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A Sustainable and Walkable Future

The lilac city of Spokane, in the heart of northwest Washington has become a leading innovator in environmental awareness. The time has come to act once again towards protecting our future and environment through a shift towards a sustainable city. Sustainability is a balance of environmental preservation, economy, and social. A sustainable city properly encompasses the three aspects in favor of each other to maximize cohesion of city and environment and to ensure a future for coming generations. Currently, the lilac city is beginning its journey on the path towards a sustainable future. However, the city as it stands is actively harmful to the environment and the economically challenged. Through Spokane's life cycle as a city, it has always maintained an image of being close to nature with lots of parks and recreation.

Sustainability at a city level is important because it comes with accountability for individual cities versus relying on action taken by federal or state bodies to enforce sustainability. It starts by small groups banding together working to reduce emissions and making local changes before the idea can have a state or even national influence. The city of Spokane has been a past leader in environmental protection and green developments, and so it needs to take charge and set an example of sustainable development for American cities nationwide.

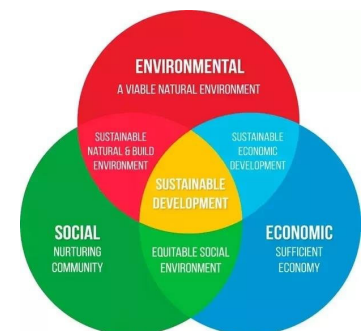
As other nations work to combat the ever-encroaching climate change, America has been slow to act, continually contributing to a large percent of waste and CO₂ generated by the world. As a leader in environmental awareness, Spokane needs to be held accountable for sustainable development and green contribution. At a state and national level, sustainability is achieved through regulation of private and public companies and laws. At a city level, this is done through modifying land use codes and existing transportation systems. Through modifying land-use codes and encouragement of active transportation sustainability can be achieved.

City sustainability is focused on design of the city and compatibility with the surrounding environment. Compatibility is achieved by producing foods that benefit from local conditions. Civil engineers oversee designing cities to be sustainable and efficient for the good of the people. One of the ways these engineers influence the economy is through designing transportation systems to allow for easy access to social places as well as efficient transport of goods. Having a transportation system that allows for efficient transport of goods allows for local businesses to thrive and supports the local economy. Without these efficient systems, cities become congested, and goods and services take longer as a result. Through optimized transportation systems, cities can support efficient means of transporting goods and services and boost their economy.

Transportation systems are important for more than just the economy and getting from one place to another, as they can influence and connect the social life of a city through active accessibility to social places such as bars, parks, shops, and squares. Therefore civil engineers must design the city for people rather than cars and need to know where to emphasize car accessibility versus pedestrian accessibility. Much of Europe took to the implementation of bike lanes and designated walking areas to encourage multimodal transportation across all ages. Civil engineers, through ensuring adequate social space and safe travel options between them, streets can encourage social interaction through use of bike lanes and sidewalks while reducing CO₂ emissions.

Engineers must consider the environmental impacts of their efforts to maintain and avoid damage to surrounding environment. A city that has a net negative impact on the environment around it cannot be sustainable over time. Therefore, engineers must also consider the environment when designing a city. However, encouraging socializing and helping the environment can go hand in hand by encouraging cycling and walking.

Civil engineers have a lot of influence on a city's ability to be sustainable and need to consider the consequences of an action and how it might influence the sociability, environment, and economy. A well-designed transportation system can help to maintain these factors through reduced emissions, increased social interaction, and efficient transport. With optimized transportation systems, cities can remain sustainable by balancing social life, economy, and the environment.



Transportation and land use arguably play the most important role in creating and maintaining a sustainable city. Designing for active and sustainable transportation modes promotes the health and wellbeing of the general population while maintaining low carbon emissions. Effectively utilizes land to provide more green spaces and encourages connection in residential and commercial areas while mitigating environmental impacts. It is important to plan both land use and transportation in conjunction with one another because a well-planned transportation system cannot be effective without consideration for surrounding land-use and vice versa. High density, affordable housing around transit systems to encourage ridership is a perfect example of this relationship. Proper urban planning and land use can make way for equal opportunity housing among all groups, a choice in transportation mode, encouragement of active transportation modes and creation of eco-friendly green spaces.

Transportation works to encourage economic, social, and environmental sustainability through environmentally friendly modes, physical health and efficient systems that reduce travel times. CO₂ emissions are reduced by allowing for safe and affordable alternatives to car-centric travel such as transit, bikes, and walking. Overall, transportation contributes to environmental sustainability through GHG reductions, economic sustainability by the reduction of car associated costs, and social sustainability through transit and active options.

Land-use has a unique role in sustainability to ensure that land is utilized to its full effectiveness and potential. Current land-use policies discourage the development of mixed development areas and multifamily housing, which both provide opportunity for community growth.

Optimizing land-use with transportation is integral to the development of a sustainable city. Through careful planning and execution, land use creates opportunity for growth. For example, transit and active transportation infrastructure around mixed-density housing discourages the use of personal vehicles and allows for investment of that income elsewhere. However, a walkable neighborhood's effectiveness is null if there is no infrastructure in place to encourage walking. Previously, Spokane has taken advantage of public transit in the 1920s in the form of the hydro-electric powered tramway with an extensive rail system. Ridership of this tram system peaked at 26 million passengers in the 1940s during a time of economic hardship, highlighting the importance a good public transportation system can have for those without cars.

Sustainability in terms of Spokane Action Plan (SAP) transportation and land use aims to encourage diverse housing opportunities, promote walkable neighborhoods, preserve, and expand “green spaces”, support all modes of transportation with special consideration for those that do not produce green-house gases. The SAP works to these achieve four major goals for sustainable future development through nine devised strategies. The goals that this paper will focus on are geared towards changing policies and encouraging active development to create a healthier future for our children.

The SAP aim to create walkable neighborhoods and encourage the use of active transportation modes. Active transportation modes aim to boost mental and physical health through incorporating exercise into daily commutes. Vehicle miles traveled are reduced through increasing transit ridership, and promoting safer pedestrian, cycling and micro-mobility options.

A main goal is to integrate SAP goals, strategies, and actions into city planning through modification of current codes and policies. This is where the change needs to begin, because without modifying land use policies, development of active transportation will lead to empty bike lanes and wasted potential in the city.

To better improve our quality of life, we can look to what the Dutch have done to plan for population growth. The Dutch transportation system is optimized for safe bike and pedestrian travel, and land use is optimized to allow for easy commutes to and from transit developments. Bike transportation is integral to the Dutch lifestyle, incorporated everywhere from rural areas to dense downtown areas. A new development in Utrecht highlights Dutch views on sustainable development, where they are working to create a dense housing development with one car for every three households, cycling and walking facilities in and around the complex, and an easily accessible public transit station. We should take inspiration from their active transportation availability and look to improve our own homes and city.

The Sustainability Action Plan acts to create diverse housing opportunities, utilize land in a more effective manner, and reduce infrastructure maintenance costs. A main goal is to encourage land use policies that support walkable, livable, and sustainable communities. The SAP works to encourage livability and active transportation through implementation of pedestrian and bike facilities, attainable housing, mixed use development and parking changes. Residential and small commercial land use policies need to adapt to create small, connected, and

livable communities. A 15-minute neighborhood, where a person can access most of your needs within a fifteen-minute walk or bike ride from their home are the goal of this development. This concept is promoted by revision of land use codes to allow for mixed use development of residential zones. Land use around transit stations should be modified to allow for higher density, affordable housing.

Spokane is making a push towards to transit-oriented development through land use, housing, and accessibility. With rising gas prices, and a need for sustainable development, transit-oriented development lends a solution to both. Through developing effective transit systems, bike parking and safe walking options, car centric development is discouraged. A decline in car use and affordable bike parking allows for money normally spent on gas, insurance, and cars to go into the economy other ways. Transit funding and transit-oriented development also help to reduce traffic through offering affordable alternatives to car travel while maintaining travel times. Higher density housing around transit stations benefits the everyone, allowing for easy commutes without the need for a car. High density, concentrated development around transit also helps to reduce the costs associated with maintenance of infrastructure due to less spread of houses.

Creating a sustainable city and adhering to the SAP means investing more into communities that have been impacted negatively by poor infrastructure planning. Through giving these communities better infrastructure, they are given better chances to prosper and thrive, and most importantly, a safer life. In the Netherlands, they built subsidized housing for low-income residents and students that had easy access to green spaces and active transportation through sectioned walking, cycling and driving lanes, allowing for the safe use of all three.

Spokane can become a sustainable city through the adaptation of better transportation and land-use strategies, while paving the way for a healthier future. (Stanford, n.d.) Through creating and maintaining paths for active transportation modes, our beautiful lilac city can become a social hub with an emphasis on sustainability and by changing our current land-use policies, we are preparing and planning for a walkable, bikeable future.

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