# One-way vs Two-way Bicycle Lanes

Bicycle Advisory Council Briefing

**Transportation and Public Works | July 21, 2026**

# Goals

- Share and discuss various factors and considerations when planning one-way vs two-way bikeways
- Achieve general alignment with bicycle stakeholders about tradeoffs and applicability between one-way and two-way approaches
  - If not aligned, significant pivots in project proposals could result in additional phases of engagement, missed opportunities (e.g. resurfacing), and increased time / cost to develop projects
- Create the safest, most comfortable, and highest quality bicycle network possible

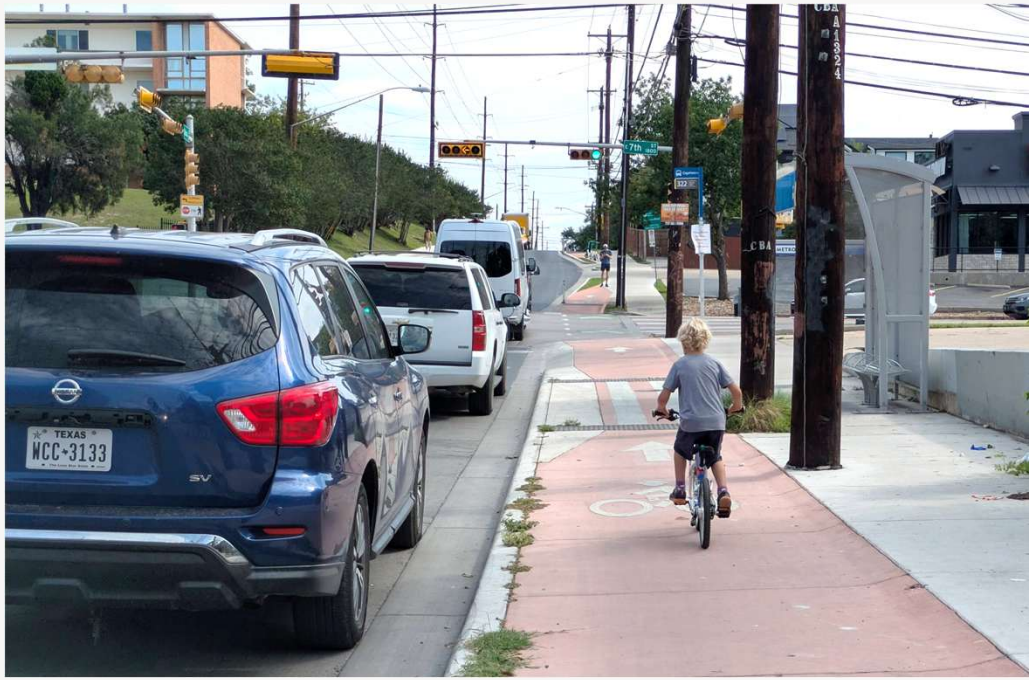
# Traffic Operations

**One-way**

- One-ways **follow standard traffic operation** (conflicts are where drivers expect)

**Two-way**

- Two-ways introduce a **non-standard bicycle direction of travel** that needs to be safely managed
  - Special signalization and visibility treatments
  - Best on medium to lower volume streets
  - Strong left turn vehicle access control needed on higher volume streets




Conflicts at intersections, particularly left turns with limited visibility create risk

# Constrained Streets

**Constraints** including street widths, parking, vehicle turn lane needs, or transit accommodations, impact space available for protected bike lanes

**One-way**

- 40-44’ is minimum for one-way protected bike lanes

**Two-way**

- 36-40’ is minimum for two-way protected bike lanes
  - One buffer instead of two saves space
  - Total width of bicycle lanes can also be reduced



Pedernales two-way protected bike lane on a 36’ wide street and parking on one side

# Safety at Signals

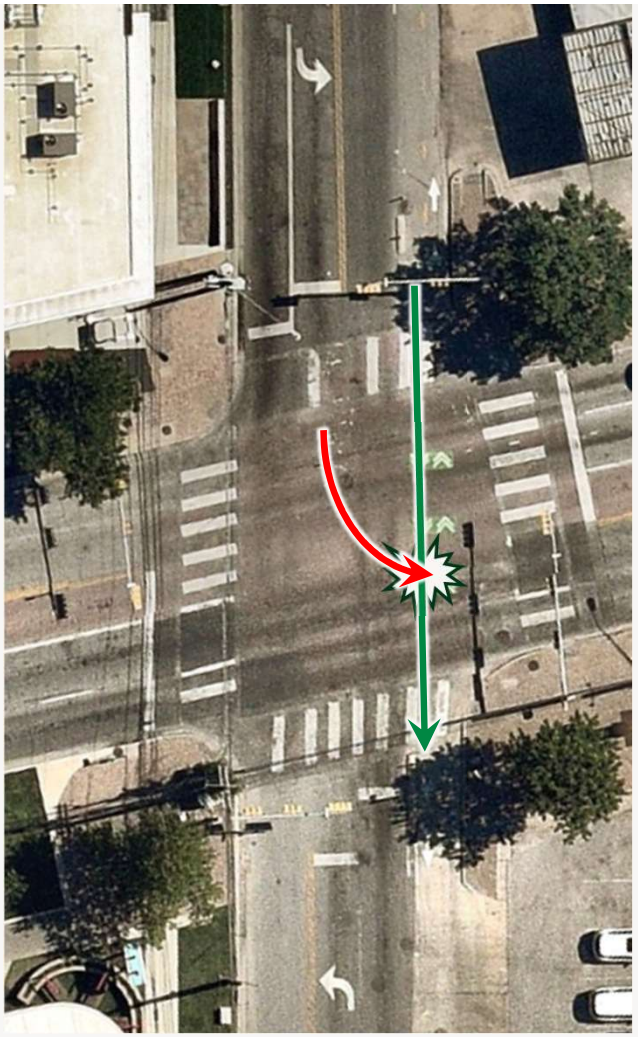
**One-way**

- Do not require special signalization and follow standard traffic operation rules
- Bicycle signal progression (a green wave) is easier to accomplish

**Two-way**

- The non-standard bicycle movement almost always needs a separate signal phase for safety
  - Results in very short bicycle green time in this direction
- Separate bicycle signal phase creates additional motor vehicle delay at intersection and can affect feasibility
- On one-way streets permissive / non-exclusive signal timing may be possible

**Example:** Decision making for 3rd Street Downtown



Dedicated southbound bicycle signal phase at Pedernales and 7th to manage left turn conflict

# Trail-Like Environment

Some streets serve as proxy trails (e.g., Shoal Creek Boulevard, Pedernales Street)

**Two-way**

- Two-way bicycle lanes + adjacent sidewalks best replicate a trail-like environment on streets
- Sidewalks + two-way bicycle lanes work like a dual track trail that best manage bicycle and pedestrian conflicts

**One-way**

- One-ways provide a safe connection but the sense of being on a trail will be disrupted



Bikeway protection on Zach Scott Street with trees

# Protection Quality

**Two-way**

- The space savings of two-way bicycle lanes can allow for wider and higher quality buffers
- Wide buffers could support tree plantings



Bikeway protection on Zach Scot Street with trees

# Bikeway Width and Social Riding

- Bikeway width always needs to support passing and street sweeping, except in limited constrained areas
- Width should also support side-by-side riding to enable conversation (like people driving or walking) and parents supporting safe travel of children

**Two-way**

- Dimensions always allow the space for side-by-side riding since both directions of bikeway travel are consolidated

**One-way**

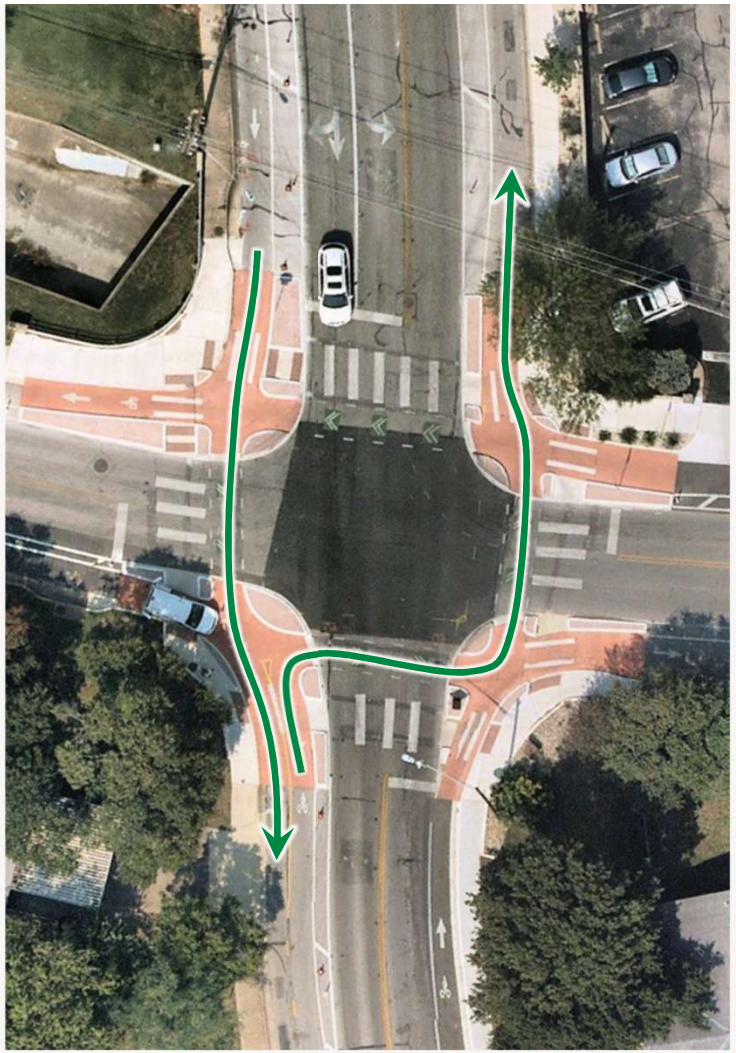
- Whenever possible, facility widths are designed to support side by side riding



Bikeway protection on Zach Scott Street with trees

# Connections and Transitions

- Minimize switching sides of the street for legibility, directness, safety, and speed of travel
- Requires strong corridor wide planning for best continuity and avoiding patchy results



Shoal Creek Boulevard bikeway transition from one-way to two-way at the Foster intersection

# Parking Considerations

- Parking demand often switches from side to side
- Driveway densities and context affect viability of floating parking designs, which work best in longer unbroken stretches

**Two-way**

- Parking is often placed on opposite side of bikeway for best visibility of bikeway users and to maximize parking supply
- Unless floating parking is viable, limits parking to opposite side of street from bicycle facility

**One-way**

- Easy to switch which side parking is provided to best meet demand



Shoal Creek Boulevard bikeway with on-street parking on opposite side of street

# Transit Stops

- Any street that transit operates on requires ADA accessible bus stops
- Ideally enhanced bus stops are constructed for one or two-way bikeway designs, but funding is not always available

**One-way**

- If enhanced bus stop funding is not available, buses can pull to the curb and block the bike lane (common existing condition)

**Two-way**

- Two-way bikeways cannot allow buses to block the bike lane



Enhanced bus stop on Crystal Brook Drive paired with a two-way bike lane

# Safety Performance

- Safety performance of one-way and two-way protected bicycle lanes are both positive with one-way showing the highest performance
- Two-ways have generally not been installed on major streets (multilane or above ~10k vehicles per day)
- Many other factors contribute to project safety results such as intersection improvements, lane configuration changes, and other factors
- Results by project vary significantly

| Type | Total Miles | Crash Rate Change | Comp Crash Cost Change | Comp Crash Cost Change per Mile |
|---|---|---|---|---|
| One-way | 113 | - 30% | - 33% | - $2.6 M |
| Two-way | 29 | - 21% | - 19% | - $0.6 M |

# Additional Considerations

**Two-way**

- Concentrates bike lane users, potentially making them more visible to motorists, but also introduces a non-standard bicycle movement on two-way vehicle streets that can negatively affect bicycle visibility and safety that needs to be managed
- More room to avoid obstructions and poor pavement
- Opportunity to limit street and driveway conflicts when placed adjacent to parks, creeks, railroads, and other geographic barriers
- Ability to change directions or stop and chat with an acquaintance
- One buffer is less expensive and less maintenance, though required transit stop upgrades may offset savings

**One-way**

- Creates buffer space from sidewalks on both sides of street

# Two-way Criteria

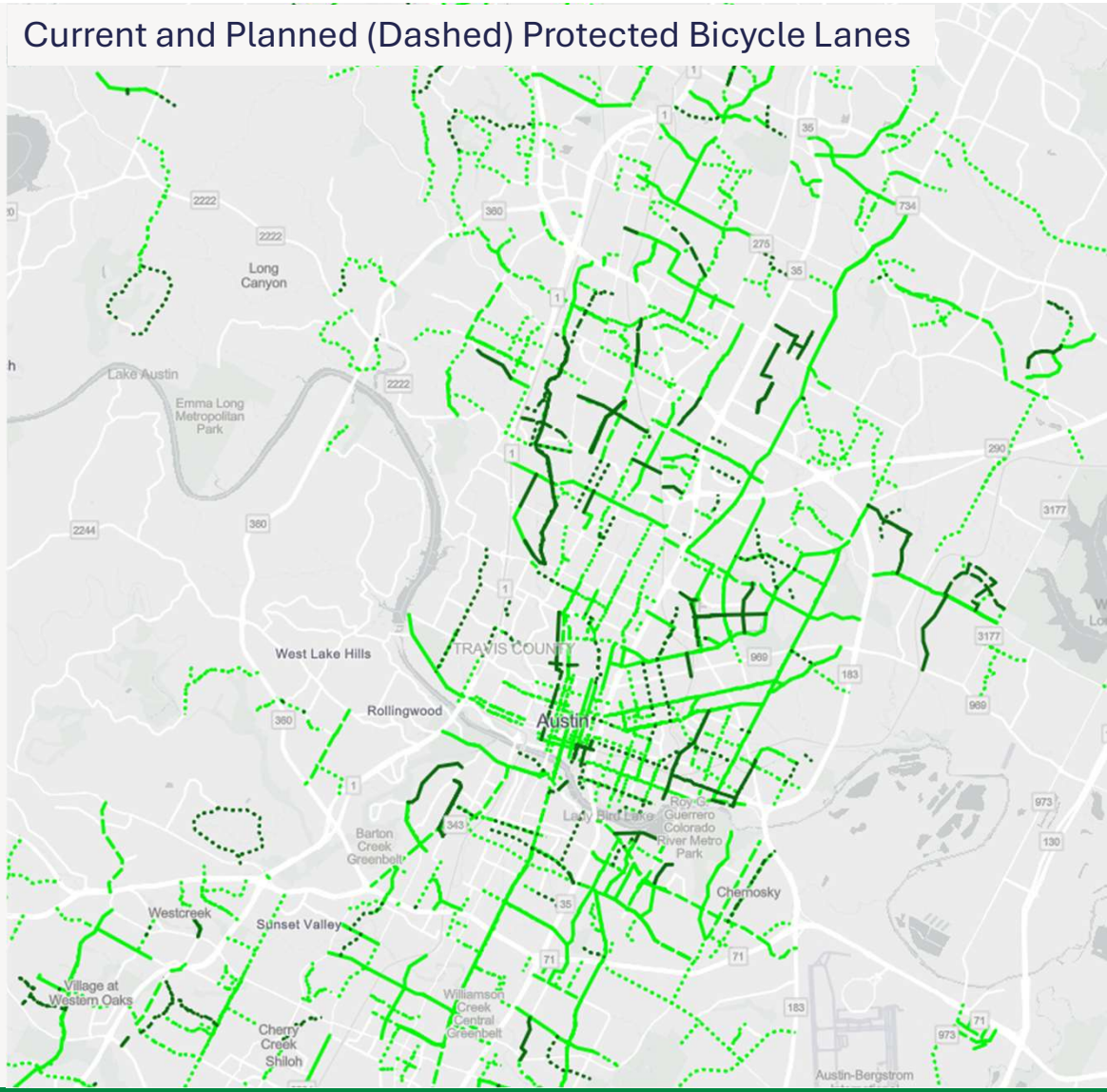
- One vehicle lane each way for two-way streets, one-way streets, under ~10k vehicles per day
- For larger multilane streets, strong access control preventing left turns
- Signal protection for the non-standard bicycle movement
- Quality connections and transitions in and out of bicycle facility

**Legend**

Two-way

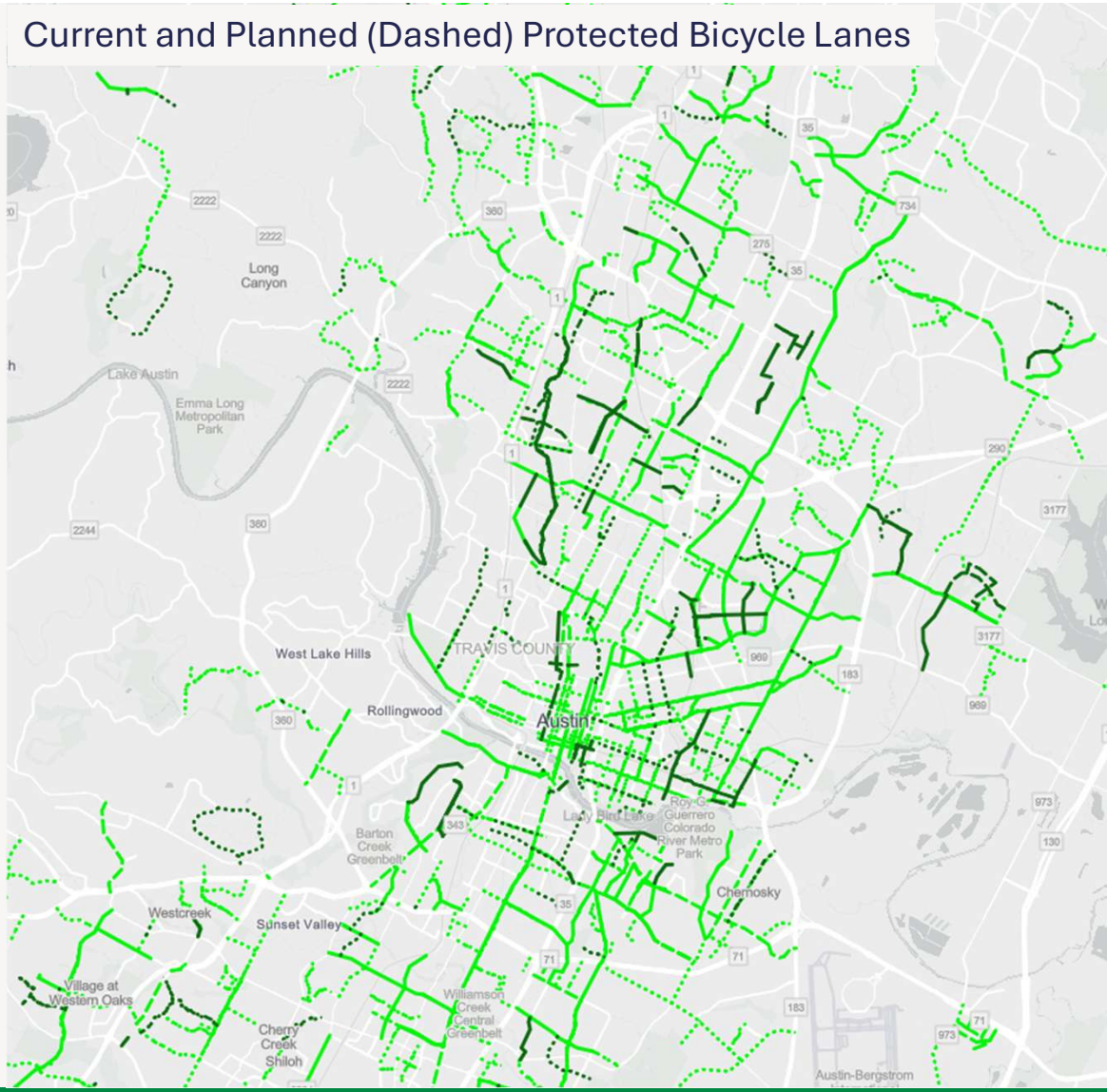
One-way

Current and Planned (Dashed) Protected Bicycle Lanes



# Potential Two-way Bicycle Lanes

- E 5th Street
- Shady Lane
- Mearns Meadow
- Nueces
- Colony Loop Drive
- Rogge



# Questions & Discussion