Letter I51

From: ILEANA Paul
To: CAP
Cc: DAN PAUL; socaliit@cts.com; jonVick2@aol.com
Subject: Greenhouse Gas (GHG) Reduction Strategies and Measures "
Date: Monday, September 18, 2017 12:19:04 PM
Attachments: 2017 March Roundabouts_Air quality.pdf

Re: *Greenhouse Gas (GHG) Reduction Strategies and Measures *

Dear Sirs,

Roundabouts significantly decrease fuel consumption and emissions and should be added as a *Climate Action Plan* *strategy* to *reduce GHG emissions*.

According to the San Diego Air Pollution Control District (APCD) document on *Modern Roundabouts*, each roundabout can eliminate 189 metric tons of CO2 emissions annually. As noted in the APCD document, in addition to significant CO2 emissions and improved air quality, roundabouts provide other significant multi-modal benefits including increased safety for vehicles and pedestrians, and improved traffic flow. I51-1

Thank you for adding roundabouts to the CAP GHG emission reduction strategies.

Sincerely,

Ileana Paul
12699 Lonesome Oak Way
Valley Center, CA 92082
ileana.paul5@gmail.com
760-749-4555

Response to Comment Letter I51

Ileana Paul
September 18, 2017

I51-1 The comment states that roundabouts should be included in the CAP and describes the benefits of implementing roundabouts. Please see response to comment I7-2.

Modern Roundabouts

Reduce congestion and improve safety on main roads

APCD AIR POLLUTION CONTROL DISTRICT COUNTY OF SAN DIEGO

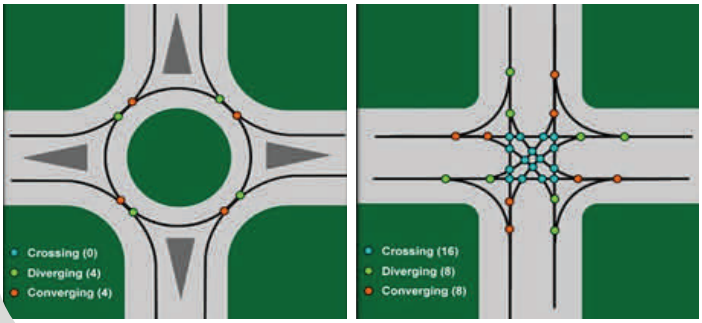
What is a "Modern Roundabout?"

A modern roundabout is a circular intersection in which vehicles travel counterclockwise around a center island. Unlike large traffic circles or rotaries of the past, modern roundabouts are easy to navigate, environmentally friendly, attractive, and safe. Raised "splitter islands" induce arriving drivers to slow down prior to entering the intersection, and provide a refuge island for crossing pedestrians. Entering vehicles yield to traffic already in the roundabout.

Photo: SANDAG

Why are roundabouts so much safer?

Roundabouts reduce both speed and the number of "conflict points," from 32 to 8 (see figure).[4] Crashes in roundabouts are also less severe; converting intersections from signals to roundabouts reduces injury crashes by 80% and all crashes by 50%.[4] Severe injuries are rare; a study of 23 conversions found a 76% decrease in injury crashes and an 89% reduction in fatalities.[5] Bicyclists and pedestrians of different skills levels are safely accommodated in roundabouts, although visually impaired pedestrians may require special treatments.[6]



How do roundabouts improve traffic flow?

Unlike signals, roundabouts keep traffic moving. Since the capacity of a street is greatly influenced by its intersections, reducing the number of stops increases road capacity, which improves traffic flow. As a result, fewer lanes are required, which has multiple safety, capacity, and cost benefits. On La Jolla Blvd. in San Diego (photos), five roundabouts allowed the City to shrink the street and widen the sidewalks, providing outdoor dining and meeting places, with less traffic noise.

How do roundabouts improve air quality?

By reducing vehicle idling, roundabouts significantly decrease fuel consumption and emissions.

- On La Jolla Blvd. each roundabout is estimated to annually save 20,000 gallons of gasoline,[1] avoiding 9.9 lbs. of particulate pollution.[2]
- One roundabout can eliminate 189 metric tons of CO_2e emissions annually, equivalent to 37 cars.[1,3]
- Installing 320 roundabouts in San Diego could reduce CO_2e emissions by 60,480 metric tons annually — equal to the annual emissions of 10,900 cars.[1,2]

How much do roundabouts cost?

As of 2014, the installation cost of a roundabout was around $1 million, while traffic signals typically cost $600,000. However, long-term costs for roundabouts are lower since little maintenance and no electricity are required. Costs of traffic crashes are also greatly reduced.

Do drivers prefer roundabouts?

Until recently, roundabouts were unfamiliar to Americans. But drivers favor roundabouts once they become familiar with them. A 2002 study of roundabout conversions in three communities found that only 36% of drivers supported roundabouts before they were constructed, but 70% favored them one year after construction.[8]

1.Silva-Send, Nilmini (2009) *Reducing Greenhouse Gases from On-Road Transportation in San Diego County*. Energy Policy Initiatives Center, USD.
2. U.S. EPA, *Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks (2008).*
3. *Greenhouse Gas Emissions from a Typical Passenger Vehicle*, EPA Office of Transportation and Air Quality (2011)
4. FHWA. *Driver Conflict Points: Roundabout vs Stop Sign*, safety.fhwa.dot.gov, accessed March 3, 2014)
5. Persand, B.N. et al. (2001) Safety effect of roundabout conversions in the United States. *Transportation Research Record*.
6. FHWA (2010) *Roundabouts: An Informational Guide*.
7. Lounsbury & Associates, *Myths and Facts about Roundabouts*, www.alaskaroundabouts.com/mythfact6.html, accessed July 15, 2014.
8. Retting R.A. et al. (2002) Long-term trends in public opinion following construction of roundabouts. *Transportation Research Record*.
Photos by Andy Hamilton, APCD, except as indicated.

Traffic Circles

Reduce harmful emissions while improving neighborhoods

What is a traffic circle?

Traffic circles (or "mini-roundabouts") are circular intersection islands similar to modern roundabouts, usually installed in 2-lane streets. Unlike with roundabouts, the approach islands ("splitter islands") are painted rather than raised.[1]

Large vehicles such as buses and fire trucks can comfortably navigate traffic circles, improving safety and reducing noise on residential streets.

How much do traffic circles improve safety?

The Institute of Transportation Engineers found traffic circles reduce intersection collisions 70%.[5] Similarly, the City of Seattle studied 130 sites and found a 73% decrease.[6] These results stem from the sideways routing ("horizontal deflection") of the travel path, which eliminates dangerous crash types such as head-on, left turn, and right angle crashes,[7] and discourages speeding. In Portland, traffic circles virtually eliminated speeds over 35 mph, where before, 15% or more of traffic exceeded 35 mph.[8] Traffic circles are unexpected, so proper signage and markings are important.

Old and new traffic circles, in Del Mar and North Park, respectively.

What are the main advantages of traffic circles?

Traffic circles are a relatively low-cost intervention to reduce traffic speeds and intersection crashes.[2] Although the geometry of the center island reduces speeds, it need not reduce the access of large trucks and emergency vehicles (above photo). To handle especially long trucks and busses, the center island typically includes a mountable "apron" less than four inches high that rear wheels can pass over.[3] However, the island must be large enough to prevent vehicles from making left turns in front of it. In addition to increasing safety, traffic circles provide a space for vegetation, public art, or a neighborhood identity sign.[2] However, It is important to consider how ongoing watering or maintenance costs will be funded.

Cost: On average $10,000 — $25,000, excluding costs of landscaping.[4]

How do traffic circles reduce auto emissions?

One gallon of gasoline burned by an average San Diego vehicle produces 17.5 lb CO_2, 45.4g CO, 11.3g NOx, and 4.5g VOC.[9] Like roundabouts, traffic circles used in place of stop signs or signals reduce these emissions two ways:

(1) Reducing starts and stops: In one study, small roundabouts were found to reduce CO by 29%, NOx by 21% and greenhouse gases by 28%.[10] The town of Carmel, Indiana, has converted over half its intersections to roundabouts or traffic circles, with an estimated average savings of 24,000 gallons of fuel (and accompanying emissions) per intersection per year.[11]

(2) Calming neighborhood traffic: Data show residents walk[12] or bike more — replacing some vehicle trips — when cars drive slower in their neighborhood.

1. Federal Highway Administration (2014) *Designing Sidewalks and Trails for Access, 9.2.6 Neighborhood Traffic Circles.* http://fhwa.dot.gov/environment/bicycle_pedestrian/publications/sidewalk2/sidewalks209.cfm
2. Transafety, Inc. (1998) Traffic circle design criteria. *Road Management & Engineering Journal*. http://usroads.com/journals/rmej/9801/rm980103.htm
3. Seattle Department of Transportation (n. d.) *Neighborhood Traffic Operations: Traffic Circle Program*. http://www.seattle.gov/transportation/trafficcircles.htm
4. City of Oceanside, CA (2011) *City of Oceanside Traffic Calming Program, p. 40.*
5. Institute of Transportation Engineers (n. d.) *Traffic Calming Measures - Neighborhood Traffic Circle.* http://www.ite.org/traffic/circle.asp
6. Fehr & Peers (2010) *Traffic Circles.* http://www.trafficcalming.org
7. Federal Highway Administration (2010) *Roundabouts: An Informational Guide, 2nd Edition.* NCHRP Report 672.
8. Stein, H. et al. (1992) Portland's successful experience with traffic circles. *ITE 1992 Compendium of Technical Papers*, p. 39-44.
9. Calculated from California Air Resources Board's EMFAC2011 model.
10. Varhelyi, A. (2002) The effects of small roundabouts on emissions and fuel consumption: a case study. *Transportation Research Part D: Transport and Environment, U.S. Transportation Research Board.*
11. Insurance Institute for Highway Safety (2005) *Status Report*, Col. 40, No. 9, November 19, 2005.
12. America Walks (2011) *National Walking Survey*.

Photos by Andy Hamilton, APCD.