

# Poudre River Regional Trail Connection

## Projected Commuter Bicycling Rate

Revised April 19, 2016

If the Poudre River Trail connection were to open today, the estimated number of commuter bicycle trips that may utilize the proposed trail connection along the Poudre River Trail between the Town of Windsor, Colorado (Windsor) and the City of Fort Collins, Colorado (Fort Collins) is possible to range between **35 and 150 daily trips**.

This estimation was achieved by examining the commuting patterns between Fort Collins, Windsor, and the City of Greeley, Colorado (Greeley); estimating commuting population statistics, applying mode share assumptions based on local trends, and applying a factor to accommodate distance decay-recognition that at some point bicycle trips will drop to zero based on travel time/distance alone.

Local municipalities of Windsor, Greeley and Fort Collins represent the major urban areas along the Poudre River Trail. Although it is reasonable to estimate some recreational bicycle travel between Greeley and Fort Collins, due to the biking distance between Greeley and Fort Collins (approximately 33 miles), Greeley was eliminated from future bicycle commuter trip estimations. Based on data collected from the U.S. Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES) 2014 database at the U.S. Census block group level, census blocks were organized based on the primary municipality—Fort Collins or Windsor,— the work destinations were located. Data from the LEHD is an estimation for origins and destinations based on of a limited sample of households. Trips are assigned based on an all-or-nothing principal in which all trips from an origin census block are assigned to the same destination block. Using LEHD as the primary origin/destination data sources creates the assumption that almost all commuting trips originate in Windsor and travel in the entire distance to Fort Collins. This method ignores the small number of trips from Fort Collins to Windsor.

Once the commuting flows were aggregated based on destination city, the number of commuters generated by each census block was calculated. Demographic data for each U.S. Census tract was obtained from the Colorado Department of Public Health and Environment's (CDPHE) 2014 geographic information systems (GIS) database. Population for each census block was determined by proportionally allocating the tract's population based on the percentage of land each census block represented of the greater census tract. The population of each census block was assigned to its commuting destination city to determine the total flows of commuters going from Windsor to Fort Collins. After commuting flows were calculated, trips were assigned to a mode.

To calculate the commuter bicycle mode share percentage, data was collected from the U.S. Census Bureau's 2013 American Community Survey five year averages. This provided the number of people commuting by mode by census tract. Aggregating data from a five mile region around the existing Poudre River Trail, the commuter bicycle mode share for the area was estimated to be six percent. This was then compared to the statewide average of 1.5 percent.

Lastly, the average travel distance was factored to represent distance decay. It was estimated that, with the addition of the trail connection, the commuting distance between Windsor and Fort Collins would be approximately nine miles. Based on an average bicycling speed of 12 miles per hour this would result in a travel time of approximately 45 minutes between Windsor and Fort Collins. By comparison, the average bicycle commute within the City of Fort Collins is less than five miles. Additionally, this distance was taken from Windsor to the end of the proposed trail connection and not to a traveler's final destination within Fort Collins; therefore, trips are likely to be a couple of miles longer. A factor of 0.25 was added to the bicycle commuting volumes to represent the distance decay.

Applying all assumptions, commuting trip patterns between local communities, daily commuting population estimates, bicycling mode share (as a range between the state average and the estimated local rate), and the distance decay factor, the estimated number of daily bicycle commuting trips was estimated. This estimation likely represents an ideal number and ignores factors such as the specific terrain along the proposed corridor. To account for this, other assumptions and data limitations, a factor of safety of 30 percent was used to achieve the final estimated number of potential daily commuter bicycle trips of 35 to 150.

This range is a planning-level estimation of the number of potential bicycle trips assumed to use the proposed trail connection and does not account for the expected future population growth of the area, or the steadily increasing trend of bicycle usage nationwide. Using a planning horizon of 2040 and the annual traffic growth rate of 2.2 percent used in the 2006 North Front Range travel demand model, it is estimated that the proposed trail could have the potential to support between 60 and 260 total new daily bicycle commuting trips by the year 2040. This includes the possible 35-150 trips generated today plus the estimated potential growth over the 25 year period between 2015, when data was collected, and 2040.

## Projected Recreational Rates

The highest trail use is predicted to occur on weekends when the trail may experience between approximately 60 and 300 daily recreational trips. This estimation is based off of historical trail use data collected by Fort Collins and Greeley. In both cities, bicycling trips on trails increases between 60 to 100 percent on the weekends as compared to weekday volumes taken on days of similar weather at the same locations. It is assumed that the significant majority of these trips will be recreation based due to the nature of travel on the weekends. Although it is possible that some trips will be commuting trips on the weekend, these were assumed to be negligible.