East Area Plan
Measurable Goals Methodology

Land Use and Built Form

Households near jobs, retail, and transit

- Metric: Number of Denver neighborhoods where at least 50% of households have access to quality transit and jobs and retail within walking or rolling distance.
- Sources: The data for this metric comes from the City of Denver Assessors Office, City of Denver Department of Community Planning and Development, City of Denver Technology Services, and RTD.
- Why measure: Every Denver resident should have convenient access to the goods, services, and amenities needed in daily life, in addition to access to reliable and convenient transit. These amenities and services should be within a comfortable walking or rolling distance and meet the needs of all ages and abilities of Denver residents. Given the historical built form and land use patterns of some of Denver's neighborhoods, this may be unattainable for all residents, though a majority of residents living in a majority of Denver's neighborhoods should enjoy this level of access in order for Denver to be considered a city of complete neighborhoods.
- Methodology: This metric is comprised of two components: 1. access to jobs and retail and 2. access to transit. For the retail and jobs component a dataset CPD created a dataset using the existing land use data of all parcels classified as retail or mixed use that fall within a future center or corridor as defined by the East plan. The land use data is updated every other year. Households within a 1/4 mile of local centers and corridors and households within a 1/2 mile of regional and community centers and corridors were selected. Rather than the perfect half circle, a modified diamond shape with a either a length of 2106 ft (1/2 mile) or 1053 ft (1/4 mile) from its center point to its vertices. This is to compensate for the fact that even in the presence of a fully built out street grid, a half-mile walking or rolling distance will be less than the "as the crow flies" distance. For access to high quality transit, households meeting the following criteria were selected: 1/2-mile from high-capacity transit—currently, all rail stations in Denver— measured as a 1/2 mile radius buffer; or 1/4 mile—measured as a 1/4 mile buffer—from the frequent transit network, which is defined by Denver Moves: Transit as 15 min or less headways; 6am-10pm; 7 days per week. The bus lines that currently meet this standard are 15 (E Colfax), 16 (W Colfax) and 0 (S Broadway). The final metric captures those households that meet both criteria: 1. access to jobs and retail and 2. access to transit.

Growth in Centers and Corridors

- Metric: Direct Growth to Centers and Corridors.
- Sources: City of Denver Department of Community Planning and Development, US Census.
- Why measure: The share of jobs and housing units located in strategic locations is indicative of how successful the plan's growth strategy is working.

- Methodology: US census data on new jobs and housing units are mapped in Center and Corridor places and all other places as defined by the East plan. Percentages from Centers and Corridors are all other places are calculated.

Economy and Housing

Unemployment rate

- Metric: The number of neighborhoods that have unemployment rates at or below the Denver citywide average unemployment rate.
- Sources: American Community Survey 5-year Economy Data estimates, US Census Bureau
- Why measure: The unemployment rate is a proxy for the financial wellbeing of the residents of each neighborhood. Tracking whether residents are employed indicates the availability of jobs, access to those jobs, whether residents have appropriate skills for those jobs, and how much income is being brought into the neighborhood.
- Methodology: The unemployment rate for each neighborhood is calculated using data from the American Community Survey 5-year Economy Data estimates by dividing the Unemployed number by the In Labor Force number. For each neighborhood, the census tracts making up each neighborhood were added together to get the Unemployed and In Labor Force numbers. The citywide unemployment rate was calculated using the same data sources at the city level.

Local businesses

- Metric: The percentage of retail businesses in the area that are owned by local businesspeople.
- Sources: Progressive Urban Management Associates count of storefronts; Infogroup
- Why measure: The percent of businesses that are locally owned indicates the health and character of commercial areas and how much local spending remains in the community.
- Methodology: Businesses are considered locally owned if they are privately held by a Denver resident(s) and have fewer than 10 stores all within the greater Denver area. PUMA created an inventory of all retail businesses in the area, and then ownership information was checked using Infogroup to determine if each met the criteria for being locally owned. The number of locally owned businesses was divided by the total number of retail businesses to determine the percentage.

Job growth

- Metric: The percentage increase in the number of jobs in the health, professional, and management sectors.
- Sources: Infogroup
- Why measure: The rate of growth in the number of jobs in the health, professional, and management sectors will indicate how well businesses in the area are performing and the availability of jobs in sectors that span a range of income and skill levels.
- Methodology: Infogroup provides the number of jobs in a given area broken down by NAICS sector codes. The number of jobs for the Professional, Scientific, and Technical; Management of Companies and Enterprises; and Health Care and Social Assistance sectors were added together.

Housing diversity

- Metric: Expand East's Housing Diversity
- Sources: American Community Survey 5-year estimates (2016); Denver Department of Housing Stability
- Why measure: A diverse range of housing options – including different prices, sizes, types and a mix of rental and for sale – is key to encouraging complete neighborhoods where families and households of all types and incomes can choose to live. The housing diversity index is also used as an equity concept measure in Blueprint Denver.
- Methodology: The metric combines five measurements to capture the different components of housing diversity:
    1. **Percent of middle-density housing (housing with 2-19 units)** was measured by looking at the percentage of middle density housing (2-19 units) in a neighborhood. Middle density housing was used to capture diversity in both predominantly single family and predominantly multifamily areas. This percentage was compared to the city, which has approximately 19% middle density housing; if an area had over 20% middle density housing units, it was considered "diverse", if it was less than 20% middle density it was considered "not diverse."
    2. **Home Size Diversity** was measured by comparing the number of housing units with 0-2 bedrooms to the number of units with 3 or more bedrooms. If this ratio was less than 0.5, it was considered "High" (skewed to larger units); if it was between 0.5 and 2.5 it was considered "Mixed"; if it was greater than 2.5, it was considered "Low" (skewed to smaller units). Neighborhoods that scored "Low" or "High" were categorized as "Not Diverse" while those scored "Mixed" were categorized as "Diverse."
    3. **Tenure Diversity (Ownership vs. Rental)** was measured by calculating the percentage of owners/renters in a neighborhood, and comparing that to the citywide split (49% owners, 51% renters). If a tract was within a 60/40 split, it was considered to be "within city range"; if a tract was between 60/40 and 70/30, it was considered to be "slightly disparate", and if it had a split greater than 70/30, it was considered to be "extremely disparate."
    4. **Housing Costs** calculated the ratio of housing units affordable to households earning up to 80% of the city's median income to housing units affordable to households earning over 120% of the city's median income in each neighborhood. For reference, the citywide ratio is 1.16. This ratio was broken into 3 tertiles for classification. If an area had a low cost housing: high cost housing ratio of less than 0.9, it was considered "Low" (skewed to more housing affordable to households earning up to 80% AMI); if it had a ratio of between 0.9 and 2.36 it was considered "Mixed"; if it had a ratio of over 2.36 it was considered "High" (skewed to more housing affordable to households earning over 120% AMI). Areas that scored either "Low" or "High" were categorized as "Not Diverse"
    5. **Number of affordable (income-restricted) housing units** calculates the number of income restricted units in a neighborhood. Any neighborhood with affordable units equal to or greater than the citywide average (297 units) scored a point for housing diversity. Any neighborhood below the citywide average scored 0 and was considered not diverse.

Housing and transportation affordability

- Metric: Maintain and Increase Affordability
- Sources: The Center for Neighborhood Technology Housing + Transportation (H+T) Index. The H+T Index uses data from a combination of federal sources and transit data compiled by the Center for Neighborhood Technology (CNT), Data Sources include: American Community Survey 5-year Estimate, US Census TIGER/Line Files, US Census Longitudinal Employment-Household Dynamics, Origin-Destination Employment Statistics, Consumer Expenditure Survey, National Transit Database, AllTransitTM and Odometer readings from The Illinois Department of Natural Resources
- Why measure: The traditional measure of affordability recommends that household spend no more than 30% of household income on housing costs. However, that benchmark fails to take into account transportation costs, which are typically a household's second-largest expenditure. The H+T Index offers an expanded view of affordability, one that combines housing and transportation costs and sets the benchmark at no more than 45% of household income.
- Methodology: The Center for Neighborhood Technology's Housing + Transportation (H+T®) Affordability Index (H+T Index) is an innovative tool that measures the true affordability of housing by calculating the transportation costs associated with a home's location. The H+T Index was constructed to estimate three dependent variables (auto ownership, auto use, and transit use) as functions of 14 independent variables (median household income, average household size, average commuters per household, gross household density, regional household intensity, fraction of rental housing units, fraction of single family detached housing, employment access index, employment mix index, block density, transit connectivity index, total available transit trips per week, transit access shed and jobs within the transit access shed). To hone in on the built environment's influence on transportation costs, the independent household variables (income, household size and commuters per household) are set at fixed values to control for any variation they might cause. By establishing and running the model for a "typical household" any variation observed in transportation costs is due to place and location, not household characteristics. The index rates the affordability of East's census tracts based on how much a typical regional household would spend on both housing and transportation costs in the census tract. You can find more information about the H+T Index and the Center for Neighborhood Technology here: https://htaindex.cnt.org/.

Mobility

Mode share

- Metric: Mode share, measured by the US Census (sometimes called mode split), is the percentage of travelers using a particular transportation mode (e.g. walking, biking, taking transit, driving alone, carpooling etc.) to get to work.
- Sources: US Census ACS 5-year estimates (2017).
- Why measure: Mode share is an indicator of the health and balance of a city's transportation system. Tracking mode share helps Denver understand drive-alone rates in single occupancy vehicles (SOVs) and informs strategies for reducing SOV rates to meet Mobility Action Plan goals

by 2030. A neighborhood-scale mode share calculation highlights where to focus future transportation and mobility projects. Expanding multimodal transportation options improves mobility networks and improves health, safety, and sustainability outcomes for the City and region.

- Methodology: The mode share is calculated by pulling the "means of transportation to work" figures for each neighborhood from the Census ACS 5-year estimates and dividing that number/estimate by the neighborhood's total population to see the percentage of residents using each transportation mode to get to work.

Killed and serious injuries

- Metric: 3-year average of the number of people killed or seriously injured (KSI) in each neighborhood.
- Sources: DOTI's Vision Zero Program's crash data.
- Why measure: KSI is an indicator of the safety of Denver's road network. The Vision Zero Action Plan set the goal of zero people being killed or seriously injured on Denver's roads by 2030, and neighborhood-scale KSI analysis can help highlight where to focus efforts in the near-term.
- Methodology: KSI is calculated by performing a GIS analysis using the "selection by location" tool with a 50ft search distance on the KSI crash layer and averaging those crashes over the past 3 years. The steps are: select the killed and serious injury crashes from the Vision Zero crash data → select by location for each neighborhood from the KSI layer → average the last 3 years of data.

Quality of Life Infrastructure

Impervious surface

- Metric: The percent impervious surface coverage at or below the Denver citywide average impervious surface coverage of 48%.
- Sources: City & County of Denver GIS Data
- Why measure: Impervious surfaces can have many lasting negative effects including the absorption of the sun's energy and increases in the surface temperature. High concentrations of impervious surfaces prohibit stormwater from infiltrating into the ground which has resulted in more stormwater runoff and, in some cases, increased flooding throughout urban neighborhoods. Much of this runoff contains harmful pollutants and chemicals which discharge directly into our urban waterways and have significantly reduced the water quality in our rivers and streams.
- Methodology: in GIS; the land area covered by impervious surface divided by the total land area calculated and aggregated to the neighborhood level.

Tree canopy

- Metric: The percent tree canopy coverage at or below the Denver citywide average tree canopy coverage of 19%.
- Sources: City & County of Denver GIS Data

- Why measure: The environmental and health benefits of a diverse mature tree canopy are profound as a healthy tree canopy produces oxygen, reduces soil erosion, and reduces the overall concentration of greenhouse gases in the atmosphere. In addition to the benefits to our ecosystem, trees also provide many other health, social, economic and aesthetic benefits. Access to trees, green spaces, and parks promotes greater physical activity and social interaction, and reduces stress, while improving the quality of life in our urban areas.
- Methodology: in GIS; the land area covered by tree canopy divided by the total land area calculated and aggregated to the neighborhood level.

Access to care

- Metric: Percent of pregnancies that receive care during the 1st trimester
- Sources: 2007-2013 Colorado Vital Statistics data
- Why measure: One indicator to represent whether residents have access to the care they need is the percent of women receiving prenatal care during the first trimester of pregnancy.
- Methodology: In GIS, the number of births with no prenatal care in the first trimester divided by the number of births was calculated and aggregated to the neighborhood level.

Children at a healthy weight

- Metric: Percent of children and youth under the age of 21 that are overweight or obese
- Sources: Colorado BMI Surveillance System 2009-2013.
- Why measure: Children and youth can be greatly influenced by their physical environment because they are generally less mobile than adults and often spend more time at home, school, and in nearby parks. These local surroundings can have a positive impact on early lifestyle behaviors when they include access to parks, adequate sidewalks, bicycle infrastructure, healthy food, clean air, and a social network. Neighborhoods lacking these amenities contribute to childhood obesity, and obese children can experience early onset adult obesity complications such as Type 2 Diabetes.
- Methodology: In GIS, neighborhood child and youth obese percentages from the BMI registry were mapped at the neighborhood level. Children at a healthy weight is calculated as the inverse of children who are obese.

Access to food

- Metric: Percent of households within a half mile (approximately a ten-minute walk) of a grocery store.
- Sources: Denver Department of Public Health and Environment, Community Planning and Development, Department of Transportation and Infrastructure, Assessor household unit data
- Why measure: Living closer to healthy food is associated with better eating habits, and healthy eating is associated with lower risk for Type 2 diabetes, high blood pressure, heart disease, certain cancers, and obesity. Living within walking distance of affordable, healthy, culturally-relevant food can impact overall health by providing convenient, safe, and comfortable access to healthy grocery options.
- Methodology: Utilizing data from DDPHE, CPD identified full service grocery stores, which are defined as a supermarket, a supercenter, or a warehouse club store. GIS analysis utilized

sidewalk data from DOTI to run a half mile walkshed from each of these establishments in and adjacent to the project area. The GIS analysis then mapped households by cleaning the Assessor data. This includes populating the unit count for single-family uses with a 1, duplexes with a 2, etc. This creates a parcel level estimate of households, which is used to calculate the percentage of households that are within that walkshed area.

Access to parks

- Metric: Percent of households within a half mile (approximately a ten-minute walk) of a park according to a Community Planning and Development walkshed analysis.
- Sources: Denver Parks and Recreation, Community Planning and Development, Assessor household unit data
- Why measure: Living within walking or biking distance of outdoor recreation opportunities can impact overall health by encouraging physical activity, time in nature, and a place to interact with neighbors.
- Methodology: Utilizing data from DPR, CPD located public parks within the plan area. CPD staff removed the triangle parks along Park Avenue from this analysis. GIS analysis utilized sidewalk data from DOTI to run a half mile walkshed from each park in and adjacent to the project area. The GIS analysis then mapped households by cleaning the Assessor data. This includes populating the unit count for single-family uses with a 1, duplexes with a 2, etc. This creates a parcel level estimate of households, which is used to calculate the percentage of households that are within that walkshed area.

Life expectancy

- Metric: Life expectancy in years
- Sources: Virginia Commonwealth University, Center on Society and Health using census population counts (2000 and 2010) and Vital Statistics Program death count data (2004-2013)
- Why measure: Opportunities to lead a long and healthy life can vary dramatically by neighborhood. Gaps in life expectancy across neighborhoods can stem from multiple factors related to the built environment, including education and income, quality of housing, opportunities to exercise and eat healthy foods, proximity to highways, access to doctors and hospitals, access to public transit, and residential segregation.
- Methodology: In GIS, the data was mapped by census tract, and a weighted average was calculated at the neighborhood level.