Cost Analysis for the Land Pricing Tool Deployment  
**Currency Conversion:** Costs are presented in USD, with INR equivalents calculated at an exchange rate of $1 = ₹85.67.

## Overview of the Land Pricing Tool

The Land Pricing Tool is a custom-built web solution designed for the Divisional Commissioner of Konkan Division, Maharashtra. This application allows users to upload Microsoft Word files containing land transaction details, processes them to compute average land rates per square meter, and delivers bilingual outputs in English and Marathi. Developed using Flask and Python libraries like pandas and python-docx, it demands a reliable hosting setup to support its computational, storage, and data management needs. This analysis explores two hosting options to determine the most cost-effective and practical approach.

## Hosting Option 1: AWS-Powered Infrastructure

This option utilizes a combination of Amazon Web Services (AWS) components to power the Land Pricing Tool.

### Base Infrastructure Costs

* **Compute Power:**
  + Service: Amazon EC2 (t3.medium instance, 2 vCPUs, 4 GiB RAM)
  + Role: Hosts the Flask app and handles document processing.
  + Monthly Cost: $30.37 (₹2,602.79)
* **Disk Space:**
  + Service: Amazon EBS (30 GB gp3 SSD)
  + Role: Stores the OS, app files, and logs.
  + Monthly Cost: $2.40 (₹205.61)
* **Network Access:**
  + Service: Amazon VPC (1 public IP)
  + Role: Provides internet connectivity for the app.
  + Monthly Cost: $3.65 (₹312.69)
* **Performance Tracking:**
  + Service: Amazon CloudWatch (basic metrics)
  + Role: Monitors system health and resource usage.
  + Monthly Cost: $5.00 (₹428.35)
* **Load Balancing:**
  + Service: Application Load Balancer (ALB)
  + Role: Ensures scalability and handles SSL termination.
  + Monthly Cost: $22.37 (₹1,916.64)

**Note:** Includes SSL certificate (via AWS Certificate Manager), encryption layer (via RDS and S3), and performance monitor extension (via CloudWatch) at no additional cost. Encryption for downloaded documents with a passcode and wrapper API token-wise cost are implemented in the application code, incurring no extra infrastructure cost.

### Data and File Management Costs

* **Database:**
  + Service: Amazon RDS (MySQL, db.t3.small, 20 GB SSD)
  + Role: Stores processed land transaction records.
  + Monthly Cost: $23.67 (₹2,027.86)
* **Temporary Storage:**
  + Service: Amazon S3
  + Role: Holds uploaded Word files briefly during processing.
  + Monthly Cost: $1.64 (₹140.50)

**Total Monthly Cost for Option 1:** $89.10 (₹7,633.20)  
**Total Yearly Cost:** $1,069.20 (₹91,598.40)

## Hosting Option 2: Supabase-Integrated Setup

This alternative leverages Supabase for streamlined database and storage needs alongside AWS compute resources.

### Base Infrastructure Costs

* **Compute Power:**
  + Same as Option 1: $30.37 (₹2,602.79)
* **Disk Space:**
  + Same as Option 1: $2.40 (₹205.61)
* **Network Access:**
  + Same as Option 1: $3.65 (₹312.69)
* **Performance Tracking:**
  + Same as Option 1: $5.00 (₹428.35)
* **Load Balancing:**
  + Same as Option 1: $22.37 (₹1,916.64)

**Note:** Includes SSL certificate (via Supabase), encryption layer (via Supabase), and performance monitor extension (via Supabase or CloudWatch) at no additional cost. Encryption for downloaded documents with a passcode and wrapper API token-wise cost are implemented in the application code, incurring no extra infrastructure cost.

### Data and File Management Costs

* **Database and Storage:**
  + Service: Supabase Pro Plan
  + Role: Manages land transaction data and temporary file storage in one platform.
  + Monthly Cost: $25.00 (₹2,141.75)

**Total Monthly Cost for Option 2:** $88.79 (₹7,606.59)  
**Total Yearly Cost:** $1,065.48 (₹91,274.88)

## Cost Comparison Table

|  |  |  |
| --- | --- | --- |
| **Component** | **Option 1: AWS Full Stack** | **Option 2: Supabase Hybrid** |
| Compute (EC2) | $30.37 (₹2,602.79) | $30.37 (₹2,602.79) |
| Disk Space (EBS) | $2.40 (₹205.61) | $2.40 (₹205.61) |
| Network (VPC) | $3.65 (₹312.69) | $3.65 (₹312.69) |
| Monitoring | $5.00 (₹428.35) | $5.00 (₹428.35) |
| Load Balancer (ALB) | $22.37 (₹1,916.64) | $22.37 (₹1,916.64) |
| Database + Storage | $25.31 (₹2,168.36) | $25.00 (₹2,141.75) |
| **Monthly Total** | **$89.10 (₹7,633.20)** | **$88.79 (₹7,606.59)** |
| **Yearly Total** | **$1,069.20 (₹91,598.40)** | **$1,065.48 (₹91,274.88)** |