

LINKING HAMPTON ROADS

A REGIONAL ACTIVE TRANSPORTATION PLAN





Chickahominy River, Virginia Capital Trail, James City County

CHAPTER ONE: INTRODUCTION

PROJECT OVERVIEW

In the summer of 2017, the Hampton Roads Transportation Planning Organization (HRTPO) began developing a regional active transportation (bicycle and pedestrian) plan for the Hampton Roads region. The purpose of this regional plan is to provide a clear structure for the development of new facilities, programs, and policies that will link our region by developing greater active transportation facilities and promote active and healthy lifestyles throughout the region. The region includes the localities of Chesapeake, James City County, Franklin, Gloucester County, Hampton, Isle of Wight County, Newport News, Norfolk, Poquoson, Portsmouth, Southampton County, Suffolk, Surry County, Virginia Beach, Williamsburg, and York County.

Active Transportation can be defined as all forms of human-powered transportation, including connections to transit. Biking and walking are the most common forms of active transportation. Active Transportation provides an alternative transportation choice and may provide a necessary link to transit, while also contributing to a healthy, active lifestyle.

Enthused by the successes of the Virginia Capital Trail which was completed in

2015, the Hampton Roads Transportation Planning Organization, with funding from the Virginia Department of Transportation (VDOT), undertook a regional study to determine the feasibility of connecting the existing Virginia Capital Trail to the Hampton Roads region. The study -- the Birthplace of America Trail Study -- investigated many routes, with the goal of traversing and connecting Hampton Roads localities and terminating at Fort Monroe in Hampton and the Oceanfront in Virginia Beach.

The Virginia Capital Trail is a separated shared-use path that is generally 10' wide, parallels historic Route 5 for approximately 52 miles and connects Richmond with Virginia's former capitals of Jamestown (1607-1699) and Williamsburg (1699-1780).

The Birthplace of America Trail study, which was completed in the summer of 2017, recommends connecting the southern end of the Virginia Capital Trail near Williamsburg to Historic Fort Monroe on the Peninsula and to the western end of the South Hampton Roads Trail system in Suffolk (which follows former rail right-of-way to the Virginia Beach oceanfront).

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The development of this plan included an open participation process, with residents providing input through online surveys, public events, stakeholders meetings, advocacy group input, and the Active Transportation Subcommittee.

This plan includes the following items:

- A regional analysis of current conditions and existing facilities
- A comprehensive, recommended active transportation network
- Recommended Design Guidelines for the development of active transportation facilities
- A prioritized list of recommended facilities

STUDY AREA

The study boundary includes the member localities of the Hampton Roads Transportation Planning Organization and the locality of Surry County, included in this study due to being connected via regional trails.

The region is naturally separated by the James River into the “Peninsula” and “South-side”. The two subregions currently have no active transportation facilities connecting them but multiple options exist to travel from one side to the other including the Jamestown/Scotland ferry, the Hampton Roads Bridge Tunnel (HRBT), the Monitor Merrimac Bridge Tunnel (MMBT), and the James River Bridge (Route

17). The HRBT and MMBT routes have multiple regional express buses, including MAX Route 961, 965, 966, 967, which are equipped with bike racks.



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VISION STATEMENT & GOALS

The Hampton Roads region is consistently ranked nationally as one of the healthiest and fittest region's in the country. Being a coastal region, with subtropical climate, and having the largest naval base in the world, Hampton Roads has a very active community.

In November 2017, the HRTPO provided the public with a short survey on the Linking Hampton Roads study's vision statement and goals. The survey was open for public comments for two weeks and was sent to all affiliated agencies and groups. The survey had over 600 respondents. Public input from the survey was used to define the vision statement and goals of the study.

The following vision statement guides the Hampton Roads regional Active Transportation Plan:

The Hampton Roads region is an **Active Destination for the world** where roadways, trails, and parks **comfortably accommodate all modes of transportation**. Non-vehicular opportunities exist for residents and tourists to safely and efficiently travel for both transportation and recreation. Active transportation is a preferred means of **commuting and recreation** that improves our community's **economy and health**.

The purpose of this plan is to make this vision a reality. Specific goals and objectives derived from this vision are listed on the following page. The following objectives explain what must be done to achieve each goal. The plan's recommendations and implementation strategy will build upon the Hampton Roads region's existing active transportation infrastructure and community to achieve these objectives and ultimately accomplish the plan's vision.



Virginia Capital Trail, Jamestown



IMPROVE SAFETY FOR ALL USERS INCLUDING PEOPLE WITH ACCESS AND FUNCTIONAL NEEDS

- REDUCE BICYCLE AND PEDESTRIAN CRASHES
- PROVIDE SAFE FACILITIES FOR ALL USERS IN ALL ENVIRONMENTS
- ENGAGE LAW ENFORCEMENT IN BICYCLE AND PEDESTRIAN SAFETY
- EDUCATE BICYCLISTS, PEDESTRIANS AND DRIVERS ABOUT TRAFFIC LAWS



LINK THE REGION THROUGHOUT WITH ACTIVE TRANSPORTATION FACILITIES

- INCREASE CONNECTIONS BETWEEN DESTINATIONS, RESOURCES, NEIGHBORHOODS, SCHOOLS, PARKS AND BUSINESSES
- INCREASE BICYCLE LANES, SIDEWALKS, MULTI-USE PATHS, AND ALL ACTIVE TRANSPORTATION FACILITIES
- ENCOURAGE AND SUPPORT REGIONAL, SUB-REGIONAL AND LOCAL ACTIVE TRANSPORTATION CONNECTIONS



IMPROVE HEALTH OUTCOMES IN THE REGION

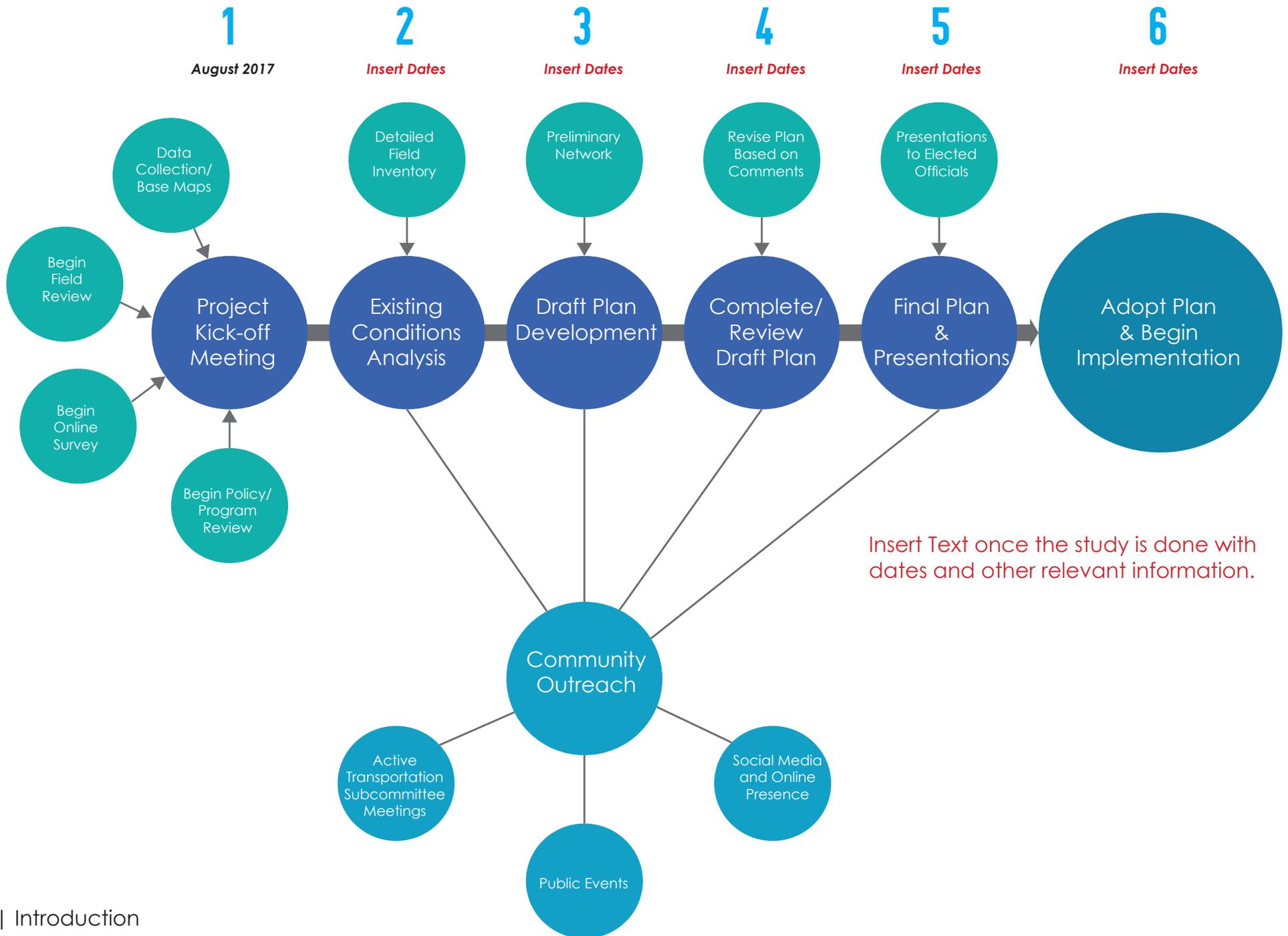
- INCREASE ACCESS TO ACTIVE TRANSPORTATION FACILITIES
- INCREASE ACCESS AND CONNECTIONS TO PARKS, SCHOOLS, OPEN SPACE, AND REGIONAL TRAILS
- INCREASE ACTIVE TRANSPORTATION EXERCISE AND ACTIVITY RATES FOR ALL CITIZENS



PROMOTE AND ENCOURAGE THE GROWTH OF THE REGION'S ECONOMY AND TOURISM

- INCREASE ECONOMIC GROWTH AND JOB CREATION BY PROMOTING AND ENCOURAGING BETTER LINKED COMMUNITIES AND BUSINESSES
- INCREASE TOURISM REVENUE THROUGH ACTIVE TRANSPORTATION
- PROMOTE ACTIVE TRANSPORTATION AS AN INVESTMENT TO ENHANCE SHOPPING DISTRICTS, AND COMMUNITIES, AND SUPPORT BUSINESSES

PLANNING PROCESS



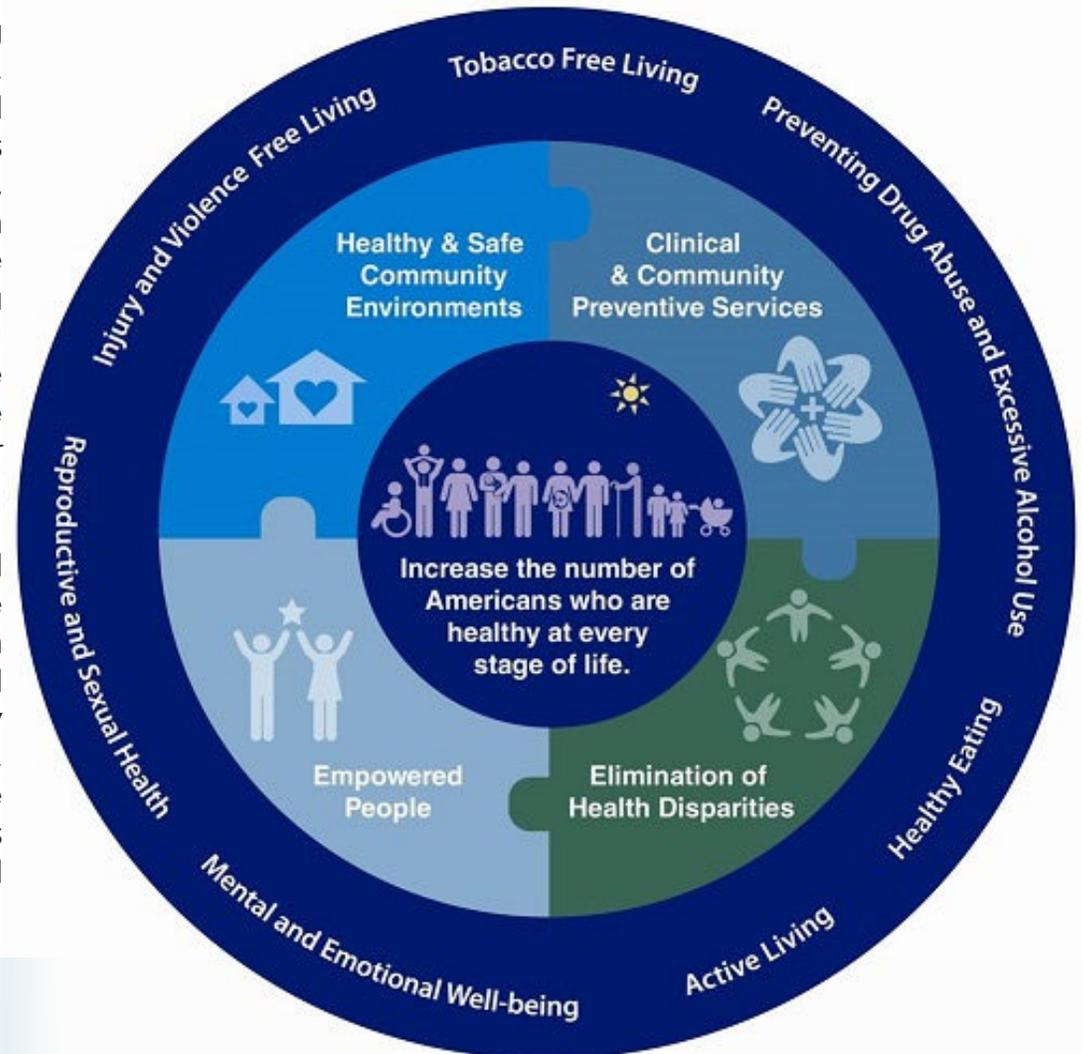
THE VALUE OF A REGIONALLY CONNECTED COMMUNITY

A region with a fully connected active transportation system can bring a wide range of benefits to a community and its residents. Active transportation provides many benefits to Hampton Roads communities, including improving public health, providing a boost to the local economy, reducing air pollution and traffic congestion, and contributing to a better quality of life.

HEALTH IMPACT

The health benefit of active transportation is being recognized by health professionals, urban planners, and policy makers. The Center for Disease Control and Prevention (CDC) recommends at least thirty minutes a day of moderate physical activity (USDHHS, 2016). Many people do not meet this recommendation due to a built environment that does not facilitate nor encourage active transportation. The Virginia Modeling, Analysis & Simulation Center (VMASC) at Old Dominion University in Suffolk reports that the health benefits of a half mile bike path can reduce the surrounding community's healthcare costs by over \$600,000 (Gore, 2017).

Dependence on the automobile, nationwide and here in Hampton Roads, is due to the layout of the built environment. This has led to a lack of activity in the United States and here locally. After World War II the Hampton Roads region like the rest of the country expanded further into the rural areas. However, research has shown that more residents would increase their level of physical activity if they had better access to walking and biking facilities, such as sidewalks and trails.



National Prevention Strategy, 2011

ONLY 13 PERCENT OF CHILDREN WALK OR BIKE TO SCHOOL, COMPARED WITH 44 PERCENT A GENERATION AGO (OSG, 2016)

TOURISM IMPACT

The Hampton Roads region is a popular tourist destination because of its subtropical climate and its location at the confluence of many waterways, including the James River, Chesapeake Bay, and the Atlantic Ocean. Existing local investment in walking and bicycle facilities attracts visitors and elevates tourism revenues. Additional investment has the opportunity to further increase recreation destination based tourism. According to a 2004 study by the North Carolina Department of Transportation, a one time investment of \$6.7 Million in bicycling improvements resulted in \$60 Million in annual tourism revenue (ARPO, 2013). These investments have the ability to positively affect localities across the region spanning from Virginia Beach to the Historic Triangle, and everything in between.

Research has shown that visitors are more likely to return based on the quality of bicycle facilities. Families are more likely to return if they have safe environments for recreational and active transportation. With more walking and biking facilities, tourists are able to expand their footprint to different destinations including museums, aquariums, retail establishments and much more.

“THE ANNUAL ECONOMIC IMPACT OF CYCLISTS IS ALMOST 9X TIMES AS MUCH AS THE ONE-TIME EXPENDITURE OF PUBLIC FUNDS USED TO CONSTRUCT SPECIAL BICYCLE FACILITIES”,

ACCORDING TO THE *PATHWAYS TO PROSPERITY REPORT*

ECONOMIC IMPACT

Bicycle and Pedestrian facilities such as bike lanes and multi-use trails are popular amenities according to a survey by the National Association of Homebuilders. The survey shows that trails are the second most important amenity to home buyers and rank in importance above golf courses, ball fields, parks, and security services. A recent study by the HRTPO, Signature Paths in Hampton Roads, reported a significant increase in the value of homes within a half mile of the Monon Trail in Indianapolis, Indiana. The increase in property value was estimated to be 14%, growing the overall value in property along the trail by over \$115 Million (Case, 2016).

In addition to the increased home value, businesses in close proximity to bicycle and pedestrian facilities see an increase in business due to their location. According to the Virginia Capital Trail Foundation, small businesses have been able to stay open during shoulder seasons in communities such as Charles City, Virginia due to the influx of users along the trail. Locally, another example of the positive affect of pedestrian and bicycle facilities on economic development can be seen in the neighborhood of Chelsea in Norfolk, Virginia. Chelsea has seen an influx of new businesses over the last ten years, including multiple breweries, restaurants and shops due to its location on the Elizabeth River Trail, which is a 10.5 mile shared use path.

“THE INCREASE OF PROPERTY VALUES FOR HOMES ALONG THE TRAIL WAS ESTIMATED AT 14%”

ACCORDING TO THE *SIGNATURE PATHS IN HAMPTON ROADS*

TYPES OF BICYCLE USERS

There are a wide range of types of bicycle users in the Hampton Roads region. One of the main goals of Linking Hampton Roads is building a complete active transportation system for all users. Discussion for a complete active transportation system for all users includes the following four types of bicyclists. The recommendations included in this plan aim to encourage biking as a mode of transportation by building a complete system of bicycle facilities that creates a safe environment for all users. A framework for understanding these types of users is crucial to developing this complete active transportation system.

Note: For pedestrians, a linked completed network of sidewalks and shared use paths encourages walking for both transportation and recreational purposes.



**STRONG AND
FEARLESS
(EXPERIENCED)**

1%

- Approximately 1% of population
- Willing to ride anywhere regardless of roadway conditions
- Prefer direct routes

**ENTHUSED AND
CONFIDENT
(MODERATE)**

5-10%

- 5-10% of population
- Comfortable riding on all types of facilities but prefer using dedicated bike facilities
- May stray from a more direct route in favor of a dedicated bike facility

**INTERESTED
BUT
CONCERNED**

60%

- Approximately 60% of population
- Prefers biking on trails or other facilities separated from roadway

**NO WAY,
NO HOW
30%**

- Approximately 30% of population
- Not interested or not comfortable biking in most conditions

BIKE FACILITIES TYPES

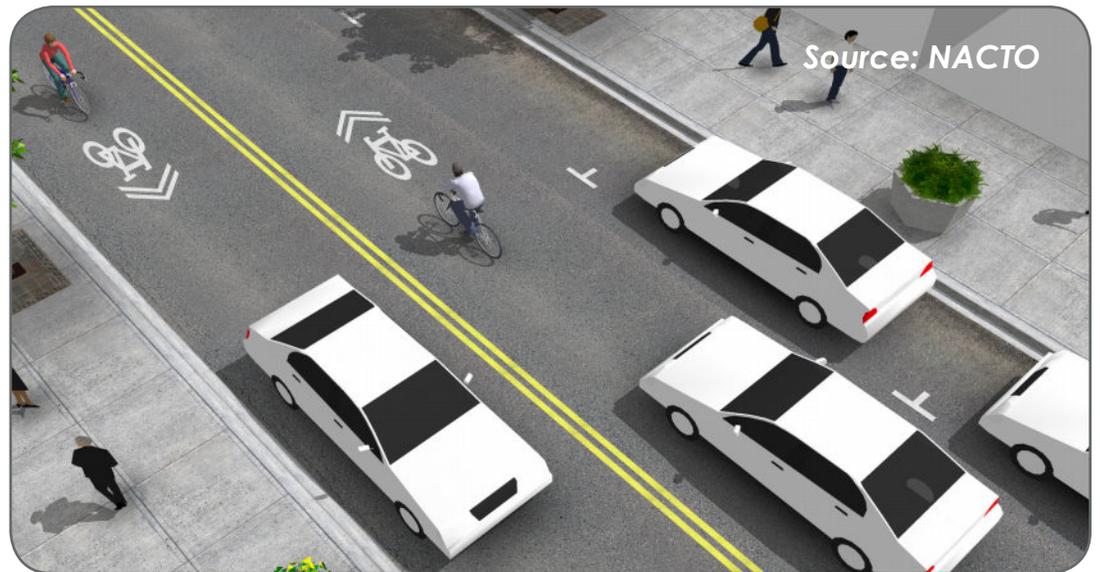
OVERVIEW

The bike facility types recommended in this plan were determined as most appropriate by roadway conditions and right-of-way accessibility. These facility types are designed for all users including people with access and functional needs. The recommendations in this plan may be divided into three categories: on-road facilities (bicycle only), multi-use facilities (shared use path), and combination type facilities (both sidewalk and on-road facilities).

These recommendations are based on best practices including but not limited to the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide, FHWA's Manual on Uniform Traffic Control Devices (MUTCD) and the American Association of State Highway and Transportation Officials (AASHTO) Roadside Design Guide.

Considerations must be given to how new facilities can fit into the existing right-of-way. In some cases, where conditions are constrained, a less preferred facility may be used in order to fill a gap in the overall system.

SHARROWS

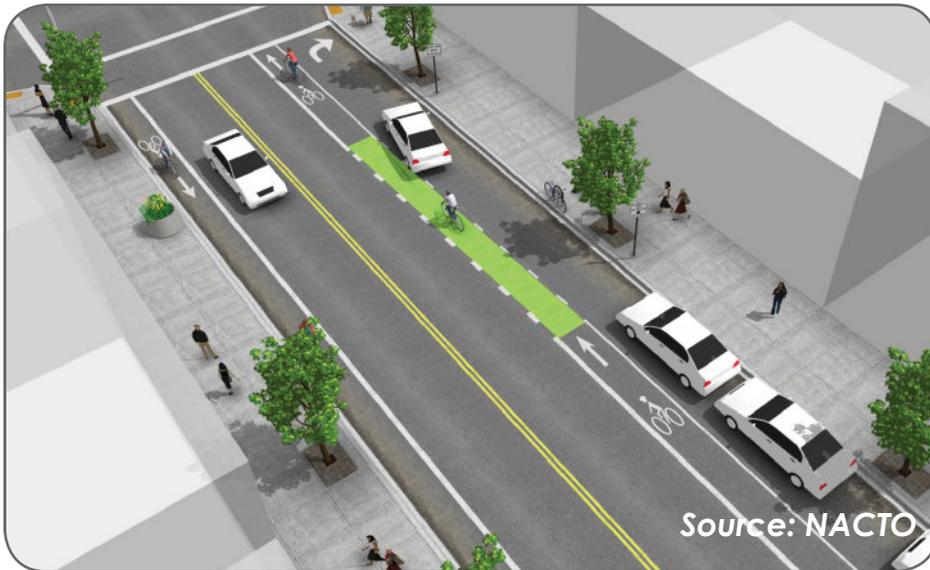


- On-road markings designate roadway as shared by bicycles and vehicles
- Appropriate for streets with low-speed (≤ 25 mph) and low-volume traffic
- Can be used where limited road width cannot accommodate other bike facilities
- Preferred Placement: center of travel lane

BIKE LANE



BUFFERED BIKE LANE



- Striping separates marked bicycle lane from vehicular traffic
- Appropriate for streets with posted traffic speeds of 25-35 mph and low-moderate traffic volumes
- Desired minimum: 6 feet

- Painted buffer zone separates bike lane from vehicular traffic
- Provides greater separation from traffic than standard bike lane
- Appropriate for streets with high speeds (30-45 mph) and/or high-volume traffic
- Desired minimum buffer width: 2 feet
- Desired bicycle travel area width: 7 feet

ONE-WAY PROTECTED CYCLE TRACK



TWO-WAY CYCLE TRACK



- Dedicated and protected space for bicyclists
- More attractive to a wide range of bicyclists of all levels and ages
- Desired minimum width: 5 to 7 feet
- Desired minimum buffer: 3 feet
- Alternative Protection Strategies include: bollards, movable planters, parking lanes, and a raised curb

- Dedicated and protected space for bicyclists
- More attractive to a wide range of bicyclists of all levels and ages
- Desired minimum width: 12 feet
- Desired minimum buffer: 3 feet

BICYCLE BOULEVARDS



Bicycle boulevards are streets with low motorized traffic volumes and speeds, designed to give bicycle travel priority. Bicycle boulevards use signs, pavement markings, and speed and volume management measures to discourage through trips by motor vehicles and create safe, convenient bicycle crossings of busy arterial streets.

Many local streets with low existing speeds and volumes offer the basic components of a safe bicycling environment. These streets can be enhanced using a range of design treatments, tailored to existing conditions and desired outcomes, to create bicycle boulevards. Design treatments (and their benefits) follow:

- Route Planning: Direct access to destinations
- Signs and Pavement Markings: Safety
- Speed Management: Slow motor vehicle speeds
- Volume Management: Low or reduced motor vehicle volumes
- Minor Street Crossings: Minimal bicyclist delay
- Major Street Crossings: Safe and convenient crossings
- Offset Crossings: Clear and safe navigation
- Green Infrastructure: Enhancing environments

A bicycle boulevard should be considered where local streets offer a continuous and direct route along low-traffic streets. A candidate route can be enhanced with other active transportation facilities.

PAVED SHARED-USE PATH



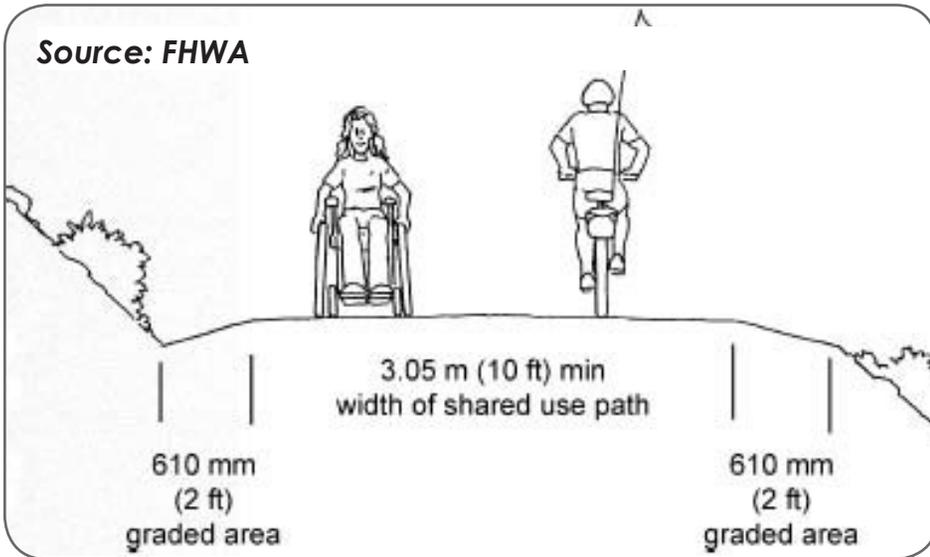
Suffolk Seaboard Trail, Suffolk

UNPAVED SHARED-USE PATH



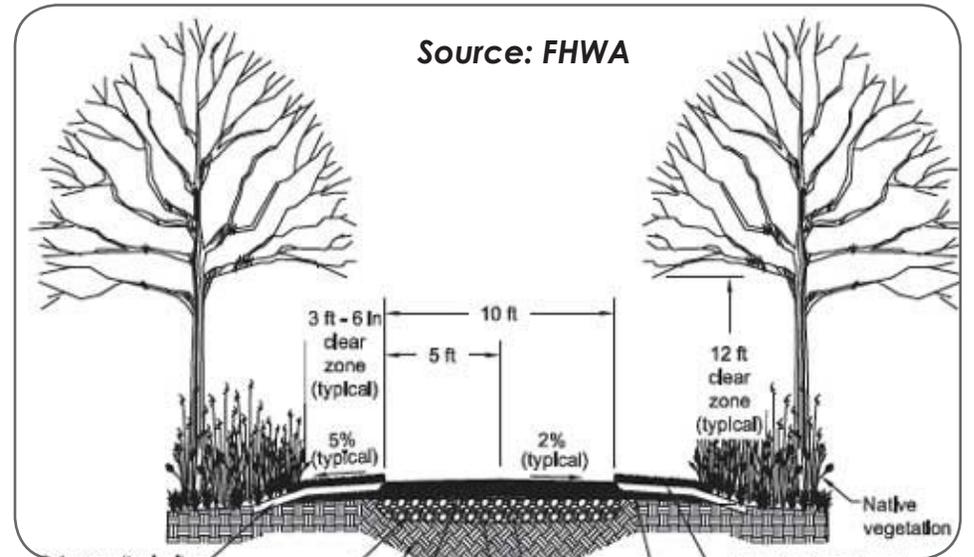
First Landing State Park, Virginia Beach

Source: FHWA



- Two-way path is shared by bikes and pedestrians
- For trails along roads, the trail is separated from the road by a curb and may include plant buffer strip between trail and roadway
- Desired width: 10 feet
- Desired minimum shoulder from roadway: 2 feet

Source: FHWA

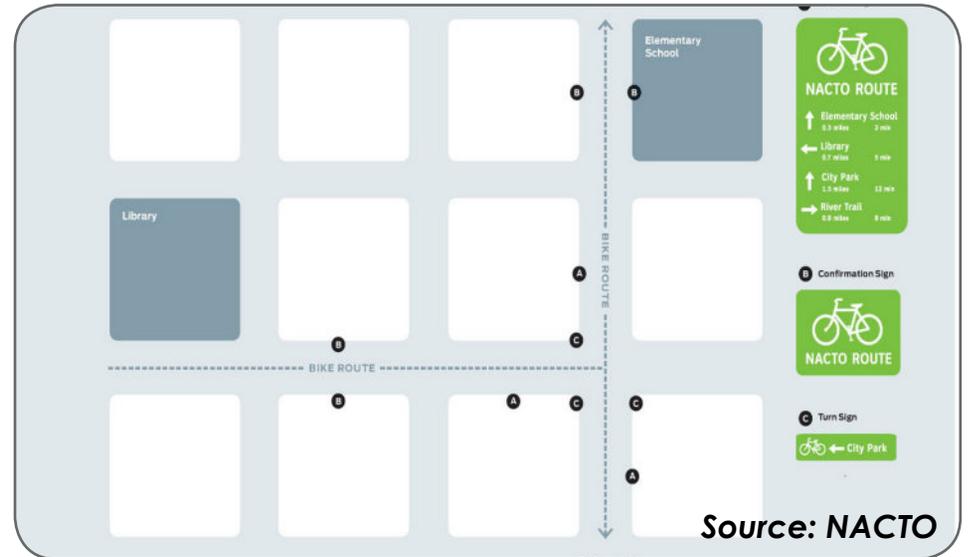
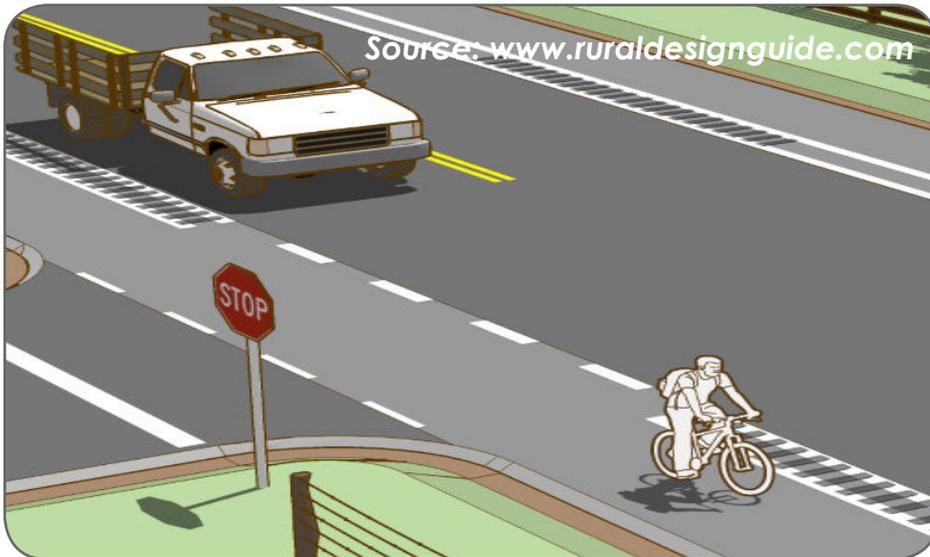


- Two-way path shared by bikes and pedestrians
- Typically not along roadways
- More attractive to a wide range of users of all levels and ages
- Desired minimum width: 12 feet

WIDE PAVED SHOULDER



SIGNED BIKE ROUTE



- On the edge of roadways
- Appropriate on roads with low to moderate volumes and speeds
- Serves long-distance and rural regional travel
- Desired minimum width: 4 feet with buffer

- Appropriate along more lightly traveled residential, secondary and rural roads
- Utilized to direct bicyclists to less-congested roadways
- Suggested route to get to specific destinations

ACTIVE TRANSPORTATION AUXILIARY FACILITIES TYPES

OVERVIEW

The following facilities may be useful in appropriate locations. Due to the regional scale of this active transportation plan, these facility types will not be included in this plan. Rather, these facilities should be used by localities to provide a complete and safe active transportation network.



HIGH-VISIBILITY CROSSWALK

- On-road pavement marking to indicate appropriate location to cross a street
- Connects to sidewalks at intersection or mid-block locations
- Bold, reflective striping improves visibility of crosswalk for pedestrians and drivers



PEDESTRIAN-SCALE LIGHTING

- Street lighting that use shorter lampposts and is directed toward the sidewalk instead of the roadway
- Improves pedestrian visibility and safety
- Special lighting treatments can be used to improve specific locations such as underpasses



RAISED CROSSWALK

- High visibility crosswalk raised from street level to sidewalk level
- Increases visibility of pedestrians crossing street
- Raised crossing acts as speed table to reduce vehicle speeds
- May be placed mid-block or at an intersection



CURB EXTENSION

- Sidewalk and curb space extended into roadway to reduce roadway width
- Slows motor vehicle turning speed
- Visually narrows roadway to help reduce vehicle speeds
- Reduces crossing distance for pedestrians
- Provides more space for pedestrians waiting to cross the street



CURB RAMP

- ADA-compliant curb ramps provide ramped access to sidewalks
- Detectable warning surface on curb ramp provides warning for physically impaired
- Should be located to place users in line with crosswalk across intersection leg



MEDIAN ISLAND

- Curb separated space for pedestrians in center of roadway
- Allows pedestrians to cross wide streets in two stages
- Visually narrows roadway to help reduce vehicle speeds
- Best used on multi-lane roadways with high motor vehicle traffic volumes

ACTIVE TRANSPORTATION AUXILIARY FACILITIES TYPES



LEADING PEDESTRIAN INTERVAL

- Intersection signalization programmed to provide pedestrians additional time to cross the intersection before the “green” signal for motor vehicles
- Pedestrians crossing at an intersection have a head start and are more visible to turning motorists



BIKE BOX

- Space for bicyclists to wait at intersection in front of waiting motor vehicles
- Indicated with pavement markings
- Gives bicyclists a head start by positioning them in front of motor vehicles



RECTANGULAR RAPID FLASHING BEACON

- On demand pedestrian or bicyclist activated signal with push button
- Bright LED flashing beacons increase motorist awareness of pedestrians or bicyclists crossing
- May be used in conjunction with median islands or high visibility crossings
- May be used at mid-block crossings or intersections



BICYCLE PARKING

- Bicycle parking provides bicyclists with secure location to store a bicycle
- Conveniently located, covered, and well-designed bike parking can increase bicycle security
- Abundant bicycle parking will reduce instances of bicycles being locked to sign posts, gates, and trees
- Variety of types include sidewalk racks, on-street bike corrals, and bicycle lockers



HAWK SIGNAL

- On demand signal with push button activated by pedestrian or bicyclist
- Red signal requires motor vehicles to stop while pedestrian crosses the road
- Generally used at mid-block crossings
- Best used on multi-lane roadways or roads with higher motor vehicle speeds



INTERSECTION STRIPING

- Bicycle lane striping continues through intersection
- Improves visibility of bicyclist
- May include green pavement, shared lane markings and/or bicycle lane lines

LEVEL OF PROTECTION

Least Separation

Most Separation



SIGNED ROUTES (NO PAVEMENT MARKINGS)

SHARROWS/ BICYCLE BOULEVARDS

ON-STREET BIKE LANES

ON-STREET BUFFERED BIKE LANES

ONE WAY/TWO WAY PROTECTED CYCLE TRACKS

SHARED USE PATH IN RIGHT-OF-WAY

OFF-ROAD SHARED USE PATH



A roadway designated as a preferred route for bicycles.

A shared roadway with pavement markings providing wayfinding guidance to bicyclists and alerting drivers that bicyclists are likely to be operated in mixed traffic.

An on-road bicycle facility designated by striping, signing, and pavement icons.

Bike lanes with painted buffer increase lateral separation between bicyclists and motor vehicles.

A separated bike lane is an exclusive facility for bicyclists that is located between or directly adjacent to auto lanes and that is separated from motor vehicle traffic with a vertical element.

Active transportation facilities physically separated from traffic but within road right-of-way intended for shared use by a variety of groups including pedestrians, bicyclists, joggers, and people with access and functional needs.

A two-way trail shared by bikes and pedestrians not along roadways and more attractive to a wide range of users of all levels and ages.

ENDNOTES

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