Boulder, Colorado

Boulder, Colorado is known as an active city with proactive policies for connecting the city’s transit, bike infrastructure and surrounding natural amenities. The purpose of this analysis is to review existing conditions and analyze the bus service area, trail head service area and bike infrastructure.

**Project Methodology**

**Define Project:**
- bike friendly infrastructure
- transportation
- bike friendly areas
- bus stop

**Gather Data & Organize:**
- create database
- collected data from various sources
- project will use the following data sources:
  - Colorado Geodatabase Survey of Colorado Survey, ArcGIS Online, Google, Google Maps
  - City of Boulder
  - Boulder County GIS
  - CDOT Census Data and DUG Maps

**Produce Maps:**
- produced maps include
  - current land use, open/green space, demographics, bike infrastructure, public bus service area and trail head service area.

**Data Sources:**
- Feature analysis, used various symbology, calculated summaries from attributes table statistics, used GeoProcessing Tools - Erase, Merge, Clip, Fade.
- Created new shapefiles, defined new data into correct coordinate systems, edited and created new data layer from existing data, created new data frames, conducted two Service Area Analyses, used various symbology, calculated summaries from attributes table statistics, used GeoProcessing Tools - Erase, Merge, Clip, Fade.

**Summary of GIS Skills:**
- created new shapefiles, defined new data into correct coordinate systems, edited and created new data layer from existing data, created new data frames, conducted two Service Area Analyses, used various symbology, calculated summaries from attributes table statistics, used GeoProcessing Tools - Erase, Merge, Clip, Fade.

**Contextual Information**

**Demographic Information**

The Population of Boulder is 103,666 residents, including 30,265 students at the University of Colorado. According to 2010 US Census data, 83.4% of the population is White, 8.6% Hispanic and 4.4% Asian. The remaining 3.6% of the population are Black, Mixed, or Other.

The map to the left indicates the population areas for each group. White residents are in blue, Hispanic residents are in green and Asian residents are in hot pink. There are clear Hispanic and Asian neighborhoods noted with the hot pink in the center of the study area and the green areas on the northern section of the study area.

The map on the right shows the total population. The highest density of the population are in dark red, the lowest density in pale yellow.

**Key Findings**

- The community is not racially diverse with a difference of 74.8% between the first and second groups (White and Hispanic).
- Boulder has been successful at creating a very distinctive biking culture through the multi-purpose trails, bike lanes and designated bike routes. The biking infrastructure is another example of how the city has expanded transportation options for residents and visitors in order to make neighborhoods and the city as a whole more livable while also reducing greenhouse gas emissions.
- Boulder offers countless year-round recreational activities and access to numerous trail heads in close proximity to the city center. The open space and trails serve as a protected buffer between Boulder and adjacent developments. The land planning and development initiatives of the city have allowed the community to maintain natural amenities within close proximity to the city center.
- This connectivity creates a high quality of life.

**Connectivity:**

- Bike, Bus & Trail

Over the years, Boulder has made significant investments in the multi-modal network. The city is now well known for its grade-separated bicycle and pedestrian paths, which are integrated into a network of bicycle lanes, cycle-tracks, and on-street bicycle routes. The three maps to the right describe the bike, bus and trail heads in more detail.

**Open/Green Space**

A total of 7,629 acres of land use categorized as Urban Space or Open Space exists outside the city limits or just right outside. The largest area of green space is the reservoir in the north-east corner of the map. This size of the reservoir space is 1,100 acres.

**Bike Infrastructure**

The City of Boulder has approximately 239 miles of bike friendly infrastructure in place. There are designated bike routes (68 miles), multi-purpose trails (73 miles) and on-street bike lanes (38 miles). As the map shows, these trails or public bike uses are within the community and connect to key green/open space areas.

**Public Bus Service Area**

A Service Area Analysis was conducted using the public bus stops and the center line road data. The distance was set at an easy walkable distance of a quarter mile (light blue) and a half mile (dark blue). 922 out of 1,796 bus stops are within the quarter mile distance and 874 bus stops within a half mile distance.

**Trail Head Service Area**

A Service Area Analysis was conducted using 36 trail heads and center line road data. The blue indicates a half mile and the red indicates a full mile service area. Many of these trail heads are the city’s direct connection to the national forest land, especially in the eastern and northern side of the study area.

**Current Land Use**

- There are currently 24 different land use categories in the City of Boulder. The categories associated with green/open space is the highest land use (greens). The second highest land use is categorized as low density residential (yellow).

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