



Rio Grande, a complete street in West Campus, promotes active use.  
(All photos courtesy of the City of Austin unless otherwise noted).

# EXECUTIVE SUMMARY

## VISION

*Austin is a place where people of all ages and abilities bicycle comfortably and safely for transportation, fitness and enjoyment. Bicycling brings benefits not just to people who bicycle, but to the whole community by helping to activate the Imagine Austin Comprehensive Plan for our shared sustainable future.*

## ACHIEVEMENTS SINCE 2009 BIKE MASTER PLAN

The City of Austin Bicycle Master Plan 2014 (the Plan) reflects today's best practices in municipal planning for bicycling at a national and international level. An update of the 2009 Bicycle Master Plan, this 2014 Plan reflects the latest innovation in approaches and sets a goal of creating an "all ages and abilities" bicycle network. The "8-80" framework is a good test for all ages and abilities where an 8-year-old or an 80-year-old should be able to navigate by bicycle comfortably and safely. The 2009 Plan set the stage for a significant expansion of the bicycle network, primarily through painted bicycle lanes, resulting in a substantial increase in bicycling throughout Austin.

- Austin's bicycle network grew from 126 miles to 210 miles since 2009, a 70 % expansion in only five years.
- The expanded bicycle network resulted in a citywide bicycle mode share of 2 % in 2011, nearly doubling rates from 2009. (Mode share indicates people who primarily commute to work by bicycle, at least three days per week.)
- Within the 32 square miles of central Austin, the mode share reported was 5.5 % and as high as 13 % in certain census tracts in 2012. This 5-13% mode share is already taking a significant load off the congested motor vehicle travel lanes in Central Austin.

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- The City of Austin completed dozens of new signature projects and removed barriers to cycling. Some of these projects included creating new bicycle lanes on South Congress Avenue, Barton Springs Road, Cameron Road, South Lamar Boulevard and Guadalupe Street. Existing bicycle lanes were and continue to be routinely made safer and more comfortable by widening or buffering lanes and by addressing parking concerns in the bicycle lane. Many more projects are in construction or in design and restriping projects are often coordinated with street resurfacing, in order to create work efficiencies.

## SHIFTS IN BEST PRACTICE BICYCLE PLANNING

### **PROTECTED BICYCLE LANES**

In order to make bicycling feel safe for most people, it is necessary to physically protect bicycle lanes; painted single lines are simply not enough of an incentive to encourage bicycle riding. National studies have found about half of the population fits into the category of “interested but concerned” - they are interested in bicycling for transportation, but concerned about their safety on the roads. In Austin, only 15 % of people on bicycles will ride in a painted bicycle lane on a busy road while 40 % of bicyclists would feel comfortable riding in a protected bicycle lane, but not a painted one. A statistically valid phone survey conducted in 2013 by the City of Austin shows protected lanes would attract 55 % of Austin’s population.

Austin was selected as one of six U.S. cities to participate in the Green Lane Project to catalyze implementation of protected bicycle lanes based on programs in bike-friendly European countries. The Green Lane Project provided resources and technical assistance to help Austin implement quality bicycle infrastructure. Austin officials also participated in key study trips to the Netherlands and Denmark, which included a city council member, the city manager, the public works director, the city traffic engineer, and an assistant director of the planning department. During Austin’s two-year participation with the Green Lane Project, the city increased the number of buffered or protected bicycle lanes from 5 miles to 20 miles. Examples of completed protected bicycle lane projects include Barton Springs Road, Guadalupe Street, Bluebonnet Lane and Rio Grande Street. Numerous other protected bicycle lanes are currently in the planning and design stages.

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## **CAPTURING SHORT TRIPS**

Shifting short motor vehicle trips to bicycle trips is another best practice aimed at increasing bicycling. Most trips Americans take are short, usually less than 3 miles. Short trips, or trips that consist of less than three miles, are the most likely motor vehicle trips to convert to bicycle or walking trips. Implementation of protected bicycle lanes should be focused where short trips most frequently occur to maximize return on investment.

As a result, the 2014 Plan focuses on routes with high concentrations of existing short trips, most notably within the central Austin area but also to neighborhood destinations throughout the city such as schools, parks, business and shopping districts. To serve mid-length trips in the 3-9 mile range that are still good candidates for bicycle trips, the plan focuses on key routes to central Austin from outlying areas. To serve longer trips, the 2014 Plan focuses on linking short bicycle trips with longer transit trips by providing protected bicycle lanes to major transit stations and secure bicycle parking at the station. Significant bike share systems, such as an expanded Austin's B-Cycle, are a powerful and flexible tool to connect transit users to their destinations solving the "last mile" problem (the last mile problem refers to the difficulty in getting people using transit to their final destination).

## **BUILDING A COMPLETE BICYCLE NETWORK**

There is an international focus on the importance of creating complete networks that serve people of all ages and abilities. Protected bicycle lanes are a great tool, but unless there is a network that serves the variety of trips that a user desires to take, the increase in bicycling will be limited. The most notable bicycle network success story is from Seville, Spain, where an 87-mile network of protected bicycle lanes was installed, resulting in an increased bicycle mode share from 0.5 to 7 % in just three years. By comparison, it took Portland, Oregon, one of the country's most bike-friendly cities, 20 years to create a network that resulted in a comparable shift in behavior.

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## ACTIVATING IMAGINE AUSTIN

In 2012, the City of Austin adopted Imagine Austin, the first citywide comprehensive plan in 35 years. It captures the community's collective vision for how residents want Austin to grow and flourish. The 2014 Bicycle Plan is shaped by Imagine Austin and will serve as a tool for implementing the comprehensive plan's policies and eight priority programs, including key support for compact and connected, affordable, healthy, workforce-related programs. Imagine Austin establishes big-picture, long-range goals; the 2014 Plan addresses specific projects and programs to activate the comprehensive plan's principles over the next five years.



**THE IMAGINE AUSTIN PLAN, ADOPTED IN 2012, GUIDES THE VISION FOR THE FUTURE OF AUSTIN.**

## BICYCLE PLAN GOALS

- Connectivity:** Create a bicycle network that serves people of all ages and abilities, providing direct and comfortable connections to where people live, work and play
- Increase Ridership:** Achieve a significant increase in ridership, especially transportation cycling, and a corollary reduction in motor vehicle miles traveled and/or prevented traffic congestion
- Improve Safety:** Reduce bicycle deaths and injuries by implementing safety measures for all roadway users, including bicyclists.
- Equity:** Provide equal bicycling access for all; through public engagement, program delivery, and capital investment.
- Support Imagine Austin:** Realize the potential of bicycling to support and achieve multiple goals of the Imagine Austin Comprehensive Plan

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## CHAPTER 2: BICYCLE SYSTEM

The City’s “bicycle system” refers to our physical bicycle network, as well as supporting infrastructure elements such as end-of-trip facilities (bike racks, bike storage, showers, etc.), transit integration, and an expanded bike share system. The most important element of the bicycle system and the highest priority recommendation of the Plan is to fund and implement an all ages and abilities bicycle network. Supporting bicycle infrastructure elements and the ongoing maintenance of the system are also priorities of the Plan.

### CREATING AN ALL AGES AND ABILITIES BICYCLE NETWORK

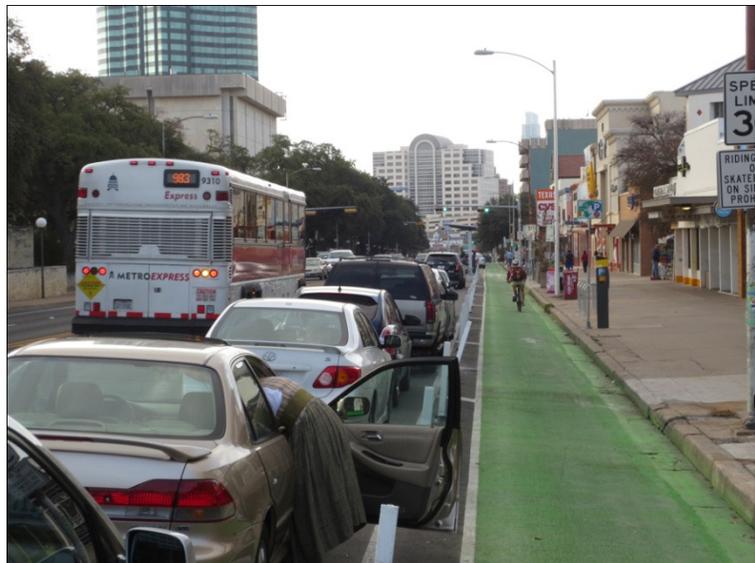
To create a network of all ages and abilities bicycle facilities, City staff analyzed our existing streets to determine the most cost-effective means of implementing this network. The result is a proposed network that is compatible with existing motor vehicle volumes and parking needs, not requiring costly street reconstruction, and focused on capturing short trips.

#### **Protected Bike Lanes**

Protected bicycle lanes include a physical barrier between motor vehicle traffic and separation from pedestrian traffic. Protected bicycle lanes are a tool to make high-volume or high-speed streets comfortable for users of all ages and abilities.

All ages and abilities network elements include:

- Protected Bike Lanes**  
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**PARKING PROTECTED BICYCLE LANES ON GUADALUPE STREET.**

□ **Urban Trails**

Urban Trails are hard-surface trails designed for use by pedestrians, bicycling and other non-motorized forms of transportation for both transportation and recreational use. Urban Trail priorities are set by the Urban Trails Program and guided by the Urban Trails Master Plan.



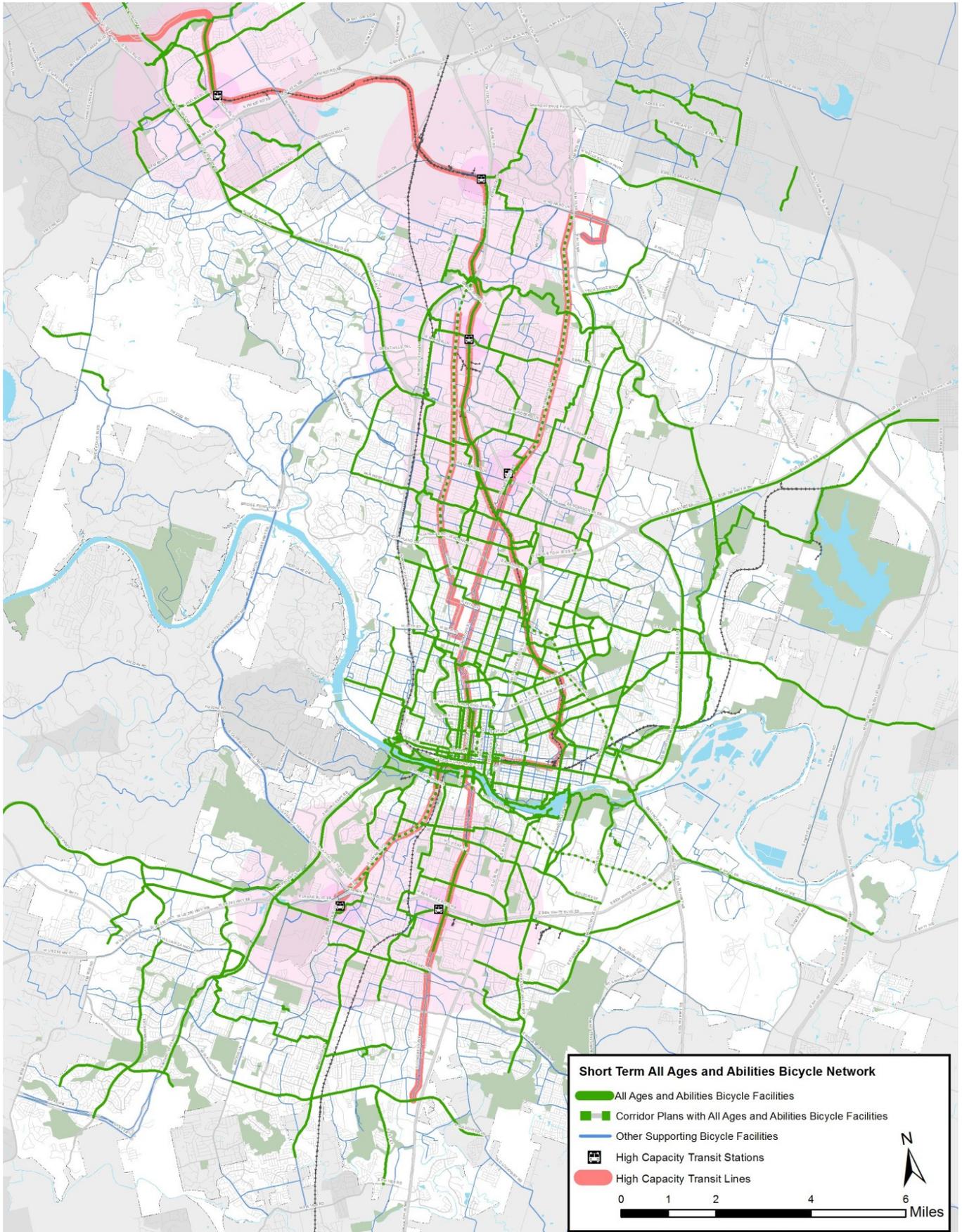
**DUAL TRACK URBAN TRAIL SEPARATING WHEELED AND ON-FOOT USERS.**

□ **Quiet Streets**

Local neighborhood streets offer bicycling routes that are inherently safer and more pleasant than busy major roads. Physical improvements to optimize designated “quiet streets” for bicyclists, and integrate them into the bicycle network, will include traffic calming devices for motor vehicles and wayfinding signage for people on bikes.



**QUIET STREET ON RIO GRANDE STREET IN AUSTIN.**

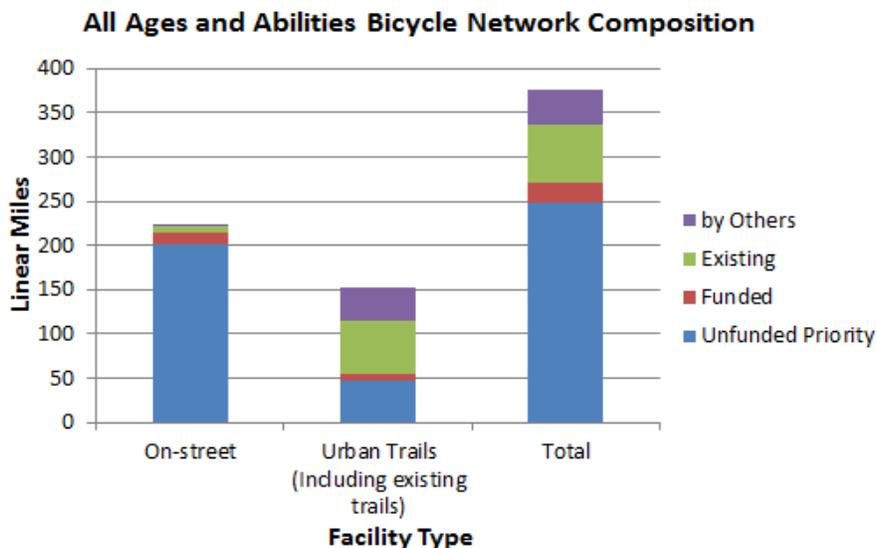


**MAP OF RECOMMENDED ALL AGES AND ABILITIES BICYCLE NETWORK**

The planning level cost estimate for the all ages and abilities bicycle network is \$151 million, and leverages many existing and already funded bicycle facilities. The cost of priority unfunded investments includes 200 new miles of on-street facilities for \$58 million, at an average cost of \$290,000 per mile. The cost per mile for on-street facilities varies greatly upon the type of treatment and is accounted for in the estimate. The estimate also includes 47 new miles of Urban Trails at \$93 million at an average cost of \$2 million per mile. As funding for portions of the network become available, an implementation plan would be developed, detailing the most strategic facility investments that would be pursued at that time.

It is important to note that the Tier 1 trails recommended in the Urban Trails Master Plan, adopted by City Council in September of 2014, are identical to the recommended urban trails in the Bicycle Plan’s all ages and abilities bicycle network. Costs for these Tier 1 trails are included in the Bicycle Plan as these urban trails are critical links in the bicycle network, and without them the all ages and abilities bicycle network would be fragmented. In terms of cost of the all ages and abilities bicycle network, urban trails account for the majority of the cost at \$93 million of the total \$151 million. The network planning and cost-benefit analysis assumes that the investment in the on-street and off-street (urban trail) networks are made in parallel to create one seamless all ages and abilities bicycle network.

## **ALL AGES AND ABILITIES BICYCLE NETWORK COMPOSITION**



The proposed all ages and abilities bicycle network is composed of 220 miles of on-street facilities and 150 miles of off-street facilities, largely urban trails and existing unpaved trails. The chart shows the composition of the complete network including priority investments, existing facilities, and those already funded by the City of Austin or partner agencies.

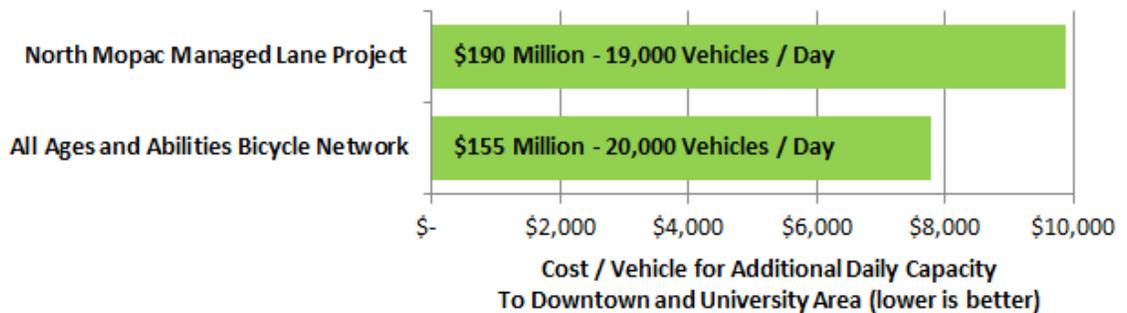
## **RETURNS ON INVESTMENT**

City staff conducted an analysis to determine the multidimensional benefits that we would expect to receive from the full investment in the recommended all ages and abilities network. Benefits were conservatively calculated by forecasting the increase in bicycle use and associated decrease in motor vehicle use. The analysis draws on data from other cities that have completed all ages and abilities bicycle networks, and accounts for higher capture rates for short trips.

Calculated returns include:

- Reduced motor vehicle trips to downtown**  
Of the 300,000 motor vehicle trips bound to the central business district and university area daily, there is an estimated reduction of 20,000 trips (7 %) as a result of the all ages and abilities bicycle network.
- Reduced citywide motor vehicle trips**  
For citywide trips, not just those bound to the downtown area, there is an estimated reduction of 170,000 daily driving trips, equating to 460,000 miles traveled daily.
- Regional mobility and congestion management**  
The 20,000 additional bicycle trips to central Austin as a result of the \$151 million all ages and abilities bicycle network results in the same increased motor vehicle capacity as the MoPac Improvement Project, a \$190 million 11-mile urban freeway project adding a single managed lane in each direction. This demonstrates that the investment in the all ages and abilities bicycle network is on par with other large mobility projects in managing regional congestion.

### **Comparison of Regional Mobility Projects**



Source: City of Austin

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**Boost affordability**

By offering people a viable low-cost transportation option, the bicycle network can help families significantly cut the household expense of owning and operating a motor vehicle. Due to decreased vehicle miles traveled, Austin residents can collectively save \$170 million in direct driving costs annually.

**Public health benefits**

Increasing the percentage of travelers who regularly bicycle for transportation directly correlates to improved public health. The increased physical activity associated with shifting short trips to bicycle trips would equate to 130,000 people or 15 % of Austinites meeting their daily minimum physical activity.

**Environmental benefits**

By reducing vehicle trips, bicycling reduces the pollution from motor vehicles. The reduction in motor vehicle miles traveled would result in a reduction of 84,000 metric tons of carbon per year, the equivalent of the carbon generated by the driving habits of Austinites over 11 days.

## **BARRIER REMOVAL**

There is an existing and extensive network of painted bicycle lanes throughout the city that is still incomplete. While not offering the same quality as protected bicycle lanes, these lanes can often be installed in locations where protected lanes are not feasible. This will extend the reach of the all ages and abilities bicycle network. The Plan prioritizes the funding and removal of barriers in the painted bicycle lane network, estimated at a cost of \$10 million.

## **CHAPTER 3: PROGRAMS**

The City of Austin seeks to help people of all ages and abilities realize the full potential of Austin's investment in the bicycle system through support of broad and diversified education, encouragement and enforcement programs.

Education and encouragement programs are recommended to raise awareness, communicate the benefits of bicycling, promote the use of the bicycle network, and help people learn how to bike safely. These programs should target all demographic groups. The Plan recommends programs directed toward both students, during their formative years to create changes in lifelong transportation habits,

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and adults, to ensure the entire population has access to the information they need to expand their transportation choices. The Plan recommends that the City partner with other transportation providers to create a Smart Trips program - a proven multimodal education and encouragement model program designed to reduce drive-alone trips.

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The City of Portland's investment in a Smart Trips program resulted in a 9 to 13 % reduction in drive-alone trips for each neighborhood it served each year for a decade.

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In coordination with the Austin Police Department, the 2014 Plan calls for consistent enforcement of the rules of the road in order to improve safety for all travelers. Law enforcement officers and the bicycle community alike must understand and apply the laws in order to build a cooperative relationship and safer streets.

## CHAPTER 4: IMPLEMENTATION

The Imagine Austin plan sets forth a five-point implementation framework to ensure broad and lasting impact to the community. The 2014 Bicycle Plan will follow this same framework in order to fully align its implementation efforts with those of the City's comprehensive plan. The 2014 Bicycle Plan's five-points implementation program is as follows:

**Education and Engagement**

For successful implementation it is necessary to raise awareness, understanding and support for the Plan and its alignment with Imagine Austin goals and elements. The Plan recommends partnering with other transportation providers to provide systematic education and encouragement.

**Internal Alignment**

Implementing the Plan will require the City of Austin to take a collaborative, cross-departmental approach to execution. It requires aligning City department planning efforts, long-range and short-term capital investments, major initiatives and work programs, and long-range budgets.

**Regulations**

City code and regulations should support creation of an all ages and abilities bicycle network and help produce a built comfortable environment for bicycling. The Land Development Code and Transportation Criteria Manual currently are being revised to help create a more compact and connected city. The jurisdiction of the Plan is the City of Austin, including its extraterritorial jurisdiction.

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**Public Investment**

The Plan defines an overall need for approximately \$161 million in capital investments for both the all ages and abilities bicycle network (\$151 million) and bicycle lane barrier removal (\$10 million). In addition to capital costs (to construct protected bike lanes, paved trails and other infrastructure), the City and its partners must budget appropriately for operating costs (program staff, education programs, operations and maintenance). Active Transportation Program staff under the Austin Transportation Department, responsible for the implementation of the Plan, also needs to be expanded to deliver the recommended priority infrastructure and programs. For an investment strategy, the plan recommends accelerated investment in our bicycle system to deliver a regional impact. Central to delivering a regional impact is making an investment large enough to be able to create a complete bicycle network for people of all ages and abilities, rather than isolated facilities. It recommends a multi-pronged, diverse and creative funding strategy. Traditional funding sources include the City general fund, transportation fund, voter-approved bonds and federal grants. Other innovative funding approaches and partnerships should also be developed.

**Partnerships**

Numerous partners could support the plan's implementation, as the benefits of bicycling are communitywide and help advance all aspects of the community's Imagine Austin vision. Implementing the plan requires the coordination of all City of Austin departments, partner agencies and organizations, and the general public. By integrating bicycling as a tool to meet the goals of groups outside the City government, a broad coalition can be built that will significantly accelerate the realization of the plan.

## CHAPTER 5: MEASURING SUCCESS

Ongoing monitoring and evaluation are important for assessing whether the plan is meeting its goals over time. Measuring real outcomes through the regular collection of data from bicycle facility use, ridership counts, surveys, mode splits and other metrics used to track the growth of bicycling over time, along with qualitatively evaluating the user experience is vital. While progress will be assessed over the long-term, data should be collected on a regular basis to help track success of implementation efforts. This information will allow for adjustments to improve implementation efforts toward the Plan goal.