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# AP<sup>®</sup> Human Geography

## Sample Student Responses and Scoring Commentary

### Set 2

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# AP<sup>®</sup> HUMAN GEOGRAPHY 2019 SCORING GUIDELINES

## Question 2

**7 points: 2 + 2 + 1 + 2**

**A. Describe TWO factors which led to the development of the galactic city as an urban landscape in North America.** (2 points: 1 description + 1 description)

- A1. Decentralization and suburbanization: population shift from the center city into the suburbs
- A2. Nuclei form around improved transportation that includes highways, interstates, and airports
- A3. Economic shift from industrialization to service-sector office parks
- A4. Economic shift from industrialization or industries to high-technology operations or advanced manufacturing
- A5. Urban growth stimulated specialization and specialized centers outside the central business district (CBD)
- A6. Suburbs took on the roles more typically associated with CBDs
- A7. Cheaper, more available, and easier to develop land in suburban areas
- A8. Shifts in the spatial organization of production or the spatial organization of manufacturing
- A9. Lack of planning or reduced regulation of land use in the urban periphery or unincorporated areas

**B. Describe TWO ways that the spatial organization of commercial land use is different between the original CBD and an edge city.** (2 points)

	<b>Original CBD</b>	<b>Edge City</b>
B.	1. High-density buildings and/or land use; skyscrapers	a. Low density buildings and/or land use; low-rise office buildings, “campus” architecture
B.	2. Mixed land use (residential, commercial, office)	b. Specialized land use; dedicated to office buildings and retailing (little to no residential land use)
B.	3. More walkable, pedestrian oriented	c. Pedestrian unfriendly (lack of sidewalks)
B.	4. Smaller shops and retail	d. Big box stores
B.	5. Older, more historic	e. Newer construction
B.	6. Brownfields	f. Greenfield development
B.	7. Greater access to public transit	g. Dominated by automobile
B.	8. Parking garages	h. Large, open parking lots
B.	9. Grid pattern	i. Curvilinear or nonlinear pattern

**C. Describe ONE negative impact of edge city development on the environment.** (1 point)

- C1. New construction areas, or urban sprawl, may replace open space or farms
- C2. Loss of natural and/or animal habitats, introduction of invasive or nonnative species
- C3. Dependence on automobile or lack of public transportation can result in increased air pollution and greenhouse gas emissions or a larger carbon footprint
- C4. Impact on land because low-density development occupies more land than a high-density development (more land used for roads, larger building footprints)
- C5. Lack of parks, green spaces, and trees causes heat island effect
- C6. Numerous roads and parking lots absorb heat and contribute to the heat island effect
- C7. Waste, soil erosion, or pollution from construction sites
- C8. More impervious surfaces created by new construction (buildings, roads, parking lots) cause more storm water runoff and flooding

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## Question 2 (continued)

**D. Explain TWO ways sustainable design initiatives or smart growth policies could address negative impacts of edge city development on the environment. (2 points)**

	<b>Initiatives or Policies</b>	<b>Impacts</b>
D.	1. Improved modes of transportation (coverage, access, capacity)	a. Reduced pollution (air, greenhouse gas emissions)
D.	2. Walkability (building wider sidewalks or additional walkways) and bikeable spaces, bike lanes, or bikeways	b. Reduced carbon footprint
D.	3. Preserving or creating greenspace (building new parks, lining streets with trees)	c. Reduced traffic congestion/rush hour
D.	4. Increasing residential density	d. Reduced energy consumption
D.	5. Zoning for slow growth or zoning for mixed-use development	e. Increased energy efficiency (utility services)
D.	6. Infilling residential and retail formats	f. Habitat preservation
D.	7. Building green buildings (LEED-certified)	g. Farmland preservation
D.	8. Sourcing food locally	h. Better connection of edge cities to residential areas

A) One factor that led to the development of the galactic city is the increased wide-spread use of cars and public highways. Cars allow people to live farther away from the CBD and ~~new~~ roads and highways allow for easy connectivity from place to place. This causes communities to spring up far away from the CBD and new edge cities to form to support these new suburban communities. Another factor is white flight causing white city-dwellers to move out to the suburbs, creating increasingly larger suburban communities that again need services supported by edge cities in the galactic city.

B) One difference of spatial organization between the two is the diversity of services. The original CBD will always be a congregation point for all types of services, but edge cities specialize like in the given picture. Edge cities can specialize in medical uses, technology, or retail compared to the vastly diverse CBD in the center. Another difference is that North American CBDs tend to have more tall buildings to make use of limited, valuable space. Edge cities have smaller buildings that spread services farther apart, because they have more ample space.

C) One negative impact of edge city development is an increase in the amount of suburban sprawl, thus putting more cars on the road in order for people to reach their jobs in the city from the suburbs. This leads to more carbon emissions that add to the greenhouse effect and therefore contributes to climate change.

D) One way these new sustainable design initiatives could address negative impacts of edge city development on the environment is by making cities more walkable. By making cities more walkable with better pedestrian paths and easily-accessible services, it eliminates the need for cars and lowers the carbon footprint on the environment. Another way they could mitigate negatives

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of edge city development is by increasing the amount of greenery in cities by adding parks or planting trees. Greenery in cities has been shown to lower temperatures in urban heat islands and the plants increase air quality by taking in carbon emissions and releasing clean air.

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A.) One factor that led to this development was decentralization because of increased and enhanced transportation. With this enhanced transportation highways were built and the urban landscape changed by becoming more spread out and less centralized, as seen by the various placements of corridors and office parks and centers. A second factor is the means of transportation by which things are delivered. With inventions such as the airplane and boxes on ships being standardized, cities were able to get away from the concentric zone model and spread out and decentralize, and create edge cities that contribute to the galactic city model.

B.) One way it is different is in the CBD land use. It is very densely packed, and in edge cities land use is often vast and spread out. A second difference is the organization of certain areas, as CBDs typically have specified areas for certain neighborhoods and office spaces, whereas in edge cities the specialization of land is often more varied with a mixture of use of space.

(c) Edge cities require highways and other forms of transportation out of the CBD, which promotes car activity and harmful environmental impacts.

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As people must drive to reach the vast edge cities harmful pollutants can be released, especially considering how many people use these modes of transportation every day.

D.) Sustainable initiatives such as New Urbanism can address the issue of pollutants, as it promotes development that increases walking behavior and decreases car activity. By developing such edge cities in ways that are more dense and promote walking by providing all necessary activity in a smaller area, car activity and thus pollutants would go down. An initiative such as New Urbanism would also help the environment by promoting edge cities be more varied in spatial organization to promote less travel. By providing a more varied scene for inhabitants, the amount of land needed for urban land use would go down, thus helping support smaller cities and less deforestation and destruction of natural areas.

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A) Development in a galactic city in North America was caused by advances in technology, central location of businesses, and central place theory.

Advances in technology can help with location, transportation and manufacturing. Transport resources from CBD to Edge Cities. And the amount of production within CBD or Edge City.

Location of Business influences location of outside sources. Also business or manufacturing close to area of resources. Central Place theory. When businesses are placed in the center and Retail or Recreation is located in an edge city around the CBD.

B) Commercial land use is the use of land for commercial businesses. This is different from locations of CBD's to Edge Cities because CBD is exact location of a business while Commercial land use is extended from a certain area and used for the commercial business.

Edge Cities are located away from the CBD, but they can still be within Commercial Land Use and edge cities can contain and support this land. Commercial land use can be located away from the business district, but still be used & maintained by the CBD for business location & purposes.

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C) location of edge cities can have a Negative impact on the environment.

Pollution can be a big factor from transportation or building/development around an edge city.

Negatively using land and/or destroying it for the development and advancement of Edge cities

D) Addressing the Negative Impacts with Smart growth policies could include restrictions, controlled development, and advanced transportation.

Restrictions such as building & advancing could reduce the amount of detrimental land use and lower levels of pollution.

Controlled Development could prevent destroyed landscape by using restriction and more advanced technology.

Advanced Transportation, including sufficient automobiles or less pollutant vehicles such as busses or trains to control amount of CO<sub>2</sub> or land destruction

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## 2019 SCORING COMMENTARY

### Question 2

**Note:** Student samples are quoted verbatim and may include spelling and grammatical errors.

#### Overview

In part A students were asked to describe two factors that led to the development of the galactic city as an urban landscape in North America. This was intended to highlight urban models as a useful tool for explaining the internal structure of cities and urban development. In part B students were expected to describe two ways that the spatial organization of commercial land use is different between the original central business district (CBD) and the edge city. It was important for students to understand urban planning issues and land use considerations. In part C students were asked to describe one negative impact of edge city development on the environment, pulling in environmental problems associated with urban communities. In part D students were asked to explain two ways sustainable development initiatives or smart growth policies could address negative impacts of edge city development on the environment. This final part was intended to integrate their knowledge about several urban issues.

#### Sample: 2A

**Score: 7**

The response earned full credit and demonstrates a comprehensive understanding of the development of the galactic city and the changing urban landscape in North America. The response earned 1 point in part A for describing how communities form around improved roads and highways. (A2) The response earned an additional 1 point in part A for describing the population shift to the suburbs. (A1) The response earned 1 point in part B for describing the variety of services in the CBD being different from the specialization in the edge city. (B2; Bb) The response earned an additional 1 point in part B for describing the high density of the CBD, exemplified by the presence of tall buildings, being different from the low density land use in the edge city with the buildings being farther apart. (B1; Ba) The response earned 1 point in part C for describing how commuting by automobile may lead to more carbon emissions. (C3) The response earned 1 point in part D for explaining that making cities more walkable may result in a reduced carbon footprint. (D2b) The response earned an additional 1 point in part D for explaining how an increase in the amount of greenery results in cleaner air. (D3a)

#### Sample: 2B

**Score: 5**

The response earned 1 point in part A for describing how decentralization led to the development of the galactic city. (A1) The response did not earn an additional point in part A because the second factor is incorrectly described as modes of transportation, such as airplanes and cargo ships. The response earned 1 point in part B for describing the spatial organization of commercial land use as high density in the CBD and low density in the edge city. (B1; Ba) The response did not earn an additional point in Part B as the description inaccurately refers to the CBD as having specialized areas and edge city land use being diversified. The response earned 1 point in part C for describing the reliance on car activity in edge cities as having a negative impact of increased pollution. (C3) The response earned 1 point in part D for explaining how the sustainable development initiative of increased walkability reduces pollution. (D2a) The response earned an additional 1 point in part D for explaining how promoting New Urbanism, which incorporates varied spatial organization and mixed-use zoning, can preserve natural habitats. (D5f)

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**Question 2 (continued)**

**Sample: 2C**

**Score: 3**

The response earned no points in part A because of the lack of description of the multiple potential factors that led to the development of the galactic city. The response earned no points in part B for the ways in which the spatial organization is different between the CBD and the edge city as the spatial organization of the CBD and edge city is not accurately addressed. The response earned 1 point in part C for describing that edge city building sites may result in increased pollution. (C7) The response earned 1 point in part D for explaining that building restrictions can reduce detrimental land use and lower the levels of pollution. (D5a) The response earned an additional 1 point in part D for explaining that improved transportation, such as buses or trains, can lead to reduced pollution. (D1a)