

A City Planning Card Game

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Senior Project Memorandum

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This senior project aimed to create a card game based on the concept and professional practice of city & regional planning. It consists of 103 unique cards, being separated in the following manner:

- 1 City Center card
- 6 Unique Zoning cards
- 74 unique Development cards
- 22 unique Action cards

TCG & Video Game Inspiration

The purpose of this game is to provide players with an enjoyable gaming experience that also accurately mimics the facets and processes of city planning. It was inspired by card games such as YuGiOh!, Pokemon, and Magic The Gathering. These are some of the world's most popular trading card games. The main way these card games inspired this project was the way in which their rules provided a framework for competitive and fair player vs. player gameplay, as well as the process of deckbuilding present in these games. The process of deckbuilding is one where a player selects certain cards that they will use over the course of a game, from all possible cards to choose from. These cards are subject to limitations, such as certain cards potentially being banned from play in a competitive setting. Deckbuilding is a major facet of trading card games due to the fact that in essence, it is how the player decides what they want their deck of cards to do. Using this senior project as an example, it could mean the difference between a deck of cards that focuses on building a large office and commercial based city that scores lots of points in the later stages of the game, or a deck focusing on residential and green space developments that scores points intermittently but also hinders your opponent and potentially disrupts their strategies. Furthermore, these games are all designed to be played by two or more opposing players, and they all have rules that establish interactions between cards and players. This is the most fundamental part of a card game, and is present in this senior project through the use of rules that dictate interactions between players in order to keep the game fair. Different card effects can change the course of the game and add a layer of skill, deckbuilding, and luck.

This card game was also heavily inspired by video games such as SimCity, Cities Skylines, and Anno 1800. With SimCity first releasing in 1989, it heralded the beginning of the rise of planning games, with five SimCity games being released since 1989, and Cities Skylines being released in 2015. The way these games function is by appointing the player as a fictional mayor who is responsible for placing down zoning typologies and watching them develop over time with very limited interaction. These games were key points of inspiration due to the fact that the player(s) actively build a city, while responding to different circumstances and needs of the simulated citizens. However, due to the fact that in real world scenarios, the mayor is not responsible for zoning, and there is a great deal of interaction in what

specifically is developed in a lot, this card game differs from its inspiration and adds in those nuances to gameplay. Cities Skylines in particular inspired the addition of zoning cards as a game mechanic, due to the fact that the Cities Skylines game implements a zoning system as a key gameplay function, and also utilizes simulation technology to have “citizens within your city react fluidly, with gravitas and with an air of authenticity to a multitude of game play scenarios” (Cities: Skylines)¹. Additionally, all these city-building games showcase the ability for a city to expand and grow based on player decisions, which is shown in the card game by allowing the players to have their city grow in whatever shape they see fit, be it a highly urbanized core, with lower density surrounding it, or a diffuse city environment, where nothing is relegated to a certain region of the playing field.

Planning Inspiration

Before going into the different facets of city planning and how this game represents them, it is important to note that in order for this game to be one that is enjoyable and fairly easy to play and understand, some creative liberties were taken at the expense of realism. This game focuses on ensuring that cards and card interactions are based in reality and make sense in a planning setting. It is also important to note that many of the subjects discussed are fairly fundamental, and as such, will be explained in more general terms, with sources provided at the end. One final point to note is that the zoning and general planning this game takes inspiration from is found typically in California, more specifically, San Luis Obispo. The first aspect to explore is the different types of zoning. According to the City of San Luis Obispo government website, the recognized typologies of zoning are as follows²:

- Agriculture (AG)
- Conservation/Open Space (C/OS)
- Low Density Residential (R-1)
- Medium Density Residential (R-2)
- Medium High Density Residential (R-3)
- High Density Residential (R-4)
- Office (O)
- Neighborhood Commercial (C-N)
- Community Commercial (C-C)
- Retail Commercial (C-R)
- Downtown Commercial (C-D)
- Tourist Commercial (C-T)
- Service Commercial (C-S)
- Manufacturing (M)
- Business Park (BP)
- Public Facility (PF)
- PD – Planned Development

¹ *Cities: Skylines*. Paradox Interactive. (n.d.). Retrieved June 6, 2022, from <https://www.paradoxinteractive.com/games/cities-skylines/about>

²

<https://www.slocity.org/government/department-directory/community-development/planning-zoning/zoning/types-of-zones>

- SP – Specific Plan Area
- SF - Special Focus Areas
- H – Historic District Overlay
- MU – Mixed Use
- S – Special Considerations
- AOZ - Airport Overlay

In the game the zoning typology is generalized into solely Green Space, Commercial, Residential, Office, and Industrial zones. This was done to decrease the potential complexity of the game, but to still represent the main forms of zoning. Using this, the zoning cards were created to represent areas of land in a city that correspond to specific zoning types. Furthermore, when playing the game, zoning cards without developments placed on them represent areas of a city that have not been developed, but are still zoned in a specific way so that future developments must comply with the allocated zoning.

Another aspect of planning represented in this game is the zoning specifications for different development cards. This is done to represent, at a basic level, the different types of buildings you might see based on how an area is zoned. For example, a residential zoned area might have an apartment built on it, but it could also have a single family home or a multifamily home built there.

Another aspect represented in this game is the time taken to develop pieces of land. What I mean by this is that in real life situations, areas are not incorporated into a city then immediately zoned and developed. The actual development process can take some time, with the development process in San Luis Obispo taking between 44 to 66 weeks of time, starting at the submittal of a development permit application, and ending with a city council hearing that either approves or denies the project. This can be seen in greater detail in the City of San Luis Obispo - Development review process flowcharts³. The way this is represented in the game is by creating a rule where newly placed zones cannot be developed on the same turn. While it doesn't fully represent the fact that different developments take varying amounts of time to be completed, it does show the player that there is a delay that needs to be taken into account.

Basic Zoning and Adjacency

Generally, residential developments award points based on being adjacent to specific types of development. This is to showcase how it is beneficial for residents to be near different amenities such as living close to work for a reduced commute, or living near grocery stores and markets for ease of access when getting food. One specific residential card of note would be the 'Hotel' card. This card awards 5 points to the player if they place it adjacent to an 'Airport' development, and is supposed to represent the need for nonpermanent housing used by visitors to a city.

The office cards follow a similar principle of awarding points based on adjacency, however they focus more on being adjacent to other office developments, in an attempt to represent how a downtown business district can form. An important card of note in the office development category would be the 'Skyscraper' card. This card improves upon the effect of the 'Office building' card, but also requires it to have been in

³ <https://www.slocity.org/home/showpublisheddocument/4318/636039145964500000>

play beforehand, in order to show the positive effects of increasing density, while also illustrating how it would be unrealistic to build high density developments in an area that is sparsely developed.

The industrial cards follow a different design philosophy, and award points to the player based on the developments in their opponents city. This is to show how a city might profit based on its exports and show how the city receiving such exports would have to pay for them.

The green space development cards follow a similar philosophy to the office and residential developments, with points being awarded based on adjacency to different uses, and this is to represent the benefits of beautification and access to public areas in a city. However, the green space cards also include several disaster cards that you play in your opponent's city which hampers development. These are used to represent natural disasters and the inability to fully anticipate when they might happen.

Finally, when looking at the different types of development cards, we have commercial developments. These cards follow the general design philosophy of awarding points based on adjacency, however they are more so the focal points residential and greenspace cards focus on, given that they are used to represent the amenities desired by a population. Examples of this being that many of the cards represent businesses such as grocery stores, bakeries, shopping malls, and movie theaters. However, some of these cards such as 'Shopping Mall' and 'Historic Landmark' benefit immensely from being adjacent to the city center, in order to represent how they are typically more successful in a dense or central area.

The last type of card is not a development, but represents different actions and parts of the planning process. These action cards are typically used to hinder your opponent, and from a gameplay perspective, stop them from creating their optimal city. They are flavored however to be aspects of the planning process, with cards such as 'Angry Town Council' being able to remove developments in your opponent's city, representing a project being received negatively and not being approved during the planning process. There are other cards such as 'Impact Fee' which require your opponent to discard a card in order to play their next development card. This represents the concept of impact fees costing developers time and resources when such a fee is applied to a current project.

Overall, while the cards, zones, and developments are generalized, they are all justifiable parts of the planning process, and are all based on real world facets of the planning process.

Game Rules

- Each player starts with a deck of between 40 and 60 cards, and 1 city center card
- Players decide first turn by coin flip, or some other random chance, and turn order occurs clockwise
- Players begin the game drawing 5 cards from their deck
- Both players place their city center card on the table

- The active player then takes their turn
- What constitutes a turn:

1 - The active player draws a card

2 - The active player may place a zoning card adjacent to either a zoning card or city center, and may also place a development card on top of an undeveloped zoning card, as long as the zoning card corresponds to the development zoning*. Both of these actions may be taken during a turn, however each cannot be done more than once per turn unless stated explicitly by a card effect.

* The active player may place a card in their opponent's city if and only if the card in question says to place it in your opponent's city.

3 - The active player may play an event card, and resolve the card's effect.

4 - If you end your turn with over 7 cards in hand, discard down to 7 cards.

Player calculates the amount of points gained by the cards played at the end of their turn.

- The game ends when either a player cannot draw a card at the beginning of their turn, or a player reaches 100 points

Deck Constrictions:

- No more than 3 copies of a specific card, excluding Zoning cards
- No more than 12 Development cards of one color
- No more than 12 Zoning cards of one color
- No more than 6 Mixed Development Zoning cards
- Mixed Development Zoning cards do not count towards the 12 Zoning cards of one color

Game making process

The process of making this game was fairly straightforward, seeing as how I already had lots of experience playing TCG card games such as Yu-Gi-Oh!, Pokemon, and Magic The Gathering, as well as various other board games that include cards as a main means of play. The first step in creating this game however, was finding a way that best communicates the basic tenets of city planning in both a fun and informative way. This was done through researching real world examples of interactivity between different types of zoning and developments, which is elaborated upon in the “Inspiration for the Game” section. The second step was creating different card typologies, which ended up being zoning cards, development cards, action cards, and city center cards. The third step in creating this game was the actual design process of the cards. The basic card template was ultimately one that was color coded based on its related zoning, with exceptions to action cards and city center cards. The cards were also given a text box for the effects to be written in, a title box for the card name to be written in, and an area was left blank for

future card art. The final step in creating this game was to playtest it with various different individuals. I personally played the game 12 times, with suggestions for improvement and ideas on changing basic mechanics being provided by my opponent at the end of each play session. This was by far the most important part of the game making process, as it allowed me to balance the game so that no one zoning type was objectively worse than the others, and to find any potential ‘problem cards’ that needed to be toned down. The feedback I received during this phase was also used to inspire ideas for potential expansions to this game. Any further steps that would be taken would most likely involve creating refined card designs and art, adding more cards to the database, and preparing the cards to be created and distributed as part of an official commercial release.

Real world application

This game aims to have some modicum of real world application in a professional and educational setting. In terms of an educational setting, this game could be used to teach the fundamentals of city planning, by using the concepts of zoning and zoning typology present in the game to provide hypothetical examples of how zoning affects real-world developments. It could also be used to explain how different developments interact with one another, through the card effects written on each development card. In the same vein, it could also be used as a very rudimentary form of educating the public during public meetings, so that the general population attending these meetings can have a more tangible way of explaining how they want an area developed. It is important however to keep in mind that these methods of education would be very basic and would be aimed at creating fun informative exercises as opposed to replacing course materials for education, or public participation in a formal development process.

It is also important to be aware of the fact that the idea of education through games is not unheard of. Video games have often been used as a method of teaching, and they are excellent at giving a comprehensive, yet simplified view of reality. Games like Cities Skylines and SimCity have been used repeatedly as a means of educating on topics such as real estate and land use planning, as well as teaching people about the importance of addressing the ever changing needs of stakeholders in an urban environment. Additionally, games as a method of teaching offer the ability to see results of decision making processes in real time, and help illustrate both theories and practices that would be found in a more traditional textbook.

Lastly, it is important to note that a card game such as this senior project would be an easily accessible way to enter the world of planning education, and would provide a basic framework of knowledge for individuals to build upon.

Card Database

Card Title	Card Type/ Zoning	Card Effect
Angry Town Council	Action	Play if your opponent plays a development in your city. Immediately remove the development
Company	Action	Remove one development in your opponents city

Relocation		
Eminent Domain	Action	Remove 1 development on your city
School out of Session	Action	Remove 1 student housing card and replace it with any residential development from your deck
Public Library	Action	This card may be placed on any Zoning and once placed, is treated as a City Center card
Labor Shortage	Action	Randomly discard 1 card from your opponent's hand
Corruption Scandal	Action	Your opponent does not draw a card on their next turn
Back to the drawing board	Action	Shuffle your hand into your deck and draw the amount of cards you shuffled
Impact Fee	Action	Your opponent must discard a card to play their next development
Town Hall Protest	Action	Your opponent cannot place a development card on their next turn
Vacant lots	Action	The turn this card is played. your opponent loses 1 point for each zone in their city without a development
Bad PR	Action	Your opponent draws 3 cards, and discards 4 cards
Good PR	Action	Draw 3 cards, and discard 2
Dusting off an old plan	Action	Select 3 of your discarded cards and shuffle them back into your deck
Denied Project Permit	Action	Discard the top 3 cards from your opponent's deck
Public Art	Action	Score 1 point for each development in your city
Disaster Response	Action	Remove 1 card which includes the word "Disaster" in its name from your city
Corrupt Councilmember	Action	Discard 1 card and search your deck for one card of your choosing, place it on top of the deck
Budget Cuts	Action	Discard the top card from your opponents deck
Planning Commission	Action	Look at the top 3 cards in your deck and arrange them in any order
Design Commission	Action	Look at the top 3 cards in your opponent's deck and arrange them in any order
Volunteer Firefighters	Action	Remove one Wildfire Disaster development card in your city and score 5 points
Corner Pub	Commercial	Score 2 points for each adjacent Industrial development

Shopping Mall	Commercial	Score 1 point for each adjacent development, or 3 points if this card is adjacent to the City Center
Mom & Pop Shop	Commercial	Score 1 point for each adjacent residential development
Grocery Store	Commercial	Score 1 point for each adjacent development
Public Market	Commercial	Score 2 points for each adjacent Skyscraper development
Artisan Bakery	Commercial	Score 1 point for each adjacent Residential development, or 3 if also adjacent to a Grocery Store development
Waterfront Retail	Commercial	At the end of the game, if this card is in your city, and your opponent has a Port development, their Port development has no effect
Popular Landmark	Commercial	Score 5 points if adjacent to a City Center
Movie Theater	Commercial	Score 1 points for each adjacent Office or Commercial development
Game Store	Commercial	Score 2 points for each adjacent Office development
Historic Business	Commercial	Score 1 point each turn this card is in your city
Farmers Market	Commercial	Score 5 points if placed adjacent to a Residential development
Local Gym	Commercial	Score 2 point for each adjacent Residential development
Popular Restaurant	Commercial	Score 1 point for each Residential development
Forest Preserve	Green Space	Score 1 point for each Residential development in your city
Public plaza	Green Space	Score 2 points for each adjacent development
Public Park	Green Space	Score 2 points for each adjacent Residential development
Beach	Green Space	Score 1 point for each adjacent Residential development, and 2 for each adjacent Commercial development
Protected Wetlands	Green Space	Developments cannot be placed adjacent to this card; Place in opponents unoccupied Green Space Zone
Public Playground	Green Space	Score 3 points for each adjacent Residential development
Central Park	Green Space	Score 1 point for each Office development in your city
Local Farm	Green Space	Score 1 point for each Commercial development in your city
Algae Bloom	Green Space	Place over 1 Beach development in your opponents city; They do not receive its benefit until they remove this card
National Park	Green Space	Remove 1 card which includes the word "Disaster" in its name from

Service		your city
Flood Disaster	Green Space	Place over 1 development adjacent to a Beach development in your opponents city; They do not receive its benefit until they remove this card
Wildfire Disaster	Green Space	Place over 1 Forest Preserve development in your opponents city; They do not receive its benefit until they remove this card or if they have a Fire Station development
Green Infrastructure	Green Space	Score 2 points for each Industrial development in your city
Environmental Incentives	Green Space	When you draw a card, you may return the card to your deck, shuffle, and re-draw a card; This can only be done once per turn
Community Park	Green Space	You may play one additional zoning or development this turn
National Park	Green Space	Score 1 point each turn this card is in your city
Open Space	Green Space	Place on your opponent's undeveloped Green Space zone.
Apiary	Green Space	All Green Space developments played on subsequent turns score double points
Earthquake Disaster	Green Space	Remove one development from each players city and replace it with this card
Coal Plant	Industrial	Cards cannot be placed adjacent to this card placed in an opponent's undeveloped Industrial zone
Wind Farm	Industrial	Score 1 point for each adjacent development
Solar Farm	Industrial	May be placed adjacent to ANY development *overrides any other card restrictions and you do not suffer any negative effects
Gas Station	Industrial	Score 1 point of each adjacent Retail and Office development
Port	Industrial	Score 2 points for each Commercial development in your opponents City
Bus System	Industrial	Score 1 point for each adjacent pair of Residential developments in your opponents City
Trolley System	Industrial	Score 1 point for each adjacent pair of Residential developments in your city
Airport	Industrial	Score 1 point for each Office development in your opponents City
Train Station	Industrial	Score 2 points for each adjacent Office and Residential development in your opponents city
Mine	Industrial	Score 1 point every turn, until you or your opponent plays a Green Space development

Factory	Industrial	Score 1 point for each Commercial development in your city
Cattle Ranch	Industrial	Score 5 points if placed adjacent to a Green Space development
Airplane Factory	Industrial	Your opponent loses 5 points and you gain 3 points for each Airport in your opponent's city
Office Building	Office	Score 1 point for each adjacent development
Tech Startup	Office	Score 3 points for each adjacent Office Building development
Convention Center	Office	Score 1 point for each adjacent office development, or 3 points if this card is adjacent to the City Center
Skyscraper	Office	Must be placed on top of an Office Building development; Score 2 points for each Office development in your City
Courthouse	Office	The first time your opponent uses the Corruption Scandal card, ignore its effect
Research Center	Office	Score 1 point for each adjacent development; When placed, immediately draw 2 cards
Stock Market	Office	Double the point values listed on one adjacent Office development
Company Campus	Office	Score 1 point for each of your Office developments not adjacent to another Office development
Think Tank	Office	Your maximum hand size increases to 10 cards
Paper Company	Office	Place on your opponent's unoccupied Office Zone
University	Office	Increase your maximum hand size by 1 for each adjacent University Housing development
Newspaper Company	Office	Score 2 points for each adjacent Residential development
Bank	Office	Score 3 points for each adjacent Office development
Central Servers	Office	Score 5 Points for each adjacent Office development. If this card is removed, lose 5 points for each Office development in your city
Single Family Residential	Residential	Score 1 point for each adjacent Commercial and Green Space development
Duplex	Residential	Score 1 point for each adjacent Residential development
Apartment	Residential	Score 2 points for each adjacent office development
Low Income Housing	Residential	Score 1 point for each adjacent Green Space development
University Housing	Residential	If this card is placed adjacent to a University development, you may return one card you previously discarded to your hand
Hotel	Residential	Score 5 points if adjacent to an Airport card

Townhouse	Residential	Score 2 points for each adjacent office development
ADU	Residential	Score 1 point for each adjacent Commercial and Green Space development
Tiny Home	Residential	Score 2 points for each adjacent Green Space development
Mobile Home	Residential	Does not count for opponents Trolley/Bus system points
Homeless Shelter	Residential	Score 1 point for each unfilled Residential zone in either players city
Historic Home	Residential	Score 1 point each turn this card is in your city
Farm Home	Residential	Score 5 points if placed adjacent to a Cattle Ranch development
3D Printed Home	Residential	Score 3 points for each adjacent developed zone

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