

Greenprint Denver Climate Action Plan and Bicycles

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Thanks for taking Halloween off!



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Goals

- Greenprint Denver Climate Action Plan
 - 2012 Goal: Reduce Denver's per capita greenhouse emissions by 10% below 1990 levels, reducing community-wide emissions by 1.8million metric tons of CO₂ annually, by 2012.
- Mayor Hickenlooper
 - "Make Denver the most bicycle friendly City in the Country." Bicycle Colorado Gala April 2006 (Denver is currently 10th in % of trips to work by bike in largest U.S. Cities. Source Thunderhead Benchmarking Report 2007 – Portland is #1 at 3.47%)

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What role will bicycles play?

- What contribution would doubling bike to work numbers make to the Climate Action Plan 2012 Goal?
- What we know:
 - Average car emits 1.1 lbs of CO₂ per mile. SUVs emit 1.57 lbs of CO₂ (Source: Sightline Institute)
 - 1.4% bike to work in Denver (Source: US Census 2005 American Community Survey)

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What role will bicycles play?

- What we don't know:
 - How many miles the 1.4% bike to work trips represents.
 - How do we calculate this?
 - Where can we get the number of people who commute to work? (DRCOG, US Census, Chamber, etc.)
 - Can we survey a statistically significant sample of people who bike to work and establish an average distance?
 - Can we multiply the bike to work % by the total number of workers by the average bike to work miles to calculate the miles 1.4% represents?

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What role will bicycles play?

What we don't know (con't):

- If we can assume doubling the bike to work percentage will double the emissions saved.
 - Would people substitute:
 - A single occupancy car for a bike?
 - A bus for a bike?
 - A walk for a bike?
 - Can we make a doubling assumption if we use the average car emission figure (1.1 lbs vs. 1.57 lbs for an SUV)?
- What contribution to the Climate Action Plan goal would be made by doubling bicycling.
 - Can we calculate this contribution and incorporate it into the Climate Action Plan?
 - If we can quantify the amount of bicycling to work, will Greenprint Denver calculate the Contribution to the goal?

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Let's run the numbers

- 1.4% in Denver Bike to Work (US Census, ACS)
- Almost 37,000 bike to a destination a day (DRCOC)
- 2.1 miles average one-way trip (DRCOG)
- 1.7% Ride a bike each day (36,692 out of 2,237,671)
- 4.6 miles average one-way trip to work (2007 Downtown Denver Partnership Commuter Survey)
- 4% bike to work (2007 Downtown Denver Partnership Commuter Survey)
- SUVs create 1.57 Lbs of CO₂ emissions per mile (Sightline Institute)
- Average car creates 1.1 lbs of CO₂ emissions per mile (Sightline Institute)

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Let's run the numbers

- The formula:
 - # of bicyclists
 - * # of round trip miles
 - * 1.1 lbs of CO₂ emissions
 - = Total pounds of emissions saved by bikes
- Therefore, if we double bicycling by 2012, this is the number of lbs of CO₂ emissions that will be saved.

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Let's run the Numbers

- Benchmarks
 - US Census ACS (2005): 1.4% of Denver bikes to work as an indicator of where we rank in comparison to other cities and how much we bike.
 - DRCOG 1997 Household Survey: 37,000 in the Denver region bike every day (representing 1.7% of the population)
 - DRCOG 1997 Household Survey: average one way bike trip is 2.1 miles

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Let's run the numbers

x = the number of daily bicyclists in Denver

$$\frac{1.4}{1.7} = \frac{x}{36,692}$$

$$1.7 \quad 36,692$$

$$51,368 = 1.7x$$

$$x = 30,217$$

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Let's run the numbers

- Therefore,
 $30,217 * 4.2 * 1.1 = 139,602$
- 139,602 pounds of CO₂ are saved by bicycling every day.
- Doubling bicycling will save 279,204 pounds of CO₂ every day.
- Tripling bicycling will save 418,806 pounds of CO₂ every day.

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Next Steps

- Can bike benchmarks and goals (doubling, tripling bicycling) be added to the Climate Action Plan?
- Can a bicycling goal be added to the Greenprint Denver Website on the following pages?
 - http://www.greenprintdenver.org/energy/energy_goals.php
 - http://www.greenprintdenver.org/getinvolved/tips_emissions.php

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