

# SCOTTSDALE TRANSPORTATION COMMISSION REPORT



**To:** Trails Subcommittee  
**From:** Susan Conklu, Senior Transportation Planner  
**Subject:** Bicycle Facilities Alternatives  
**Meeting Date:** July 18, 2013

## ITEM IN BRIEF

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**Action:** Information and discussion

### **Purpose:**

A review of innovative bicycle facilities used by the City of Scottsdale and other bicycle friendly communities.

### **Background:**

#### Scottsdale bicycle facilities:

- On-Street Bike Lanes
  - A bike lane is a striped portion of a roadway with pavement markings and signs. Signs are no longer required by MUTCD. It is for the exclusive use of bicyclists, but bicyclists are not required to ride in it. Cyclists may leave a bike lane to pass other cyclists, avoid debris, and make left turns.
- On-Street Bike Routes
  - A bike route is any combination of paths, lanes, trails, or streets that are designated for bicycle travel by mapping or signing. Bike routes are typically used to help cyclists identify preferential travel routes.
- Off-Street Paved Shared Use Paths
  - A paved path is a hard-surface shared use facility not open to motorized devices. It can be used by pedestrians, bicyclists, skaters, joggers, and other nonmotorized users. Paths can be placed in drainage corridors, on canal banks, or adjacent to streets.
- Off-Street Unpaved Shared Use Trails
  - An unpaved trail is a soft-surface shared use facility for use by equestrians, pedestrians, bicyclists, and other nonmotorized users. Trails can be placed in drainage corridors, on canal banks, or adjacent to streets. Transportation is responsible for the unpaved trails located outside Scottsdale's McDowell Sonoran Preserve.

#### Bicycle facilities not yet constructed in Scottsdale:

- Green Bike Lanes
  - Green lanes are used to designate the bicyclist's path through a complex transition area.
- Bike Boxes
  - A bike box is a designated area at the head of a traffic lane at a signalized intersection that provides bicyclists with a safe and visible way to get ahead of queuing traffic during the red signal phase.

- Bicycle Boulevards
  - Streets designed to give priority to bicycles. Typically, the streets are traffic calmed and may prohibit through motorists.
- Buffered Bike Lanes
  - A bike lane separated from traffic with a designated buffer space.
- Cycle Tracks
  - A cycle track is an exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. A cycle track is physically separated from motor traffic and distinct from the sidewalk.

### **Key Considerations:**

Scottsdale staff continues to review and examine the various facilities that are in use in other communities. A number of streets have been identified as candidates for bicycle boulevards. These include Roosevelt Street, Oak Street, Jackrabbit Road, Cholla Street from 90<sup>th</sup> Street to Via Linda, Sweetwater Avenue from 84<sup>th</sup> Street to Frank Lloyd Wright Boulevard, 87<sup>th</sup> Terrace south of the Arizona Canal, 84<sup>th</sup> Street from Shea Boulevard to Thunderbird Road, 90<sup>th</sup> Street from Cholla Street to Redfield Road, and other streets already interrupted by the and the Crosscut and Arizona canals. The Pima Path is also a location that could become a bicycle boulevard with improved connections. The intersections of Scottsdale Road and the couplets (Drinkwater and Goldwater) may be good locations for green bike lanes.

At this point, staff has not identified any locations for Bike Boxes or Cycle Tracks. Both treatments have safety and maintenance issues that would require careful planning and design.

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# *Bicycle Facilities Alternatives*

*Review of Innovative Bicycle Facilities*

Transportation Commission

July 18, 2013

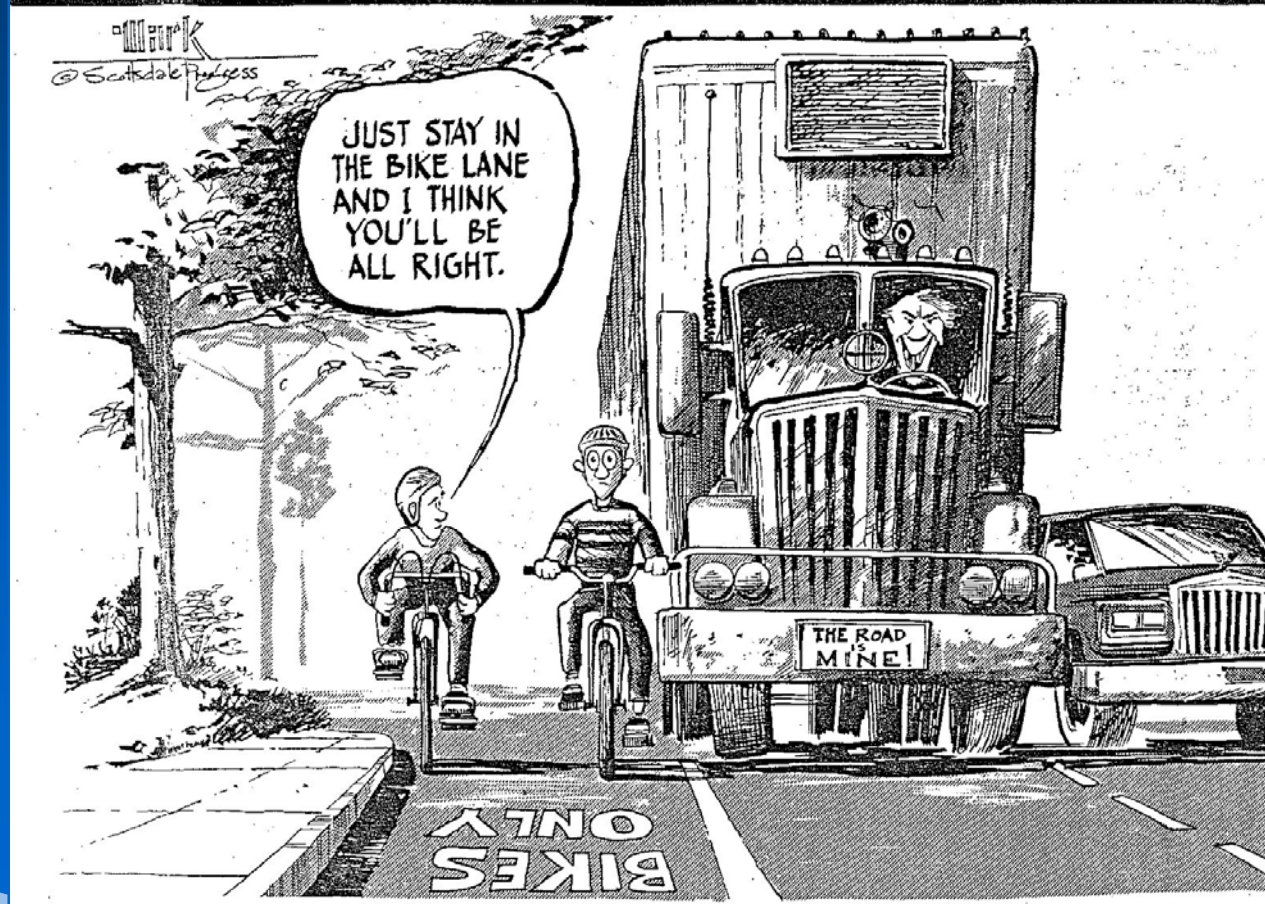


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# SCOTTSDALE Progress

Page 14  
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June 8, 1988





# Bicycle Facilities Alternatives



Bicycle Lane  
96th Street north of Shea



Bicycle Route  
Lincoln and 87th Terrace



Paved Shoulder  
Pima and Jomax roads

Paved Path  
Crosscut Canal at McDowell Rd



Unpaved Trail  
Via Dona Rd west of Pima Rd



# *Bicycle Facilities Alternatives*

## Bicycle Lane to Path

A diagonal ramp provides access from the bike lane on Indian School Rd to the Indian Bend Wash Path.



# *Bicycle Facilities Alternatives*

## Shared Lane Marking (Sharrows)



- Assist bicyclists with lateral positioning in a shared lane with on-street parallel parking in order to reduce the chance of a bicyclist's impacting the open door of a parked vehicle
- Assist bicyclists with lateral positioning in lanes that are too narrow for a motor vehicle and a bicycle to travel side by side within the same traffic lane
- Alert road users of the lateral location bicyclists are likely to occupy within the traveled way
- Encourage safe passing of bicyclists by motorists
- Reduce the incidence of wrong-way bicycling



# *Bicycle Facilities Alternatives*

## Bike Lane to Sharrow

Cyclists are encouraged to use the frontage road.



Thomas Rd approaching 82<sup>nd</sup> St



# *Bicycle Facilities Alternatives*

## Bike Lane to Sharrow

Cyclists are encouraged to use frontage road. Motorists are blocked.



Thomas Rd at 82nd St

# *Bicycle Facilities Alternatives*

## Bike Lane to Sharrow

Sidewalk/Path connections were installed at intersections.



Thomas Frontage Rd east of 82nd St



# *Bicycle Facilities Alternatives*

## Shared Lane Marking (Sharrows)

- Assist bicyclists with lateral positioning in a shared right turn lane with through bicyclists
- Helps alert motorists that bicyclists are going through



Miller Rd at Osborn Rd



# *Bicycle Facilities Alternatives*

## Shared Right Turn Lane

Eugene, Oregon



# *Bicycle Facilities Alternatives*

## Shared Right Turn Lane

North of Kona, Hawaii



# *Bicycle Facilities Alternatives*

## Contraflow Bike Lanes

Turns a one-way street for motorists into a two-way street for bicycles.



Seattle Department of Transportation



# Bicycle Facilities Alternatives

## Green Lanes

Green bike lanes highlight areas where bicycle and cars cross paths. Bicyclists should be alert and look for motor vehicles crossing green lanes. Motor vehicles should yield to bicyclists in green bike lanes.

Phoenix recently installed this one on Fillmore Street to encourage bicyclists to take the full lane so that motorists wouldn't try to squeeze by.

Cost of materials and durability:  
Up-front VS replacement



Phoenix Department of Transportation

# *Bicycle Facilities Alternatives*

## Green Lanes

Green lanes are used to designate the bicyclist's path through a complex transition area.



Seattle Department of Transportation

# Bicycle Facilities Alternatives

## Green Lanes

Green lanes could be used to guide cyclists through the Scottsdale Road/Drinkwater/Earll intersection.





# *Bicycle Facilities Alternatives*

## Green Lanes

Green lanes have been blue, red, and other colors before FHWA selected green. Can be installed using “test” procedure.



# Bicycle Facilities Alternatives

## Bike Boxes

<http://vimeo.com/12796861>

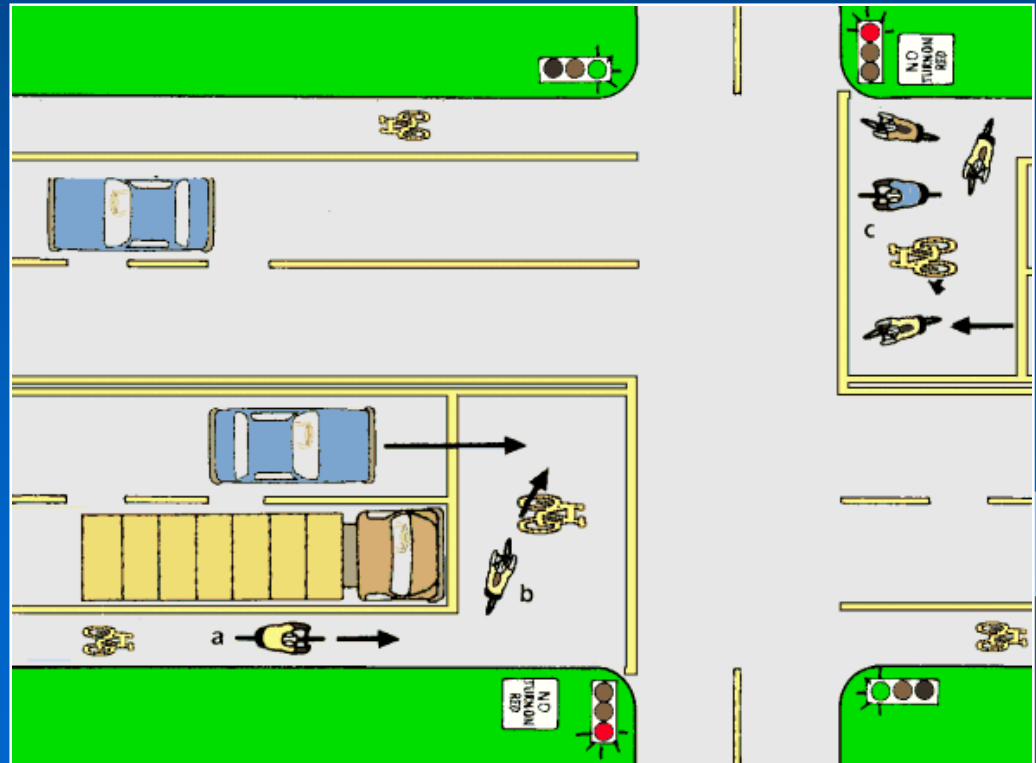
A bike box is a designated area at the head of a traffic lane at a signalized intersection that provides bicyclists with a safe and visible way to get ahead of queuing traffic during the red signal phase.



# Bicycle Facilities Alternatives

## Bike Boxes

Can't be used if traffic signal is green. Could be dangerous for cyclist moving into bike box as signal turns green.





# *Bicycle Facilities Alternatives*

## Bicyclists May Use Full Lane

R4-11 sign new in MUTCD and used where there is not room for bike lanes.



# *Bicycle Facilities Alternatives*

## Bicycle Boulevards

Streets designed to give priority to bicycles. Typically have traffic calming devices along corridor. May prohibit through motorists. Possible bicycle boulevards include Pima Path, Roosevelt, Oak, Jackrabbit, Cholla, Sweetwater, 87<sup>th</sup> Terrace, 84<sup>th</sup> Street, and 90<sup>th</sup> Street.

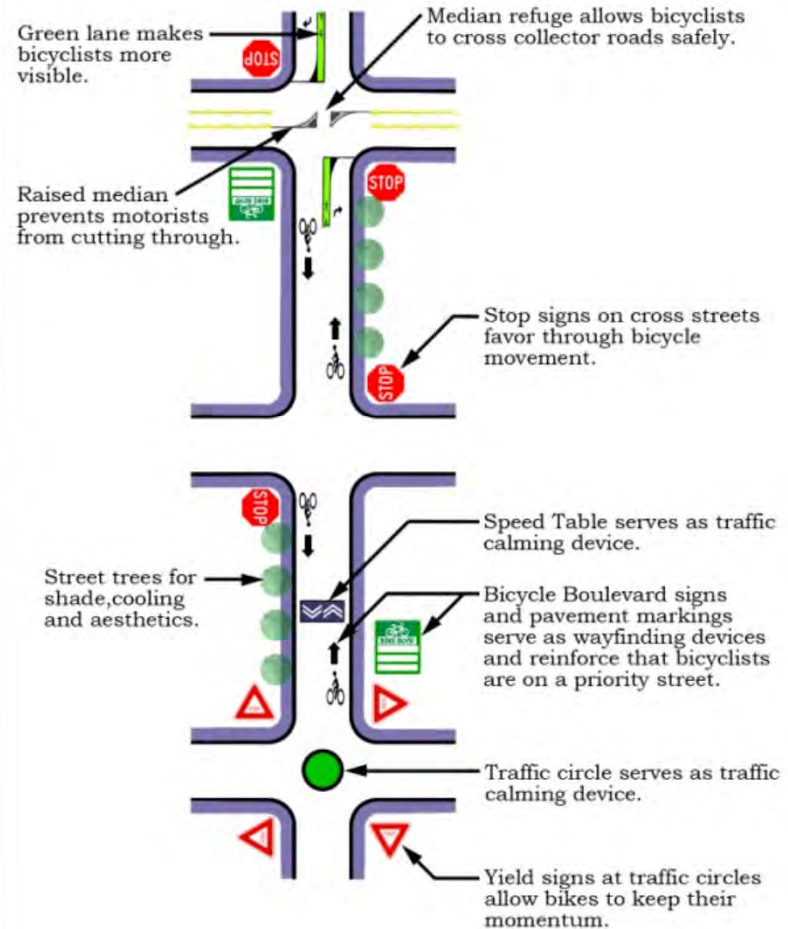


Tucson Department of Transportation

# Bicycle Facilities Alternatives

## Bicycle Boulevards

### TYPICAL BIKE BOULEVARD IN TUCSON



# *Bicycle Facilities Alternatives*

## Buffered Bike Lanes

Provides a wider, visual space between motorists and bicyclists.



Seattle Department of Transportation



# *Bicycle Facilities Alternatives*

## Buffered Bike Lanes

Provides a wider space between motorists and bicyclists.



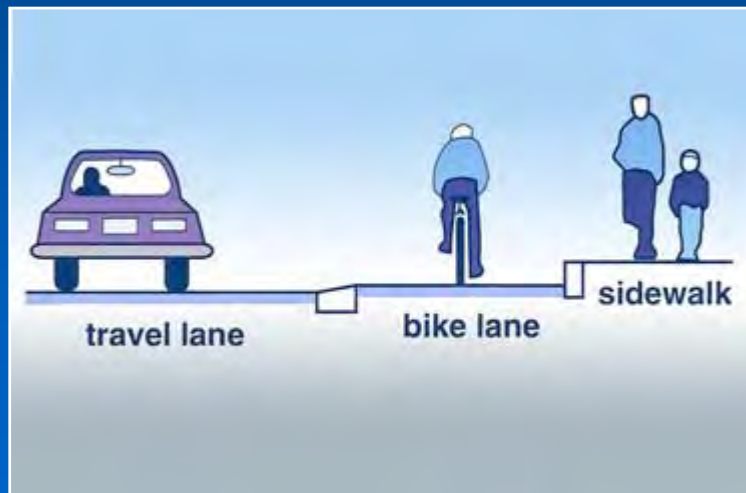
Tucson Department of Transportation

# Bicycle Facilities Alternatives

## Raised Bike Lanes

Provides a wider space between motorists and bicyclists.

Issue: Rolled curb does not deflect vehicles like a vertical curb.



City of Chicago



City of Milwaukee

# *Bicycle Facilities Alternatives*

## Cycle Tracks

Separates vehicles, bicycles, and pedestrians.

Not in MUTCD.

Not a shared use path – not used by pedestrians.

Other terms: sidepath, bike path, raised lane, separated lane.

One-way and two-way versions exist.



Portland, Oregon



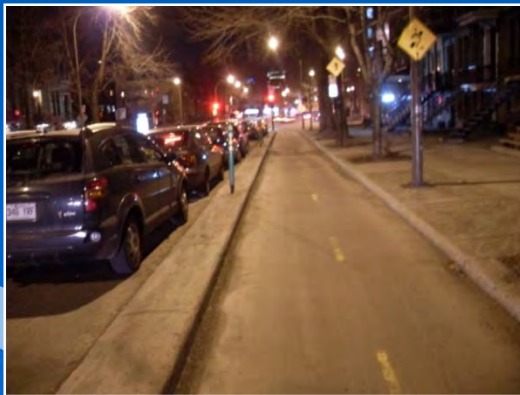
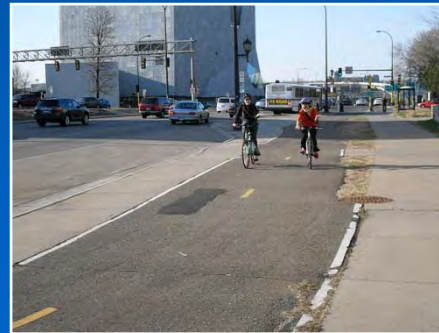
# Bicycle Facilities Alternatives

## Cycle Tracks

Physical Separation from motor traffic: Curb, raised median, parking lane, planting buffer, bollards, ...

Levels: Street level, sidewalk level, in between.

Source: Peter Furth  
Northeastern University





# Bicycle Facilities Alternatives

## Cycle Tracks

Scottsdale's experience with short sections of separated bike lanes has been problematic. They collect debris and must be swept with a broom.



# *Bicycle Facilities Alternatives*

## National Guidelines

Guide for the Development of Bicycle Facilities

American Association of State Highway and Transportation Officials (AASHTO)

Urban Bikeway Design Guide

National Association of City Transportation Officials (NACTO)

Many of the bicycle related treatments are not included in the AASHTO guide or the MUTCD

<http://nacto.org/>

# Discussion and questions