City Building Simulation System - Functional Requirements

1. Core Gameplay Mechanics

1.1 Turn-Based System

• Players can perform actions during their turn

• Each turn consists of: Action Selection, Building/Development, City Growth Updates, and Event Processing

• Buildings take one turn to start construction and become functional the following turn

1.2 Resource Management

• Players must manage:

- Power supply and consumption

- Water supply and consumption

- Waste management

- Sewage system

- Building resources

- Financial resources (taxes and income)

- Housing space

- Commercial space

- Industrial capacity

2. Building System

2.1 Building Categories

A. Residential

- Houses

- Apartments

- TownHouses

B. Commercial

- Shops

- Offices

C. Services

- Hospitals

- Police stations

- Fire departments

D. Industrial

- Factories

- Warehouses

E. Entertainment

- Theaters

- Bowling alleys

- Bars

F. Landmarks

- Parks

- Monuments

2.2 Building States

• Buildings progress through four states:

1. Placed

2. Under Construction

3. Complete

4. Demolished

• Each state has specific resource consumption patterns and effects

3. Population Management

3.1 Citizen Behavior

• Citizens can:

- Choose random entertainment activities

- Migrate in/out of the city

- Reproduce based on satisfaction levels

- Require housing and employment

- Die or evacuate due to lack of essential services

3.2 Population Growth Mechanics

• Immigration based on:

- Satisfaction levels

- Job availability

- Housing space

- Service availability

- Transport infrastructure capacity

3.3 Satisfaction System

• Citizen satisfaction is affected by:

- Access to services

- Entertainment availability

- Infrastructure quality

- Resource availability

- Environmental conditions

4. Event System

4.1 Random Events

• System generates random events including:

- Sickness outbreaks

- Robberies

- Fires

• Event outcomes depend on available services

• Events can affect citizen satisfaction and population

5. Infrastructure Management

5.1 Utility Systems

• Power distribution

• Water supply

• Waste management

• Sewage processing

5.2 Service Coverage

• Each service building has an area of effect

• Service availability affects citizen satisfaction

• Inadequate services can lead to citizen death or evacuation

6. Economic System

6.1 Revenue Sources

• Tax collection

• Commercial income

• Industrial production

6.2 Resource Economy

• Buildings consume resources

• Factories produce building resources

• Warehouses store resources

• Resource management affects city growth

7. Governance System

7.1 Player Actions

• Set tax rates

• Implement policies

• Manage services

• Control development

• Allocate resources

8. Future Development Areas

8.1 Planned Features

• Enhanced transport system

• Additional governance policies

• Tax management system

• Policy response system

9. Technical Requirements

9.1 System Performance

• Must handle multiple concurrent systems:

- Building state management

- Population dynamics

- Resource calculations

- Event processing

- Satisfaction updates

9.2 Data Management

• Track individual citizen status

• Monitor building states

• Calculate resource flows

• Update satisfaction metrics

• Process random events