

- The following is an overview of the content that is proposed to be included in the 2014 Bicycle Plan Update

# WHY UPDATE THE BICYCLE PLAN?

Creating the future Austin



City of Austin 2014 Bicycle Master Plan Update

March 21, 2014

- A brief explanation of why this update is important

## Current Bicycle Planning Efforts: Urban Trails Master Plan and Bike Plan Update



- The Bike plan builds on existing plans with latest influences from Imagine Austin, the NACTO bikeway design guide, Austin's participation in the Green Lane Project, and Austin's Think Bike event

# Bicycling and Active Transportation Support Imagine Austin Plan



Priority Program #1:  
Invest in Compact

Priority Program #8:  
Align Code

Priority Program #3:  
Workforce Development

Priority Program #5:  
Creative Economy

Priority Program #2:  
Sustainable Water

Priority Program #4:  
Green Infrastructure

Priority Program #6:  
Household Affordability


Priority Program #7:  
Healthy Austin



City of Austin 2014 Bicycle Master Plan Update

March 21, 2014

- Integrating Imagine Austin plan into 2014 Bicycle Plan
- Bicycling is integral in all 8 priority programs



**IMAGINEAUSTON**  
COMPREHENSIVE PLAN  
Vibrant. Livable. Connected.

City Council Adopted  
June 15, 2012

**A Shift in Focus:**

~~“To Create and Promote the best environment for the friendly co-existence of bicycle riders and other transportation users in Austin”~~

“To maximize the contribution of bicycling to Austin’s quality of life”

March 21, 2014

- Update the vision for the bicycle plan
- This is a very important change in focus and is the foundation for our approach to the conversation for the 2014 update

# HOW ARE WE APPROACHING THE UPDATE?

Elements of the 2014 Bicycle Plan Update



City of Austin 2014 Bicycle Master Plan Update

March 21, 2014

- An overview of our approach and fundamental elements that make the 2014 Bicycle Plan a significant change to the the 2009 plan

# The Bicycle Plan is a 5 E's Approach

Engineering	Education	Encouragement	Enforcement	Evaluation
 <ul style="list-style-type: none"> <li>• Updates for all ages and abilities network</li> <li>• Includes cycle tracks recommendations</li> </ul>	 <ul style="list-style-type: none"> <li>• 45,000 children educated annually on bicycle safety.</li> <li>• 300 + taught in Defensive Cycling annually.</li> </ul>	 <ul style="list-style-type: none"> <li>• 1,500 bike light sets distributed in 2013.</li> <li>• Policies to encourage developers to build showers, locker rooms, and secure bicycle parking.</li> </ul>	 <ul style="list-style-type: none"> <li>• Almost 700 citations given to cyclists annually by APD (since 2007)</li> <li>• Vulnerable Road User Campaign</li> </ul>	 <ul style="list-style-type: none"> <li>• 2% of Austinites use a bicycle to get to work; compared to a 1% national average (2011 US Census).</li> <li>• 6% in Central City</li> </ul>



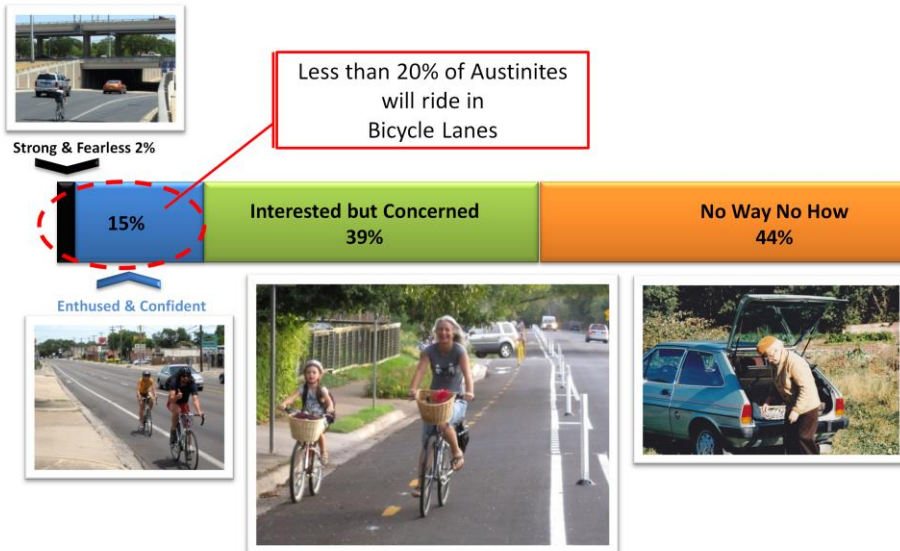
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- The bicycle plan is a 5 E's plan.
- The most significant update from the 2009 Plan, and the content of this presentation, will be in the Engineering / Infrastructure recommendations and approach, the other sections will get minor updates

# Four Types of Transportation Cyclists in Austin

## By Proportion of Population



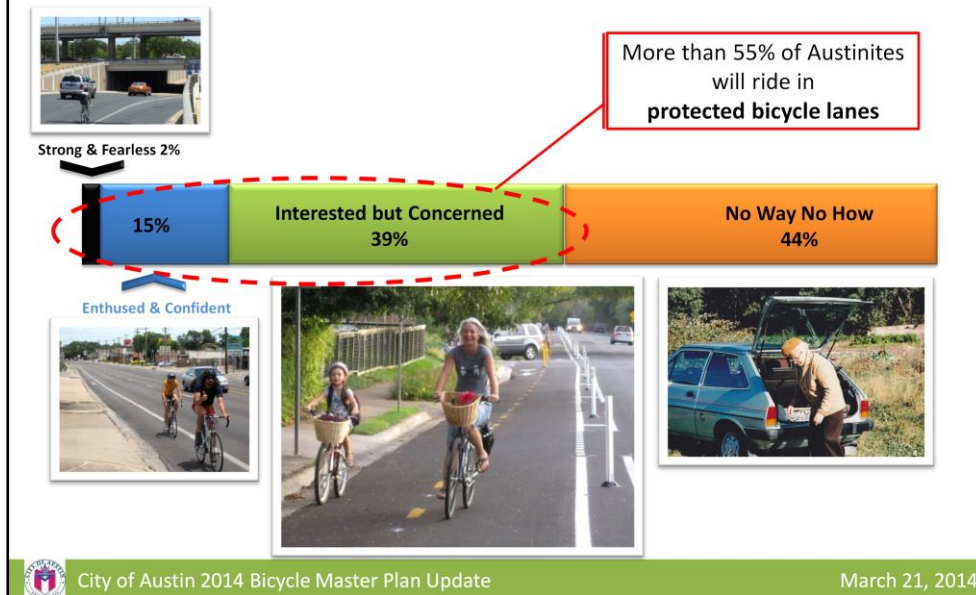
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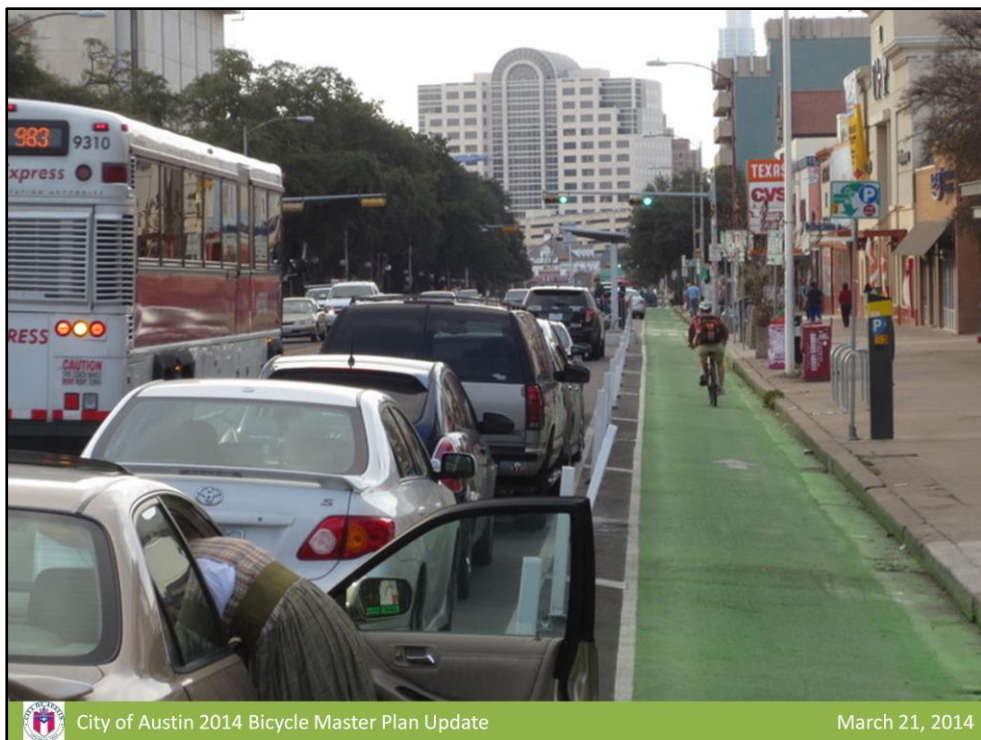
- Existing bicycle lanes based infrastructure attracts less than 20% of Austin's population



## Four Types of Transportation Cyclists in Austin By Proportion of Population



- A network of protected bicycle lanes will attract 55+% of the population. If we want a significant increase in bicycling and the benefits it brings to the City and its citizens, we will have to pursue protected networks.



- Guadalupe next to Campus



- A newly reconstructed block of 3<sup>rd</sup> Street downtown

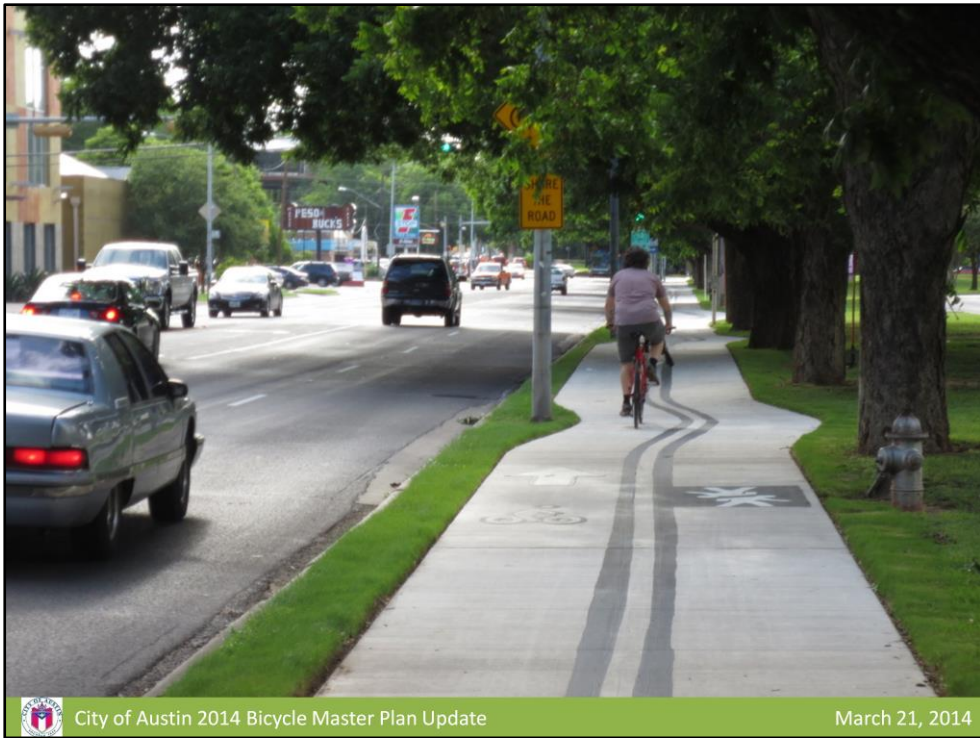


- Bluebonnet Lane Cycle Track in south Austin adjacent to Zilker Elementary



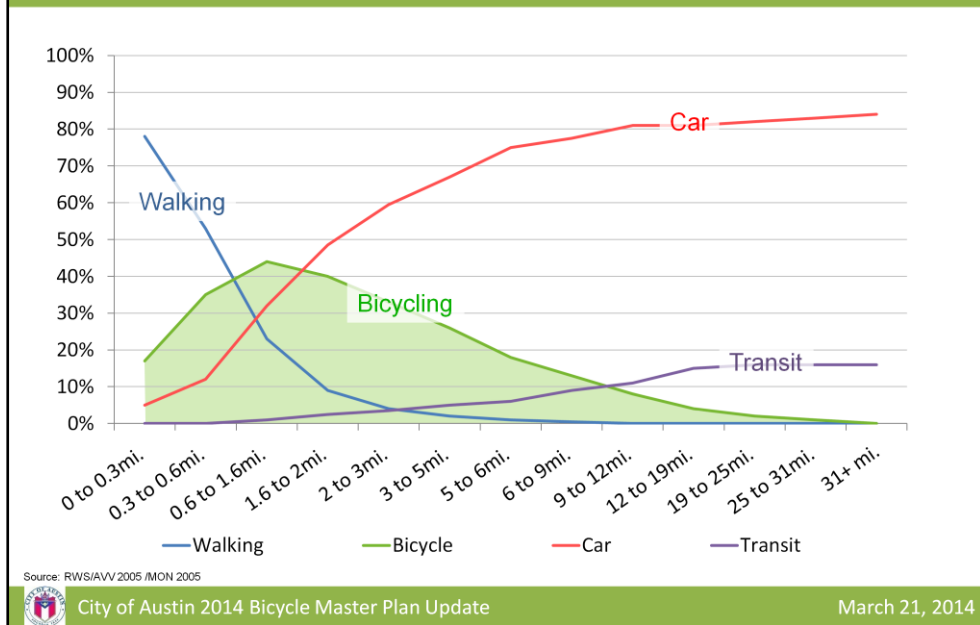


- Examples of protected infrastructure that appeals to the 55+%
- Barton Springs Road

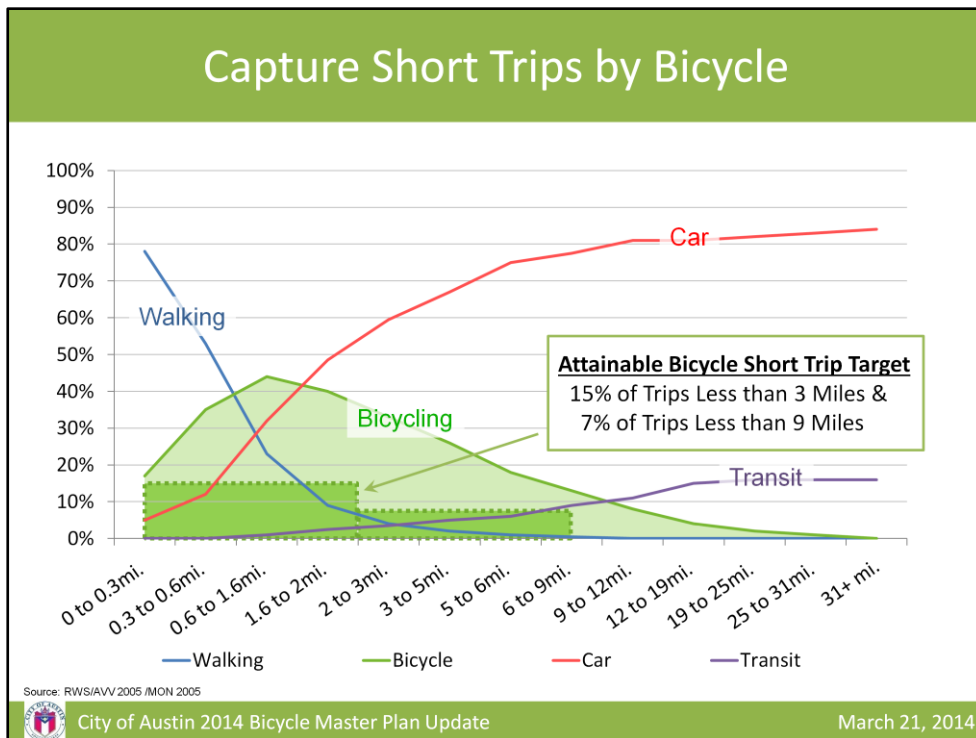


- Barton Springs Road

## Capture Short Trips by Bicycle



- Each mode is more and less useful at different trip lengths. For short distances walking and bicycling are best, for longer distances cars and transit are better
- Given a safe bicycle network, trips in the 1-3 mile range can be the mode with the largest mode share.
- Targeting infrastructure investments to capture short trips is critical



- The green shaded boxes show the Bicycle Plan updates trip capture targets. The plan will capture the impact of achieving these targets.



## Spider Diagram of Short Car-Trips (0-3 mile)

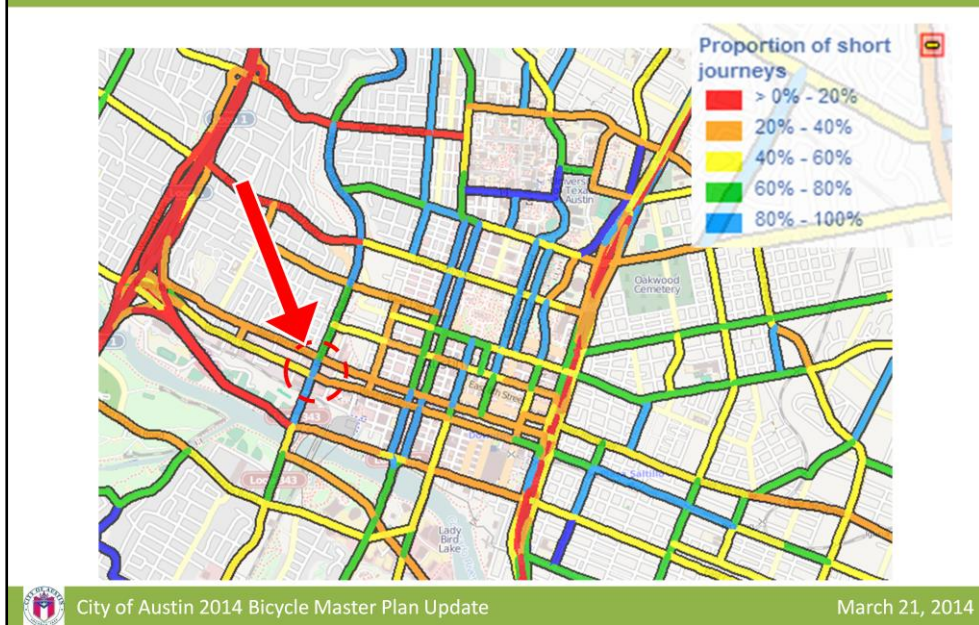


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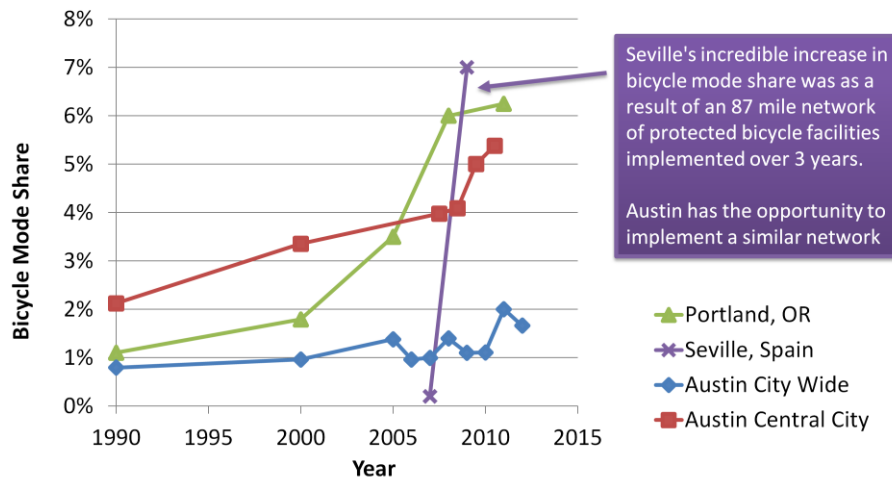
- You can see most of the short trips occur in the central city.
- They occur in every direction but you can see a north-south patterns as you would expect in our city.

## Percentage of Short Trips on Network



- 40-80% of trips through the intersection of 5<sup>th</sup>, 6<sup>th</sup> and Lamar are less than 5 miles. Thus if trip capture targets are met, there is significant positive effects for the operations of intersections such as these.

## Rise of Cycling in Over Time in Portland, Seville, and Austin



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- Seville was able to achieve a higher bicycle mode share than Portland, OR in only 3 years due to the implementation of an 87 mile Dutch inspired protected facility network for \$43 million.

# WHAT IS THE PLAN MADE OF?

Our strategic focus

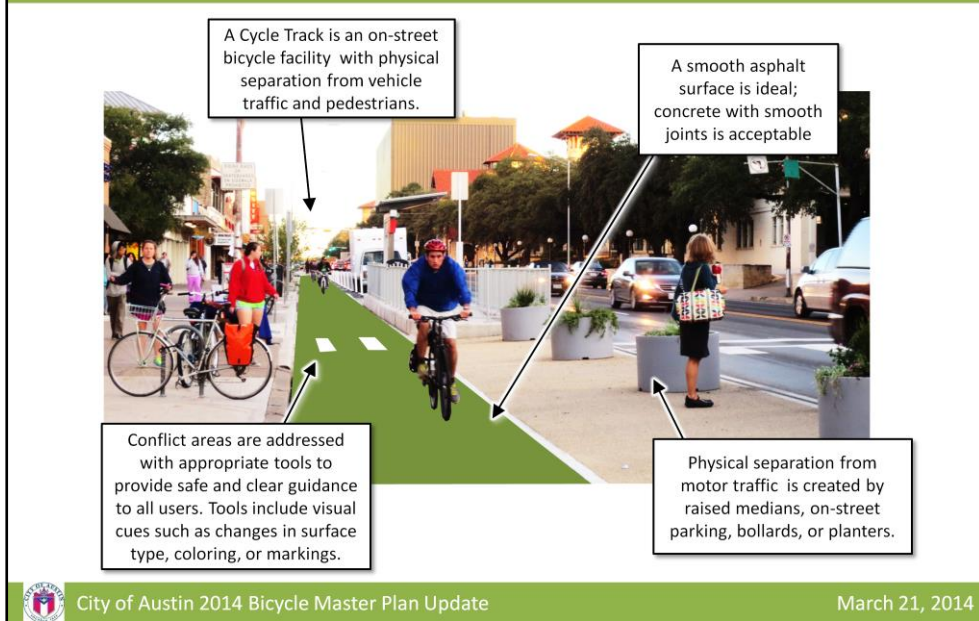


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- An overview of the detailed recommendations of the 2014 Plan Update

## Toolbox: Cycle Tracks



- Visual guide of the principal tools used in the plan

## Toolbox: Cycle Tracks

Cycle Tracks may be one-way or **two-way** and may be at street level, at sidewalk level, or at an intermediate level.



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- Visual guide of the principal tools used in the plan

## Toolbox: Quiet Streets

**Quiet Streets** are traffic calmed corridors that provide a comfortable environment for all ages and abilities.

Provide the opportunity for green streets elements such as tree plantings, rain gardens, and reductions in impervious cover.

Motor vehicle speed and volumes are managed to achieve safety and comfort for all ages or abilities.



Route guidance is provided through pavement markings and signage.

**Target Speed and Volume:**

- 25 mph or less (20 mph preferred)
- 1,500 vehicles per day preferred; up to 3,000 vehicles per day in limited areas.

**Target Locations:**

- **Residential streets** where traffic calming is desired.
- Commercial corridors where heavy motor vehicle traffic is less desired.



- Visual guide of the principal tools used in the plan



# Toolbox: Intersection Treatments

**INTERSECTION TREATMENTS** help users comfortably cross major streets on key routes.

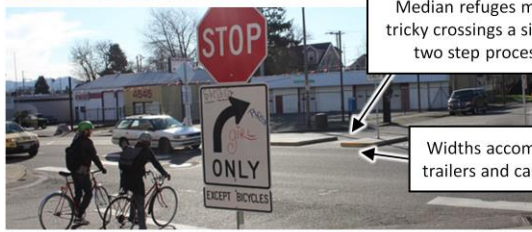
Intersection Treatments Include:

- Crossing signs and markings
- Median refuge islands and curb extensions.
- Crossing devices including actuated warning beacons and signals.



Crossing times should account for all ages.

Actuated warning beacons and signals make the toughest crossings safe and comfortable



Median refuges make tricky crossings a simple two step process

Widths accommodate trailers and cargo bikes



- Visual guide of the principal tools used in the plan



# Creating a Network:



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- Austin's approach will involve all of these facility types to form one all ages and abilities network
- Our street network does not support reliance on only one of these facility types

# Creating a Network:



## Network Principles

- Safe
- Direct
- Cohesive
- Comfortable
- Attractive



- The guiding principles of a quality bicycle network

## Creating a Network:



### ***The 8 to 80 Test:***



*An **8 year old** traveling with an **80 year old** should be able to traverse the city **comfortable and safely.***



- The plan proposes to hold our network to the 8 to 80 test

# Network Design Parameters

*Bicycle design should take into account the cyclist's point of view*

## **DESIGN CYCLIST:**

- The 8-80 rule is used to design bicycle facilities for an All Ages and All Abilities Network

## **DESIGN SPEED**

- The network design speed will be accommodate commuter cyclists.
- Typical speeds will be 10-15 MPH

## **DESIGN BICYCLE**

- Designs will accommodate tandems, trail-a-bikes, trailers and cargo bikes.

## **NETWORK DENSITY**

- Space routes every  $\frac{1}{2}$  -  $\frac{3}{4}$  mile where short trips are most common (in the central city and near transit stations) with increased spacing further away from these areas.
- Ensure access to residences, businesses, and employment while providing the largest return on infrastructure investment.



- Our network design parameters

# On-Street Bicycle Facility Guidance

- Speed and Volume Criteria

		Average Annual Daily Traffic (vehicle per day)		
		Less than 3,000	3,000-9,999	10,000+
85th Percentile Speed (MPH) Measured or Projected	< or =30	Shared *	Bike Lane	Buffered
	31-40	Bike Lane	Buffered	Protected
	41-50	Buffered	Protected	Protected
	> 50	Protected	Protected	Protected

\*Local streets that are important for the all ages and abilities network with less than 3,000 vpd and 30 MPH should be treated as necessary to meet the performance guidelines for Quiet Streets.

- In addition to speed and volume criteria, special consideration will be given to:
  - On-street parking pressures
  - Delivery activity
  - Network context



- One of the biggest changes from the 2009 Bicycle Plan was to use the speed and volume criteria shown above instead of basing the recommendations from a 20 year old 1992 FHWA report on recommended bicycle facilities.
- The criteria above acknowledges, per current research and best practice, that on higher speed and volume roadways that protected bicycle facilities are necessary to attract the largest portion of the population that is **interested** in riding a bicycle for transportation but **concerned** about safety due to motor vehicle traffic.

# Bicycle Network Priorities

## Long-Term Recommendations

- Based on Speed and Volume Criteria
- Decades Long Build-out

## Recommended Short-Term Network

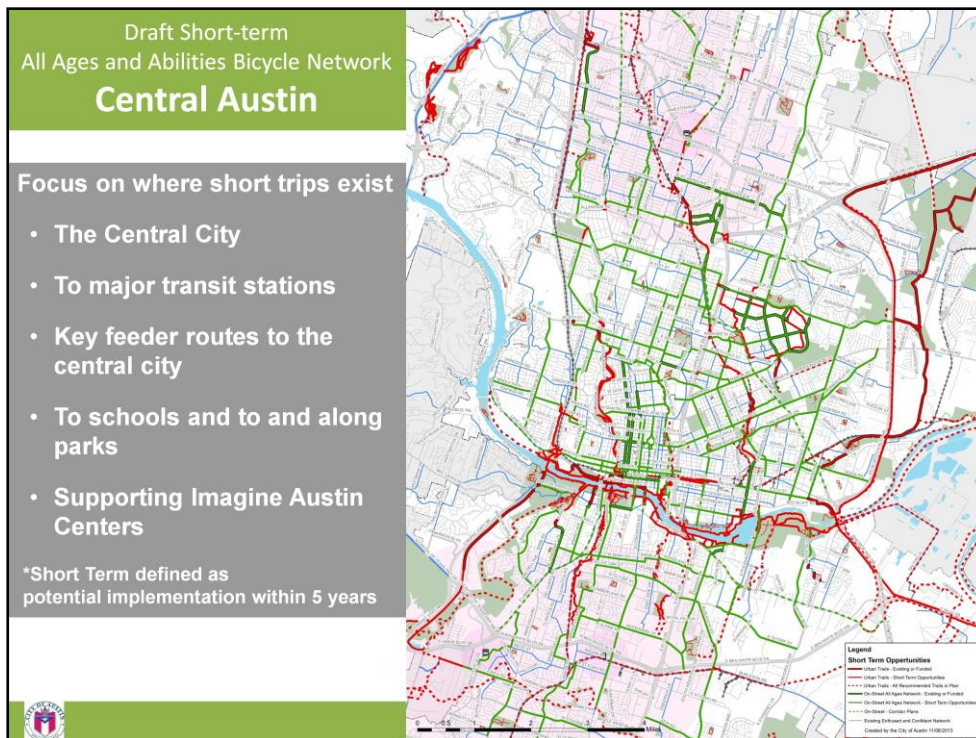
- Highest Return on Investment
- Target Short Trips



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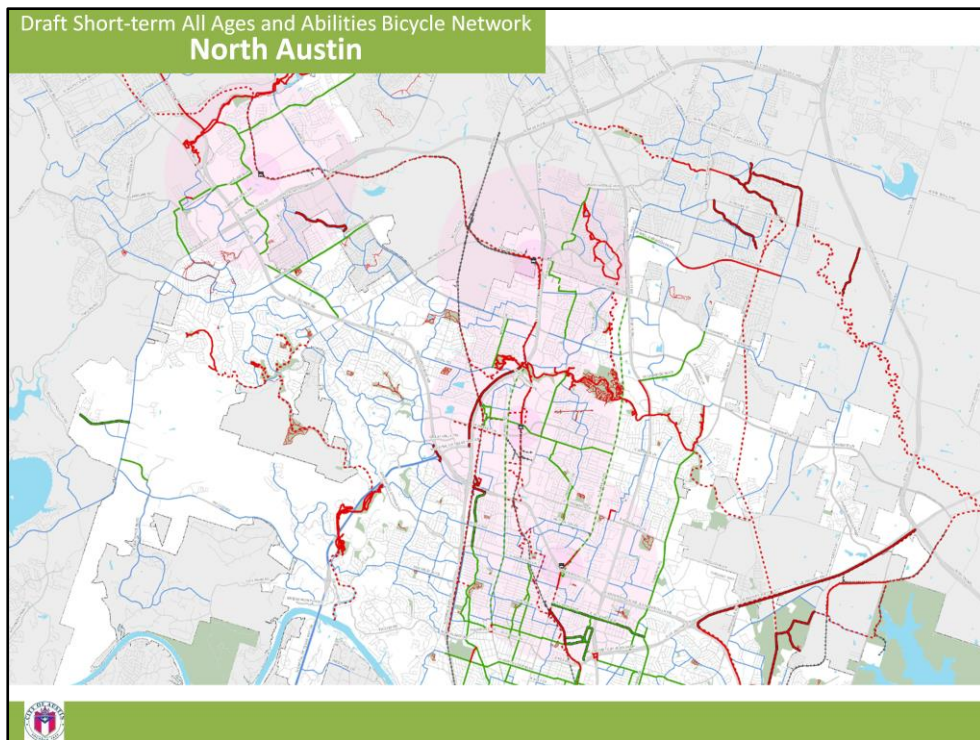
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- In addition to long term recommendations based on speed and volumes of motor vehicle traffic, a feasible short term all ages and abilities network is recommended



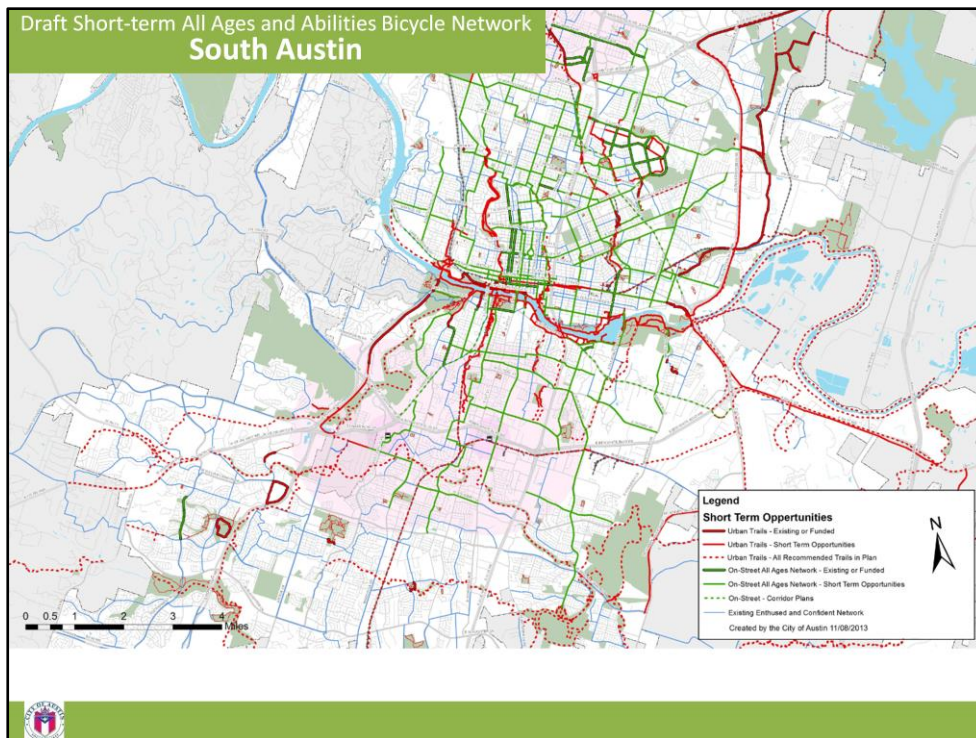
- This is a view of the short term network in the central city composed of on-street facilities and Urban Trails





- Zoomed in view of recommended short term all ages and abilities network in north Austin





Zoomed in view of recommended short term all ages and abilities network in south Austin

## Bicycle Lane Network Barriers

- Updated top 100 barriers
- Removal of barriers prioritized in plan



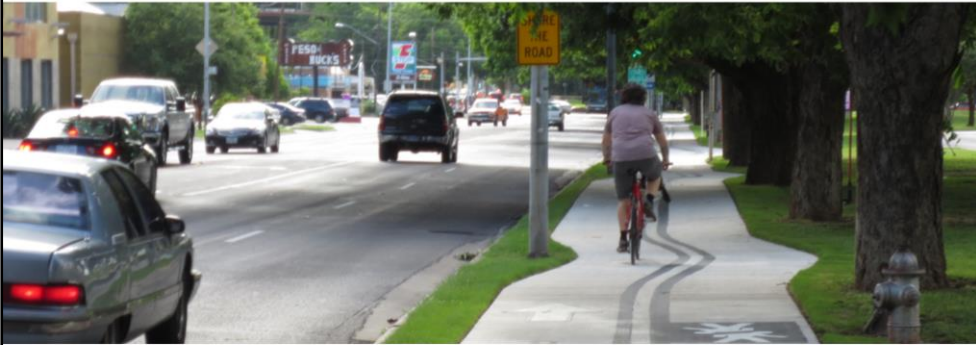
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- Removing barriers even with the installation of bicycle lanes will continue to be a central element of the plan
- Past barrier along Barton Spring Road shown

## Bicycle Lane Network Barriers

- Updated top 100 barriers
- Removal of barriers prioritized in plan



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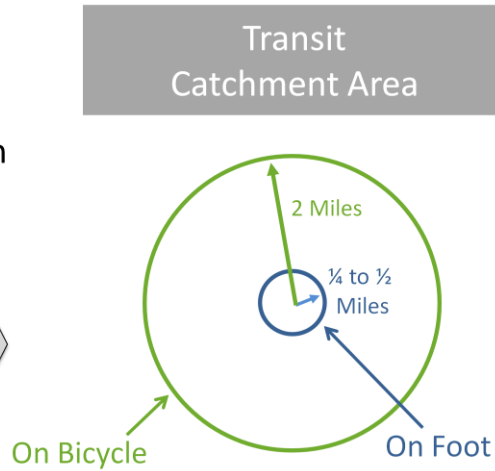
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- Barton Springs barrier resolved

## Bicycle & Public Transport

- Transit and Bikes are complementary modes
- Only their **combined strengths** can compete with private motorized traffic

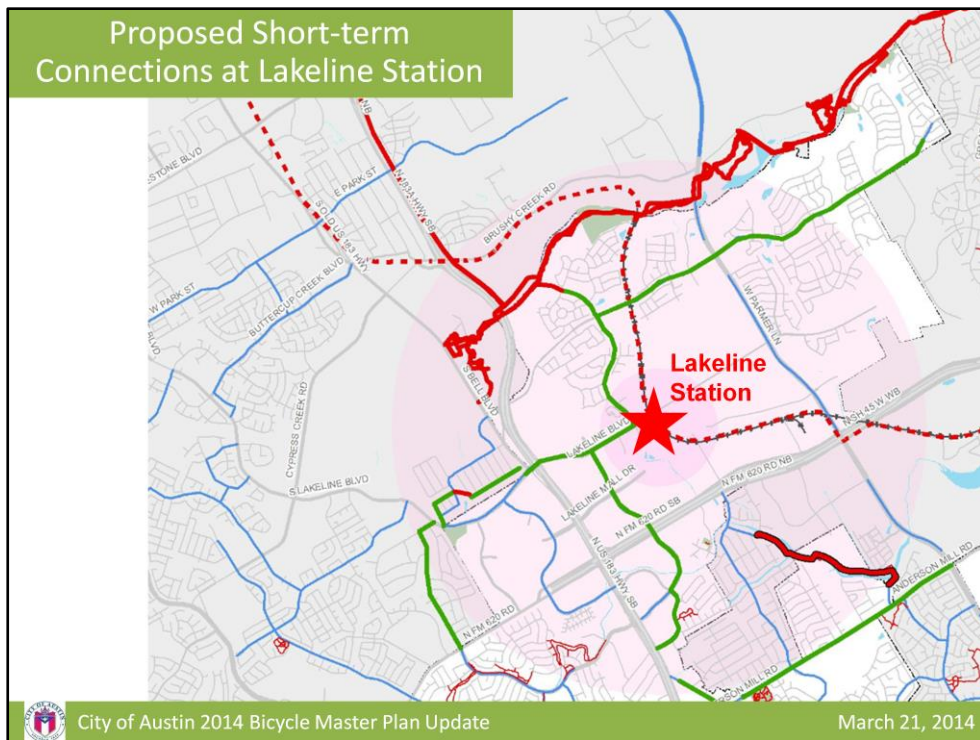
Transit catchment area is more than 16x larger when bicycles are considered



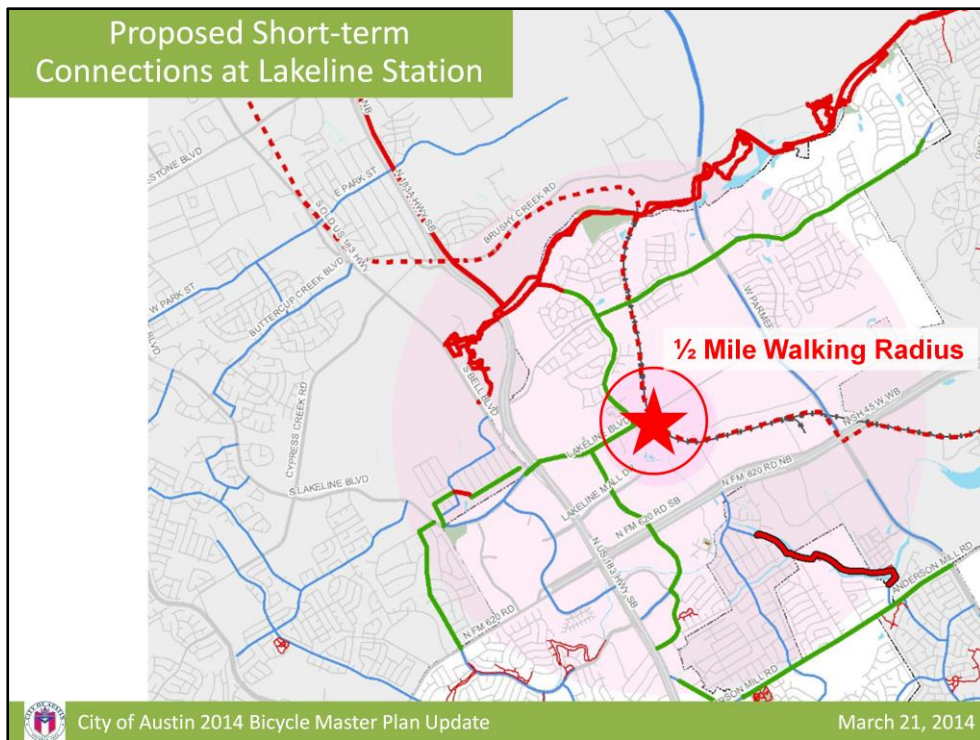
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- Integrating bicycle and transit will be an elevated focus of the plan and implementation strategy
- There is significant potential to reduce drive alone trips by combining the strengths of bicycles and transit.
- There is significant potential to increase transit demand through strategic infrastructure linking stations and destinations

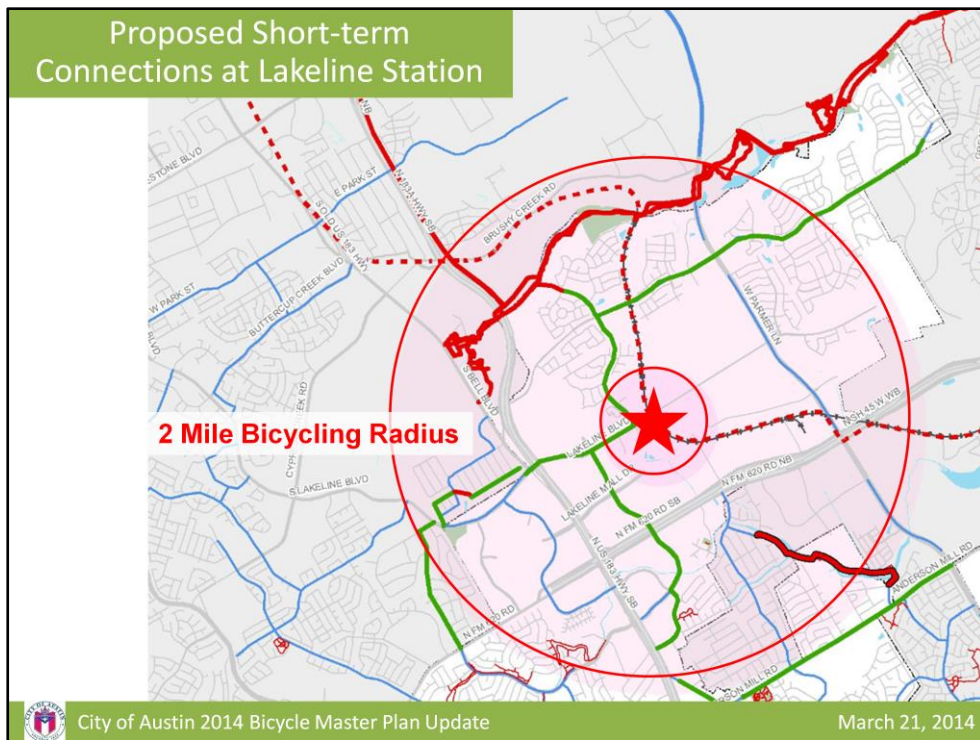


- An example showing the proposed network around the Cap Metro Lakeline station

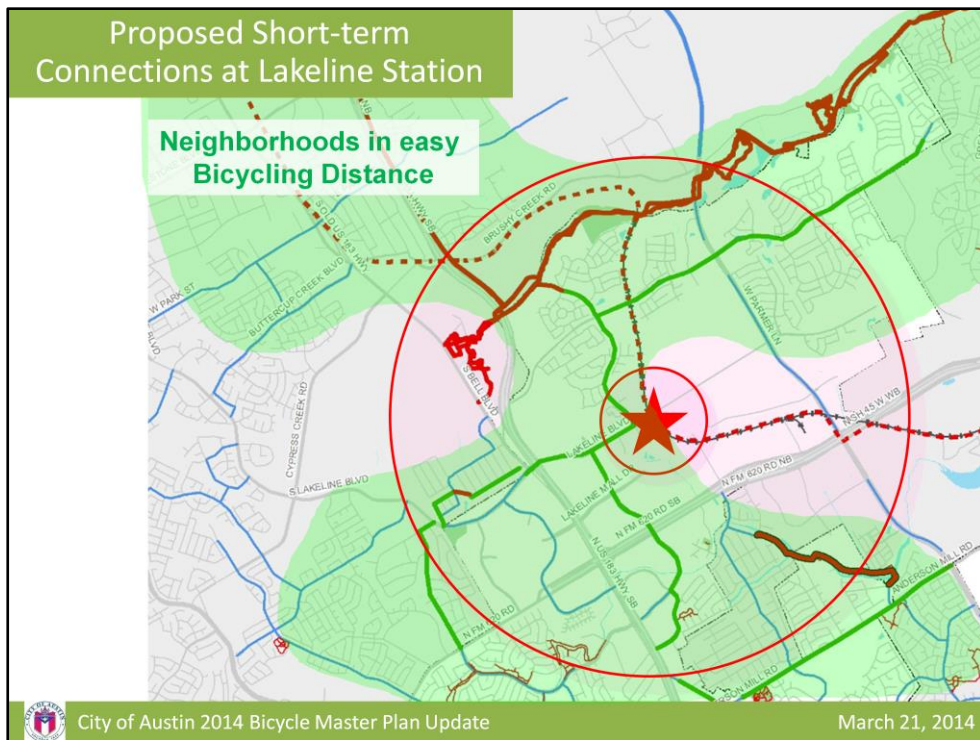


- A 1/2 mile radius around the stations does not reach many destinations





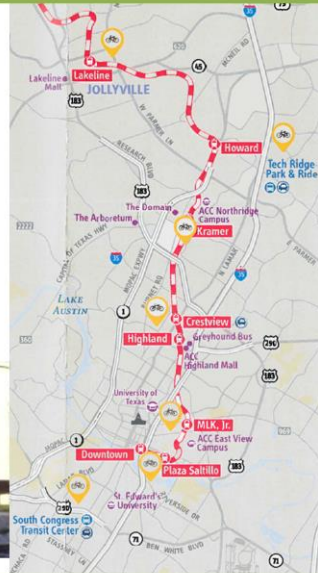
- A 2 mile bicycle radius has a far greater reach to surrounding destinations



- The shaded areas show the destinations that would have safe bicycle access to the Lakeline station by a reasonable bicycle trip length. This presents an incredible opportunity to increase transit use, support transit oriented development, increase active transportation, and reduce drive alone trips.



## High Capacity Bicycle Parking at Transit Stations



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- Bicycles should not take limited space on transit vehicles.
- Best practice is high capacity, secure bicycle storage at major transit stations.
- If protected bicycle networks better connect transit stations expanded bicycle parking will be necessary

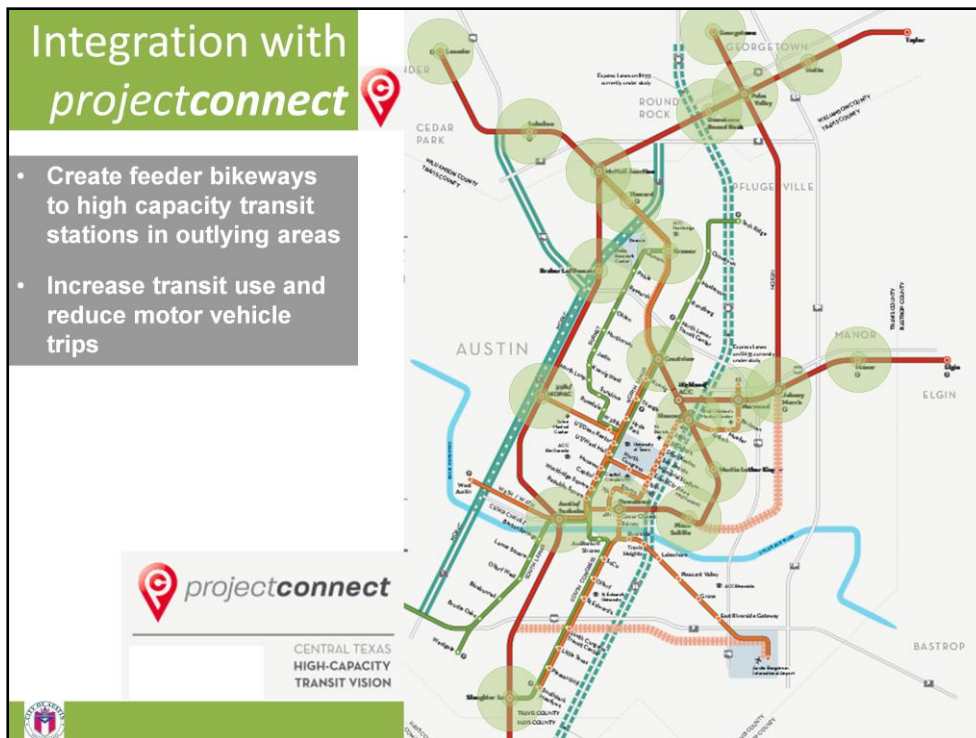
## Integrating Transit with Bike Share






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- Bicycle Share systems have significant potential to increase a transit rider's level of service and access to last mile (or two) destinations.
- Plan update will support Bicycle Share network expansion



- Protected bicycle infrastructure will be prioritized to support *projectconnect's* transit vision.
- Safe bicycle access to stations will significant expand the transit system catchment and increase ridership

Implementation and Cost Considerations		 Urban Trails	 On-Street Facilities
		The ultimate protected environment	Providing safe access to local destinations
Cost		\$1.5 - \$2 million per mile*	\$50k - \$500k per mile*
	*For comparison: 6-lane freeway approximately \$51 million per mile 4-lane arterial roadway approximately \$22 million per mile <b>(Source: CAMPO 2035 Plan)</b>		
Timeline		3-8 years per project	6 months - 2 years per project
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- On-street facilities are much less expensive and can be implemented much faster than urban trails.

## Benefits of Short Term Network Significant Mobility Improvements

*Our **DRAFT** Analysis Shows  
Of the 160k passenger vehicle trips that  
enter the “Ring of Congestion” Daily*

***36% are less than 3 miles***

*If **only 15%** of these trips 0-3 miles  
and **7%** of trips 3-9 miles  
**are converted to bicycle trips***

*There would be a total reduction of  
**7% all motor vehicle trips**  
to the Ring of Congestion*

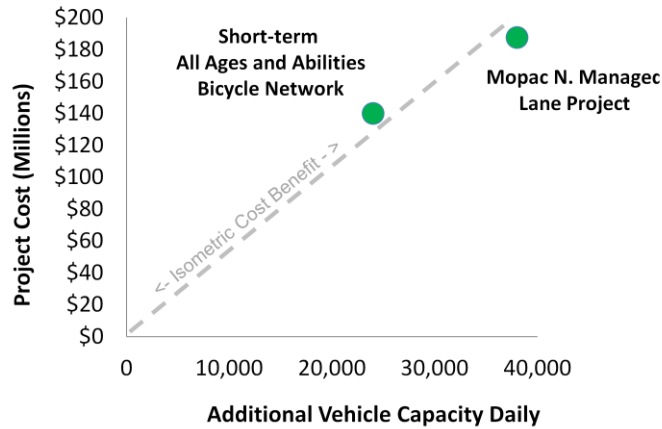


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- Meeting our trip capture targets with the proposed short term all ages and abilities network will result in significant mobility improvements

## Cost Benefit to Regional Mobility



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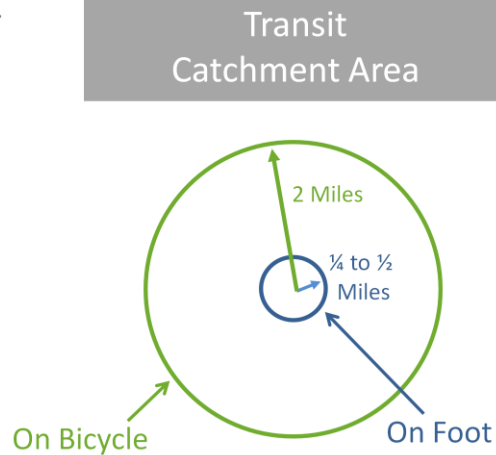
- The cost benefit of the short-term all ages and abilities bicycle network is on par with other regional mobility investments.
- The benefits of the All Ages and Abilities Bicycle Network are not limited to mobility benefits. Other benefits include health, quality of life, economic development and workforce development, and household affordability.

## Bicycles and Public Transit With Number of Short Trips on Network

*To account for increased catchment of trips to Cap Metro Red Line Stations*

*If **only 15%** of these trips 0-2 miles  
and **7%** of trips 2-5 miles  
are converted to bicycle trips*

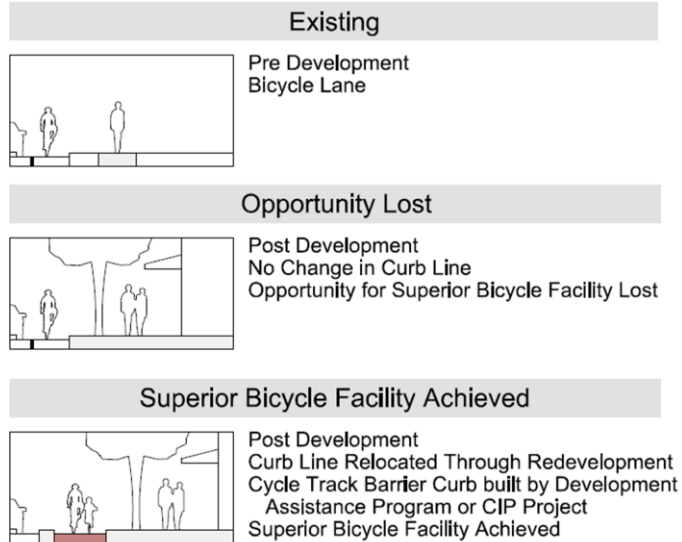
*There would be a total reduction of  
**8% all motor vehicle trips**  
to the Ring of Congestion*



- Meeting our trip capture targets around transit stations with the proposed short term all ages and abilities network will result in additional significant mobility improvements
- As the *projectconnect* is implemented, additional density is built around stations and the benefit would increase



# Implementation with Development



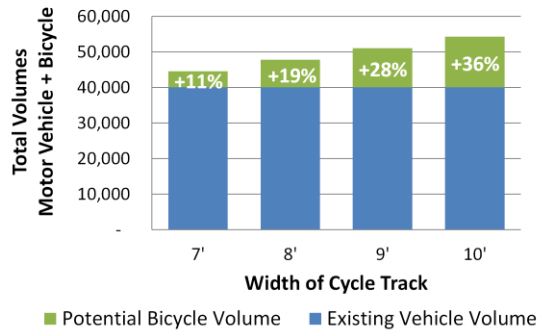
- It is important to ensure that corridors are shaped at time of development to provide safe bicycle facilities.
- This opportunity will not come again for many decades or more.

## Implementation with Development

### Shaping streets at the time of development:

- Significantly improves mobility along corridors.
- Provides a complete street for all users

Potential Mobility Improvement along S Lamar with Safe Bicycle Facilities



- Bicycle facilities represent a significant opportunity to accommodate additional travel demand due to infill development.
- Infill development short trips that are perfect by bicycle

## Other Considerations for Protected Bicycle Lanes

Plan will Address the following:

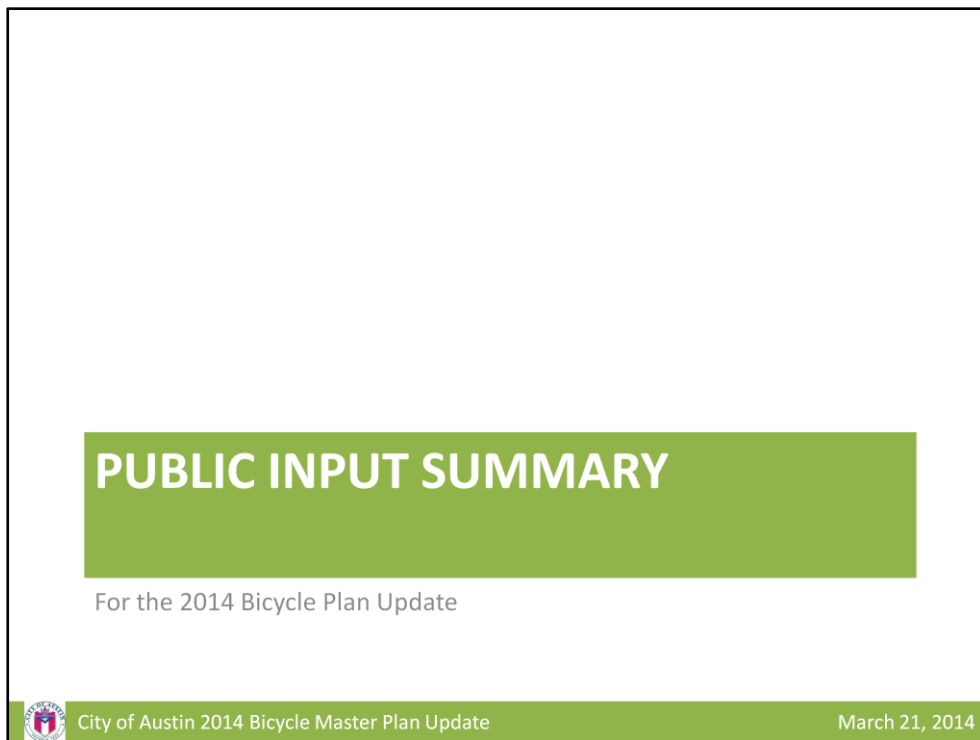
- Austin Resource Recovery Services
  - Street Sweeping
  - Trash Pickup
  - Bulk Collection
  - Lawn Waste
  - Large Brush Collection
- Design Stormwater Quality and Quantity
- Utility Compatibility and Conflicts

References to be included

- Barrier curb selection matrix
- Example solutions for any of the above special considerations



- Protected bicycle facilities affect many other city operations. The plan will address best practices and toolbox.



- This is a summary of public input pertaining to on-street facilities gathered in this planning process in addition to the general bike and trail plan public input summarized in the Urban Trail plan presentation.

## Bike Plan - Public Input Summary

- There were 1,400 free response comments from our surveys that were summarized in the following slides
- The number of comments supporting the following points are shown in parentheses (##) or on charts.



- Overview of how to interpret the free response comments

## Bike Plan - Public Input

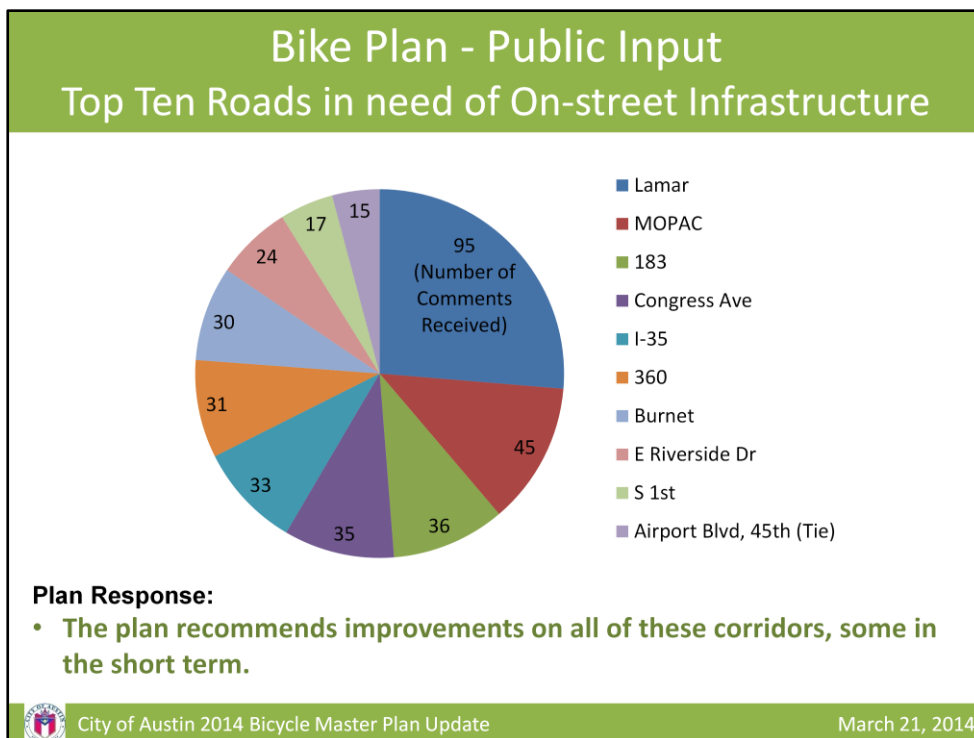
### Connecting the Network Outside the Central City

- The survey finds that the current infrastructure in the central city meets the needs of many cyclists.
- The survey also shows that there are gaps in the network that need to be connected (239).
- The public wants more protected routes connecting neighborhoods outside of the central city to trails, schools, work, and across major highways.
- **Plan Response: The two plans recommend protected connections along corridors in all directions outside the central city, to schools, connecting across barriers. These comments are incorporated.**

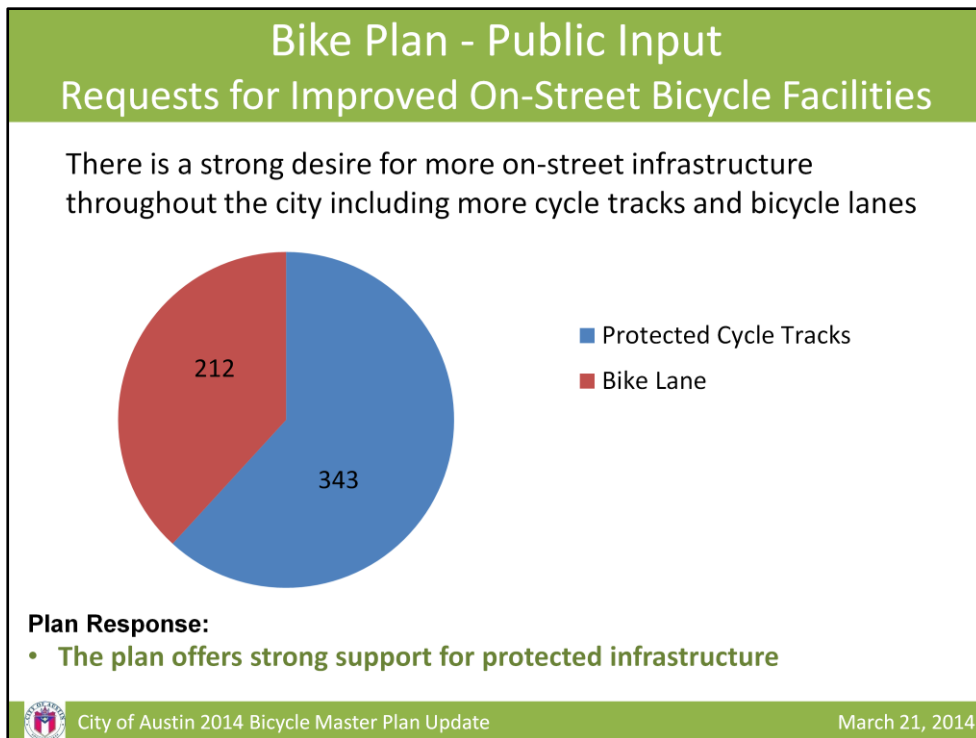


- This is the public input in addition to the general information presented in the Urban Trail plan material





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## Bike Plan - Public Input Cycle Tracks

- There is a strong desire to build more protected cycle-tracks throughout the city.
- “Bike highways” should connect outlying neighborhoods. Protected Cycle-Tracks connecting the Southwest and Northern regions to the central city were popular proposals.
- Cycle tracks to schools were highly requested citing Bluebonnet cycle track to Zilker Elementary School.
- Cycle tracks are seen as a way to allow families to bike together to shopping areas, libraries, parks, and schools.
- Most concerns existing cycle tracks deal with education, enforcement (parking and pedestrian abuse), and maintenance issues.

### **Plan Response:**

- **The plan offers strong support for protected infrastructure.**
- **Access to schools will be covered as a best practice policy**



- This is the public input in addition to the general information presented in the Urban Trail plan material

## Bike Plan - Public Input

### Bicycle Lanes

- There is a great demand for more bike lanes throughout the city, especially where there are gaps in the network to outlying areas
- The central corridor seems to be well connected by bike lanes
- Concern over bicycle lanes ending abruptly
- There is also a strong call for bicycle lanes and improved shoulders on busy roads, including HW 360, MOPAC, and Bee Caves Rd, S 1<sup>st</sup>, Burnet, Airport.
- Concerns have to do with enforcement (parking and pedestrian abuse) and maintenance (debris in the bike lane, fading stripes).

**Plan Response:** The plan offers strong support for protected infrastructure.

**Implementation Note:** Bicycle Lanes will continue to be retrofitted where protected lanes are not possible. There is ongoing work to address the input above.



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- This is the public input in addition to the general information presented in the Urban Trail plan material

## Bike Plan - Public Input Other Input

### Education

- Request for educational campaigns on how Cycle-Tracks function, particularly on Guadalupe.
- The survey also finds that the community feels better way-finding would help novice cyclists better navigate the city.
- Desire for increased information available about the benefits of cycling on health and traffic congestions.
- More education will lead to better behavior and improved safety.

### Policy

- Creating incentive programs, cyclists' rights on the road,
- Reducing the speed limits
- Requiring for bikeways to be built through new apartment complexes
- Call rules that keep pedestrians out of Protected Cycle-Tracks, particularly the newly installed Cycle-Track on Guadalupe.

### Enforcement

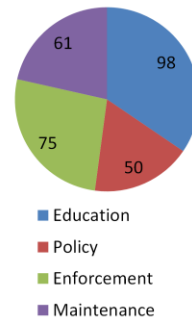
- Demand for increased enforcement of the rules of the road for all users
- Call for enforcement of no parking in bike lanes

### Maintenance

- Call for improved maintenance of debris in bicycle facilities.

**Plan Response:** The plan offers strong support for education programs, enforcement of laws for cyclists and motorist, and maintenance of bikeways.

Number of  
Comments



- This is the public input in addition to the general information presented in the Urban Trail plan material



## CITY OF AUSTIN 2014 BIKE PLAN UPDATE

For comments contact: Nathan Wilkes, [nathan.wilkes@austintexas.gov](mailto:nathan.wilkes@austintexas.gov)  
City of Austin Bicycle Program



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