* **AssignmentID**: TaskID\_TeamMemberID
* **TaskID**
* **TaskType**
* **ProjectID**
* **LocationID**
* **Assignment Date**
* **TeamMemberID**
* **Name**
* **Cost Code**
* **Assigned Hours (default 8 hrs)**
* **Actual Hours (entered later)**

**Crew & Employee Rules:**

* **Employees can be assigned as individuals or via crews**
* **If a crew is assigned, assignments are created per employee**
* **Driver assignments use the cost code "Hauling"**
* **Employees can be marked as Drivers, Apprentices, Freelancers, or Core Employees**
* **Foreman field: Yes/No**

**Validation:**

* **Highlight red: scheduled for 8+ hrs**
* **Highlight yellow: scheduled < 8 hrs**
* **Show sum of assigned hours next to names**

**6. Dashboards**

**A. Daily Schedule Overview:**

* Shows today/tomorrow’s tasks
* Description of work
* Previous day’s notes
* Start time input
* Crew and employee assignment interface
* Highlight scheduling conflicts (overbooking)

**B. Assignment Dashboard:**

* View all assignments by day
* Filter by crew, cost code, employee type
* Bulk input for Actual Hours

**C. Location Overview:**

* Clickable from anywhere location appears
* Shows schedule and budget summary

**D. Task Detail View:**

* Clickable from anywhere task appears
* Shows budget details and assigned employees

**Reports & Exports**

* PDF and Excel exports of:
  + Budgets
  + Schedules
  + Assignment logs
  + Other formats TBD

**Future Features**

* Mobile optimization
* Notifications and alerts (email or text)
* Daily job report entry (by Superintendents and Foreman)
  + Linked to scheduled tasks
  + Can enter daily QTYs completed
  + Can upload pictures

**Tech Stack Requirements**

* **Frontend**: Built using **Replit** with a **flat UI design**
* **Backend**: **Supabase**
* **User Roles**: Admin, Superintendent, Project Manager, Foreman
  + Build in basic role support now; plan to extend with permissions later.
* **Multi-user**: Real-time concurrent editing