C. Sizes of Urban Settlements

Urban centers vary in their size and title. Any agglomeration of humans in a settlement fits into the following urban categories. As the total population of a settlement grows, it is redefined into a new category. While there is nothing magical about the categories, each one gives an understanding of the services that can function within that threshold. These words are used throughout the chapter when referencing different urban situations. However, outside this course, the definitions may vary - especially when examining international cities.

- **Isolated Settlement or Dwelling.** A small family or collection of extended family members. Very limited built landscape consisting of a handful of buildings. No other buildings, services, or markets are in the area.
- **Hamlet.** Very small population, typically less than 200 people. The built landscape consists primarily of homes. There are enough people in range to meet the threshold to support a few social services like a church and a gas station/convenience store (often sharing the same building). No other commercial centers exist where products are sold.
- Village. A small population, generally between 200-1,000, meeting the threshold to support small local services like a post office, a small grocery store with basic necessities, and a school.
 - <u>*Parrish*</u>. In areas with a heavily Catholic heritage, these population clusters may be referred to as Parishes and are based on how the Catholic and Lutheran Churches subdivide a population, determining the type of buildings and services to provide.

Town. A small town has a population between 2,000-20,000; A large town's population can fluctuate between 20,000-100,000 people. When a community reaches this size, they can *incorporate* to form their own locally elected government. This gives people the opportunity to collect their own taxes, manage their own resources, and maintain their own community: police, fire fighters, EMS, street maintenance, recreation, zoning, etc. A boundary is established, establishing it as a permanent community. As the community gets larger, they can annex - or add - more land into the township. By having a permanent boundary, the town cannot be annexed by any other growing town/city. Due to a larger population, towns often meet the threshold to support services needed to serve a more substantial population like multiple schools, larger commercial centers with stores, a family doctor, restaurants, and office space. The role of the town varies based on its proximity to a larger city or metropolitan area.

- <u>Census Tract</u>. Areas with populations of 1,200-8,000 people. Census tracts are identified and given numbers, allowing cities to measure change from one census to the next and giving a historical record of population demographics. If a Census tract grows above 8,000 people, it is sub divided into 2. If a census tract loses population and dips below 1,200, it will be merged with another neighboring tract. Every inch of the USA has been grouped into census tracts.



- **City**. A city's population ranges between 100,000-300,000 people; a large city may reach a population of 1 million people. The US Census Bureau identifies regions with populations larger than 50,000 residents as *Metropolitan Statistical Areas (MSA)*. Cities meet the threshold to support every imaginable service: hospitals, universities, museums, concert halls, sports teams, airports...
 - <u>*Capital*</u>. The political headquarters for the region or the State. Capitals have an agglomeration of important political services, along with complimentary legal and business communities who wish to be close to the political power. It is very common for major universities to be located in the political capital, as well.
 - <u>Primate City</u>. A massive city, over twice as large as the state's next biggest city, operating as a chief economic, social and political engine within the state.
 - <u>World City</u>. A city who has a disproportionately large impact upon the global economy. World cities are often hosts to the headquarters of major corporations, manufacturing facilities, banks/stock markets, transportation hubs, and supranational governmental organizations. For example: London, Paris, Tokyo, NYC, and Berlin are all World Cities.
 - <u>City-State.</u> Most cities exist within a state, as a part of larger system of a political, social and economic networks. A city-state is when one city is its own political state, with no other cities, towns, hamlets, etc. One state composed of 1 city. Modern examples of City-States are Singapore, Monaco, and Vatican City.
 - <u>Megacity</u>. A large, singular metropolitan area with a total population over 10 million people. There are over 30 megacities in the world.

Metropolitan. With the invention of cars, the size of urban spaces exploded. As cities annexed land and expanded, they soon ran into a problem: other towns and villages. Soon, these towns became engulfed and were swallowed by a sea of roads, housing communities, stores, and schools. The unique identity of the village was lost in the rapid expanse of the large city. Soon the cities and towns were so interconnected and interdependent with their transportation, sanitation and infrastructure, it was impossible to distinguish where the large city ended and the towns/villages began. These absorbed towns and villages became known as *suburbs* (also known as *edge cities, boomburgs*, and *exurbs*). People with cars live in the low density residential neighborhoods in the suburbs, before taking the highway into the CBD to work, and then head back home to their home in the suburbs. This combination of the land and people from the city with its surrounding suburbs is called the *Metropolitan Statistical Area (MSA)*. For example, the Raleigh Metropolitan Statistical Area (MSA) encompasses both the official boundary of the city of Raleigh AND its surrounding towns and suburbs like Cary, Wake Forest, Rolesville and Garner. The greater metropolitan area of Atlanta includes Decatur, Roswell, Brookhaven, Marietta, Austell, and Lake City.

- <u>Edge City</u>. Most suburbs are defined as *sleeper* communities, with building space being used for lowdensity single family homes. Edge cities are suburbs that develop their own mini-CBD with over 100,000 square feet of office space and commercial retail centers (some have over 1 million square feet). Few people from outside the region will have heard of the edge city. However, to those living in the metropolitan area, the edge city has developed its own regional identity and name recognition as a place to live AND do business. For example: Pasadena and Burbank are edge cities of Los Angeles; Foxborough is an edge city of Boston.
- <u>Boomburg</u>. Boomburgs are suburban communities that are rapidly exploding in population, growing to over 100,000 residents. However, for having such a large population there are no formal CBDs or large office complexes. Arlington and Plano, Texas are boomburgs on the edge of Dallas, Texas. Mesa is a boomburg in Arizona with over 430,000 residents.
- *Exurb*. These are residential, semi-rural communities that exist beyond the suburbs where wealthy people live.





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Conurbation. A conurbation is a collection of interconnected, interdependent, or networked metropolitan areas working together - sharing resources, infrastructure, services, etc. Typically, conurbations are formed when multiple metropolitan areas expand and sprawl until they merge with a total population ranging between 2-10 million people. Dallas and Fort Worth have both annexed and expanded so that they are now a conurbation referred to as Dallas-Fort Worth with the Dallas-Fort Worth (DFW) airport. The Research Triangle has become a conurbation. Raleigh, Durham, and Chapel Hill were independent cities in the 1900s, but since the 1980s they have grown into one large, interconnected urban space with a shared identity. A conurbation with over 10 million people is known as a Megalopolis.



Meta-City/Hypercity. A collection or network of conurbations consisting of more than 20 million people is known as a Meta-City or Hypercity. *Meta-cities are systems within a system*, multiple towns and cities that function both independently AND together: one large unit with many independently working parts. These conurbations are interconnected and interdependent economically, socially, and politically. They have transportation corridors that physically join them together. They have such a high population density that there is no clear visible marking from when one city ends and the next one begins. The first and largest Meta-City is Tokyo. The Greater Tokyo Metropolitan Area surpassed 20 million people in the 1960s and has now grown to over 35 million. There are more people living in Tokyo than in all of Canada. In the Northeast United States, the most prominent megalopolis is BosnNYWash, consisting of: Boston, New York City and Washington D.C. (with some inclusion of Philadelphia). In China, there is a massive rural-to-urban migration to cities along the coast. Soon, the Pearl River Delta will have a megalopolis of over 50 million people. Mexico City, Sao Paulo, Dhaka, Jakarta, Lagos, Dehli, and Mumbai are all meta-cities, as the largest urbanizing populations are in the periphery and semi-periphery.



D. Growth of Urban Spaces

There are three major factors that contribute to urban growth: *transportation expansion, population growth, and economic growth.* Since all three are interrelated, it is difficult to state which one caused the others - similar to the argument of which came first, the chicken or the egg. If any one of these aspects is missing or struggling, the urban setting will shrink.



Transportation

Transportation is critical for determining the shape/form of the city, the size of the city, and the accessibility/ connectivity within and beyond the city. As technology and forms of transportation have changed, the shape, form, and connectivity of the city have evolved with them.

Walking Cities. Pre-industrial cities (before 1800 or Stage 1-2 Rostow) were founded upon people walking to their destination or upon using animals as their main form of transportation. There were some roads, but they were mainly dirt or stone and provided limited benefits. Because the average person could walk 1-2 miles in 20 minutes and 9-13 miles in a day, urban spaces were generally smaller. Since people could walk equally in all directions, the shape of urban spaces tended to be circular. Cities had limited connectivity because of the slow speed of movement between them.

Trains. The invention and adaptation of the train radically altered the connectivity within and beyond urban settings (after 1870s, Rostow Stage 2-3). Trains and steamboats reduced the space-time compression, allowing people to travel further-faster. This accelerated the globalization of business production and consumption. On a train, a person could travel twice as far in one hour than they used to be able to travel in one day. The improvement in space-time compression increased the range of the services businesses could provide and improved their ability to meet their baseline-threshold to stay profitable. Urban spaces with access to a train stop were now interconnected to a regional network of cities, so as long as a business was located on/near the rail lines, they could deliver products to the entire USA. This connectivity led to an increased flow of people, goods, and ideas around the region and eventually around the world.

The increased interconnectivity also led to a change in the size of the urban space. Every major city had a train station at the center of the CBD. Around the main train station, cities used streetcars, trollies, light rail trains, and subways to move people more efficiently within the city. As more businesses wanted access to the main train station, or to commuter train stops along the transportation corridor, the consumption of land around the train stations grew causing a substantial increase in the size of the CBD. Since accessibility to the railroads was the most important factor for the secondary sector, bulk-gain industries began to expand away from the CBD to train stations farther away. This caused an increase in the size of the urban area along the transportation corridors - the space along each side of the route of transportation.

As businesses competed and bid for the best land near the train stations, the cost of land along transportation corridors also rapidly increased. As growth exploded along the rail lines, the form of the urban space altered. Early cities were mainly circular, while train based societies expanded into the shape of a star or a spoke-and-hub (i.e., bicycle wheel). The CBD, often located near a major port or interconnection of major rail lines, was at the center, with the rail lines shooting out in different directions.

Interstate Highways. The innovation of the personal automobile and the construction of the US interstate highway system in the 1950s once again provided the stimulus for dramatic change. The economic power of cars and trucks resulted from their speed mixed with individual freedom. A train is stuck on a rail line with its cargo and passengers until the next station. Cars and trucks provide with the autonomy to change direction and decide their own path. This allowed for rapid, cheap, and customizable transportation. Highways could be built anywhere, so governments built them everywhere.

Highways had a dramatic effect on the size of urban spaces. Urban spaces built radial roads that started in the CBD and went North/South/East/West - radiating out from the city like rays of the sun. Then, ring roads were built in a circle around the city, allowing people to travel in a rotation around the city, causing a size explosion in every direction.



This increase to the road network had several effects on the size and shape of urban environments:

- First, *thousand of miles of roads were rapidly built*. The highways were wide, with many lanes, taking up a lot of space. Because the land further away from the CBD was cheaper, governments built more roads to allow cars, trucks, businesses, and customers access to develop these areas. Cities used *eminent domain* to force landowners to sell land for building more roads. This allowed cities to expand roadways as quickly as their GDP, development loans, and demand for land allowed.
- Second, land developers rushed to buy up the cheaper, rural land to mass produce housing communities. Villages had trouble regulating the growth as it was difficult saying no to businesses offering to pay millions for land AND to the increased tax revenue from having larger populations. As a result, massive communities of low-density residential communities were built in the suburbs, leading to urban sprawl: the uncontrolled, unrestricted growth of urban spaces. People with larger salaries wanted larger houses with more space and were willing to drive further to work. With a car, employees could drive from the suburbs to their job in the CBD in 20-30 minutes. People were no longer living in medium-to-high density population clusters. but instead were living in single family homes sprawled across a spider's web of roads.



- Third, many office-based tertiary sector jobs like real estate and insurance sales relocated from the CBD to the suburbs, creating edge cities. The land and buildings were cheaper in the suburbs, PLUS their workers and clients were already living there. Tertiary sector businesses follow their clients so businesses convinced local governments and developers to rezone more land to build commercial office space. As a result, residential suburbs transformed into edge cities with mini-central business districts composed of footloose tertiary businesses wanting to be near their workers and their paying clients. Medium and low density office buildings and retail malls were rapidly built near road intersections and surrounded by acres of parking lots to allow people to park their cars. The built landscape became wide and sprawling instead of tall and condensed.
- Fourth, light industry and warehouses moved further away from the CBD to the land that was more affordable. The prime locations were along the highway on/off ramps, with the MOST prized locations being at the intersection of two major highways. These further-away on-ramp and intersection-based locations gave industries access to the regional and global network of trade AND significantly lower land prices.

Fifth, older urban settlements began to merge together. Urban spaces that had been developed around the age of walking and horse riding were located close to one another. As urban sprawl caused these dense population centers to explode in size, it caused conurbations and megalopolis to form. Places like Philadelphia, Boston, New York and Washington DC used to be distinct urban spaces. Now, if a driver along Interstate 95 is not paying attention to the signs, it is impossible to tell when one urban space ends and another urban space begins. Similarly, Los Angeles and San Diego have merged into a massive conurbation along Interstate 10 in California.



Economic Growth

As transportation systems improved, interconnectivity led to an increase in profitability and business expansion. Industries had access to a wider variety of resources regionally and globally, allowing them to create more complex and creative products. It also increased the range, or distance, the business could sell their products. As a result, cities became the critical links in the supply chain for the global division of labor. Specialization and globalization caused business activity to explode in urban settings that were well connected to the regional and global transportation networks as business rushed to maximize the benefits of agglomeration. As the size and range of these industries exploded, they began to consume larger amounts of land along transportation networks. More land was needed for rail yards, truck stops, repair shops, warehouses for shipping containers, and caused further growth in the size of the urban space.



Population Growth

If economic growth is the heart beat, and the transportation lines are the arteries, the people are the muscle and flesh that brings the urban space to life. Transportation and economic development laid the structure to allow for massive urban population growth. The populations of these urban settlements expanded in two ways: migration and natural increase.

Migration was the number one cause of growth in urban settlements. With the availability of rapid transportation systems and plentiful job opportunities, people began to migrate by the millions to urban centers looking for employment and a better quality of life. With education, sanitation, retail, and recreation... it was better to be poor in the city than it was to be poor and struggling in the rural regions. Even working for \$1 a day at a sweatshop factory was more money than was available on the overcrowded, inefficient subsistent farm. Working for \$7 per hour at McDonalds was better than having only 10 months of food for less than \$2/day. As a result, people flock to cities around the world at a rate of 1 person every 3 seconds - especially in the periphery. The rapid rise of population density puts stress on the housing, transportation, and other infrastructures of the urban spaces. City governments and businesses struggle to keep up with the demands, causing rapid expansion into the surrounding territory. A classic example was when China setup Shenzhen as an SEZ in the 1980s. Before it had been a rural farm hamlet, but once China's government built the infrastructure and setup the business-friendly policies, it exploded to 12 Million people by 2010 - all of them regional migrants from around China. With the increase in SEZs across China between 2003-2014, they averaged building 5.5 million apartments per year to keep up with migration into the cities.

As the quality of life improved, populations began to experience an increase in the *Natural Increase Rate (NIR)*. Thanks to GMOs, refrigeration, and the global supply chain, urban spaces now have high accessibility to food regardless of their site or situation. Improved health care technology and access to education has also decreased infant and maternal mortality rates while increasing overall life expectancy. This has resulted in a population boom in urban and metropolitan areas.



E. Decline of Urban Spaces

Unfortunately, all urban centers do not succeed in growing and sustaining themselves. There are cities that shrink and decline in population, even to the point of being completely vacated. In Spain and Italy, there are towns in the rural areas that were once thriving but are now completely uninhabited.

The first cause of decline is *loss or decline of the basic industries*. In a modern city, economic prosperity shapes its destiny. When an urban center loses its basic businesses, it loses its role in the global supply chain, devastating the community. When basic industry declines, money from outside of the community is no longer brought in. With the loss of revenue and increased unemployment, families have less money to spend, reducing the amount of money being spent on non-basic services. This causes a multiplier effect, causing the loss of jobs in the tertiary sector. The combined loss of business revenue and jobs shrinks the tax base and further reduces the services the local government is able to provide. Workers who are able to emigrate have a better chance of economic survival. Those who cannot afford to leave become trapped.



Shrinking Cities

Biggest population decreases since 2000 among major cities"

City	2010 population	Change from 2000	Pct. change
New Orleans	343,829	-140,845	-29.1%
Detroit	713,777	-237,493	-25.0
Cleveland	396,815	-81,588	-17.1
Cincinnati	296,943	-34,342	-10.4
Pittsburgh	305,704	-28,859	-8.6
Toledo, Ohio	287,208	-26,411	-8.4
St. Louis	319,294	-28,895	-8.3
Chicago	2,695,598	-200,418	-6.9
Baltimore	620,961	-30,193	-4.6
Santa Ana, Calif.	324,528	-13,449	-4.0

A recent example of this city shrinking phenomenon was the deindustrialization of the US Rust Belt. As factories left the Rust Belt for East Asia and Mexico, key urban centers entered a major decline. The once thriving metropolis of Detroit that had been the heartbeat of the American economy in the 1920s-1980s filed for bankruptcy in 2013. Poverty, unemployment, and crime rates soared. The population dropped as people left to attempt to find work in other parts of the USA. Whole sections of residential communities were abandoned, leaving only the people who could not afford to emigrate. Similar effects were felt throughout Toledo, Cleveland, Youngstown, Ohio, Pennsylvania, and upper New York. A parallel story was when the oil fields in Oklahoma dried up in the 1980s; once thriving oil towns became ghosts towns within months.



A second cause for decline is *being disconnected from new transportation networks*. When a part of the body becomes disconnected from the brain and the circulatory system, it dies. So too, when an urban space is bypassed by a new investment in transportation, that urban space will wither any may eventually disappear. As transportation networks advance, states must make difficult decisions about where to place highways, railways, and airports. New highways may redirect traffic away from regions that had once relied on the flow of transportation. Cities and towns that had once been important truck stops or places for travelers to stay overnight, may not even get an exit ramp in the new infrastructure system. Where older, slower trains may have stopped, new high speed trains blaze past. Where people may have once driven through, now planes fly over. Where a business woman would have stayed overnight, she now video conferences and doesn't travel at all. The redirected flow causes a drop in revenue and leads to economic hardships for the urban center. Removal of an urban center from the international transportation network causes rapid economic decline, possibly even to the point of collapse.



A third cause for decline is *natural disasters and manmade pollution*. When a natural disaster strikes, the effects can have a long term crippling effect on an urban center.

- In 2005, Hurricane Katrina hit New Orleans, drowning the city with water and devastating the entire urban center. New Orleans lost over 30% of its population.
- In 2011, Japan experienced a nuclear melt down and a tsunami at the Fukushima plant, rendering much of the city unlivable.
- A prolonged drought can cause lakes and water tables to dry up, leaving a population without water.
- Volcanic activity can cripple a region. In 2010, an Icelandic volcanic eruption filled the sky with so much ash and debris that all flights in and out of Europe were shut down for weeks.

Manmade pollution contributes to urban decline. The factories, transportation systems and energy production create air, water, and noise pollution. Residents in polluted urban areas find the area to be unlivable and those who can afford to emigrate choose to leave the downtown setting for other residences.

In all of these scenarios, it is difficult for an urban center to recuperate. Clean up work, rebuilding infrastructure, and repairing buildings are all very expensive undertakings. Populations that leave as *refugees* or *internally displaced people (IDP)* may find a new city to live in and never return. The process of rebuilding and restoring an urban area can take years, if not decades, to complete. Some urban centers never recover.

A final cause of urban decline is *suburbanization*. Suburbanization directly impacts the downtown areas in and around the CBD. As transportation improves, the affluent residents move out of the medium and high density urban centers to purchase cheaper land and build larger living spaces. This decentralization and movement of wealth creates a socio-economic divide as the poor and elderly are left inside the city center without the means to get out. Unfortunately, when the wealthy residents leave, many of the high quality services leave the city centers to follow the money to the suburbs. Now the suburbs have high quality medical care, good schools, retail stores, fine dining restaurants, and grocery stores with a vast variety of fresh foods. Back in the city center, the residents are given the left overs: poor quality housing, poor schools, and food deserts. Their main source of food is fast food chain restaurants and convenience stores with limited fresh fruit or meats.

As a result of these circumstances, inner city land values drop and support services vanish. Businesses, investors, and entrepreneurs lose confidence in the area, viewing that zone of the city as a risky investment. In place of opportunities and services, residents turn to unsafe practices such as vandalism, gangs, drugs, and committing crimes.







