

Content of Existing Statewide Bicycle Maps

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ABSTRACT

A statewide bicycle map is a map of an entire state which shows available cross-state routes. A bicyclist could get sufficient information on road type, conditions, traffic information, and other details while planning a trip. This paper summarizes the observations made on existing statewide bicycle maps—a study of what other states do for their statewide bicycle maps. It was observed that each state has a unique way of presenting its bicycle resources to the bicyclist. Some states such as Ohio and New Jersey use what they call a “Guide,” which includes the map along with a booklet on rules and regulations, places of interest, etc., while some states, such as Pennsylvania, present the map in the form of a manual. Tennessee has a unique way of presenting routes on cards with written driving directions on backside of each card. A web search was performed to determine what the various states do. Web pages of all state DOTs and tourism departments were examined. It was observed that 23 states have bicycle maps available for the public, and 17 maps of these are also available online. Each state followed its own way of presenting the data on the bike map. The contents of the maps varied considerably. A note was made of the information each state includes on its bike map. The content items included defined routes, information on parks and areas of interest, and Annual Average Daily Traffic (AADT). The types of information were then summarized by tabulation. The style of presentation was also noted.

Key words: bicycling—bicycle maps

INTRODUCTION

A statewide bicycle map is a map of an entire state which shows available cross-state routes. This map can provide a broad range of information to the bicyclist who plans to travel from one place to another. A bicyclist could get information on road type, conditions, traffic information, and other details while planning a trip.

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 made it mandatory that bicycle facilities be considered in the statewide and metropolitan planning processes. Each state Department of Transportation was required to have a bicycle coordinator to be responsible for ensuring that bicycle facilities are considered in the planning, design, and construction of transportation improvements at the state level. Research has been going on at many state Departments of Transportation (DOT) to evaluate their bicycle facilities and the aids they provide for their bicyclists.

The key interests for most of the states include measure of bicycle suitability criteria or the bicycle level of service and statewide bicycle maps. This paper summarizes the observations made on existing statewide bicycle maps provided by various states.

LITERATURE REVIEW

According to Mozer, the choice of the right bicycle map for a given community is very subjective. Factors that distinguish maps include stated purpose, scale, level of graphic effort (or expertise), type of medium (paper or plastic), size and format, symbol use, field research approach, and distribution system.

There were no standard procedures or guidelines provided by any organization found for determining the design and content of a bike map. This makes sense sometimes because it is logical to include content items such as elevation and grade on mountainous Colorado but perhaps not in relatively flat Kansas.

REVIEW OF EXISTING STATEWIDE BIKE MAPS

A web search was conducted to determine state practices. Web pages of all state DOTs and tourism departments were examined. It was found that 23 states have bicycle maps available for the public, and 17 of these maps are also available online. Each state followed its own style of presenting the data on the bike map. The contents of the maps varied considerably. A note was made of the information each state includes on its bike map. The style of presentation was also noted.

The following Figure 1 lists states with statewide bicycle maps and the contents of each map. All the states have defined their bicycle routes. Twelve of the states include information on parks and areas of interest. Nine of the states also have traffic volume details among their bike routes. Seven states provide grade and/or terrain details. Four states provide online version of the map for free and sell the hard copy of the map, while the rest of the states provide the hard copy version of the map free of charge.

State	Defined Routes	Parks/Area of Interest	Average Daily Traffic/Traffic Volume	Shoulder Width	Bicycling Laws	Safety Tips	Grades	Bicycle Shops	Services/Restrooms	Written Directions	Climmate	Bicycle Contacts	Terrain	Insets	Emergency of Urban Areas/Segmental Maps	Types of Routes (Loops, Cross-State, Etc.)	Percent Trucks/Truck Volume	Wind Direction	Online Availability	Hardcopy Availability	Free Map?
Colorado	X		X	X	X	X	X				X	X							X	X	X
Connecticut	X	X						X						X					X	X	X
Georgia	X								X	X										X	
Illinois	X	X			X	X		X	X										X	X	X
Iowa	X	X	X		X								X						X	X	X
Kansas	X	X	X	X			X							X					X		X
Maryland	X	X		X		X							X							X	X
Massachusetts	X	X						X												X	
Minnesota	X	X	X	X															X	X	
Mississippi	X																		X		
Montana	X		X	X				X		X	X		X						X		
Nebraska	X		X	X	X	X										X			X	X	
New Mexico	X	X	X	X				X					X	X					X	X	X
New Jersey	X	X				X	X	X		X									X	X	X
New York	X						X	X											X	X	X
North Carolina	X	X						X				X	X						X	X	X
Ohio	X							X						X					X	X	X
Oregon	X		X				X	X		X	X					X			X	X	X
Pennsylvania	X																			X	X
Rhode Island	X				X	X		X	X			X							X	X	X
Tennessee	X				X	X		X				X							X	X	X
Washington	X	X	X	X		X														X	X
Wisconsin	X	X					X							X					X		

Figure 1. State bicycle map content

GUIDELINES FOR CHOOSING BICYCLE MAP CONTENTS

Based on the observations made on existing statewide bicycle maps, the authors recommend the following map content items for consideration when designing a statewide bicycle map.

The map must show routes and various locations on the route clearly. The map should have a distance chart so that the bicyclist will have clear idea of the distance he or she has to travel to reach a destination. This also helps a bicyclist in planning stops for the journey. Iowa, Colorado, and Ohio have such content on their statewide maps. The map may also include information on the available shoulder width and Annual Average Daily Traffic (AADT). Colorado, Iowa, Maryland, and Washington State have AADT details on the bike maps. The above states along with Montana and Nebraska have included pavement shoulder details.

If there is more than one route to a destination, the map should also suggest the most favorable route. (This might depend on climatic condition/terrain and time of year). The state maps of Rhode Island, Illinois, and Connecticut suggest/recommend certain routes among the other possible routes. The map may also give a description of climatic conditions throughout the year at different locations. Terrain details would be useful information to the bicyclist. The state map of Colorado, Oregon, and Georgia provide meteorological information helpful to the bicyclist.

The map may also discuss "Rules of the Road" cycling etiquette and state law as it pertains to cycling. It could also provide safety tips for a hazard free journey and display the basic indications and signals that the bicyclist has to provide. Some of the statewide bicycle maps provide some kind of information on the rules to be followed.

The map should have a clear and easily understandable legend showing the various codes for different routes based on classification, AADT, suitable routes, shoulder details, or type of route (interstate/state highway, etc.). The legend should also explain the symbols used and the scale of the map. The map could also indicate locations of multi-modal intersections/locations, such as Amtrak, local metro service, and ferry service. A map index would be of great use to the bicyclist for locating a place easily. Illinois, Iowa, Ohio, and Rhode Island provide ample information on the inter-modal intersection locations.

Trail routes, recreational centers, and other locations of public interest (such as forests and parks) may also be listed. A brief description of each of the locations would be useful to most bicyclists. An enlarged sub-map or a table of the trail routes and other public recreational locations with associated details, such as distance, contact details, and facilities available, would be of great help to many bicyclists. Almost all of the state-wide bicycle maps examined have provided information on the trails available in their state along with sub-maps of the trail routes.

The map may also have contact information for the local county police, ambulance, inter-modal service, transportation authorities, trial office, highway patrol, or other service providers.

It would be advantageous to the bicyclist if the map has sub-maps of cities on a greater scale to give a further clear picture on the city routes for his/her more specific destination.

DESCRIPTION OF EACH STATE'S BICYCLE MAP

The following paragraphs provide brief summaries of the map content and style for each state in alphabetical order. Links to available bike maps are given in the Table 1 following the summaries.

Colorado Department of Transportation (CDOT) provides a free bicycle map that includes climate information for different seasons in different areas, mileage between major cities, traffic volumes expected on all routes, mountain passes, a clear legend with shoulder, and other details. The 79-page manual also has a guide to bicycle parking and pedestrian information. A credit-card-size pocket guide is included showing rules for multiple-use trails.

Connecticut's bike map shows the state's recommended cycling routes. The map provides both local and cross-state routes. It has additional information on cycling in and around the state. State parks and wildlife areas are noted on the map.

Georgia map presented by Georgia DOT shows statewide bicycle routes and counties with adopted bicycling plans. In addition to showing bicycling routes, the map discusses "Rules of the Road" cycling etiquette and Georgia law as it pertains to cycling. A table of weather patterns in Georgia throughout the year is provided. Safety tips and bicycling contacts are listed as well.

Illinois has a set of nine bicycle maps covering the entire state. Each regional map includes places of interest, local government office contact details, climatic conditions, bicycle rules and safety tips, and a clear legend explaining various routes and symbols used.

Iowa DOT has bicycle map which shows AADT, small maps on trail routes, and a map index of towns and villages. A parks and recreation directory and trail information also help bicyclists coming to the area. Different colored lines distinguish between average daily traffic (ADT) volumes. The map includes mileage charts, Iowa bicycling laws, and insets of urban areas.

Kansas DOT converted their highway map into a bicycle map by highlighting the various routes that are accessible by bicycles. No other details are given except the suggested bicycle routes.

Maryland's state bicycle map lists the various routes on which bicycles are totally prohibited or partially prohibited. It also has description of various places of interest in different counties. The trails in the major trail system are shown on one side of the map. The authors found it hard to discern between the four statewide trails because they look as if they are one trail.

Massachusetts provides information regarding eight trails in the state. The DOT does not have a statewide bike map of its own. A private organization prints the statewide map in four parts.

Minnesota state map is available in four parts covering the northeast, northwest, southeast, and southwest part of the state. The maps and the legend are on separate documents. The legend describes the shoulder detail categories and road classifications. The difference between each category is defined by the use of different colors and lines. State parks, as well as paved off-road state bike trails, are also specified.

Mississippi state bicycle map lists the cross-state routes available. No other details are given except the suggested bicycle routes.

Montana's map and the information provided in a brochure and online are intended to be used in conjunction with the Montana State Highway Map. The bike map has shoulder details. For some other details, the user is referred to the highway map. Emergency information and bike resources aid are included in the bike materials. Colors are used to discern between the type of terrain and shoulder width.

Nebraska issued a bicycle guide in 1999 containing a statewide bicycle map. The legend shows the shoulder details, route classification, traffic volumes, and truck volumes. This map was originally a highway map over which the bicycle routes are highlighted. One side of the map has the state bicycle routes, while the other side has bicycle laws and safety tips.

New Mexico DOT recently released its statewide bicycle map. The map legend shows shoulder details, AADT, route numbers, and mileage chart. The map has small inset maps for cities in the state on a larger scale with more details on the back of the map.

New Jersey DOT issues a bicycle manual which mentions the law, driving instructions, rules, and regulations. It also provides information regarding routes where bicycle traffic is prohibited. A private organization (www.njbikemap.com) provides a statewide bike map online.

New York does not have a complete statewide map as such. It has many individual regional maps and maps for three routes running through the state, namely Routes 5, 9, and 17. Two proposed routes are drawn on the same map.

North Carolina describes the nine routes it has across the state. Each route has its own map and comes with segmental maps to better show the route. Terrain descriptions, road conditions, services, points of interest, and a campground directory are included.

Ohio DOT issues a free bicycle map displaying all municipal communities with greater resolution maps for some larger cities. The map also has a distance chart and a clear legend showing road classifications and symbols used. A cross-state bike map is available for sale.

Oregon bicycling guide includes a bicyclist manual and coast bike route page. Rules of the road, weather, topography, mileage table between cities, grades, summer wind directions, bicycle shops, and traffic volumes are included for bicycling tourists. This map and its accompanying counterparts are packed with information.

Pennsylvania maintains six signed bicycle routes and also has the "rails to trails" program. Each route is shown on a large map, but individual trail maps are available. A bicycle driver's manual and directory are also available. The entire information is issued in the form of a booklet.

Rhode Island has a clear and complete statewide bicycle map with a clear legend, symbols, and road classification. The map is issued by the Rhode Island Department of Transportation. Intermodal connections for the ferry service, rail, and airways are shown with symbols.

Tennessee DOT's bicycle map shows individual routes printed on cards. Though the single sheet statewide map appeared vague to the authors, clear driving directions are given on each route card. The packet shows Tennessee's bicycling laws and safety tips on the back cover

Washington state bicycle map has many details, including AADT and shoulder widths. The map also lists the various routes where bicycling is prohibited.

Wisconsin state bicycle map is an eight-paneled map designed in conjunction with the Department of Transportation (DOT) specifically for bicyclists. It rates county and state highways for bicycle suitability and also shows bicycle trails, mountain bike facilities, and bike stores. Maps are available at bike stores or by telephone order.

Table 1. Links to available bike maps

State	Link
Colorado	http://www.dot.state.co.us/bikeped/maps.htm
Connecticut	http://www.ct.gov/dot/LIB/dot/documents/dbikes/fullmap1.pdf
Georgia	http://www.dot.state.ga.us/dot/plan-prog/planning/projects/bicycle/images/approved_bikeped_Plans_MAP102103.pdf
Illinois	http://www.dot.state.il.us/bikemap/STATE.HTM
Iowa	http://www.msp.dot.state.ia.us/trans_data/mrsid/bikemap.html
Kansas	http://www.ksdot.org/burrrail/bike/biking/bikemap2002.pdf
Maryland	http://www.sha.state.md.us/SHAServices/mapsBrochures/maps/OPPE/maps.asp
Massachusetts	http://www.state.ma.us/mhd/paths/bikep.htm
Minnesota	http://www.dot.state.mn.us/sti/map.html
Mississippi	http://www.mdot.state.ms.us/bicycling/bikeroutes.pdf
Montana	http://www.mdt.state.mt.us/planning/ctep/bicycle.html
Nebraska	http://www.dor.state.ne.us/info/docs/bikeguide99.pdf
New Mexico	http://www.nmshtd.state.nm.us/upload/images/Bike_pedestrian_Esquestrian/BIKE02map.pdf
New York	http://www.dot.state.ny.us/pubtrans/bikemap.html
North Carolina	http://www.ncdot.org/transit/bicycle/maps/maps_highways.html
Ohio	http://www.dot.state.oh.us/bike/default.htm
Oregon	http://www.odot.state.or.us/techserv/bikewalk/orbikgud.htm
Pennsylvania	http://www.dot.state.pa.us/
Rhode Island	http://www.dot.state.ri.us/WebTran/ristatebikemap.pdf
Tennessee	http://www.tdot.state.tn.us/bikeroutes/routes.htm
Washington	http://www.wsdot.wa.gov/bike/Planning_Maps.htm
Wisconsin	http://www.dot.wisconsin.gov/travel/bike-foot/bikemaps.htm

SUMMARY

The authors observed the existing statewide bicycle maps through a web search on Web pages of all state DOTs and tourism departments. It was observed that 23 states have bicycle maps available for the public, and 17 of these maps are also available online. Each state followed its own way of presenting the data on the bike map. The contents of the maps varied considerably. Based on the observations made on existing statewide bicycle maps, the authors recommend content items for consideration when designing a statewide bicycle map. The paper provides a brief summary of the map content and style for each state in alphabetical order.

REFERENCES

Mozer, David. Developing a Bicycle Map. <http://www.ibike.org/encouragement/maps.htm>.