Design Project 2
Multi-Player Map Design
GAM 224, Prof. Robin Burke
Winter 2005

What is it:
Design a multi-player map for a first-person action game.

Design constraints:
In this project, you will design a multi-player map for a first-person action game using the Half-Life 2 engine.

- As in the card game, the theme of the map will be "desert survival."
- The game will have two opposed teams of players. Avatars will not be differentiated (no specialized capabilities).
- The mechanics of the game will be like that of Half-Life / Half-Life 2 / Counter-Strike. Everyone on the team should have played one of these games.
- The game will have a "king of the hill" type of conflict. There will be a key area or resource on the map that each team seeks to control. The team that controls it for the longest period during the game is the winner.
- You can (and should) add features to the map and the physics of the game that implement and support the theme. For example, you could cause players to lose health while they are in the sun, but not in the shade.
- Artifacts in the game should have a 19th century feel. The game should not incorporate motorized vehicles, but may incorporate animals (horses, mules, camels, etc.) Weapons should not include futuristic weapons (gravity gun, etc.) but may include pistols, rifles and thrown rocks.
- The terrain should include both "open" spaces, where long-range sniping is possible (for example, flat scrublands), and "tight" spaces, where close action combat can happen (for example, canyons, abandoned buildings.)

Design issues:
The goal in designing a multi-player map is to create a space in which play takes place. The map will determine the activities players engage in – are they sneaking, spying, charging, sniping, guarding resources, etc.? Ideally, the map should enable a range of different activities, that makes sense in different contexts. There are several important design issues to be confronted in building the map:

- Desert features / physics: What special qualities of your map will distinguish it as "desert"? Think about what characteristics are present in desert terrain and that might be useful in different parts of the map.
- Information economy: Some areas of the map will offer greater vision range (think mountain top vs. canyon floor). Others will offer greater exposure to enemy detection (open flatlands vs. building interior). You will want to think about the information economy that your map presents. If a particular location offers great vision range, you may want to increase the cost, difficulty or other disincentive associated with obtaining such good intelligence on enemy whereabouts. Similarly, if there are areas of the map that render the player highly visible to the enemy, you may need to provide some strong incentive for players to enter that area – otherwise, it will simply become a no-man's land that no player will ever enter.
- Positive feedback: When players are killed, they will reappear at designated spawn points. Don't make it too easy for the opponent to camp around these points and attack players as they spawn. This is a strong form of positive feedback that quickly reduces the prospects for the losing team.
- Negative feedback: The goal of the game is to occupy the contested resource. There will have to be some vulnerability associated with this location in order for the game to be balanced. Consider a game in which the crucial resource was placed inside a cave on a well-defended mountaintop – the first team there could never be displaced and would certainly win.
Degeneracies: You want a map in which there is more than one way to be successful. Otherwise, players will always do the same thing, with always the same results. This does not make for meaningful choices. Aim for variety in the ways that important game objectives can be accomplished: multiple routes, multiple threats and multiple opportunities.

Rewards: Resources like ammunition and weapons (and whatever else you add to the game) will also spawn at designated locations and at pre-set periods. You have to decide where these items will appear. You will want to make basic resources relatively easily available and more powerful ones rare and difficult and/or risky to obtain. You will also want to make weapons available at places where they will be useful, such as placing the long-range rifle next to a ravine at the edge of a flat area perfect for sniping.

Balance: In a real design context, balance would be assessed through play testing. That will not be possible with this game. However, part of your job will be to try to envision scenarios that could unfold on the map and consider how play will arise.

What to do:

Each member of the team will have a specific responsibility:

- **Leader / Game designer:** Responsible for drafting and maintaining the design document, which specifies the physical and gameplay rules relevant to the map including decisions about the structure of the game, game objects and behaviors, information economy, feedback, etc. Responsible for ensuring good communication between the team members and arbitrating design choices.
  
  Example output: "A player loses x% of health each minute while in the sun."

- **Level designer:** Responsible for planning the layout of the map including the relative locations of items, spawn points, resources, etc. Designs terrain characteristics relevant to gameplay concerns.
  
  Example output: "The 'Lakebed' area north of the mine will have intermittent patches of scrub to provide cover, but will otherwise be all open terrain. The eastern and western edges will be impassable."

- **Artist:** Responsible for rendering drafts of the map including the final one for submission. The map should be produced in JPG, GIF or PNG format by a drawing program. The map does not need to be beautiful, but it should be sufficiently detailed to capture all of the important locations and characteristics important for understanding the design.

  - If a team has four individuals, there will be two level designers.

Decisions about the high-level characteristics of the game should be made at an initial meeting where tasks are chosen, after which team members can work somewhat independently. Each member should feel free to make decisions in their own areas on a relatively autonomous basis: the artist can decide what symbol to use for mountains, for example. If there are two level designers, each should choose particular portions of the map to design. For example, one could design the areas around each base and one could design the conflict zone.

Although the team members have a certain amount of autonomy, team communication is extremely important. The level designers will need to produce a steady stream of design updates to the artist, who will need to respond with new drafts of the map. The game designer will need to monitor the development of the map, respond to questions about design details that arise in the level designer's work, and maintain a design document that reflect the current set of rules.

Regular meetings will help everyone assess the current state of the project and iron out any wrinkles.

What to turn in:

- **2/8:** Submit a zip compressed file with two documents: a draft of the map (in JPG, GIF or PNG format) and a MS Word document containing a draft of the rules for the map to the CTI Course On-Line (http://dlweb.cs.depaul.edu/) site under the heading "Design Project #2: Draft design." It is the designated group leader's responsibility to do this.

- **2/12:** Submit your PowerPoint slides for a 6 minute presentation to the Course On-Line (COL) site under the heading "Design Project #2: Presentation." I will download these presentations and have them available on the in-room computer during class on 2/13.
• 2/13: Submit a zip compressed file with two documents: the final version of the map and a MS Word document containing the final version of the rules to the Course On-Line site.

Hints and Notes:

• Rules of thumb for artifact placement
  o Don't put two powerful weapons close to each other
  o Don't place a powerful weapons ammo nearby to the actual weapon.
  o Weapons should be placed in environments suited for them.
  o Impose a risk or cost when accessing powerful weapons.
  o Ammunition be spread around in amount, type, and location; 5000 bullets in one spot isn't helping anyone if they can't carry more than 200 bullets and what they really need is shotgun shells. Exceptions can be made for stockpiles that would make sense (such as armories).
  o Health and armor should be placed sparingly (if at all) and rarely together.

• Rules of thumb for terrain design
  o Make each crucial area approachable / vulnerable from more than one direction. This gives the player(s) occupying such a space more of a challenge to defend it.
  o Height provides multiple advantages: greater vision, better cover, (theoretically) greater shooting range. Where there are height advantages in the terrain, find ways to offset them for the defender (increased cover, greater material reward, greater supplies, etc.) or decrease their attractiveness for the attacker (greater resource cost, hazardous ascent, etc.)

• For the presentation, you may want to present your map in multiple versions or overlays, showing terrain and bases / spawnpoints in one, artifacts and obstacles, in another, etc.