Arena Breakout

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1. Deconstruct the game, displaying the core Structure, and explain how it works.
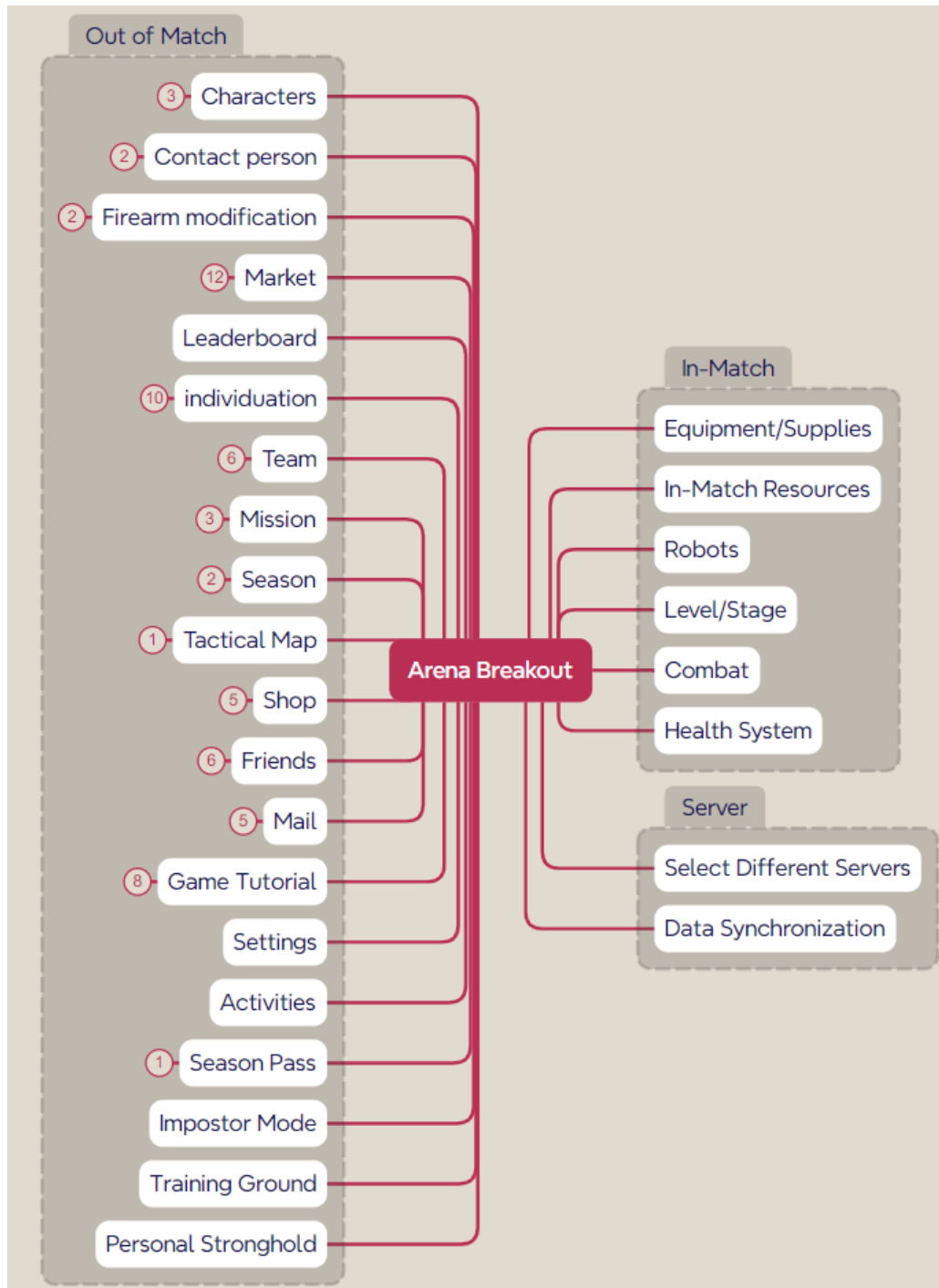
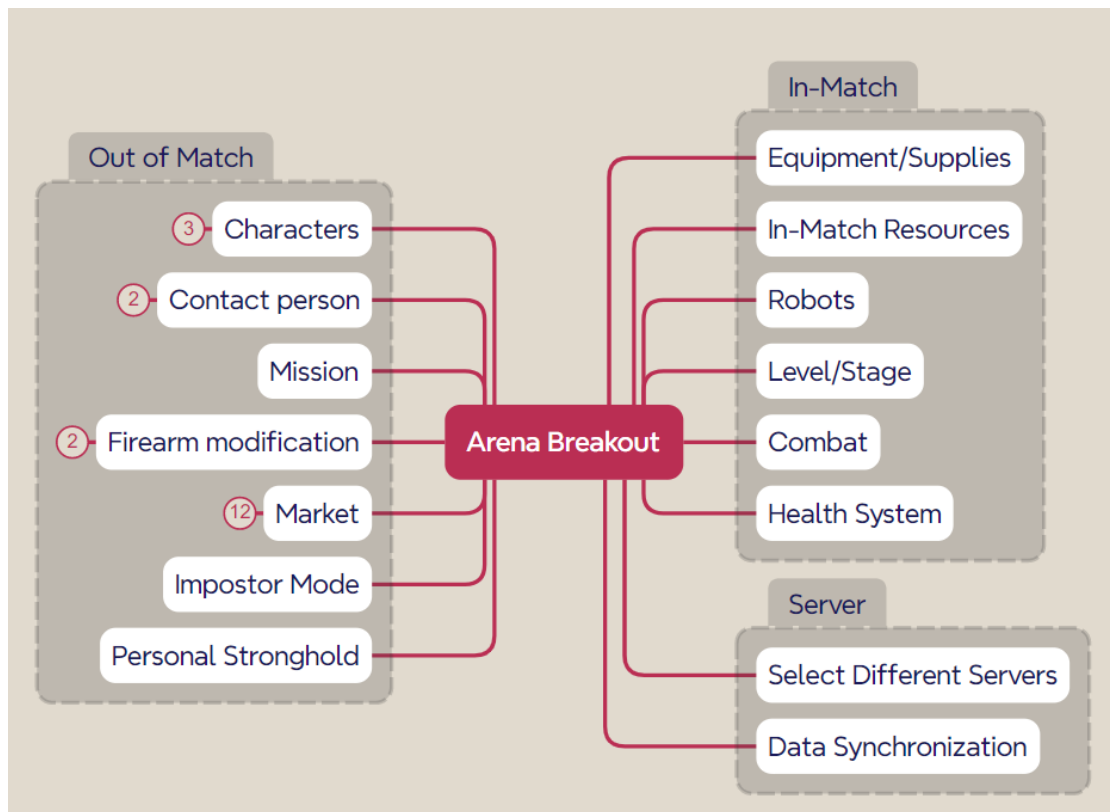Game structure:

Figure 1 Game structure
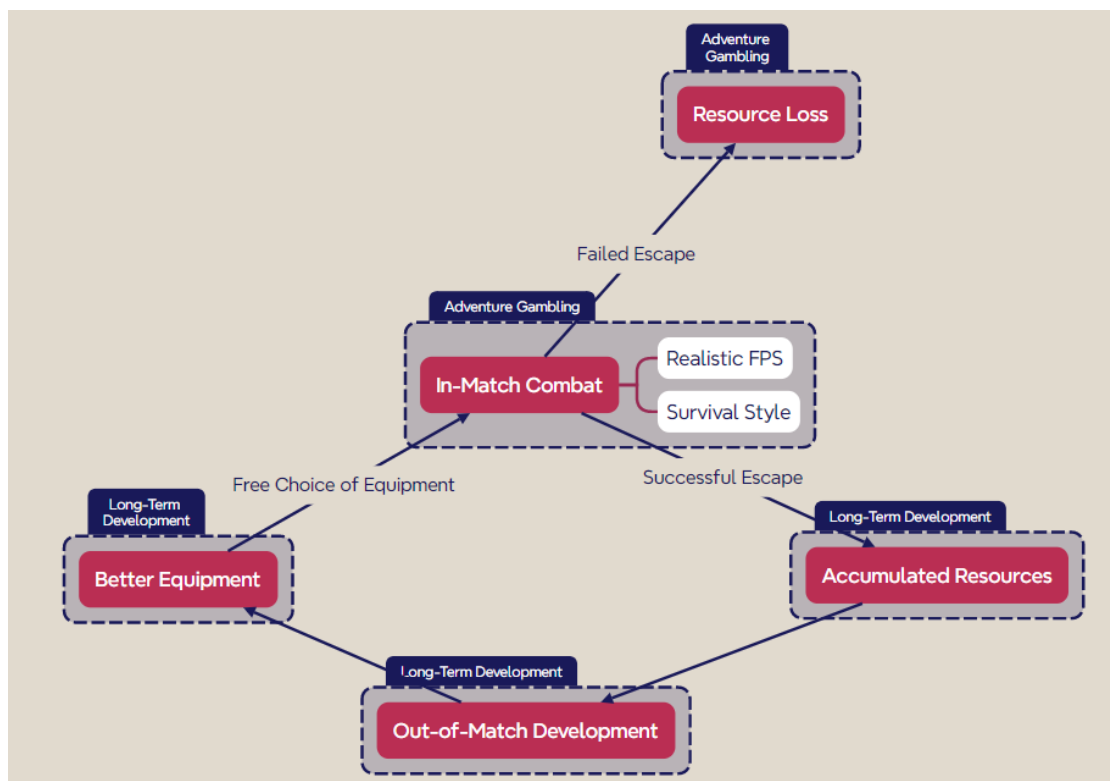
Figure 2 Condensed Game Structure

Game loop:

Figure 3 Game loop

Arena Breakout is different from other games. Before you start, you have to use resources from outside to get gear for the game. You can choose how to gear up, from getting a cheap handgun for safety to spending a lot for rifles and armor. But, when you die in the game, everything you had might become someone else's loot left in the arena.

Furthermore, the more you risk in the game, the more you might win. If you have better gear, there's a higher chance you can get even better stuff. This makes the game feel like a gamble, where you have to think about the risks and rewards.
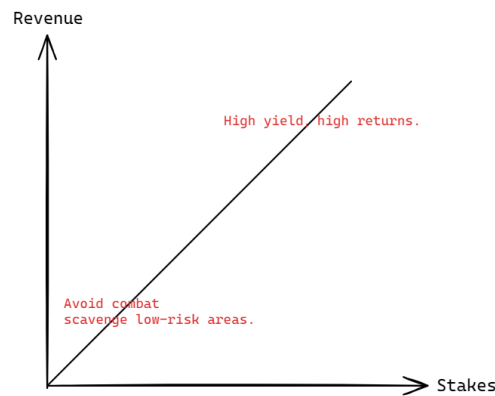

Figure 4 Profit Chart

But Arena Breakout is different from regular gambling. Most gambling games don't need much skill, making players think it's mostly about luck, keeping them hooked. In Arena Breakout, it's a first-person shooter game, giving players enough depth in skill and strategy. So, it's like a "fair" gamble where skill matters more than luck.
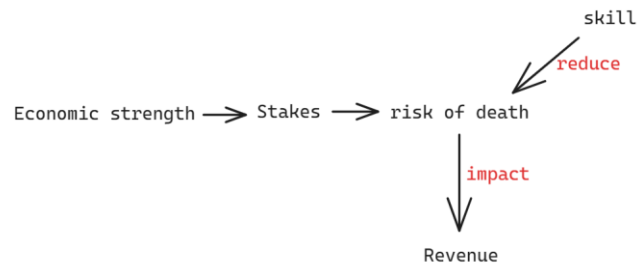
skill

Economic strength → Stakes → risk of death ← reduce

impact ↓

Revenue

Figure 5 Arena Breakout

Economic strength → Stakes → Revenue

Figure 6 Chess and Card Games

However, the game has its clear downsides. With gambling comes the possibility of losing, and the game loop of Arena Breakout isn't a closed circuit. For players with lower skills, there's a risk of continuous loss, making it challenging to maintain a balanced budget. Therefore, the game requires excellent beginner guidance to help players swiftly progress beyond the novice stage, enabling them to experience the thrilling tension of gambling and the exhilaration of winning as soon as possible.

In the game, there's a zero-investment "Imposter Mode" that allows players to enter with random equipment. Although "Imposter Mode" has a cooldown of fifteen minutes, preventing continuous play, it serves as a complete respite for players after intense gambling sessions, providing a way to unwind or alleviate the sense of defeat.

Typically, PvP games emphasize strong confrontation, compelling players to compete against each other, forming a clear winner and loser. In such cases, fairness becomes crucial. PvP games are cautious about introducing character development

outside the match to avoid negative player feedback due to excessive Pay-to-Win elements during commercialization. Commercialization strategies often focus on cosmetic items like outfits.

However, Arena Breakout takes a different approach within PvP battles, downplaying the importance of direct confrontation and emphasizing survival. This allows for a harmonious coexistence of long-term character development outside the match and in-match PvP. Inside the arena, players with varying power levels can coexist because their primary goal is survival. The single session forms an ecosystem where the weaker strive for survival, and the stronger seek to plunder. The diverse goals of players lead to a balanced ecology within a session, making it challenging for unfairness to arise.

In Arena Breakout, players have the freedom to take on risks and decide the quality of equipment they bring into the match. Whether they play as a strong or weak participant within a single session is, to a certain extent, within the player's control. This further reduces negative emotions within the match resulting from uneven power levels.

2. Analyze one of the points in this game that you think is perfect/best from a design standpoint— "Realism."

As a hardcore and realistic FPS game, Arena Breakout places a significant emphasis on realism in its game design. While pursuing realism, the game also strives to maintain excellent playability. This dual focus allows players to enjoy the game's realism while still having smooth controls and logical strategic options.

2.1 The health system

In reality. Bullets inflict significant damage to an individual soldier. Many realistic games, aiming to simulate the immense lethality of bullets on the battlefield, set high damage values, often resulting in a scenario where a player can be taken down with just one or two shots. However, this approach leads to an extremely short TTK, leaving players with minimal room for maneuver during gunfights (whoever shoots first wins), thereby diminishing the game's playability.

Arena Breakout takes a clever approach to balance realism and playability by calculating health points based on different body parts:
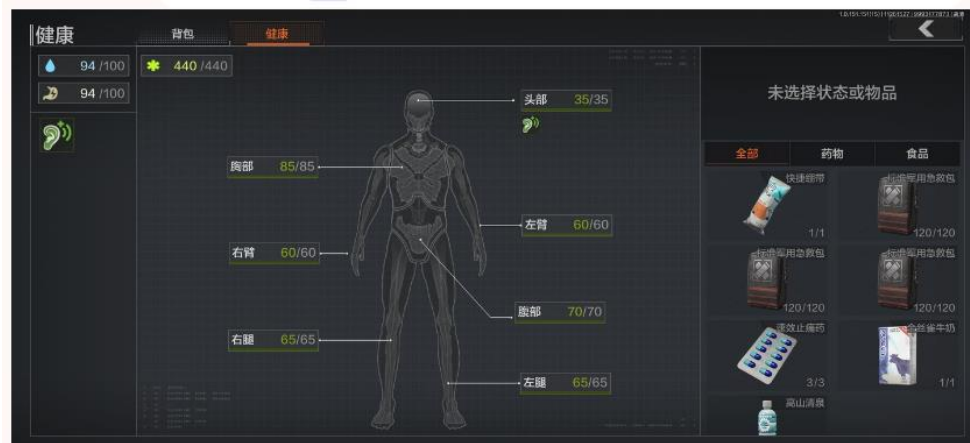
Injured:
Suffering damage, health points decrease.

Wound:
Causes a continuous loss of health points in an undamaged area.

Damaged:
Renders a body part unable to regain health points, requiring the use of a medical kit for recovery.

Pain:
Causes blurred vision.

Dehydrated:
Health points continuously decrease due to lack of water.

Hungry:
Health points continuously decrease, and maximum stamina decreases.

Severe Lung Damage:
Chest continually loses health points, reducing movement speed and maximum stamina.

Overburdened:
Movement speed decreases, unable to run or jump.

Figure 7 Health system

In the game, rifles deal approximately 40 damage, achieving the effect of one shot leaving a body part impaired and two shots destroying it. Once a body part is destroyed, regular healing items cannot restore health to that part; instead, a medical kit must be used to repair the damaged area before further healing is possible.

Due to the design of targeting specific body parts, damage to non-core areas doesn't result in immediate death. This elongates the Time to Kill (TTK) during gunfights. Additionally, the protection provided by armor and helmets for critical body parts such as the chest and head enhances the strategic depth and operational

space in gunfights. However, the vulnerability of body parts to destruction by just a couple of bullets during combat significantly increases the subsequent survival difficulty, providing a sense of realism in line with the substantial lethality of bullets.

Additionally, the game incorporates a hydration system. Thirst continuously depletes during a match, but only when it reaches zero does it have negative effects on the character. Therefore, the hydration system increases the difficulty of survival in the later stages of a session and accelerates the conclusion of a single match, all without deviating from playability.

2.2 Core interactions

In Arena Breakout, most interactions are designed with a complex sense of realism. However, the majority of these realistic elements are integrated to enhance the strategic depth of combat. For instance, players need to physically detach the magazine and estimate the remaining bullets through visual inspection and weight measurement, rather than having the bullet information displayed directly on the screen via UI. Additionally, reloading requires players to manually insert bullets into the magazine, seat the magazine in the mag well, and only then can they execute a quick reload.

On the other hand, some of the most fundamental interactions in FPS games, such as walking, running, aiming down sights, and shooting, are exceptionally smooth and provide an excellent feel.
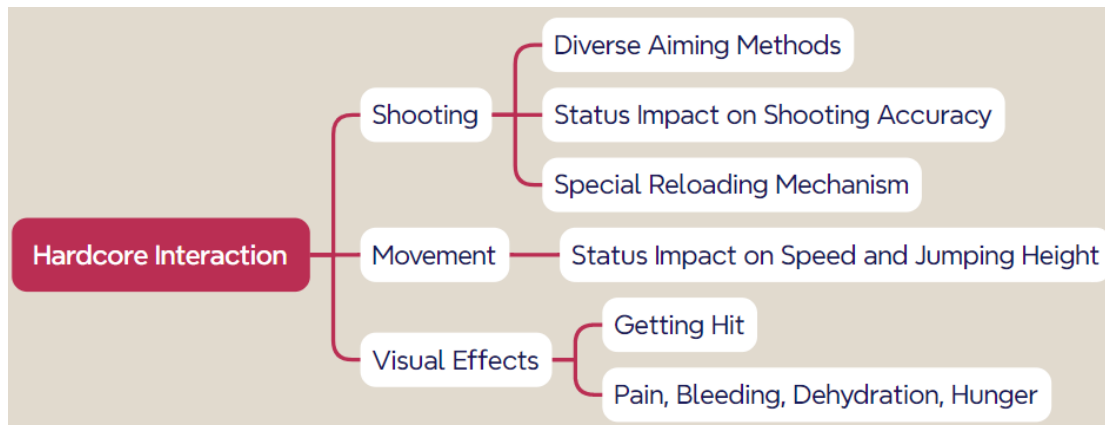
Figure 8 Interaction

2.3 Realistic Firearm Customization

Due to the substantial overlap between enthusiasts of realistic FPS games and firearm aficionados, a comprehensive gun modification system is considered standard in hardcore FPS titles. In Arena Breakout, the gun modification system is intricate, allowing each firearm to be disassembled into components like barrel, grip, and stock. The compatibility of parts assembly is also, to a certain extent, based on real-world principles.

However, Arena Breakout has optimized the exceedingly complex gun modification system in various ways: an intuitive modification interface, one-click save for presets, one-click purchase and assembly of all components, the ability to replicate guns configured by other players in the market, and more. These optimizations enable even players less familiar with firearms to quickly grasp and utilize the gun modification system.

2.4 Realistic Sound System

In the game, the volume of footsteps varies when the character steps on different materials, ranging from loud to soft: iron plate > wooden board > stone

slab > grass. Additionally, the character produces significant sound when rubbing against barbed wire in the wilderness.

This introduces a new dimension to level design in the game, beyond horizontal obstacles and vertical disparities: the surface material.

There's a special equipment in the game called "headphones," and equipping them reduces environmental noise while amplifying footsteps, making them an essential and indispensable item in the game.
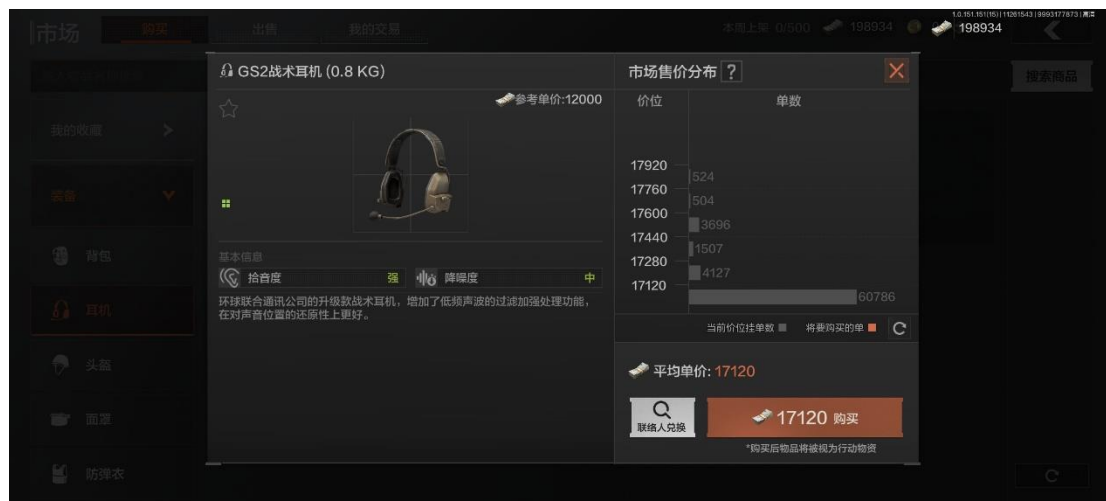

Figure 9 Headphone Equipment

3. Describe one thing about this game that makes you uncomfortable or frustrated and explain why— "Lack of variety."

From an objective standpoint, the gameplay is relatively singular. Currently, the game revolves around the classic approach of entering the map, engaging in battles, collecting resources, and evacuating. In the early stages, as characters experience significant improvements, players continuously make progress, propelling the game forward. However, in the later stages, when players encounter bottlenecks in character development, the existing gameplay loses its appeal. At this point, players find themselves limited to honing their skills, with no other means to overcome the bottleneck. Additionally, there are no alternative game modes for players to engage in for leisure. The inability to conduct periodic wipes for commercial elements further complicates matters.

This results in a diminished appeal for the game in the later stages, coupled with a lack of diversity in commercial activities. Despite the introduction of features like battle passes, the fundamental issue of a singular gameplay experience persists.

4. Design an alternative fix for the problem that you do not like.

"Apocalypse Plunder" Design Document (Zombie PvE Mode)

- **Overview**

  - **Background:** In numerous cities ravaged by a virus and collapsing order, abundant military supplies exist. Each city has a different danger level, with higher danger cities offering higher-grade military supplies. Players need to form alliances, survive in a world overrun by zombies, collect as much gear as possible, and successfully reach evacuation points to secure their loot.

  - **Objective:** The primary goal for players is to collectively gather military supplies in the city, fend off zombie attacks, and reach evacuation points within a specified time.

- **Gameplay Rules**

  - **Combat Design:** Players can choose their equipment before entering the city, but the total weight of the equipped items must not exceed a certain limit (parachute drop setting).

  - **Victory Conditions:** Players must reach specified locations within the evacuation time and successfully evacuate.

  - **Failure Conditions:** Players die or get infected before the time limit (suffering zombie attacks not only reduces health but also increases infection; reaching a certain infection level turns players into zombies).

  - **Game Flow:** Includes initial player spawn, resource collection,

encountering zombies, and heading to evacuation points.

Figure 10 Game flow

- **Map Design**

  o **Map Overview:** Cities vary in danger levels, and different city areas have varying infection levels. More dangerous areas yield higher-grade military supplies, but zombies are more formidable. Cities feature hazardous zones and an evacuation point.

  o **Key Locations:** Regular resource points (highest for purple-quality items, medical supplies, firearms, etc.), advanced resource points (highest for gold-quality items, medical supplies, firearms, etc.), and evacuation points.
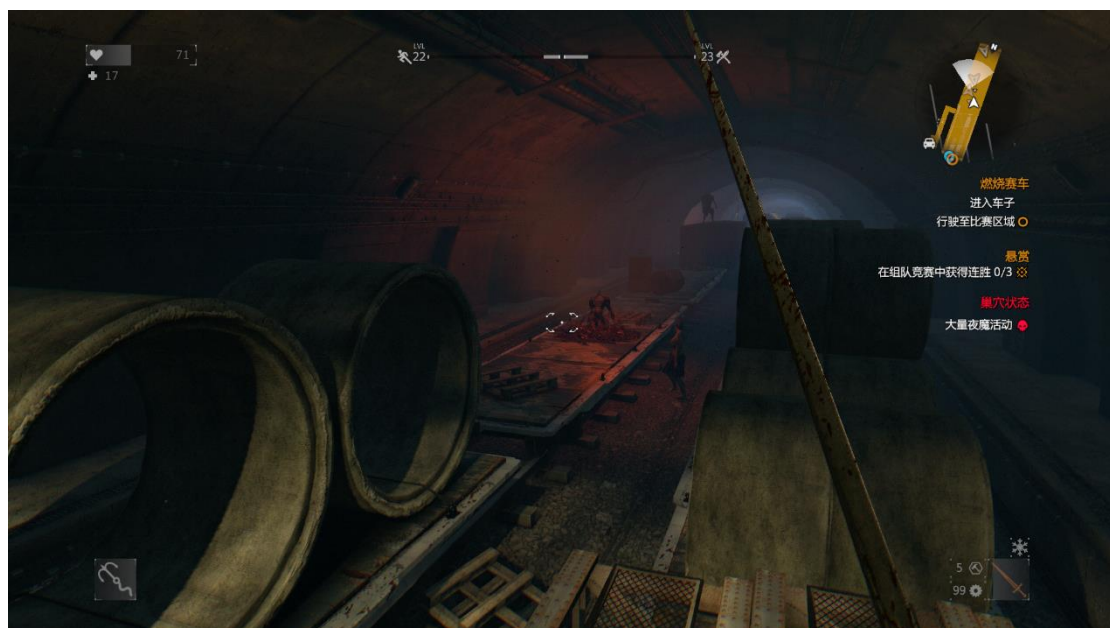
Figure 11 High-risk areas

Figure 12 High-risk areas

- o **Resource Distribution:** Probability of encountering high-grade resources is greater in high-risk zones.

- **Progression System**

  - o **Experience and Rewards:** Players gain experience and rewards

through survival and completing tasks; successful evacuation results in additional rewards based on survival time, zombie kill count, and zombie level.

- o **Unlock Mechanism:** Completing specific tasks unlocks new equipment and missions.

- **Interactive Elements**

  - o **Tasks and Goals:** Collecting specific items, surviving for a specific duration, etc.

  - o **Event System:** Hazardous zones randomly generate high-level zombies or zombie hordes.

Figure 13 zombie hordes

- **Risk and Reward**

  - o **Risk:** Exploring high-risk zones may lead to encountering more zombies and more dangerous zombies.

  - o **Reward:** High-risk zones offer more abundant resources.

- **Evolution and Updates**

  - o **Future Plans:** Introduce new tasks, new maps, and new items (e.g.,

infection suppressant: reduces infection, protective suit: reduces additional infection from attacks), add more zombie types, and enhance replayability.

- o **Update Plans:** Improve the game mode based on player feedback.