# 🏙️ CityWeaver

Fantasy City Map Generator

## 🌆 Overview

**CityWeaver** is an interactive desktop app for creating **game-ready fantasy city maps**.  
It focuses on **organic, realistic road networks** and **hand-crafted layout logic** rather than procedural randomness — perfect for world-builders, tabletop RPG designers, and game developers who want believable medieval-style cities.

CityWeaver builds natural road layouts, river crossings, and walled settlements that feel like they’ve evolved over centuries — not drawn by a computer grid.  
Every map feels distinct, realistic, and ready for export to your favorite game engine or world-building workflow.

## ✨ Features

* 🛣️ **Organic Road Network** — Generates natural, winding roads inspired by [@pboechat’s](https://github.com/pboechat/roadgen) excellent roadgen foundation.
* 🌊 **Rivers, Bridges & Coasts** — Seamlessly integrates water bodies and automatically places bridges.
* 🧱 **Walls & Gates** — Add fortified city perimeters for a medieval aesthetic.
* 🏘️ **Buildings & Facilities** — Fills the map with buildings and civic zones that can be toggled interactively.
* 🎛️ **Intuitive UI Controls** — Easily tweak city features, density, or styles through the sidebar panels.
* 🖼️ **Vector-Style Rendering** — Crisp visuals at any zoom level with smooth panning and zooming.
* 📤 **Export to PNG & PDF** — Save your final city layout with preserved borders and clickable facilities in the PDF.

## 🧩 Installation

CityWeaver is written in **Python** and uses **Pygame** for rendering.  
It has been **tested on Windows 10/11** with Python 3.9+.

### 1. Clone or Download

git clone https://github.com/strlibereas/CityWeaver.git

cd CityWeaver

### 2. Create a Virtual Environment

python -m venv venv

### 3. Activate the Environment

venv\Scripts\activate

### 4. Install Dependencies

pip install -r requirements.txt

## 🚀 Running CityWeaver

After setup, launch the app with:

python city\_weaver.py

This opens the main CityWeaver window and generates your first map.

## 🕹️ Controls

| **Action** | **Description** |
| --- | --- |
| **Left Click + Drag** | Pan the map |
| **Mouse Wheel** | Zoom in/out |
| **Sidebar (Left)** | Toggle features: water, walls, facilities, etc. |
| **Sidebar (Right)** | Adjust parameters with sliders |
| **Export Button** | Save your map as exported\_city.png and exported\_city.pdf |
| **Esc** | Exit the application |

💡 Each launch creates a new, unique city. Rerun the command for a fresh layout.

## 💾 Exporting Maps

Click **Export** to save:

* **PNG:** High-resolution image of your current view
* **PDF:** Same map with clickable facility names (great for documentation or printouts)

Both files are saved in your current working directory.

## 🧱 Building a Standalone Executable (Optional)

Create a Windows .exe for distribution:

pyinstaller city\_weaver.py --onefile --windowed --name CityWeaver

You’ll find the executable in the dist folder after the build completes.

## ⚙️ Compatibility

* ✅ **Windows 10/11** — fully tested
* ⚠️ **macOS/Linux** — should work (Pygame is cross-platform) but untested

## 🧭 Known Limitations

* Currently tested only on **Windows**
* **Non-procedural:** CityWeaver uses structured, rule-based placement for realistic layouts
* Occasional redraw lag may occur on very large cities (depends on hardware and zoom level)

## 🪄 License

**MIT License** — free to use, modify, and distribute.

## 💬 Credits

This project builds upon and extends the outstanding open-source work of  
[@pboechat](https://github.com/pboechat) — [**roadgen**](https://github.com/pboechat/roadgen)  
whose city road network generation provided the backbone for this visualization system.

Developed and adapted for interactive fantasy map creation with additional UI, export, and world-building features.

## 🏷️ GitHub Tags / Topics

fantasy-map-generator

city-generator

road-network

roads

pygame

map-tools

medieval-city

worldbuilding

game-dev-tools

urban-planning

## 💫 Project Tagline (for GitHub)

🏙️ Interactive fantasy city map generator featuring organic road networks, water systems, and PDF export tools for game developers.