



# Bicycle Safety Education Plan 2011



## Bicycle Safety Education Plan 2011



Transportation Planning  
281 North College Avenue  
Fort Collins, CO 80524

970-224-6058  
[fcgov.com/transportationplanning](http://fcgov.com/transportationplanning)

For additional copies, please download from our website, or contact us using the information above.

## ACKNOWLEDGEMENTS

### PROJECT MANAGERS

Dave "DK" Kemp	Bicycle Coordinator
Matt Wempe	Transportation Planner and Safe Routes to School Coordinator

### CITY OF FORT COLLINS CITY COUNCIL

Doug Hutchinson	Mayor
Kelly Ohlson	Mayor Pro-Tem District 5
Ben Manvel	Councilmember District 1
Lisa Poppaw	Councilmember District 2
Aislinn Kottwitz	Councilmember District 3
Wade Troxell	Councilmember District 4
David Roy	Councilmember District 6

### TRANSPORTATION BOARD

Gary Thomas	Chair
Olga Duvall	Board Member
Sara Frazier	Board Member
Pat Jordon	Board Member
John Lund	Board Member
Shane Miller	Board Member
Edmond Robert	Board Member
Sid Simonson	Board Member
Clint Skutchan	Board Member
Garry Steen	Board Member
Scott Van Tatenhove	Board Member

### EXECUTIVE STAFF

Darin Atteberry	City Manager
Diane Jones	Deputy City Manager
Wendy Williams	Assistant City Manager
Kelly DiMartino	Assistant City Manager
Tess Heffernan	Policy & Project Manager
Ann Turnquist	Policy & Project Manager
Mike Freeman	Chief Financial Officer
Kim Newcomer	Communications and Public Involvement Director

### BICYCLE ADVISORY COMMITTEE

Rick Price	Chair
Kathy Cardona	Committee Member
Doug Cutter	Committee Member
Dan Gould	Committee Member
David Hansen	Committee Member
John Holcombe	Committee Member
Hugh Mackay	Committee Member
Cathy Mathis	Committee Member
Gregory McMaster	Committee Member
Shane Miller	Committee Member
Paul Mills	Committee Member
Jeff Morrell	Committee Member
Bob Phillips	Committee Member
Rick Reider	Committee Member
Kim Sharpe	Committee Member
Clint Skutchan	Committee Member
Dawn Theis	Committee Member
Scott Van Tatenhove	Committee Member

### PLANNING, DEVELOPMENT AND TRANSPORTATION

Karen Cumbo	Planning, Development, and Transportation Director
Joe Frank	Advance Planning Director
Kathleen Bracke	Transportation Planning and Special Projects Director
Joe Olson	City Traffic Engineer
Gail Neben	Administrative Assistant
Becca Henry	Graphic Designer

### POLICE SERVICES

Dennis Harrison	Chief of Police
Hal Dean	Police Lieutenant
Joel Tower	Police Sergeant
Jeremy Yonce	Police Sergeant

### PARKS PLANNING

Craig Foreman	Park Planning and Development Director
---------------	--

## ACKNOWLEDGEMENTS

### LOCAL GROUPS

Members of the Bicycle Pedestrian Education Coalition

Bike Co-op

Bike Fort Collins

Boys & Girls Club of Larimer County

City of Fort Collins

City of Loveland

Colorado Injury Control Research Center at Colorado State University

Fort Collins Cycling Club

Healthier Communities Coalition of Larimer County

Poudre School District

PVHS Ambulance Service

Safe Kids Coalition of Larimer County

Thompson School District

Larimer County Child Advocacy Center

Loveland Pedal Club

Colorado Department of Transportation

League of American Bicyclists

Bicycle Colorado

Members of the Public

### COLORADO STATE UNIVERSITY

Campus Police Department

Facilities Department

Campus Bicycle Advisory Committee

### LARIMER COUNTY SHERIFF'S DEPARTMENT

Justin Smith

Larimer County Sheriff

### DEDICATION

This plan is dedicated to those bicyclists who have suffered or died as a result of a bicycle crash. This plan will act as a guide and an inspiration to significantly reduce the number of bicycle crashes in Fort Collins.

## TABLE OF CONTENTS

<b>CHAPTER 1- INTRODUCTION AND PLANNING PROCESS .....</b>	<b>1</b>
History .....	1
Purpose and Scope.....	2
Planning Process .....	4
<b>CHAPTER 2 - VISION, GOALS, OBJECTIVES AND OUTCOMES .....</b>	<b>5</b>
Vision Statement.....	5
Goal .....	5
Objectives.....	6
Overall Anticipated Outcomes .....	6
<b>CHAPTER 3 - POLICY AND PROGRAMMATIC RECOMMENDATIONS .....</b>	<b>7</b>
Youth Bicycling .....	7
Adult Bicyclists .....	9
Motorists .....	12
Law Enforcement Officials .....	13
General Recommendations.....	14
<b>CHAPTER 4 - BICYCLE FACILITY RECOMMENDATIONS .....</b>	<b>19</b>
<b>CHAPTER 5 - SITE SPECIFIC RECOMMENDATIONS FOR HIGH BICYCLE CRASH INTERSECTIONS .....</b>	<b>23</b>
<b>CHAPTER 6 - EVALUATION AND PERFORMANCE MANAGEMENT .....</b>	<b>25</b>
<b>CHAPTER 7 - IMPLEMENTATION ACTION PLAN .....</b>	<b>27</b>
<b>APPENDIX A - EXISTING CONDITIONS REPORT .....</b>	<b>35</b>
Bicycle Facilities.....	35
Bicycle Safety Programs & Organizations .....	35
<b>APPENDIX B - 2007-2009 FORT COLLINS BICYCLE CRASH REPORT .....</b>	<b>41</b>
<b>APPENDIX C - BICYCLE AND PEDESTRIAN EDUCATION COALITION PARTNERSHIP FRAMEWORK .....</b>	<b>53</b>
<b>APPENDIX D - BIKE CO-OP MASTER CYCLIST PROGRAM INFORMATION.....</b>	<b>55</b>
<b>APPENDIX E - COLORADO STATE UNIVERSITY BIKE CONFLICT ZONES MAP .....</b>	<b>59</b>

## TABLE OF FIGURES

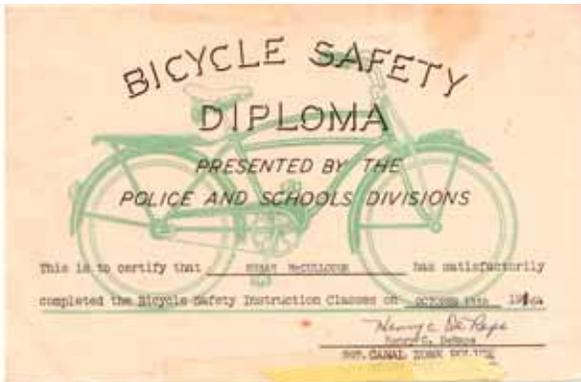
Table 1: High Bicycle Crash Intersections (2007-09) .....	23
Table 2: High Bicycle Crash Intersections Analysis Summary for 2007-09 .....	24
Table 3: Bicycle Safety and Education Plan Performance Measures .....	25
Table 4: Concurrent with Plan Adoption Actions .....	28
Table 5: Keep Fort Collins Great (KFCG) Funded Priority Actions 2011-12 .....	30
Table 6: Primary Actions (1-3 Years) .....	32

CHAPTER 1

# INTRODUCTION AND PLANNING PROCESS

## History

How does the Fort Collins community successfully integrate safe bicycling into an environment where transportation has been predominately designed for the use of motor vehicles? Fort Collins has a strong history in the planning for and encouragement of cycling. Bicycling for transportation purposes has been considered an important issue since 1970, when Fort Collins' resident Elizabeth Sears urged City officials to install the first bike lanes in Old Town east of College Avenue.



*Historical bicycle safety diploma from 1964.*

The 1980s and 90s proved to be pivotal years for cycling in Fort Collins, which marked the construction of the City's first bike trails along the Poudre River and the adoption of the "Complete Streets" philosophy. In 2001, the City adopted the Larimer County Urban Area Street Standards, including policies that require that new street capital projects, developments and redevelopments include accommodations for all modes of transportation, including bicycling.

Programs such as the City's previous Commuter Pool and SmartTrips program also worked to encourage bicycle use in the 1990's up until 2005 when the program ended. Concurrent to

the early beginnings of the Commuter Pool and SmartTrips programs, the local bicycle advocacy group, the Choice City Cycling Coalition known as "C4" also aided the advancement and support of bicycling in Fort Collins. Through these initial, combined efforts, the foundation was laid to create a bicycle friendly community.

In 2003, the League of American Bicyclists, a nationally recognized bicycle advocacy organization headquartered in Washington D.C., created the Bicycle Friendly Community program. The City of Fort Collins applied and received a silver designation. After reapplying in 2007 and 2008, the City of Fort Collins received the gold designation due to its current programmatic efforts and sheer number of everyday cyclists compared to the national average at the time.

Additionally, previous and current City Councils have set the precedent for including bicycling as a viable mode of active transportation and as a vehicle to inspire recreation among citizens and to benefit the vitality of neighborhoods. Both cycling transportation and recreation options equate to an extension of the overall quality of life in Fort Collins.



*City Councils set the precedent for including bicycling to benefit the vitality of neighborhoods.*

Due to the overall support and recognition of cycling as a benefit to the community, the interest in cycling has led to the gradual, and in recent years, dramatic increase of everyday cyclists on the streets and trails of Fort Collins. The 2010 North Front Range Metropolitan Planning Organization Household Survey data

revealed that bicycle commuters account for 13.3% of all commuters in Fort Collins. The 2010 American Community Survey data revealed that bicycle commuters account for 9.9% of all commuters in Fort Collins.

From 2007 through 2009, the Fort Collins community experienced the tragic deaths of three Fort Collins bicyclists due to crashes with motor vehicles as well as other crashes that resulted in serious injuries. Regardless of fault, these unfortunate incidents caused the Fort Collins community to evaluate cycling overall and to determine what action steps could be taken to address and significantly decrease bicycle-related crashes.

On March 16, 2010, Resolution 2010-019 was approved by City Council to direct the development of a Bicycle Safety Education Plan, including the concept of a “Master Cyclist” program and a “Bike Safety Town”. This was the first action step toward creating a distinct plan for improving safety for bicyclists in Fort Collins.

Also in response to the bicycle safety concerns raised in the community, several local organizations, including the City of Fort Collins, teamed up to form a coalition to address bicycle and pedestrian safety in November of 2009.

The coalition adopted the name Bicycle and Pedestrian Education Coalition (BPEC) and now serves as the primary forum for discussing and implementing bicycle safety and education programs in the community. It is our hope that the Bicycle Safety Education Plan will serve as a guide for the City, BPEC members, and other community groups that wish to educate bicyclists of all ages in a consistent and thematic manner. Additional information regarding BPEC can be found in the Existing Conditions report in the appendix of this plan.



## Purpose and Scope

The Bicycle Safety Education Plan focuses on bicyclist interactions with bicyclists, pedestrians, and all types of motor vehicles, including fleet and delivery vehicles, buses, trucks, and cars. The Bicycle Safety Education Plan is considered an additional element of the City’s overall Bicycle Plan and builds upon existing policies and program goals. The Bicycle Safety Plan is intended to identify programmatic action steps to address the bicycle safety and educational needs of the following audiences:

- Youth Bicyclists
  - Kindergarten - third grade
  - Fourth and fifth grades
  - Middle school and high school
- Adult Bicyclists
  - College students
  - Families
  - Bicycle commuters
  - Senior citizens
- Motorists
  - Fleet vehicle drivers
  - Buses/transit
  - Driver’s Education Instructors
  - Everyday Motorists
- Law Enforcement Officials



*Students participate in bicycle safety rodeos to learn and practice safe cycling techniques.*

Concurrent with the development of the programmatic elements of the Bicycle Safety Education Plan, safe and accessible bicycle facilities are important to support and encourage increased levels of safe bicycling. The goal is to develop a transportation system where bicycling is considered a viable transportation choice, and residents and visitors of all ages and abilities are able to bicycle safely and conveniently to accomplish their daily activities while maintaining active and healthy lifestyles.

The City and its partners utilize an integrated five E's approach to address bicycle safety in the community. Education, encouragement, engineering, enforcement, and evaluation are all integral components of a successful strategy.

The League of American Bicyclists (LAB), a national bicycle advocacy organization, has created a bike safety education curriculum based on the ideas presented by John Forester in his 1976 book, *Effective Cycling*.

Fortunately, the Fort Collins community has a head start at teaching the objectives of the League of American Bicyclists' bike education curriculum as there are several active certified instructors teaching LAB principles of "vehicular cycling." These principles are based on the premise that "cyclists fare best when they act and are treated as drivers of vehicles." The LAB bicycle safety curriculum has become the gold standard for educating all age groups and all segments of the population.

An alternative approach to vehicular cycling, also proposed by the LAB, is to remove or limit bicyclists from immediate encounters with motor vehicles. In the purest sense, cyclists would have separate paths along major roads, comprehensive bike-path networks, bike lanes, and bicycle specific traffic-control devices, signs, and ordinances that cater to the safety and enjoyment of bicyclists.

The goal is to teach vehicular cycling techniques to all cyclists in order to share the road safely with motorists, particularly when bicycle facilities do not exist. Concurrent to vehicular cycling education, we should also strive to build and expand bicycle facilities,

such as bike paths and bike lanes, and review and recommend ordinances that protect and provide safety considerations for bicyclists, as well as motorists. Combining the two approaches will create safer conditions for all road users and generate courtesy, respect, and patience for all people regardless of their mode of travel.

The rationale for this argument is that experienced "vehicular" cyclists do not require separated facilities while inexperienced cyclists, or beginners (children and new adult cyclists), and senior citizens, often prefer to be separated from automobile traffic.

An additional approach for creating a safe bicycling environment is safety in numbers. As the number of cyclists increase, the number of crashes between motorists and cyclists will decrease. A tipping point exists when high bicycle use is prevalent throughout the community. A consistent, large number of bicyclists raise awareness and expectations for motorists to start seeing bicycles everywhere.



*Cycling is enjoyed by people of all ages and abilities.*

In summary, there are several ways to teach and provide bicycle safety for the community. The interrelationship between programmatic and infrastructure developments is symbiotic and a combined approach offers the safest environment for all road users.

## Planning Process

The foundation of the planning process for the Bicycle Safety Education Plan includes gathering public input and ideas. The input of many Boards and Commissions, as well as input from local stakeholders, is crucial in identifying the varying bicycle safety-related issues within the community. Additionally, coordination within the City organization is also imperative in order to create a comprehensive understanding of bicycle safety.

### PHASE I - PUBLIC AND INTERNAL INPUT (June through December 2010)

Transportation Planning Staff gathered public input from the Bicycle Advisory Committee, Transportation Board, Senior Advisory Board, Colorado Department of Transportation (CDOT) Share the Road Collaborative, and events. Internally, Transportation Planning Staff continued coordinating with Police Services, Traffic Operations, Advance Planning, Parks Planning, and others.



*Bicycle safety takes a community effort.*

### PHASE II - DEVELOPMENT OF VISION, GOALS, AND IMPLEMENTATION STRATEGIES (December 2010 through January 2011)

Reach a consensus with internal and community stakeholders regarding the vision, goals, objectives, implementation strategies, and overall components of the Bicycle Safety Education Plan. This phase involved additional

public and internal input by the aforementioned stakeholders.

### PHASE III - PLAN DOCUMENT/ADOPTION/IMPLEMENTATION (December 2010 through March 2011)

Staff presented the draft plans to the Bicycle Advisory Committee and Transportation Board for review in December 2010, as well as in January and February of 2011. Staff will be presenting the Bicycle Safety Education Plan to City Council on March 1. Implementation of the Bicycle Safety Education Plan will begin in 2011 based on City Council approval.

### OUTCOMES OF THE PLANNING PROCESS

The Bicycle Safety Education Plan's planning process was instrumental in bringing together plan stakeholders to concentrate on bicycle safety related issues and proposed recommendations. In doing so, the plan acted as a catalyst to empower current and future partners with respect to bicycle safety endeavors within the community.

The planning process helped City staff realize the full breadth of what bicycle safety means to a community and what recommendations are most important.

Additionally, the process bridged the gap to expedite conversations within City departments, as well as, partners in the community, such as Colorado State University, Fort Collins' Police Services, Larimer County Sherriff's Department, Poudre School District, as well as many other community partners.

## CHAPTER 2

# VISION, GOALS, OBJECTIVES AND OUTCOMES

The education section of the 1995 Bicycle Plan provides an excellent foundation from which to expand upon the community’s current bicycle education needs. The Bicycle Safety Education Plan builds upon the 1995 Bike Plan and 2008 Bike Plan. Staff has updated and refined the basic outline of the education section of the 1995 Bike Plan to provide programmatic and infrastructure recommendations as they relate to increasing the safety of bicyclists and all road and trail users.

## Vision Statement

**Short term:** Through the adoption and implementation of the *Bicycle Safety Education Plan*, reported bike crashes will decrease. Compared to 2009 baseline data, bike crashes will decrease by 25% in 2012, and by 50% in 2013.

**Long term:** Vision Zero will reduce citywide bicycle deaths and serious injuries to zero. Vision Zero is based on the refusal to accept that human death or lifelong suffering from injury is an acceptable result of road traffic. In order to achieve this vision, our transportation systems must be designed with the understanding that people make mistakes and that traffic crashes cannot be avoided completely. Roads should be designed so that when crashes do occur, they do not result in serious injury or death. Under Vision Zero, safety is prioritized over all other objectives of the transportation system. The Bicycle Safety Education Plan will serve as a step toward enacting Vision Zero within the Fort Collins community.

Vision Zero is based on four principles:

- **Ethics:** human life and health are paramount objectives of the transportation system;
- **Responsibility:** providers and regulators of the road traffic system share responsibility with users;
- **Safety:** transportation systems should take account of human fallibility and minimize both the opportunities for errors and the harm done when they occur; and
- **Mechanisms for change:** providers and regulators must do their utmost to guarantee the safety of all citizens; they must cooperate with road users; and all three must be ready to change to achieve safety.

## Goals

Instill bicycle safety education and awareness within the Fort Collins community through the implementation of programmatic and infrastructure recommendations geared toward bicyclists of all levels and abilities, pedestrians, and motorists.



*Bennett IB World students, after learning how to fit a bicycle helmet, prepare for a bicycle rodeo.*

## Objectives

- Identify multiple ways of involving children in bicycle safety education and skill-based learning experiences at all grade levels. Evaluate the suitability of existing programs and work with appropriate partners to develop strategies for implementing a more comprehensive Safe Routes to School program.
- Provide specialized educational campaigns and informational materials that target the following audiences:
  - Child Bicyclists
    - Kindergarten - third grade
    - Fourth and fifth grades
    - Middle school and high school
  - Adult Bicyclists
    - College students
    - Families
    - Bicycle commuters
    - Senior citizens
  - Motorists
    - Fleet vehicle drivers
    - Buses/transit
    - Driver's education instructors
    - Everyday motorists
  - Law Enforcement Officials
- Provide special emphasis in all education programs that utilize the League of American Bicyclists' Smart Cycling curriculum.
- Identify and provide recommendations regarding the installation of innovative traffic control devices and infrastructure recommendations in order to increase the safety of bicyclists.
- Analyze bike crash data at high bike crash intersections to determine the types of bike crashes and why they are occurring, and how to address via education and physical improvements.
- Identify and provide recommendations regarding evaluation and monitoring techniques.

## Overall Anticipated Outcomes

Significant reduction in bicycle crashes involving bicyclists and motorists. This reduction will be a result of increased motorist awareness of bicyclists on the roads and behavioral changes in cyclists to obey the rules of the road by practicing vehicular cycling techniques.

*Measure:* Annual crash report analysis administered by Traffic Operations.

Specific outcomes and measures are provided for each of the programmatic and infrastructure recommendations.

## CHAPTER 3

# POLICY AND PROGRAMMATIC RECOMMENDATIONS

This section outlines programmatic and policy recommendations which support the vision, goals, and objectives of the Bicycle Safety Education Plan. Some programmatic and policy recommendations are more general in nature and apply to cycling overall in Fort Collins while others are specific to unique audiences.

## Youth Bicycling

### A. PROVIDE WALKING AND BICYCLING EDUCATION TO AT LEAST 11,000 STUDENTS FROM KINDERGARTEN THROUGH HIGH SCHOOL STUDENTS ANNUALLY

The Safe Routes to School program currently provides walking and bicycling education to approximately 4,300 students annually. The Fort Collins community should expand the number of students educated at all levels to at least 11,000 annually, more than double current participation. The Safe Routes to School program, through BPEC, the Bicycle Advisory Committee, League Cycling Instructors, and community partnerships should work together to determine how to target this number towards specific grades and ages. This approach will ensure the biggest impact of funds spent on youth bicycle safety education

**Anticipated Outcome:** Through increased district wide bicycle education and safety efforts, BPEC hopes to dramatically decrease the number of bicycle crashes among school age children while increasing the number of children biking and walking to school on a regular basis. **Measure:** Crash report analysis and bicycle & walking counts will be performed on a quarterly basis by PSD and City staff.

### B. ENCOURAGE FORT COLLINS' SCHOOLS TO REVIEW AND ADOPT STATEWIDE BICYCLE AND PEDESTRIAN EDUCATION CURRICULUM UNDER DEVELOPMENT BY THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT)

CDOT, in conjunction with the Colorado Safe Routes to School Network, is developing an education curriculum for statewide use based upon the League of American Bicyclists' education curriculum components (See Existing Conditions Report in the appendix). A final proposed curriculum is expected in July 2011 and will be delivered to the Colorado Department of Education.

Locally, the City and BPEC members have met with Poudre School District (PSD) curriculum staff to introduce the proposed curriculum. PSD staff has expressed an interest in learning more and reviewing the curriculum once it is released next year. At that time, the director of PSD Curriculum, Instruction & Assessment will convene an internal staff team to determine if PSD should adopt the curriculum.

It is anticipated that the state bicycle safety and education curriculum will be infused into fundamental subjects, such as mathematics, science, reading, and writing rather than taught only in physical education classes. It is also anticipated that bicycle education and safety will be taught at many grades throughout a student's elementary and middle school career to reinforce a thorough education of bike safety. Until CDOT develops a state-wide curriculum and Fort Collins' schools adopt it, BPEC will continue to develop, coordinate, and implement a consistent bicycle education curriculum to be taught to school age children.

**Anticipated Outcome:** Bicycle education will be integrated into PSD general studies and coordinated with state recommendations. **Measure:** All PSD students will be administered bicycle safety and education training at various grades throughout their elementary and middle school careers. Surveys of students, parents, and PSD will be conducted to measure effectiveness and number of students participating.

### C. EXPAND BICYCLE SAFETY EDUCATION TO HIGH SCHOOLS WITHIN THE CITY OF FORT COLLINS

BPEC members will work at integrating bicycle education and safety into high schools through the encouragement and formation of bicycle clubs and coordination of existing “green initiatives.” Both driving and cycling high school students will be offered bicycle safety awareness materials and trainings. Bicycle clubs and respective students will be encouraged to take leadership roles in order to disseminate bicycle education and safety information to peers, and act as mentors to younger students, such as, middle school children.

**Anticipated Outcome:** High school students learn bicycle safety and act as role models to teach peer and younger students. **Measure:** Survey number of high school students participating in program and monitor number of bicycle crashes involving high school students.



### D. ENCOURAGE ONE TEACHER PER SCHOOL TO PARTICIPATE IN THE SAFE ROUTES TO SCHOOL TRAIN THE TRAINERS PROGRAM

The Safe Routes to School Train the Trainers program is working to educate teachers, staff, parents, and volunteers how to teach safe cycling and walking as a regular part of the PSD physical education curriculum. Participants learn state-of-the-art bicycling and walking safety practices and teaching techniques.

**Anticipated Outcome:** To create a sustainable, long term Safe Routes to School program. **Measure:** One teacher from each school will be trained in bicycle education and safety. Surveys of PSD administration and school sites will determine if goal has been achieved.

### E. DEVELOP A SUSTAINABLE WALKING AND BICYCLING SCHOOL BUS PROGRAM FOR INTERESTED SCHOOLS

Safe Routes to School parent surveys indicate one of the main concerns about walking and bicycling to schools is safety. Many students have to cross busy streets and intersections that can be daunting. Walking and bicycling school buses are groups of students walking or bicycling to school with one or more adults. The “buses” provide adult supervision and can provide peace of mind for parents wanting to let their child walk or bicycle to school. The City, BPEC, and PSD should develop a formal program identifying routes and “bus drivers”, particularly serving areas with known safety concerns.

**Anticipated Outcome:** More students will walk and bike to school. **Measure:** The Safe Routes to School Coordinator will track the number of children walking and biking to school and survey participants to track the success of walking and bicycling school busses.



*Bicycling to school can be a fun activity for students, parents, and teachers alike.*

## F. DEVELOP A BICYCLE AND PEDESTRIAN SAFETY TOWN TO SERVE CHILDREN

Bicycle Safety Towns can be found in various cities across the United States. Bicycle Safety Towns, or traffic playgrounds, are comprised of an acre or more of land and are designed as a miniature city or neighborhood fully equipped with roads, lane stripping, and traffic signs. The Transportation Planning Department is exploring, with the Parks Department, potential sites within the City to locate this type of bike education facility. The City will generate conceptual plans and proposed funding strategies for the construction of this facility.

**Anticipated Outcome:** Bicycle Safety Towns, augmented with programmatic lessons based on traffic safety, offer school age children experiential learning opportunities to practice and learn the fundamentals of safe cycling.

**Measure:** Construction of Bicycle Safety Town and development of programmatic curriculum. Measure the number of children who have participated in the Bike Safety Town program. Survey participants regarding the retention of bicycle safety information.

## G. HIRE FULL TIME EQUIVALENT SAFE ROUTES TO SCHOOL COORDINATOR

Safety for school age children will continue to be a high priority in our community. As the Safe Routes to School program continues to expand within the community, additional staff is needed to work full-time on coordinating safe bicycle and walking infrastructure and programmatic improvements within the school district and overall community. Encourage a joint PSD/City position to fulfill this role.

**Anticipated Outcome:** Ensure successful implementation of the aforementioned recommendations involving the safety of school age children. **Measure:** Successful expansion of Safe Routes to School program into all PSD elementary and middle schools by full-time Safe Routes to School Coordinator.



*Dunn IB World students learn and respond to bicycle safety questions posed by Bicycle Colorado teachers.*

## H. IMPLEMENT A COLLABORATIVE COMMUNITY APPROACH TO OFFERING BIKE CAMPS TO CHILDREN DURING THE SUMMER MONTHS

The City of Fort Collins, the Boys and Girls Club, the Bike Co-op, and other BPEC organizations will work together to offer summer bike camps for school age children. These organizations will pool resources in order to create a full offering of bike camps during the summer months when school is not in session.

**Anticipated Outcome:** Provide bicycle safety education for children during the summer months. **Measure:** Compare participation rates from year to year and retention of information among participants.

## Adult Bicyclists

Adult bicyclists account for the majority of cyclists in Fort Collins, this section discusses programmatic recommendations to address each of the following demographics of adult cyclists:

- College students
- Families
- Recreational cyclists
- Bicycle commuters
- Senior citizens

## A. EDUCATE COLLEGE STUDENTS ON BICYCLE SAFETY AND AWARENESS

Incoming and returning students to both Colorado State University and Front Range Community College will be educated on bicycle safety. Bicycle safety will continue to be disseminated through the following activities:

- CSU preview - before attending CSU, students and parents receive bicycle safety information during the Preview session.
- Support the continuation and further development of the CSU Campus Bicycle Advisory Committee (see Existing Conditions Report in the appendix for more information).
- Support and enhance the bicycle registration process at CSU to teach elements of bicycle education at the time of registration.
- Continue development and support for the RamCycle program, a bicycle education and safety program aimed at students living in residence halls on campus.
- Incorporate bicycle safety and education into existing encouragement events, such as Bike to School Day and Bike for Breakfast events.

In addition to current efforts, the following recommendations will also be implemented:

- Consider adding bicycle education and safety messaging on, or near, bike parking areas.
- Encourage regular *Collegian* newspaper column and produce campus media campaigns stressing education, issues, improvement of skills.
- Encourage the development of a bicycle education class that students, faculty, and staff can take to receive college credit, e.g., a physical education, or continuing education class could be bicycle focused and lead to League Cycling Instructor status.
- Create mentoring and class project opportunities for CSU and Front Range Community College students in conjunction with K-12 students to teach bike safety presentations and classes.
- Investigate opportunities to educate college students on bicycle safety at both Front Range Community College and Aims Community College.

- Engage university and college service learning and volunteer programs to work toward bicycle safety endeavors on campuses and in the community.

**Anticipated Outcome:** Through these efforts the City and BPEC will influence and teach college students to bicycle safely on and off campuses and to practice cycling etiquette throughout the community. **Measure:** It is anticipated that after 3-4 years of intensive bicycle education and safety outreach, the college communities will reach a tipping point where safe cycling is the norm. Traffic citations and bicycle crash data on campus will be analyzed on an annual basis.

## B. PROVIDE BICYCLE SAFETY EDUCATION TO FAMILIES

Educate families on safe cycling skills and behaviors through a coalition of partners that includes church groups, youth clubs, school organizations, scout groups, City recreation programs, after school programs (B.A.S.E. Camp), injury prevention groups, and more. Work with local publishers to promote awareness through the publication of a guide to youth cycling. A guide would include the following elements:

- Proper helmet use for all family members
- Proper bicycle trailer use and child positioning techniques for children
- Riding with children on bikes and parent positioning
- Child seat precautions
- Bike-buying considerations
- Use of training wheels

**Anticipated Outcome:** Parents will be role models for safe cycling techniques with their children. **Measure:** Surveys will be administered to families to determine effectiveness of outreach.

### C. TEACH RECREATIONAL & COMPETITIVE CYCLISTS HOW TO RESPECTFULLY SHARE THE ROAD AND TRAILS

*On Roads:* Develop an education campaign for recreational cyclists on proper cycling techniques as it applies to cycling two abreast. Bicycle Colorado, a state-wide bicycle advocacy organization developed the 3-2-1 Courtesy Code. The City's FC Bikes program has adopted this campaign and teaches it locally to cyclists and motorists. The 3-2-1 Courtesy Code is not a law, but a public education campaign to remind motorists to provide three feet when passing, for cyclists to ride two abreast only when clear, and for cyclists to ride single file to allow for passing by overtaking vehicles.

agencies to determine the number of "failure to share the road" complaints on an annual basis. *On Trails:* Pedestrians and bicyclists will be surveyed along the Fort Collins trails to determine if bicycle/pedestrian interactions have improved.



*The 3-2-1 Courtesy Code is a public education campaign to remind motorists and cyclists how to share the road.*



*Cyclists should use an audible signal when passing others on trails.*

*On Trails:* Recreational cyclists should also be educated to slow and yield to pedestrians and wheel chair users on bike trails and to not use bike trails as training routes. Roads are more equipped to handle faster cyclists and offer fewer interactions and conflicts with pedestrians. Transportation Planning will work with Parks Planning to explore and enhance current yield and passing signs along the trails and informational kiosks, as well as, information on City's websites.

**Anticipated Outcome:** *On Roads:* Bicyclists and motorists will practice the 3-2-1 Courtesy Code. *On Trails:* Bicycle & pedestrian conflicts along the City's multiple use paths will decrease by 50% by 2012. **Measure:** *On Roads:* Transportation Planning will work with police

### D. PROVIDE BICYCLE COMMUTERS BICYCLE SAFETY EDUCATION AND INCENTIVES

Under the auspices of BPEC, continue development and implementation of an educational campaign aimed at adult commuter bicyclists. This includes research and development of educational materials, coordination with other City departments, bike shops and other retailers, media representatives, and bike clubs, among others. Elements of this campaign are:

- Bike training opportunities for local businesses offered through the Bicycle and Pedestrian Education Coalition.
- Brochures, other info on need for lights, helmets, safety equipment.
- Regular newspaper column stressing education, issues, improvement of skills
- Use commuters as role models for educating others (bicycle commuters are likely candidates for the Neighborhood Bicycle Ambassador and Master Cyclist programs).
- Increased television coverage of bicycling-related issues, events, personalities; education messages.
- Primary commuter routes and connectors should be identified and relayed to commuter bicyclists through events, LAB bicycle commuter trainings, and presentations.

- Encourage businesses and organizations to enact the Bicycle Commuter Tax Benefit which allows cyclists to claim \$20 a month toward cycling expenses.
- Provide training and safety information on winter cycling.
- Encourage National Bicycle Dealer Shops to put sales staff through LAB's Bicycling 123 training for both adults and children.

**Anticipated Outcome:** More local businesses will support and encourage safe bicycle commuting for their employees. **Measure:** American Community Survey data in 2012 and 2014, as well as employer surveys administered through BPEC.

### E. ENGAGE SENIOR CITIZENS IN BICYCLING ACTIVITIES

Develop an educational campaign aimed at seniors who wish to use bicycles for transportation, exercise, social activities, and maintaining their independence. Possible elements of this campaign are:

- Offer classes through the Senior Center and Parks and Recreation's *Recreator* that focus on getting back on the bike for seniors.
- Offer beginner and intermediate social rides for seniors through the Parks and Recreation's *Recreator*.
- Stress sidewalk safety, riding with traffic, other rules of the road - and reasons why.
- Provide articles in senior publications, newsletters - education and "how to get there."
- Inform/educate about the existence and location of facilities and programs.
- Speaker's bureau to provide slide presentations, handouts on bike education topics.
- Encourage the medical industry to recommend cycling as a means of physical exercise.

**Anticipated Outcome:** More senior citizens will safely utilize bicycles for transportation and health and fitness. **Measure:** Staff will track participation in programs from year to year and collect participant evaluation forms.



## Motorists

Motorists entail the largest and most diverse audience with which to communicate bicycle safety and road safety awareness. Some motorists are also cyclists, and most cyclists are also motorists. Therefore, road safety awareness should be taught to address both perspectives. Motorist education should include the following recommendations:

- Develop a multi-media marketing campaign to reach motorists to educate and provide accurate information regarding roles, rights and responsibilities related to bicyclists and motorists.
- Vulnerability concept: visually explain/illustrate the relationship of speed and mortality as it relates to interactions between bicyclists, pedestrians and motorists.
- Develop a series of classes for businesses and their employees who drive professionally.
- Regular newspaper column on bike education topics.
- Insert bicycle/motorist education information in monthly utility bills twice a year.
- In education programs, let motorists know that bicyclists on the roadways have the same rights and responsibilities as other vehicles, consistent with motorist education classes developed by the League of American Bicyclists.
- Support Bicycle Colorado and other state efforts to incorporate basic bicycle awareness and safety as part of the Colorado Driver Handbook.

- Create specific education campaigns to address the following types of motorist:
  - Fleet vehicle drivers
  - Transit drivers
  - Driver’s education instructors
  - Everyday motorists

**Overall Anticipated Outcome:** Reduction in bicycle crashes involving bicyclists and motorists due to an increased motorist awareness of bicyclists on the roads. **Measure:** Annual crash report analysis administered by Traffic Operations.



*Police officers can enhance learning opportunities.*

## Law Enforcement Officials

Law enforcement officers are the only ones who can enforce laws, both for bicyclists and motorists, to improve bicycle safety. They also come in contact with bicyclists and motorists on a daily basis. This puts law enforcement officers in a unique position to assist with and add credibility to community efforts to encourage bicycling and improve bicycle safety. Heightened awareness among law enforcement officers of these rules can lead to better enforcement of laws, modeling of good behaviors, and recognizing and taking advantage of teachable moments with both bicycles and motorists. Enforcement efforts should be combined with opportunities for police officers to proactively teach traffic safety in classrooms or instructional settings, such as bicycle rodeo.

Vice versa, enforcement agencies should also be supported when integrating enforcement agencies socially into existing special events. For example, the Larimer County Sheriff’s Office (LCSO) is interested in organizing a LCSO cycling team to take part in special events within Larimer County. These are great public relations efforts to minimize the animosity between cyclists, law enforcement agencies, and county residents. These efforts should be encouraged and supported by the cycling community.

### A. ASSIST FORT COLLINS POLICE SERVICES IN PROVIDING ON-GOING BICYCLE TRAINING OPPORTUNITIES FOR OFFICERS

Bicycle training opportunities will enable police officers to be current with changes in local ordinances and state laws as it applies to bicyclists. It will also help officers understand behaviors, rights, and other aspects associated with cycling. Bicycle education for police officers should be communicated through the perspective of the bicyclist. For the best results, specific officers should be trained as bicycle safety trainers. These bicycle safety trained officers can then train other officers.

Planning, Development, and Transportation staff will collaborate with Police Services to determine specific considerations when crash investigation occurs in order to ensure valid analysis of crash reports.

**Anticipated Outcome:** Additional training for police officers will familiarize officers with the operation of bicycles from the vehicular cyclist perspective. **Measure:** Participants in the training will be asked to complete training evaluation forms.

### B. COMMUNITY POLICING AGREEMENT

A community policing agreement is an agreement between the local and regional police agencies, Transportation Planning department, and bicycle non-profit organizations. A community policing agreement

can formalize a collaborative approach that will improve the city's planning and response to traffic related issues, and encourage all modes of travel to work together harmoniously. Traffic safety is a shared responsibility among all users, designers, educators, and enforcers. Police Services and Transportation Planning departments share ownership in developing strategies in these areas. Both departments are committed to a balanced approach that considers engineering, education, and enforcement strategies. This collaborative approach depends upon input and participation by the community.

**Anticipated Outcome:** Unite designers, educators, enforcers, and bicycle organizations in order to develop strategies that improve and enhance traffic safety. **Measure:** Reduction in scofflaws and bicycle related citations.

### C. DIVERSION PROGRAMS

Explore the possibility of a diversion program for bicycle traffic offenders in Fort Collins. A diversion program is usually housed within the justice system and is a program run by a police department, court, district attorney's office, or outside agency designed to enable alleged offenders of traffic offenses to reduce fines and to administer bicycle education classes for offenders. Colorado State University currently has a diversion program. Traffic offenders are able to reduce the amount of the associated fine by half if students watch a 40 minute League of American Bicyclists bicycle safety video. A diversion program for the City of Fort Collins might include an instructional video, but should also include a traffic skills class of at least two hours in duration. Transportation Planning Department staff would cooperate with a diversion program for Fort Collins and be willing to teach a bicycle traffic skills course on a bi-weekly or monthly basis.

**Anticipated Outcome:** To provide bicycle traffic offenders context and an opportunity to learn about bicycle safety in lieu of a fine resulting from a traffic offense. **Measure:** Record the number of residents reached through the diversion program.



*Police officers play an integral role in educating cyclists.*

### D. ENCOURAGE FORT COLLINS POLICE SERVICES TO CONDUCT TRAFFIC ENFORCEMENT AT THE HIGH CRASH AREAS AND TYPES OF CRASHES IDENTIFIED IN SECTION VI

This plan has identified the top locations in Fort Collins where bicycle/motorist crashes have occurred. Increased patrol and enforcement efforts at these specific locations may decrease crashes between motorists and bicyclists. Planning, Development, and Transportation staff will work with Police Services to create an enforcement plan or strategy to address safety concerns at these high crash locations.

**Anticipated Outcome:** Police Services will increase enforcement measures at specific intersections where high crash rates are documented. Officers will be knowledgeable of which types of crashes are occurring at specific intersections. **Measure:** Reduction in bicycle crashes at current high crash intersections.

## General Recommendations

### A. IMPLEMENT SHARE THE ROAD COLLABORATIVE RECOMMENDATIONS

During October 2010 through April 2011, the Colorado Department of Transportation is convening a Share the Road Collaborative in Fort Collins with local stakeholders, which brings together cyclists, motorists, and pedestrians to discuss a variety of traffic safety

issues. Key issues are discussed and recommendations will be developed. When completed, the recommendations of this collaboration will be incorporated into the Bicycle Safety Education Plan. CDOT will also issue a \$5,000 mini-grant for the Fort Collins community to work toward improving road safety for bicyclists, motorists, and pedestrians. Examples of possible recommendations include:

- Produce a multi-media road safety campaign.
- Install shared lane markings on roads that do not have bike lanes.
- Encourage the Colorado Division of Motor Vehicles to include questions pertaining to bicycle and pedestrian safety on the driver's exam.
- Increase the presence of share the road signs.
- Encourage and offer sensitivity and awareness training for drivers of fleet vehicles.

**Anticipated Outcome:** The results of the Colorado Department of Transportation collaborative will play a role in helping Fort Collins create and maintain a safer environment for all road users. **Measure:** Evaluation component will be included as part of the finalized Share the Road Collaboration recommendations to be completed in 2011.

## B. DISSEMINATE UNIVERSAL BICYCLE SAFETY MESSAGES AND CRASH TERMINOLOGY

In addition to the League of American Bicyclists' bicycle education and safety curriculum, all target audiences should be taught a consistent and comprehensive list of the most important bicycle safety aspects in Fort Collins which affects motorists, cyclists and pedestrians. These messages should be reinforced through each and every outreach effort, such as, multi-media campaigns, presentations, and classes. Safety messages may also include advice on cycling techniques in order to avoid specific hazards. Universal messaging for all audiences may include the following examples:

- Cyclists must obey the same rules of the road as motorists.
- Be visible: Ride with lights at night and wear bright reflective clothing.
- Be predictable: Signal turns and ride a straight line.

- Do not ride on the sidewalk against the flow of traffic through crosswalks at intersections. This is the number one type of bicycle crash in Fort Collins.
- Cyclists must ride on the right in the same direction as the flow of traffic.
- Motorists must allow at least three feet when passing a cyclist. In order to provide a three foot passing distance, motorists may cross the double yellow line.
- Motorists may use the bike lanes to make right hand turns. Cyclists behind the turning motorist should do the same if also turning right, or if traveling straight through the intersection, pass the right turning car on the left.
- Wear a helmet when cycling.
- Cyclists may ride two abreast, but must resume single file formation to allow for passing. Follow the 3-2-1 Courtesy code.
- Cyclists may leave the bike lane in order to avoid hazardous conditions, such as debris, ice, and snow. Cyclists must reenter the bike lanes when conditions in the bike lane improve.
- Cyclists: Railroad tracks can present slippery and hazardous conditions. Cross perpendicularly or at a 90 degree angle.
- Cyclists must yield to pedestrians and wheel chair users. Pass other road and trail users on the left and use an audible signal, such as a bike bell, when passing.
- Be mindful of low angle sun all year long, don't assume others see you.
- Practice mutual patience, courtesy, and respect.

**Anticipated Outcome:** All audiences will be taught consistent safety through diversified outreach opportunities. **Measure:** Target audiences will be evaluated through class, presentation, and instruction surveys to determine retention of key points which will then be reinforced when necessary.

### C. REVIEW THE FORT COLLINS TRAFFIC CODE - AMENDMENT TO SECTION 1412 (10) (A)

One of the major types of bike vs. motorist crashes occurs when a cyclist rides on the sidewalk against the flow of traffic and enters the crosswalk. It is typically in the crosswalk where the conflict occurs between the motorist and cyclist. Adult cyclists are to be educated to ride in the street through the intersection, with the flow of traffic, and to watch for cars turning in front of them. This education effort may decrease this type of bicycle crash. Staff will evaluate educational efforts by measuring bicycle crash data from 2009 to 2012. If this type of crash continues to occur despite education efforts, staff recommends reviewing and possibly amending section 1412 (10) (a) of the Fort Collins Traffic Code. An amendment to this code could enable police officers to enforce how cyclists enter and travel through a crosswalk, thereby adding an enforcement component to address this type of crash.

### D. DISCOURAGE IRRESPONSIBLE USE OF ALCOHOL WHILE CYCLING

Bicycling and drinking can be a harmful mix and can result in bicycle crashes. Education efforts should address the irresponsible use of alcohol while cycling. Awareness of this issue can be addressed through the FC Bikes' CO-exist campaign and working with local establishments to encourage cyclists to moderate their use of alcohol when cycling. Cyclists can be arrested and issued a bicycling under the influence citation. Ramifications of drunk bicycling will be conveyed as part of the outreach as well as the need to ride at night with lights. Outreach campaigns should occur twice a year during the months of May and September. This recommendation also provides partnership opportunities with Fort Collins establishments where alcohol is served. This effort focuses on young adult cyclists and college age students.

*Anticipated Outcome:* Fewer bike crashes involving alcohol. *Measure:* Staff will work with Colorado State University, Front Range Community College, and Poudre Valley Health

System to track alcohol/cycling related injuries from year to year.

### E. TRANSLATE BICYCLE SAFETY EDUCATION INTO SPANISH

Bicycle safety education materials, such as the CO-Exist campaign and bicycle safety brochures, should be translated into Spanish. Additionally, bicycle safety education classes should be offered in Spanish at least twice a year. Identify and work with Hispanic organizations and community centers to garner public interest and to educate this demographic within the Fort Collins community.

*Anticipated Outcome:* Spanish speaking residents will be educated with respect to bicycle safety. *Measure:* Staff will evaluate retention of bicycle safety information through surveys administered through partnering organizations, such as Salud Family Clinic.

### F. MAINTAIN DATABASE OF HIGH PROFILE BICYCLE CRASHES

Bicycle crashes that have resulted in serious or fatal injuries should be analyzed in order to understand the major causes of the crash to address through education strategies and/or physical improvements. Allowing public access to the database will also allow the public to inquire about the status of high-profile crashes that have occurred. The database will be maintained by the FC Bikes program based upon data provided by Police Services and Traffic Operations' crash reports. The database will track bicycle crashes since 2007.

*Anticipated Outcome:* Staff will maintain a public record of high profile bicycle crashes which will be accessible to the public and City departments. Reports will provide analysis results regarding cause of crash and include education strategies to address the type of crash. *Measure:* High profile bike crash database will be available on the City's website.

### G. ADOPT THE LEAGUE OF AMERICAN BICYCLISTS' BICYCLE EDUCATION CURRICULUM



The League of American Bicyclists (LAB) offers a well-rounded and comprehensive bicycle education curriculum. The City and its partners will adopt and utilize this curriculum or variations derived from this curriculum when teaching bicycle education (see Existing Conditions Report in appendix for more information on curriculum). Additionally, the City and its partners will continue to encourage members of the community to become LAB League Cycling Instructors. Growing the number of trained instructors in the community will provide greater educational reach to all members of the community.

**Anticipated Outcome:** Ensure consistency and provide a thorough education for cyclists based on LAB curriculum. **Measure:** Safety trainings and presentations will include an evaluation survey for participants to check for retention of curriculum key points.

### H. IMPLEMENT THE NEIGHBORHOOD BICYCLE AMBASSADOR PROGRAM

The City's FC Bikes program and Neighborhood Services Division developed the Neighborhood Bicycle Ambassador program to recruit residents in neighborhoods to act as cycling ambassadors to teach neighbors bicycle safety tips and provide neighborhood children and adults with

bike maps, safety literature, basic bike maintenance, helmets, and bike lights.

**Anticipated Outcome:** Neighborhoods throughout Fort Collins will have bicycle ambassadors to provide neighbors with bicycle safety related information and accessories. **Measure:** Neighborhood Bicycle Ambassadors will be trained to ensure knowledge of bicycle safety information. Staff will track the number of Ambassadors, geographic coverage, and number of people served.

### I. DEVELOP AND IMPLEMENT A MASTER CYCLIST PROGRAM

The Bike Co-op has taken the lead in developing a Master Cyclist Program for the Fort Collins community. Interested volunteers are trained to teach bicycle education classes to residents of all ages through the advanced completion of the train-the-trainers and League of American Bicyclists' League Cycling Instructor (LCI) training. Bicycle Pedestrian Education Coalition will work with the Bike Co-op to expand, promote, strategize, and create opportunities for Master Cyclists to teach bicycle education and safety to target audiences within the community.

**Anticipated Outcome:** The Fort Collins community will have a cadre of trained bicycle educators to work toward educating all target audiences. **Measure:** Number of LCI's and educators in the community, the number of classes and presentations taught, and the number of residents reached in the community will be measured on an annual basis.

### J. INSTILL A SENSE OF SECURITY FOR ALL CYCLISTS

Cyclists need to be aware of the potential for bicycle thefts and should be provided techniques on how to properly secure a bicycle. For example, a bicycle that is locked with a u-lock style lock is harder to cut or remove than a cable style lock. Furthermore, bicycles stand a greater chance a being stolen when they are parked in low-lit areas far from public activity areas.

Cyclists must also be reminded to use caution when riding along low-lit alleyways, streets, and trails, as safety hazards can be present.

Cyclists should also be informed about how to properly report security issues, how to register a bicycle to aid in its recovery, if stolen, and the need to carry personal identification in the event of a crash.

***Anticipated Outcome:*** Cyclists will use caution when traveling along low-lit alleys, streets, and trails and will be equipped with the knowledge in order to deter bicycle theft. ***Measure:*** Fewer reported stolen bicycles from 2011 to 2013.

## **K. ADDRESS ELECTRIC BIKE USE ON BIKE TRAILS**

The use of electric assist bikes on trails is an issue and an opportunity that continues to arise within the Fort Collins community. Electric-assist bikes represent a new and growing form of transportation and recreation in America. The use of electric assist bicycles is a healthy alternative to motorized vehicles; however, the use of electric assist bicycles, specifically on multi-use trails, represents potential safety issues for all trail users. Currently in Fort Collins, electric assist bicycles are legal to operate in bike lanes on the roads, but they are prohibited on multi-use trails. City staff is in the process of analyzing the use of electric assist bicycles on multi-use trails as it relates to safety, efficiency, and mobility issues. Staff is gathering information regarding the use of electric assist bicycles on multi-use trails through the City's Boards and Commissions. This information will be synthesized and shared with City Council in 2011.

CHAPTER 4

# BICYCLE FACILITY RECOMMENDATIONS

## A. UPDATE TO THE FORT COLLINS BIKE ROUTE NETWORK (BIKE WAYS)

Plan for and implement an updated city-wide bike route network in Fort Collins that identifies and solves connectivity issues, eliminates existing conflicts, and includes facilities for cyclists, such as, bike lanes, bike trails, shared lane markings, bike boxes, and way-finding signs specific for cyclists.

**Anticipated Outcome:** Bicyclists of all levels and abilities will rely on bike routes that encompass safe facilities along roads and at intersections. **Measure:** Bicycle counts and bike crash rates will be evaluated over time.

## B. INSTALL BIKE BOXES WHERE APPROPRIATE

A bike box is a colored area at a signalized intersection that allows bicyclists to pull in front of waiting traffic. Designed to be used at intersections without right hand turn lanes, the box is intended to reduce car-bike conflicts, increase cyclist visibility and provide bicyclists with a head start when the light turns green.



*A bike box is a colored area at a signalized intersection that allows bicyclists to pull in front of waiting traffic.*

Of particular concern is the “right hook” collision that can happen when drivers turn

right as a bicycle starts straight through an intersection. In the U.S., right hook collisions are implicated in 4.7% of bike crashes, 11% of which are fatal, and 3.6% are Right Turn On Red collisions, of which 6% are fatal. In Fort Collins, “right hook” accidents are the second most common type of accident between bicyclists and motorists. Bike boxes have been shown to be most effective when paired with a brightly colored bike lane that extends through the intersection, to remind motorists that cyclists may be traveling straight.



*The boxes provide improved visibility and positioning for cyclists when stopped at a red light.*

In most cases, the bike box is a 12-14-foot wide rectangle marked in front of the stop line for motorists, but behind the pedestrian crosswalk. The box typically extends the width of one travel lane and provides room for several bicyclists. Bike boxes are also often used in conjunction with bike lanes, from which bicyclists pedal directly into the box. The bike boxes are only utilized by bicyclists when the traffic light is red and are not used after the traffic is already in motion. At that time, bicyclists should be taught to merge into the travel lane safely and to control their position in the lane through the intersection.

Bike boxes work best at intersections with a high volume of bicyclists. They improve cyclists' visibility. They reduce delay for cyclists by providing space for “jumping the queue” of waiting vehicles. They allow a left-turning bicyclist to reach a better position for making a safe turn. They also allow bicyclists to reduce exposure to vehicle tailpipe emissions. Bike boxes have only been used for a short

period of time in the United States. Research on their effectiveness in the U.S. is therefore both limited and pending. No study, however, has ever suggested that bike boxes are a safety hazard, or that they have increased collision rates. The boxes are not supposed to address every possible intersection safety hazard. Rather, they attempt to provide improved visibility and positioning for cyclists when stopped at a red light.

City of Fort Collins Transportation Planning, FC Bikes, Traffic Operations, and Natural Resources staff have partnered to receive federal grant funding to implement a bike box demonstration project at the intersection of Shields and Plum. Colorado State University (CSU) experiences nearly 12,000 - 15,000 cyclists entering campus on a daily basis. Specifically, the intersection of Shields and Plum streets experiences a high volume of eastbound cyclists on a daily basis. Also, the east bound lane on Plum Street into CSU campus does not have a designated right turn lane for motorists to travel south on Shields Street. Combined with local crash and close-call data, all of these factors make this location an ideal candidate to test the effectiveness of the bike box.

The cost of a bike box is approximately \$3,500 which includes materials and labor. Funding for the installation and monitoring of the bike box demonstration project will be covered by the federal grant funding.

**Anticipated Outcome:** Bicycle/motorist crashes will decrease at intersections without right turn lanes. **Measure:** Conflict analysis coordinated by Traffic Operations and Transportation Planning.

### C. INSTALL SHARED LANE MARKINGS

Shared roadways are often composed of curb lanes too narrow for motorists and bicyclists to safely share side by side (defined here as "substandard width"). On these roadways, the following problems often occur:

- Cyclists are pressured into hazards on the edge of the road or lane, such as the "door zone" where motorists leaving parked cars may suddenly open their door in a cyclist's path.

- Motorists attempt to pass cyclists too closely or intimidate cyclists legally in the lane.
- Cyclists decide to ride on the sidewalk illegally.
- Cyclists ride the wrong way on the road.

Shared Lane Markings provide notification to motorists and bicyclists that both types of vehicles share the travel lane and that bicyclists are encouraged to "take the lane."

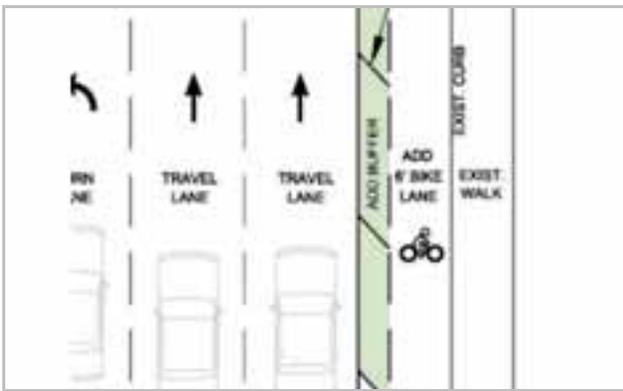


*Shared Lane Markings provide a reminder to share the travel lane and encourage bicyclists to "take the lane."*

**Anticipated Outcome:** Bicycle/motorist crashes and conflicts will decrease along road ways that do not provide bike lanes. **Measure:** Conflict analysis coordinated by Traffic Operations and Transportation Planning.

### D. EXPLORE CONTINUED USE OF BUFFERED BIKE LANES

A buffered bike lane is a five-foot-wide bike lane that is buffered by a 2 ½ - foot striped "shy zone" between the bike lane and the moving vehicle lane. This design makes movement safer for both bicyclists and vehicles. With the shy zone, the buffered lane offers a more comfortable riding environment for bicycle riders who prefer not to ride adjacent to traffic. This system allows motorists to drive at a normal speed; they only need watch for cyclists when turning right at cross-streets or driveways and when crossing the buffered lane to park. In Fort Collins, Prospect Road between the Poudre River and Summit View Drive demonstrates the use of a buffered bike lane.



*Buffered bicycle lanes offer a comfortable riding environment for bicycle riders who prefer not to ride adjacent to traffic.*

**Anticipated Outcome:** Bicycle/motorist crashes and conflicts will decrease along high traffic/speed roadways. **Measure:** Annual crash report analysis coordinated by Traffic Operations and Transportation Planning.

### E. EXPLORE USE OF CYCLE TRACKS ALONG SPECIFIC CORRIDORS

A cycle track is an exclusive bicycle facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. Cycle tracks have different forms, but all share common elements. Cycle tracks provide space that is intended to be exclusively or primarily for bicycles, and are separated from vehicle travel lanes, parking lanes and sidewalks. Cycle tracks can be either one-way or two-way, on one or both sides of a street, and are separated from vehicles and pedestrians by pavement markings or coloring, bollards, curbs/medians or a combination of these elements.

Cycle tracks provide increased comfort for bicyclists and greater clarity about expected behavior on the part of both cyclists and motorists. Properly designed cycle tracks eliminate conflicts between bicycles and parked cars by placing the cycle track on the inside of the parking lane. They also provide adequate space to remove the danger of “car dooring.” Danish research has shown that cycle tracks can increase bicycle ridership 18 to 20 percent, compared with the five to seven percent increase found resulting from bicycle lanes. The

same study also found that fewer cyclists were hit or run over from behind, were hit when turning left, or ran into a parked car.



*Properly designed cycle tracks reduce conflicts between bicycles and parking cars by placing the cycle track on the inside of the parking lane.*

On the other hand, there also a number of cycle track design issues. As bicyclists are not traveling directly alongside automobiles, motorists may not be aware of their presence, leading to increased vulnerability at intersections. In addition, regular street sweeping trucks cannot maintain the cycle track; however, smaller street sweepers can accommodate the narrower roadway. Finally, conflicts with pedestrians and boarding or de-boarding bus passengers can occur, particularly on cycle tracks that are less well-differentiated from the sidewalk, or that are between the sidewalk and a transit stop. These concerns will be addressed below, and should be incorporated into the planning process when cycle tracks are being considered. This information was provided by the private consulting firm, Alta Planning + Design, who has published a document concerning cycle tracks, entitled, *Cycle Tracks: Lessons Learned*.

**Anticipated Outcome:** Bicycle/motorist crashes and conflicts will decrease along road ways that have very limited curb cuts and intersections. **Measure:** Annual crash report analysis coordinated by Traffic Operations and Transportation Planning.

## F. EXPLORE THE USE OF BICYCLE BOULEVARDS AND COMMUNITY GREENWAYS

Bicycle Boulevards and Community Greenways act as a form of enhanced bicycle travel corridors to encourage bicyclists and discourage motor vehicles. These include a variety of traffic control devices described in the publication “Fundamentals of bicycle Boulevard Planning and Design” published by Alta Planning + Design and the Initiative for Bicycle and Pedestrian Innovation at the Center for Transportation Studies at Portland State University.

**Anticipated Outcome:** Creates livable streets for residents and offers safe routes for cyclists.

**Measure:** Annual crash report analysis coordinated by Traffic Operations and Transportation Planning.

## G. EXPLORE USE OF SCRAMBLE CROSSINGS AT SPECIFIC INTERSECTIONS

Scramble crossings are a system that stops all vehicular traffic and allows pedestrians, and potentially bicyclists, to cross an intersection in every direction, including diagonally, at the same time.

The scramble crossing, since it stops all motor vehicles rather than allowing partial vehicle movements to coexist with partial pedestrian movements, has sometimes been seen as inefficient by traffic engineers, and their removal supported as creating big savings in delays and congestion. Critics have dismissed these moves as further subordinating pedestrians to cars, and who consider the shared turns of motor vehicles and pedestrians as unnecessarily intimidating.

It has been noted that the pedestrian scramble only makes sense where large numbers of pedestrians are expected, and where they will also have enough space to gather on the sidewalks in larger numbers. Under certain circumstances, pedestrian scrambles could in fact decrease safety, as the average waiting times for pedestrians and car drivers is increased, thus creating more likelihood of people disobeying the signals.



*Scramble crossings are a system that stops all vehicular traffic and allows pedestrians, and potentially bicyclists, to cross an intersection in every direction, including diagonally, at the same time.*

**Anticipated Outcome:** Offer planners and engineers a solution to safely accommodate high bicycle and pedestrian activity. **Measure:** Annual crash report analysis coordinated by Traffic Operations and Transportation Planning.

## H. INSTALL SIGNAL ACTUATION FOR CYCLISTS

All signalized intersections should accommodate all modes of transportation, including bicycles. Bicycle actuation should be installed at all signalized intersections.

**Anticipated Outcome:** Improves the bike route network and encourages cyclists to not violate signalized intersections. **Measure:** Document and map signalized intersections that can be currently actuated by bicyclists.

CHAPTER 5

# SITE SPECIFIC RECOMMENDATIONS FOR HIGH BICYCLE CRASH INTERSECTIONS

City Transportation staff reviewed the Fort Collins Bicycle Crash Report and identified nine high bicycle crash intersections. These intersections have been identified based on the overall number of bicycle crashes.

TABLE 1: HIGH BICYCLE CRASH INTERSECTIONS (2007-09)

Intersection	Daily Bicycle Volume <sup>1</sup>	Bicycle Crashes <sup>2</sup>	Bicycle Crash Rate <sup>3</sup>
Shields / Horsetooth	42	6	15.2
College / Vine	48	5	9.5
College / Drake	114	10	8.8
Shields / Rocky Mountain	106	5	4.3
Shields / Davidson	100	4	3.7
Timberline / Caribou	150	4	2.4
City Park / Elizabeth	240	5	2.3
Shields / Elizabeth	428	12	1.7
Shields / Drake	368	6	1.5

<sup>1</sup> Estimated based on peak hour bicycle traffic counts  
<sup>2</sup> Bicycle crashes from 2007-09  
<sup>3</sup> Bicycle crashes per 100,000 bikes entering an intersection

In each case, City staff looked for crash patterns and trends, environmental factors, or other unique circumstances that might highlight larger problems. This analysis included a review of Police Services accident reports, crash

diagrams, and field visits. A summary of the observed problems and recommended solutions was then prepared using the 5 “Es” framework: encouragement, education, engineering, enforcement, and evaluation.



*Beware the broadside! This is the most common type of bicycle crash in Fort Collins.*

The most prevalent crash type is riding against traffic, both in the street and on sidewalks. This is similar to city-wide crash data, where 60 percent of crashes include cyclists riding against traffic. The analysis also highlighted that Shields Street (Drake Road to Rocky Mountain Drive) has some of the highest number of bicycle crashes in Fort Collins. As a result, the plan recommends addressing safety improvements for this specific geographic area. Table 2 outlines the analysis process, observed problems and recommended solutions for the nine high bicycle crash intersections. Many of the recommended solutions can be incorporated into larger safety efforts, such as targeting bicycle safety education and increasing awareness among all modes of travel. More specific recommendations are also outlined where a crash pattern was observed.

City staff will conduct performance measurement for all of these intersections to determine if there is a decrease in both overall bicycle crashes and the crash rate. Traffic Operations staff collects and analyzes annual bicycle crash data and long-term trends. Data must be collected for multiple years (the City currently has data for 2007-10) to ensure the observed safety improvements are a statistically valid result.

**TABLE 2: HIGH BICYCLE CRASH INTERSECTIONS ANALYSIS SUMMARY FOR 2007-09**

Total Injury Crashes*	Crash Type(s)	Date & Time Trends? Age & Gender Trends?	Problem(s) Summary	Recommended Solution(s)
<b>5 Crashes - City Park &amp; Elizabeth</b>				
4/5 injury crashes	- 1/5 Riding against traffic (street) - Distracted driving - Right hook	Yes, noontime and 5 PM; Sept-Nov. Yes, mostly college-age cyclists	- No specific crash pattern.	- Targeted bicycle education.
<b>10 Crashes - College &amp; Drake</b>				
3/10 injury crashes	- 8/10 Riding against traffic (sidewalk)	None None	- Many avoidable crashes where cyclists cited (i.e. ignoring signals, mid-crossing crashes). - Many southbound cyclists riding against traffic on the sidewalk resulting in crashes.	- Targeted bicycle education. - Signs/stencils to alert cyclists to danger of riding against traffic. - Frontage roads providing space for police vehicles to observe the intersection.
<b>5 Crashes - College &amp; Vine</b>				
1/5 injury crashes	- 4/5 Southbound riding against traffic (sidewalk and street) - 3/5 Westbound right turn hits cyclist	None None	- Southbound College Avenue cyclists riding against traffic (sidewalk and street). - Crashing with Vine Drive northbound motorist right turns.	- Expect bicycle safety improvements with North College Avenue project. - Coordinate with City Engineering on bicycle traffic control during construction.
<b>4 Crashes - Shields &amp; Davidson</b>				
0/4 injury crashes	- 4/4 Southbound riding against traffic (sidewalk and street)	None Yes, mostly younger cyclists (10-22 years old)	- Southbound Shields Street cyclists riding against traffic (sidewalk). - Crashing with northbound Davidson Drive motorist right turns. - Existing landscaping and berm limits motorist sight distance.	- Targeted bicycle education. - Signs/stencils to alert cyclists to sight distance limitations and danger of riding against traffic.
<b>6 Crashes - Shields &amp; Drake</b>				
1/6 injury crashes	- 4/6 Riding against traffic (sidewalk and street) - Right Hook - Driveway crashes north of Drake	None None	- Many turning movement conflicts combined with cyclists riding against traffic (sidewalk and street). - Ties into problems at Shields & Davidson (southbound riding against traffic on sidewalk).	- Targeted bicycle education. - Signs/stencils to alert cyclists to danger of riding against traffic.
<b>12 Crashes - Shields &amp; Elizabeth</b>				
6/12 injury crashes	- 2/12 Overtaking - 2/12 Approach Turn - 5/12 Broadside	None None	- Cyclists cited in 6/12 crashes, higher than most areas. - Cyclists crossing both with and against traffic coming out of CSU. Busy intersection for motorists and cyclists. - Most motorists cited for failure to yield right-of-way to cyclists, though many cyclists riding against traffic (sidewalk and street).	- Targeted bicycle education. - Coordination with CSU facilities and City transportation staff on future infrastructure improvements (i.e. bicycle lanes and signage on campus, CSU bicycle routes, intersection configuration).
<b>6 Crashes - Shields &amp; Horsetooth</b>				
5/6 injury crashes	- 3/6 Right hook - 2/6 Cyclists ignore signal - 1/6 Distracted driving	Yes, mostly afternoon, early evening Yes, 4/6 motorists female (20-50 years old)	- 3/6 crashes right hooks. - Motorists at fault when cyclists did not ignore signal.	- Review new infrastructure idea for colored bicycle lanes along Shields at intersection (pilot program). - Potential southbound Shields Street dedicated right turn lane.
<b>5 Crashes - Shields &amp; Rocky Mountain</b>				
3/5 injury crashes	- 3/5 Riding against traffic (sidewalk and street)	None Yes, mostly younger cyclists and motorists (16-27 years old)	- No specific crash pattern.	- Targeted bicycle and motorist education; coordinate with Rocky Mountain High School.
<b>4 Crashes - Timberline &amp; Caribou</b>				
2/4 injury crashes	- 2/4 Southbound riding against traffic (sidewalk and street)	None None	- No specific crash pattern.	- Targeted bicycle education.

\* Note: "Injury" crash types are based on the Fort Collins Police Services accident reports. Include both "Non-Incapacitating Injury" (scrapes, bumps, and bruises) and "Incapacitating Injury" (injuries often required trained assistance from EMS responders). There were no fatal crashes at these intersections.

## CHAPTER 6

# EVALUATION AND PERFORMANCE MANAGEMENT

The Transportation Master Plan (TMP) includes a number of performance measures for bicycles and education efforts. In an effort to be consistent with the TMP, this plan incorporates these performance measures as outlined below. The intent of these performance measures is to help guide the City's progress towards the BSEP vision and serve as useful tools for future plan updates.

TABLE 3: BICYCLE SAFETY AND EDUCATION PLAN PERFORMANCE MEASURES

Measure	Definition	Source
Ease of Traveling in Fort Collins by Bicycle	Citizen perceived ease of traveling in Fort Collins by bicycle	Citizen Survey
Bicycle Crash Rate	Annual number of crashes involving bicycles	Traffic Operations
Number of Bicycle Trips	Annual number of bicycle trips	Census and North Front Range MPO Household Survey
Safe Routes to School Participation	Annual number of children who participate in the Safe Routes to School Program	Transportation Planning
Bicycle Share Program Usage	Annual number of bikes borrowed in the bicycle share program	FC Bikes
Participation in Bicycle Safety Education Program	Annual number of people who participated in Bicycle Safety Education Program	FC Bikes



## CHAPTER 7

# IMPLEMENTATION ACTION PLAN

This plan includes a variety of programs, collaborations, improvements and other actions that will help achieve the vision of a bicycle safe community. Action items are organized by audience, responsibility, cost and funding source, and anticipated outcomes. The actions are important to realizing the Bicycle Safety Education Plan (BSEP) vision and should be implemented as soon as time and funding resources are available. As community priorities shift, implementation priorities can change to ensure the most effective use of staff and funding resources and benefit for the community. This will result in a phased approach to implementing the BSEP.

City staff has identified actions that will utilize Keep Fort Collins Great (KFCG)- BSEP implementation funding provided in the 2011-12 budget cycle.

- Concurrent with Plan Adoption: Action items that are on-going or will be ready for implementation by spring 2011.
- Keep Fort Collins Great Funded Actions (2011-12): City Council has designated funding for implementation of BSEP as part of the 2011-12 budget. The funds will come from the 2B sales tax measure passed by voters in November 2010. City staff has identified action items that are consistent with the budget offer submitted to City Council. Separately identifying actions funded by KFCG will assist City staff provide transparency and monitoring and evaluation of voter-approved funds.
- Primary Actions (1-3 years): Action items that will be the primary focus of plan implementation.

TABLE 4: CONCURRENT WITH PLAN ADOPTION

Action Item	Description	Responsibility	Cost and Funding Source(s)	Outcome(s)
<b>Youth Bicyclists</b>				
H. Implement a Community Approach to Offering Bike Camps to Children during the Summer Months.	Offer bicycle education to school-age children during the summer months by offering numerous bike camps sessions from June through August.	FC Bikes, Recreation staff, Bike Co-op, and Boys and Girl's Club	Cost: Staff time City staff	Target Bicycle Safety Education (School Age Children)
<b>Adult Bicyclists - College Students</b>				
A. College-Age Bicycle Education Outreach	Assist CSU Campus Bicycle Advisory Committee with implementation of bicycle safety and awareness programs focused on new and returning students, faculty, and staff. (2011)	City staff and Campus Bicycle Advisory Committee	Cost: Staff time and materials FC Bikes	Target Bicycle Safety Education (Colorado State University)
<b>Adult Bicyclists - Bicycle Commuters</b>				
D. Bicycle Commuter Education Outreach	Through BPEC, continue development and implementation of an educational campaign aimed at adult commuter bicyclists. This includes research and development of educational materials and training, coordination with other City departments, bike shops, local businesses, media representatives, and bike organizations (2011)	FC Bikes and BPEC	Cost: Staff time FC Bikes, BPEC (in-kind)	Target Bicycle Safety Education through local businesses.
<b>Adult Bicyclists - Senior Citizens</b>				
E. Senior Citizen Education Outreach	Conduct bicycle safety & road safety awareness classes, as well as, social opportunities for senior citizens as advertised through the Spring 2011 Recreator activity catalog, published by the Recreation Department.	FC Bikes and BPEC	Cost: Staff time FC Bikes, BPEC, Recreation Dept.	Target Bicycle Safety Education (senior citizens)
<b>High Bicycle Crash Areas</b>				
A. Implement Recommendations for High Bicycle Crash Areas	Begin implementation of the recommended solutions in Table 2 (page 24) to address the identified problems at high bicycle crash intersections	PDT staff, Colorado State University staff, Police Services	Cost: TBD (depending on solution) TBD	Safe Bicycle Facilities and Infrastructure Improvements; Target Bicycle Safety Education
<b>General Recommendations</b>				
A. Share the Road Collaborative Implementation	Assist in implementation of the traffic safety recommendations developed by the Colorado Department of Transportation (CDOT) Share the Road Collaborative (available April 2011).	City of Fort Collins and CDOT	Cost: TBD TBD	Improve Awareness and Safety Between All Modes
D. Discourage Irresponsible Use of Alcohol While Bicycling	Develop education efforts to address the irresponsible use of alcohol while cycling, including expansion of the CO-exist campaign and working with local establishments.	Transportation Planning, Traffic Operations and Fort Collins Police Services staff	Cost: \$2,500 FC Bikes	Target Bicycle Safety Education
G. Adopt League of American Bicyclists Bicycle Education Principles	Adopt League of American Bicyclists (LAB) Smart Cycling principles as the basis for all bicycle education efforts in Fort Collins. Encourage City staff and partners to become certified as League Cycling Instructors to grow the number of trainers in the community.	City of Fort Collins and BPEC	Cost: Staff time Transportation Planning	Target Bicycle Safety Education
H. Neighborhood Bicycle Ambassador Program	Implement City's program to recruit residents to act as cycling ambassadors to teach neighbors about bicycle safety, provide bicycle maps and safety literature, basic bike maintenance, helmets, and lights.	FC Bikes	Cost: Staff time FC Bikes	Expand Safe Cycling Outreach Methods; Target Bicycle Safety Education

Action Item	Description	Responsibility	Cost and Funding Source(s)	Outcome(s)
<b>General Recommendations</b>				
I. Develop and Implement Master Cyclist Program	Support the Bike Co-op's efforts to develop a Master Cyclist program for the Fort Collins community.	Bike Co-op, FC Bikes, and Safe Routes to School	Cost: TBD TBD	Target Bicycle Safety Education; Expand Safe Cycling Outreach Methods; Increase Collaboration and Knowledge Sharing
J. Instill Sense of Security for All Cyclists	Provide cyclists with the skills and tips for riding in low-lit areas and provide cyclists with knowledge on how to properly secure a bicycle to deter theft.	City staff and BPEC	Cost: Staff time City staff & BPEC	Safe Bicycle Practices and Bicycle Theft Diversion

TABLE 5: KEEP FORT COLLINS GREAT (KFCG) FUNDED PRIORITY ACTIONS 2011-12

Action Item	Description	Responsibility	Cost and Funding Source(s)	Outcome(s)
<b>Youth Bicycling</b>				
A. Teach Bicycle Safety to at Least 11,000 Students Annually	Coordinate the Safe Routes to School program to educate at least 11,000 students in Fort Collins annually. Target grades and ages will be determined with assistance from BPEC and the BAC.	Transportation Planning staff, BPEC, Poudre School District	Cost: \$23,000 KFCG, Safe Routes to School, Grant(s)	Target Bicycle Safety Education
E. Bicycle School Bus Pilot Program	Develop a pilot program for parents and/or school volunteers to lead a bicycle bus to school, especially for areas with known safety concerns.	Transportation Planning staff and BPEC	Cost: \$2,500 KFCG, Safe Routes to School	Increase Collaboration and Knowledge Sharing
F. Bicycle Safety Town (Planning and Design)	Identify location, design, and develop plan of a bicycle safety town for children and families to learn the basics of bicycling and road safety.	Transportation Planning and Parks Planning staff	Cost: \$15,000 KFCG (2011)	Safe Bicycle Facilities and Infrastructure Improvements
<b>Adult Bicyclists - College Students</b>				
A. College-Age Bicycle Education Outreach	Assist CSU Campus Bicycle Advisory Committee with implementation of bicycle safety and awareness programs focused on new and returning students, faculty, and staff. Encourage CSU to match funding. (2012)	City staff and Campus Bicycle Advisory Committee	Cost: \$7,500 Staff time and materials KFCG	Target Bicycle Safety Education (College Students)
<b>Adult Bicyclists - Families</b>				
B. Family Bicycle Education Outreach	Educate families on safe cycling skills and behaviors through a coalition of partners including church groups, youth clubs, City recreation programs, and after school programs.	Transportation Planning staff, BPEC, and Community Partners	Cost: \$5,000 KFCG, FC Bikes, Community Partnerships	Target Bicycle Safety Education (Families); Expand Safe Cycling Outreach Methods
<b>Adult Bicycling - Recreational Bicyclists</b>				
C. Recreational Cyclist Education Campaign	Develop an education campaign for recreational cyclists on proper techniques both on road and on trail, including the 1-2-3 Courtesy Code, three feet to pass, and trail etiquette. Includes signage and kiosk information along trails and at trailheads.	Transportation Planning, Parks Planning, Natural Areas staff and Bicycle Colorado	Cost: \$5,000 KFCG	Target Bicycle Safety Education
<b>Adult Bicyclists - Bicycle Commuters</b>				
D. Bicycle Commuter Education Outreach	Through BPEC, continue development and implementation of an educational campaign aimed at adult commuter bicyclists. This includes research and development of educational materials and training, coordination with other City departments, bike shops, local businesses, media representatives, and bike organizations (2012)	FC Bikes and BPEC	Cost: \$7,500 Staff time and materials KFCG (2012)	Target Bicycle Safety Education to Commuters Through Local Businesses.
<b>Motorists</b>				
A. Motorist Road Safety Education Outreach	Awareness campaign focused on motorists to raise awareness of bicyclists. Road safety education classes for diverse types of motorists.	Transportation Planning and PDT Communications staff	Cost: \$7,500 Staff time and materials KFCG	Target Bicycle Safety Education (Motorists); Expand Safe Cycling Outreach Methods
<b>Law Enforcement Officials</b>				
A. Law Enforcement Bicycle Training Opportunities	Assist Fort Collins Police Services in providing bicycle training opportunities to enable officers to be current with changes to bicycle laws and understand behaviors, rights, and other aspects of cycling.	FC Bikes and Fort Collins Police Services staff	Cost: \$5,000 Staff time and materials KFCG	Increase Collaboration and Knowledge Sharing

Action Item	Description	Responsibility	Cost and Funding Source(s)	Outcome(s)
<b>Infrastructure Improvements</b>				
A. Innovative Intersection Safety Improvements: Installation & Education Materials	Provides cost for installation materials and safety and educational information for new types of physical safety improvements for cyclists and motorists.	PDT staff	Cost: \$20,000 KFCG	Safe Bicycle Facilities and Infrastructure Improvements; Expand Safe Cycling Outreach Methods
<b>General Recommendations</b>				
E. Translate Bicycle Education Materials and Offer Trainings in Spanish Language	Provide bicycle safety education materials and classes in Spanish and collaborate with local organizations and community centers.	Transportation Planning staff, BPEC, Poudre School District	Cost: \$2,000 KFCG	Expand Safe Cycling Outreach Methods

**TABLE 6: PRIMARY ACTIONS (1-3 YEARS)**

Action Item	Description	Responsibility	Cost and Funding Source(s)	Outcome(s)
<b>Youth Bicycling</b>				
B. Review and Encourage Adoption of CDOT's Bicycle Safety Education Curriculum	Assist Poudre School District with their review of the bicycle safety curriculum scheduled for release in July 2011. Provide support and technical expertise as requested.	Transportation Planning staff, Poudre School District, BPEC	Cost: Staff time Safe Routes to School, Poudre School District, BPEC (in-kind)	Create Long-Term Program Sustainability; Increase Collaboration and Knowledge Sharing
C. Expand Bicycle Safety Education to High Schools	Coordinate mentoring opportunities between elementary, middle, and high schools. Encourage and support formation of bicycle clubs in high schools. Provide bicycle education resources for trainings and materials.	Transportation Planning staff Poudre School District BPEC	Cost: Staff time and materials FC Bikes, Safe Routes to School, and Poudre School District	Target Bicycle Safety Education (high school); Increase Collaboration and Knowledge Sharing
D. Identify at Least One Bicycle Educator in Each School	Ensure every school in Fort Collins has at least one graduate of the train the trainers program to provide bicycle safety education classes.	Transportation Planning staff, BPEC, Bike Co-op, Poudre School District	Cost: \$10,000 Safe Routes to School, Grant(s), BPEC	Target Bicycle Safety Education (Kids); Create Long-Term Program Sustainability
F. Bicycle Safety Town (Construction)	Construct a Bicycle Safety Town.	Transportation Planning and Parks Planning staff	Cost: TBD Building on Basics (2012), Local Businesses, Grant(s) as available	Safe Bicycle Facilities and Infrastructure Improvements
G. Hire a Full Time City/PSD Safe Routes to School Coordinator	Provide a full time City/PSD staff position dedicated to coordinating safe bicycle and walking infrastructure and programmatic improvements within Poudre School District and Fort Collins. Encourage a City/PSD partnership.	City of Fort Collins and Poudre School District	Cost: TBD TBD	Create Long-Term Program Sustainability; Increase Collaboration and Knowledge Sharing; Expand Safe Cycling Outreach Methods; Safe Bicycle Facilities and Infrastructure Improvements
<b>Law Enforcement Officials</b>				
B. Community Policing Agreement	An agreement between the local and regional police agencies, Transportation Planning department, and bicycle non-profit organizations/community. Formalize a collaborative approach to improve the city's planning and response to traffic related issues, and encourage all modes of travel together harmoniously.	Transportation Planning and Fort Collins Police Services staff	Cost: Staff time Transportation Planning and Fort Collins Police Services staff	Increase Collaboration and Knowledge Sharing
C. Diversion Program	Review and implement a diversion program for bicycle traffic offenders in Fort Collins to include a traffic skills class of at least two hours in duration.	Transportation Planning, City Attorney, Municipal Court, and Fort Collins Police Services staff	Cost: TBD Staff time Transportation Planning, City Attorney, Municipal Court, and Fort Collins Police Services staff	Target Bicycle Safety Education to Bicycle Traffic Offenders; Expand Safe Cycling Outreach Methods
D. High Bicycle Crash Area Enforcement	Coordinate with Fort Collins Police Services to develop a regular traffic enforcement strategy for both vehicles and bicycles at high bicycle crash areas.	Transportation Planning, Traffic Operations and Fort Collins Police Services staff	Cost: Staff time Police Services	Increase Collaboration and Knowledge Sharing; Safe Bicycle Facilities and Infrastructure Improvements

Action Item	Description	Responsibility	Cost and Funding Source(s)	Outcome(s)
<b>Infrastructure Improvements</b>				
A. Implement Innovative Intersection Safety Improvement Strategies	Review and encourage installation of innovative bicycle-related improvements such as buffered bike lanes, bicycle boulevards, cycle tracks, scramble crossings, bike boxes, and shared lane markings.	City staff, Colorado Department of Transportation	Cost: Staff time and materials	Safe Bicycle Facilities and Infrastructure Improvements
<b>General Recommendations</b>				
B. Disseminate Universal Bicycle Safety Messages To All Audiences	In addition to the League of American Bicyclists' Smart Cycling principles, disseminate through presentations, classes, materials, and multi-media campaigns, a consistent and comprehensive list of the most important bicycle safety issues in Fort Collins which affect motorists, cyclists, and pedestrians of all ages.	Transportation Planning staff and BPEC	Cost: Staff time BPEC	Improve Safety & Awareness Between All Modes; Expand Safe Cycling Outreach Methods; Target Bicycle Safety Education
C. Fort Collins Traffic Code Amendment	If bicycle education is not enough to reduce the number of "riding against traffic" bicycle crashes, review possible Traffic Code amendments. These amendments would enable Police Services to enforce cyclist behaviors to help decrease this crash type.	Transportation Planning, Traffic Operations, Fort Collins Police Services and City Attorney staff	Cost: Staff time Transportation Planning, Traffic Operations, Fort Collins Police Services and City Attorney staff	Safe Bicycle Facilities and Infrastructure Improvements
F. High Profile Bicycle Crash Database	Coordinate bicycle crash data collection and presentation efforts among City departments to create a user-friendly database to highlight current bicycle safety and education needs.	Transportation Planning, Traffic Operations, MIS and Fort Collins Police Services staff	Cost: Staff time Transportation Planning, Traffic Operations, MIS and Fort Collins Police Services staff	Increase Collaboration and Knowledge Sharing



## APPENDIX A

# EXISTING CONDITIONS REPORT

## Bicycle Facilities

The City has a well developed system of 280+ miles of bike lanes, bike routes, and 30+ miles of bike trails used by recreational and commuter bicyclists. The 2008 Bicycle Plan outlines the existing and planned Fort Collins Bike System. In addition, the City has begun to implement or examine a variety of bike-friendly infrastructure improvements to increase safety

### BIKE LOOPS

A limited number of intersections, primarily located in Old Town and near Colorado State University, have electro-magnetic bike loops installed in the bicycle lane. These magnetic loops detect cyclists when stopped at signalized intersections which actuates the traffic signal cycle. The end result is that a cyclist will get a green light without having to dismount and activate the pedestrian crossing signal. The City no longer continues to install bicycle loops; instead prefers to install contemporary detection technology, such as video detection.

### VIDEO DETECTION

Another form of vehicle detection at an intersection, the City has begun to implement video detection at signalized intersections throughout the community. Traffic cameras are more reliable and can detect bicycles and other vehicles that may not trigger traditional magnetic loops. In addition, City Traffic Operations staff is examining ways video detection can be used to perform real-time traffic counts for vehicles, including bicycles.

### PUBLIC BIKE PARKING

The City provides bicycle parking in Downtown Fort Collins. Bike parking is located in front of buildings to provide end-of-trip facilities for

cyclists. Protected, long-term bicycle parking is available in the Civic Center parking garage. In 2010, the City and local businesses partnered to install on-street bike parking in front of select businesses with high bicycle parking. The current locations include Café Ardour, Trailhead Tavern, The Rio Grande Mexican Restaurant, the Food Co-op, and Mugs Coffee shop. The City is undertaking a downtown parking study in 2011 which will include an analysis of bike parking demand and supply.

### SIGNALIZED MID-BLOCK CROSSINGS

While most crossings are designed for pedestrians, there are a number that benefit bicyclists as well. The Power Trail has signalized crossings at Drake Road and Horsetooth Road to allow a safe crossing for bicycles and pedestrians. The signals are user-activated and provide a red light to stop traffic in either direction while bicycles and pedestrians cross the street.

### SCHOOL 20 MPH SPEED ZONES

The City and Poudre School District (PSD) have installed 20 mph school speed zones in front and immediately adjacent to all elementary and middle schools. National studies have found that a 20 mph speed limit significantly reduces the chance of injury and fatality in pedestrian collisions.

## Bicycle Safety Programs & Organizations

### THE LEAGUE OF AMERICAN BICYCLISTS

The League of American Bicyclists (LAB) is the voice for cyclists at the national level, and organizes an annual National Bike Summit to bring professionals and advocates in Washington D.C., together with government representatives.

LAB works in partnership with other organizations such as America Bikes ("leveraging federal transportation dollars for bicycling", primarily with BBC money), the Alliance for

Bicycling and Walking (lobbies for government money to encourage bicycle usage while receiving substantial industry funding), Federal Highway Administration, National Highway Traffic Safety Administration, National Committee on Uniform Traffic Control Devices and National Committee on Uniform Traffic Laws and Ordinances in order to "create a more bicycle-friendly America".

LAB offers cycling education for adults and children in many locations across the U.S. Originally the education consisted of a single Effective Cycling (EC) course developed by John Forester and given to the League in 1976. Later, citing poor attendance and blaming the 30-hour length of the EC course, the League developed a curriculum consisting of multiple shorter courses. The name of the League's program was then changed to "Bike Ed." In 2008, the program was renamed "Smart Cycling."

The City and its partners currently use the bicycle education curriculum developed by the League of American Bicyclists which addresses the following criteria to teach safe cycling:

- Bicycle selection, parts of the bike, basic bike maintenance.
- Clothing, accessories, hydration and nutrition.
- Bicycle handling basics, principles of traffic law, causes of crashes, and hazard avoidance techniques and drills.
- Bicyclists' rights and responsibilities, lane positioning on the road, riding on trails, and group riding basics.

Bicycle safety training includes both classroom and hands on instruction.

### THE BICYCLE AND PEDESTRIAN EDUCATION COALITION

The Bicycle and Pedestrian Education Coalition (BPEC), through education and encouragement, works to reduce the number of motor vehicle/bicycle/pedestrian crashes in our community, and increase knowledge and awareness about how to safely share roads. The BPEC works to increase the number of bicycle riders and pedestrians in the community, nurturing health and wellness. BPEC utilizes the League of American Bicyclists' bike education

curriculum throughout Larimer County. Healthier Communities Coalition of Larimer County coordinates BPEC, with other members including City of Fort Collins, City of Loveland, Colorado Injury Control Research Center at CSU, Safe Kids Larimer County, Poudre School District, Thompson School District, Fort Collins Bicycle Co-op, Fort Collins Cycling Club, Bike Fort Collins, City of Fort Collins Police Services, CSU Police Department, PVHS Ambulance Service and Boys & Girls Clubs of Larimer County. The group is currently focused on Safe Routes to School, senior citizens, bicycle commuters, and CSU students.

### SAFE ROUTES TO SCHOOL

In the past generation, the number of students walking and bicycling to school has dropped to 16 percent nationwide, down from 42 percent in 1967. The Fort Collins Safe Routes to School (SRTS) program has been in place since the 1990s with the goal of enabling walking and bicycling as a viable means of transportation for students, parents, and teachers. The Safe Routes to School Coordinator is tasked with coordinating efforts among various City departments that work to enhance school safety and PSD. Approximately 4,300 students participate in the program each school year. Not only are more children walking and bicycling to school, but learning life-long safe cycling skills.

The City follows the "Five Es" methodology to ensure efficient and effective school safety: Education, Encouragement, Engineering, Enforcement, and Evaluation. Many of these tasks are not exclusive to the SRTS program or to a single department, and require partnerships and inter-disciplinary collaboration to ensure success. The City is currently establishing a school safety working group to formalize these partnerships not only within the City, but with PSD, CSU, and local advocacy groups.

The City is currently working with various BPEC members on implementing the Safe Routes to School program including the Bike Co-op, Healthier Communities Coalition, Safe Kids Larimer County, PVHS Ambulance Service, and Colorado State University. The City and BPEC

are focusing on providing walking and bicycling education classes, as well as a train-the-trainers program to create an overall fiscally sustainable approach. In the future, the Safe Routes to School program will be expanded to all Fort Collins schools.

## FC BIKES

FC Bikes is the City of Fort Collins' bicycle program. FC Bikes' staff employs a coordination approach that convenes the diverse and specific interests within the cycling community. This includes conducting educational outreach and encouragement activities while improving overall bicycle connectivity and bicycle facilities in Fort Collins and neighboring communities. FC Bikes utilizes the League of American Bicyclists' bike education curriculum when teaching bicycle education to the community.

The City of Fort Collins FC Bikes program offers a number of support mechanisms for cyclists. The following services relate to bicycle safety and education and are available through the City of Fort Collins' FC Bikes website: [fcgov.com/bicycling](http://fcgov.com/bicycling)

- **Contact your Bicycle Coordinator** - The City of Fort Collins Bicycle Coordinator is the public liaison to the City of Fort Collins on all issues/concerns/questions related to cycling for the City at 970-416-2411 or via email at [fcbikes@fcgov.com](mailto:fcbikes@fcgov.com).
- **Report a bike accident/close call** - This online reporting tool allows cyclists to report bike accidents and close calls. These reports are collected and used for tracking trends in the city. They also help transportation planners understand the types of accidents and close-calls that are occurring at specific locations: [fcgov.com/bicycling/report.php](http://fcgov.com/bicycling/report.php).
- **Report bike hazards & adopt-a-bikeway** - These online reporting tools allow cyclists to report unsafe conditions in bike lanes. These reports are fielded by the Streets Department and problems are usually addressed within 24 hours: [fcgov.com/bicycling/report.php](http://fcgov.com/bicycling/report.php).
- **Northern Colorado Ride Guide** - This comprehensive yearly publication is a resource for cyclists to help them an understanding of cycling in Fort Collins and offers information on events and bicycle safety information: [fcgov.com/common/pdfs/spotlight-pdf.php?id=22](http://fcgov.com/common/pdfs/spotlight-pdf.php?id=22).
- **Bicycle Map** - The annual bicycle map illustrates current bike routes, bike lanes, and bike trails in Fort Collins as well as offers bicycle safety information: [fcgov.com/bicycling/bike-maps.php](http://fcgov.com/bicycling/bike-maps.php).
- **Priority snow removal routes for cyclists** - [fcgov.com/weknowsnow](http://fcgov.com/weknowsnow).
- **Bicycle Registry** - This free, on-line bicycle registration allows cyclists to report stolen bicycles: [secure.fcgov.com/bicycling](http://secure.fcgov.com/bicycling).
- **Bike Trails Status** - Cyclists can check the status of bike trails, new sections, closures, and detours: [fcgov.com/parks/trail-status2.php](http://fcgov.com/parks/trail-status2.php).
- **CO-Exist Campaign** - Motorist and bicyclist education is an important aspect in creating a bicycle friendly community. The "Coexist" Campaign was designed to address eight of the most important educational messages for bicyclists and motorists. The "Coexist" campaign's objectives include educating bicyclists on how to ride respectfully in an urban setting, educating motorists on how to drive cautiously, while stressing to both motorist and bicyclist the importance of mutual awareness, patience, and courtesy. Electronic versions of the complete set as well as printed posters are available for distribution: [fcgov.com/bicycling/coexist.php](http://fcgov.com/bicycling/coexist.php).
- **Helmet Campaign** - Free bicycle helmets are available to residents who cannot afford to purchase one.
- **"Be Seen" Campaign** - Free bicycle lights are given to residents upon request.

## BICYCLE ADVISORY COMMITTEE

The Bicycle Advisory Committee (BAC) is a sub-committee of the City’s Transportation Board and reviews and provides recommendations to the Transportation Board regarding bicycle policies, and prioritizes bike plan recommendations. The Transportation Board (TBoard) advises the Fort Collins City Council on all transportation issues. The TBoard examines issues relating to financing; the development and implementation of master plans pertaining to pedestrian, streets, transit, bicycles, automobiles, congestion, traffic signalization, and transportation facilities; the use of technology; and education of the public and private industry on transportation topics. The BAC and TBoard act as forums for the citizens to express their needs and concerns. They coordinate with other city Boards and Commissions on projects and issues that are of mutual interest.

## COLORADO STATE UNIVERSITY CAMPUS BICYCLE ADVISORY COMMITTEE (CSU CBAC)

The CSU CBAC implements bicycle safety efforts on CSU’s campus based upon the Bicycle Safety Education Plan. Established in 2008, via the UniverCity Connections Transit and Mobility Task Force, CBAC offers support and guidance to enhance the bicycle experience for the CSU campus community and provides technical and planning assistance to CSU Facilities and campus safety services. The board is comprised of community bicycle advocates, University Connections members, the CSU Police Department, CSU Parking Services, City of Fort Collins Transportation Planning Department, the CSU Facilities Department, CSU faculty and students (ASCSU), and CSU Conference and Dining Services. The mission of the CSU Campus Bicycle Advisory Committee is to promote a fun and safe bicycle-friendly experience on and around the CSU campus through awareness, planning, and education. To support the individual, societal, and environmental benefits of bicycles as affordable, green transportation for students and our campus community to and from home, classes, meetings, social outings, and sports events.

## SAFE KIDS OF LARIMER COUNTY

Led by Poudre Valley Health System, Safe Kids is a partnership of health care providers, government agencies, civic clubs, law enforcement, and private and public organizations committed to preventing accidental injuries in children ages birth to 14 years old. Safe Kids works to keep Larimer County children safe by focusing on injury prevention, including bicycle and pedestrian safety and child passenger/motor vehicle safety. Safe Kids of Larimer County is a member of BPEC.

## BIKE CO-OP MASTER CYCLIST PROGRAM

Using League Cycling Instructors (LCI), the Bike Co-op trains volunteers on vehicular cycling and youth skills so they can help teach bike rodeos at schools and elsewhere. Participants complete the Traffic Skills 101 prerequisite for LCI certification. The program is currently funded as part of the City of Fort Collins SRTS program (See appendix for information on the Master Cyclist Program).

## BIKE FORT COLLINS COMMUNITY CYCLING SCHOOL

Bike Fort Collins volunteers and league Certified Instructor personnel provide customized educational presentations to organizations that ensure more people have the skills and knowledge needed to integrate cycling into everyday practices. The program was originally funded through a grant from REI and is now a part of their budget.

## FORT COLLINS CYCLING CLUB

Their mission is to promote cycling in Fort Collins and the surrounding area. One of the club's focuses is training local business how to take advantage of the Bicycle Commuter Benefits program offered by the Internal Revenue Service. This program offers bicycle commuters a \$20/month incentive. FCCC works with a business' human resources and finance departments to complete the IRS process so employees can take advantage of the program. The Fort Collins Cycling Club is a member of BPEC and strives to educate commuter cyclists on the benefits of cycling.

## OVERLAND MOUNTAIN BIKE CLUB

OMBC is focused on recreational mountain bike riding, but also conducts regular patrols on trails throughout northern Colorado. These patrols offer maintenance, wayfinding, and medical assistance. In addition, the club is actively involved in building mountain bike trails and providing grant support to local bicycle projects and projects. The Overland Mountain Bike Club is a member of BPEC and offers mini-grants to local organizations that enhance cycling in Fort Collins.

## CITY OF LOVELAND SRTS

The City of Loveland partners with the Thompson School District to promote the SRTS program. Loveland has two primary goals: to teach safe walking skills that are useful throughout life, and to encourage families to bicycle to school when safe, and to make changes and/or educate students when it is not safe. The program is currently funded through a grant from the Colorado Department of Transportation.

## PLANNING, DESIGN, ENGINEERING, OPERATIONS & MAINTENANCE POLICIES

The City of Fort Collins has extensive streets, engineering and transportation policies supporting bicycling. This includes Complete Streets, trail planning and design guidelines, maximum intersection geometry, and others to make bicycling a viable mode of transportation.

More information on these policies can be found in the 2008 Bicycle Plan and the 2011 Transportation Master Plan. Both plans are available at [fcgov.com/transportationplanning](http://fcgov.com/transportationplanning).



APPENDIX B

# 2007-2009 FORT COLLINS BICYCLE CRASH REPORT

## Fort Collins Bicycle Accident Summary, 2010

Table 1 shows the number of bicycle accidents in Fort Collins from January 1, 2000 – December 31, 2009 that happen on the public right-a-way.

**TABLE 1 – BICYCLE ACCIDENTS BY YEAR**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2009 %Δ vs. prev. 3 yr. avg.
Non-Injury Accidents	33	32	30	30	30	51	41	47	48	45	0%
Injury Accidents	79	70	76	73	87	73	66	93	92	105	+25%
Fatal Accidents	1	0	0	0	1	0	0	0	2	1	-50%
<b>Total Accidents</b>	113	102	106	103	118	124	107	140	142	151	+16.45%

Table 2 shows the bicycle accident rate (in accidents per 1,000 population) in Fort Collins taking into account the population increase that has occurred. The average accident rate for the 9 year period is 0.94 accidents/1,000 population.

**TABLE 2 – BICYCLE ACCIDENTS/1,000 POPULATION**

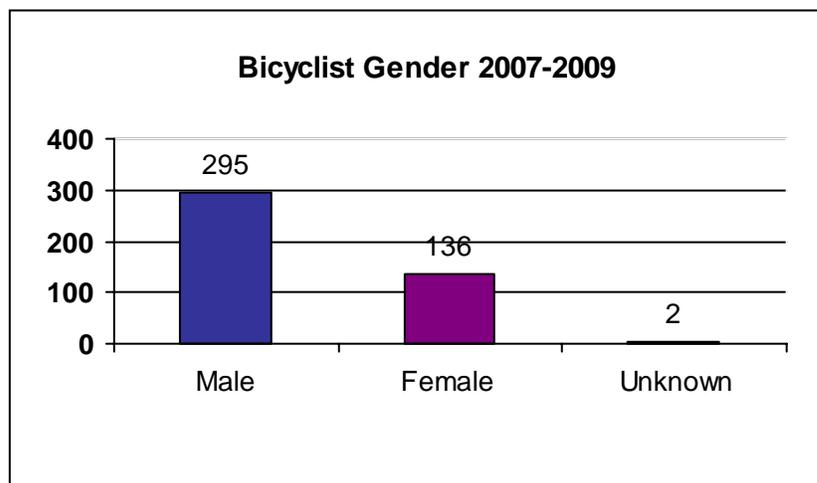
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2009 %Δ vs. prev. 3 yr. avg.
Population (In Thousands)	118.6	112.5	124.4	125.4	126.9	127.6	129.5	134.1	136.4	137.2	
<b>Accident Rate</b>	0.95	0.91	0.85	0.82	0.93	0.97	0.83	1.04	1.04	1.10	+14.1%

Table 3 shows the age of bicyclists involved in accidents in Fort Collins from 2007 - 2009. Note that there were 47 bicycle accidents during this time period where the age of the bicyclist was not reported and two accidents that involved more than one bicyclist.

**TABLE 3 – BICYCLE ACCIDENTS  
BY BICYCLIST AGE**

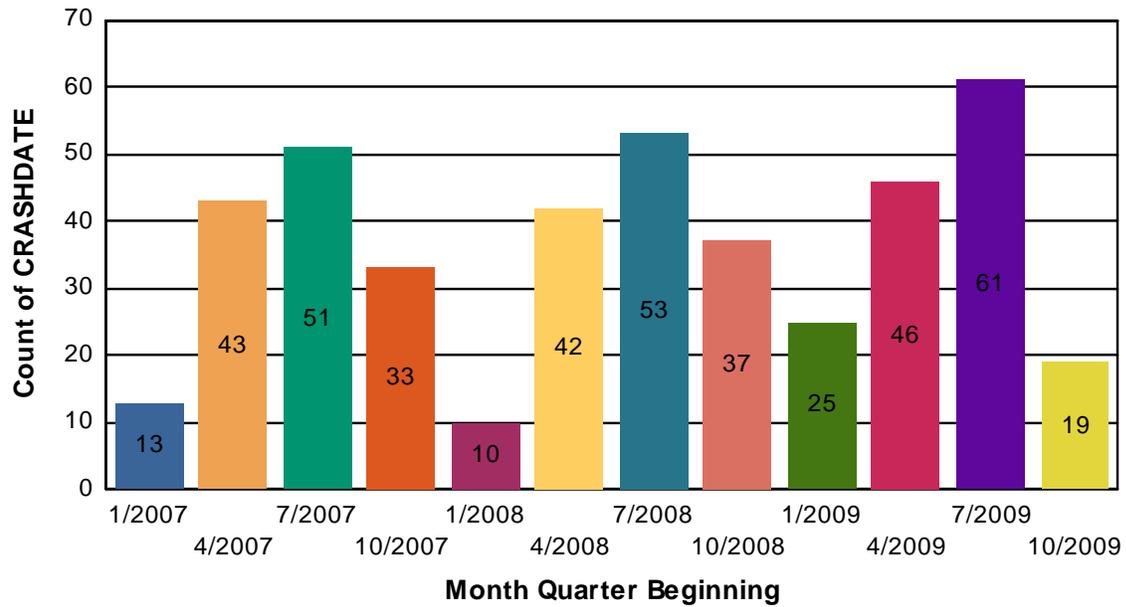
	2007	2008	2009	Total	% of Accidents
0-4	0	0	0	0	0
5-9	3	3	1	7	1.6
10-14	11	4	6	21	4.8
15-19	30	31	26	87	20.
20-24	25	34	50	109	25.1
25-34	27	20	33	80	18.4
35-44	12	12	10	34	7.8
45-54	11	12	5	28	6.4
55-64	1	4	7	12	2.8
65-74	2	3	0	5	1.15
75-84	0	1	2	3	.46
85+	0	0	1	1	.2
Unknown	19	18	11	47	11.3
<b>Total Accidents</b>	141	142	152	435	100%

The graph to the right shows the gender of bicyclists involved in bike accidents between 2007 - 2009.



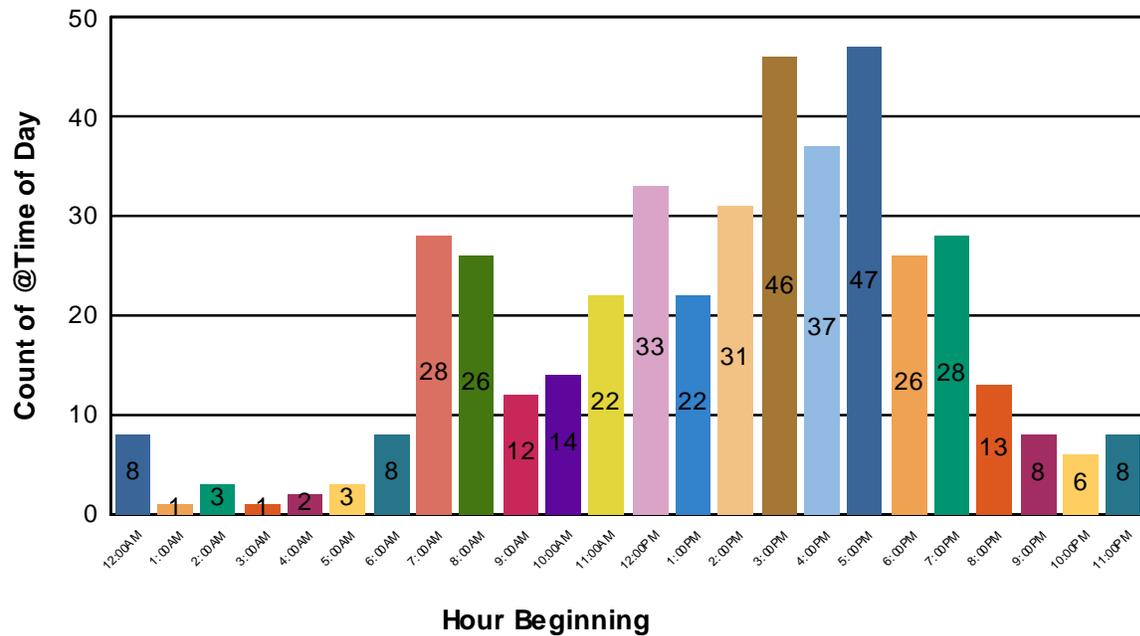
## Collisions By Date For Jan 1, 2007- Dec 31, 2009

Sorted By Quarter



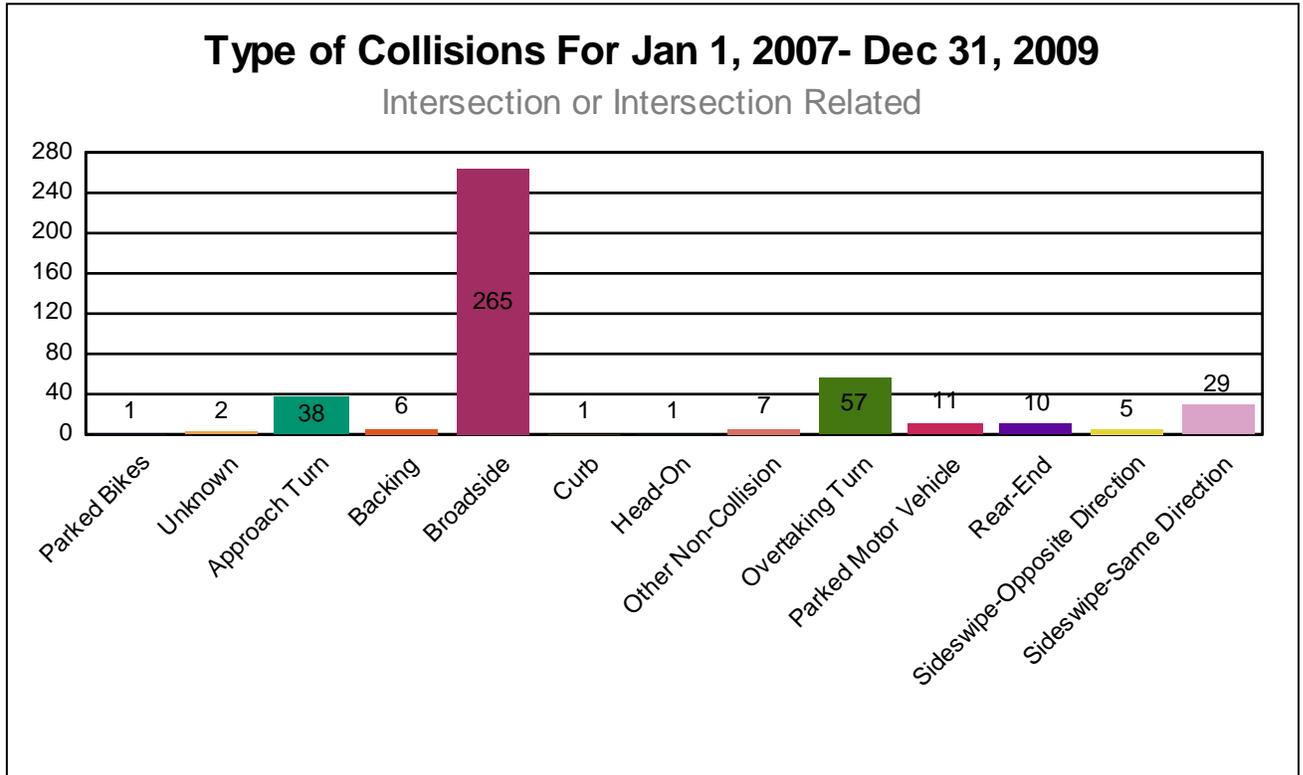
## Collisions By Time For Jan 1, 2007- Dec 31, 2009

Time of Day



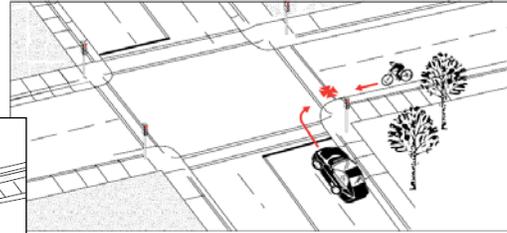
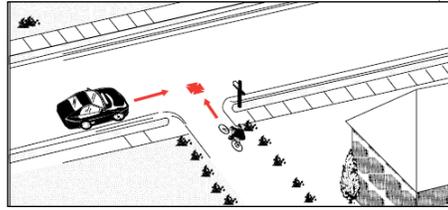
## Types of Collisions

Bicycle accidents can be further broken down into various types of accidents based on the circumstances. Types of bicycle accidents and the number of each type in Fort Collins from January 1, 2007 – December 31, 2009 are shown below:



## Broadside or Right Angle Accidents at Intersections – 265 Collisions (61.2%)

Accidents where a bicyclist hits or is hit by a vehicle on a perpendicular roadway/driveway.

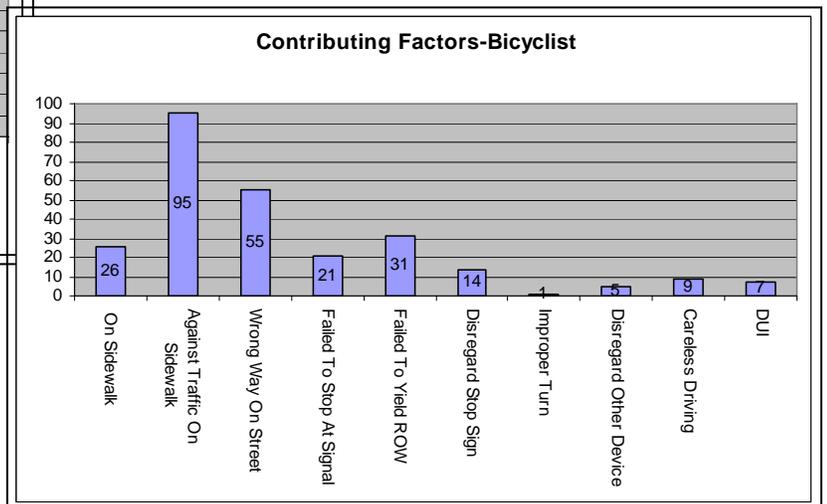
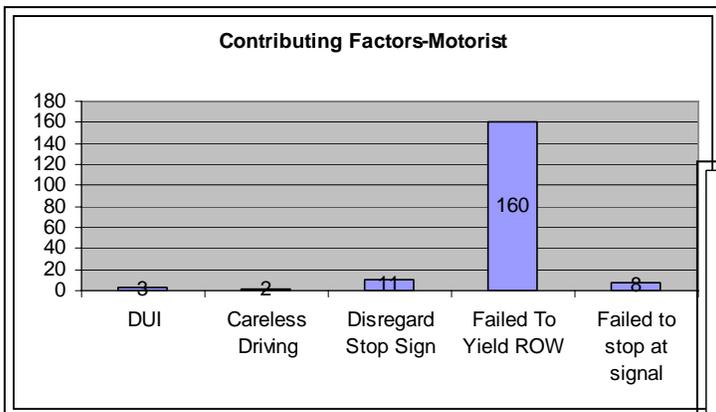


These accidents are further sub-categorized in the following table.

Broadside Collisions						
Description	Right Turning Vehicle	Left Turning Vehicle	Straight	Total Number of Collisions	Injury Collisions	Fatal
<b><u>Bike Riding <i>Against</i> Traffic</u></b>						
Bike on sidewalk/crosswalk	79	6	10	95	60	
Bike in the Street	38	7	7	52	30	
Bike Unknown Location	2	1	2	5	2	
<b><u>Bike Riding <i>Against</i> Traffic</u></b>	<b>119</b>	<b>14</b>	<b>19</b>	<b>152</b>	<b>92</b>	<b>0</b>
<b><u>Bike Riding <i>With</i> Traffic</u></b>						
Bike on sidewalk/crosswalk*	9	3	18	30	21	
Bike in the Street	11	14	33	58	45	
<b><u>Bike Riding <i>With</i> Traffic</u></b>	<b>20</b>	<b>17</b>	<b>51</b>	<b>88</b>	<b>66</b>	<b>0</b>
<b><u>Unknown Location of Bike</u></b>						
	10	2	13	25	11	1
<b>Total</b>	<b>149</b>	<b>33</b>	<b>83</b>	<b>265</b>	<b>169</b>	<b>1</b>

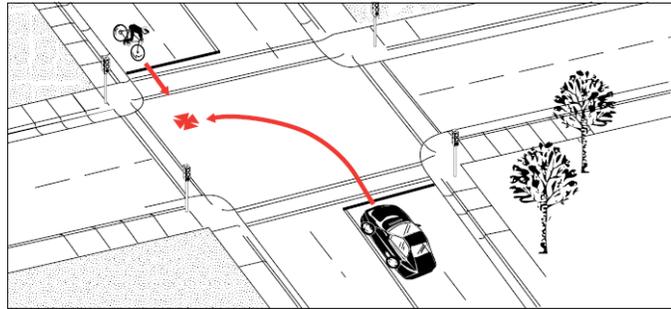
\*Note: two were at mid block pedestrian crossings

Table 4



## Approach Turn Accidents at Intersections – 38 Collisions (8.8%)

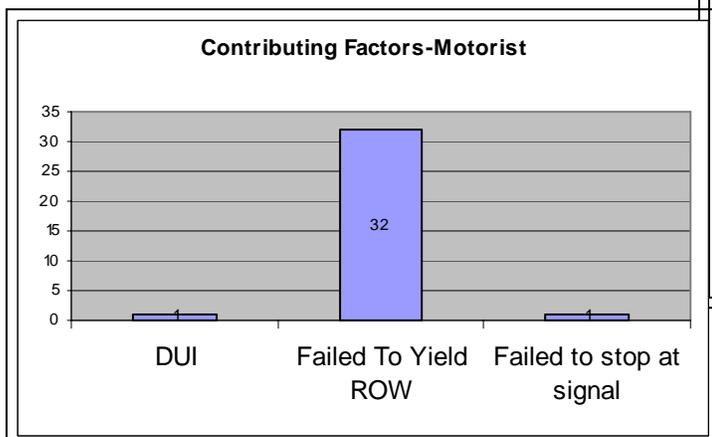
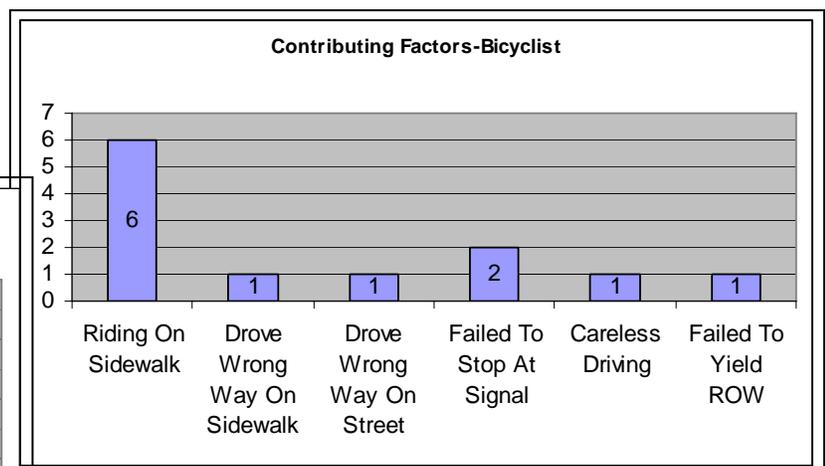
Accidents where a bicyclist hits or is hit by a vehicle approaching from the opposite direction and turning right or left.



These accidents are further sub-categorized in the following table.

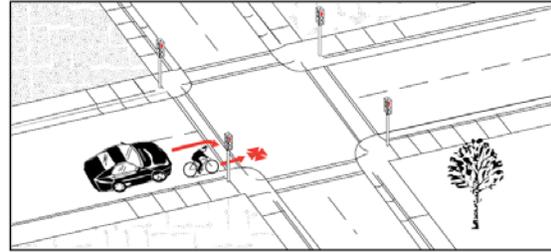
Approach Turns			
Description	Number of Collisions	Injury Collisions	Fatal
<b><u>Bike Riding <i>Against</i> Traffic</u></b>			
Bike on sidewalk/crosswalk	1		
Bike in the Street	1		
Bike Unknown Location	0		
<b><u>Bike Riding <i>Against</i> Traffic</u></b>	2	0	0
<b><u>Bike Riding <i>With</i> Traffic</u></b>			
Bike on sidewalk/crosswalk	6	4	
Bike in the Street	28	23	
Bike Unknown Location	1		
<b><u>Bike Riding <i>With</i> Traffic</u></b>	35	27	0
<b><u>Unknown Location of Bike</u></b>			
	1	1	
Total	38	28	0

Table 5



## Overtaking Turn Accidents at Intersections – 57 Collisions (13.2%)

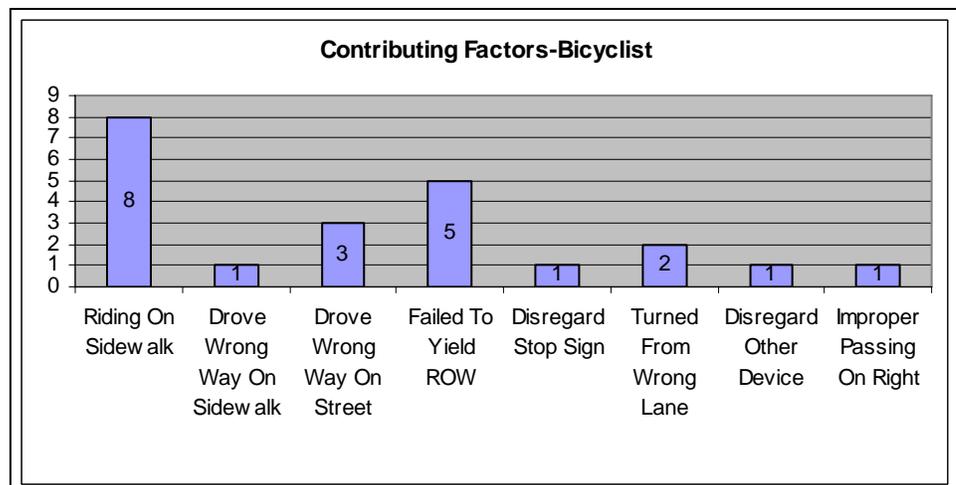
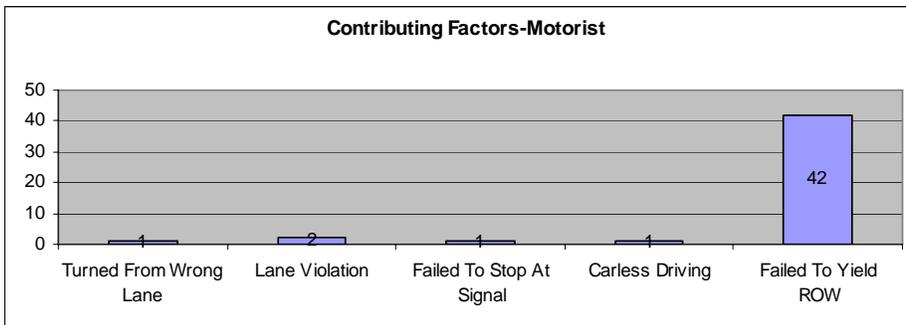
Accidents where a bicyclist hits or is hit by a vehicle traveling in the same direction as the bicyclist (approaching from behind) and turning right or left



These accidents are further sub-categorized in the following table.

<b>Overtaking Turns</b>			
Description	# of Collisions	Injury Collisions	Fatal
<b><u>Bike Riding <i>Against</i> Traffic</u></b>			
Bike on sidewalk/crosswalk	1	1	
Bike in the Street	3	3	
<b><u>Bike Riding <i>Against</i> Traffic</u></b>	4	4	0
<b><u>Bike Riding <i>With</i> Traffic</u></b>			
Bike on sidewalk/crosswalk	8	6	
Bike in the Street	43	34	
<b><u>Bike Riding <i>With</i> Traffic</u></b>	51	40	0
<b><u>Unknown Location of Bike</u></b>			
	2	1	
<b>Total</b>	<b>57</b>	<b>45</b>	<b>0</b>

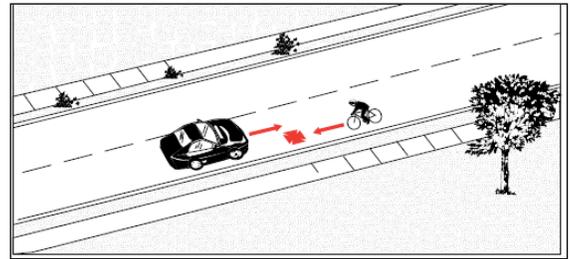
Table 6



**Sideswipe Accidents – 34 Collisions (7.9%)**

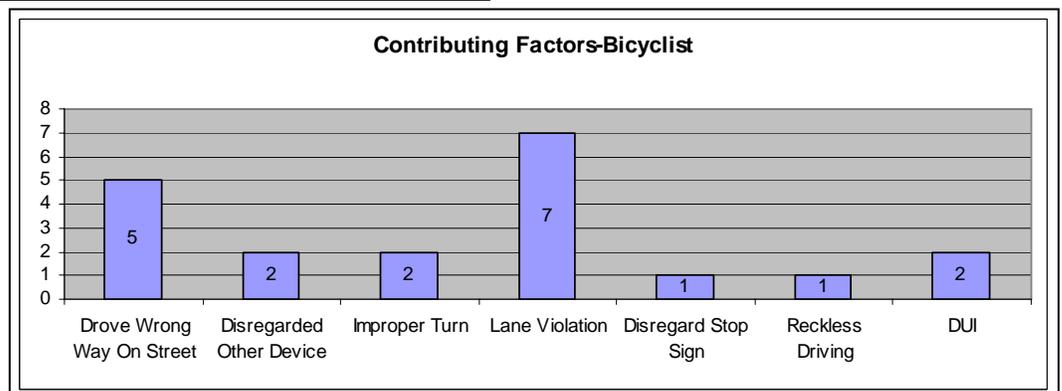
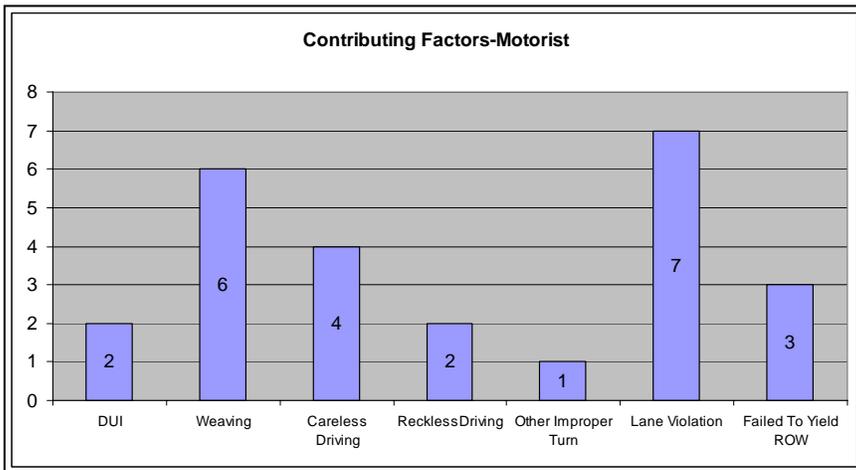
Accidents where a bicyclist hits or is hit by a vehicle traveling in the same direction or opposite direction as the bicyclist or car is changing lanes, passing or weaving.

These accidents are further sub-categorized in the following table.



Sideswipe			
Description	Number of Collisions	Injury Collisions	Fatal
<b>Opposite Direction</b>			
Bike Riding <i>Against</i> Traffic In Street	5	3	1
<b>Total Sideswipe Opposite Direction</b>			
<b>Same Direction</b>			
Bike Riding <i>Against</i> Traffic In Street	2	2	0
Bike Riding <i>With</i> Traffic In Street	24	14	1
Unknown Location of Bike	3	2	
<b>Total Sideswipe Same Direction</b>			
<b>Total</b>	<b>34</b>	<b>21</b>	<b>2</b>

Table 7

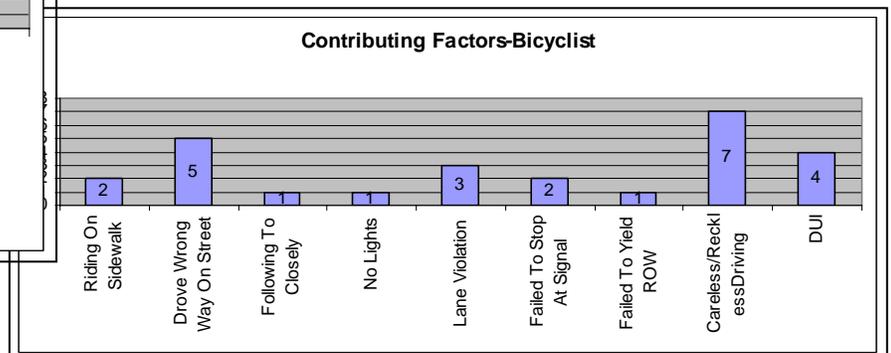
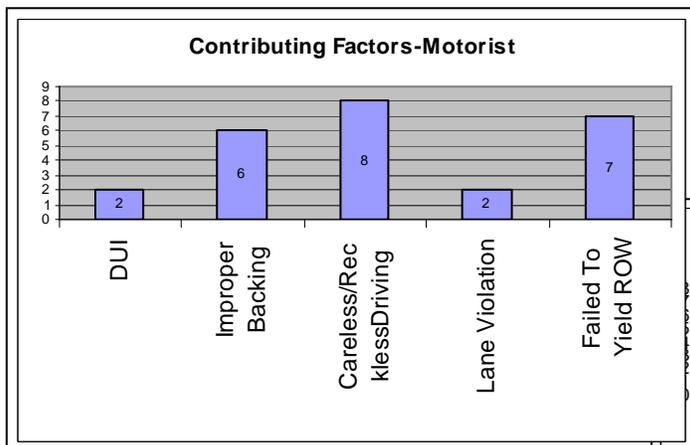


## Other Collisions – 39 (9.0%)

These accidents are further sub-categorized in the following table.

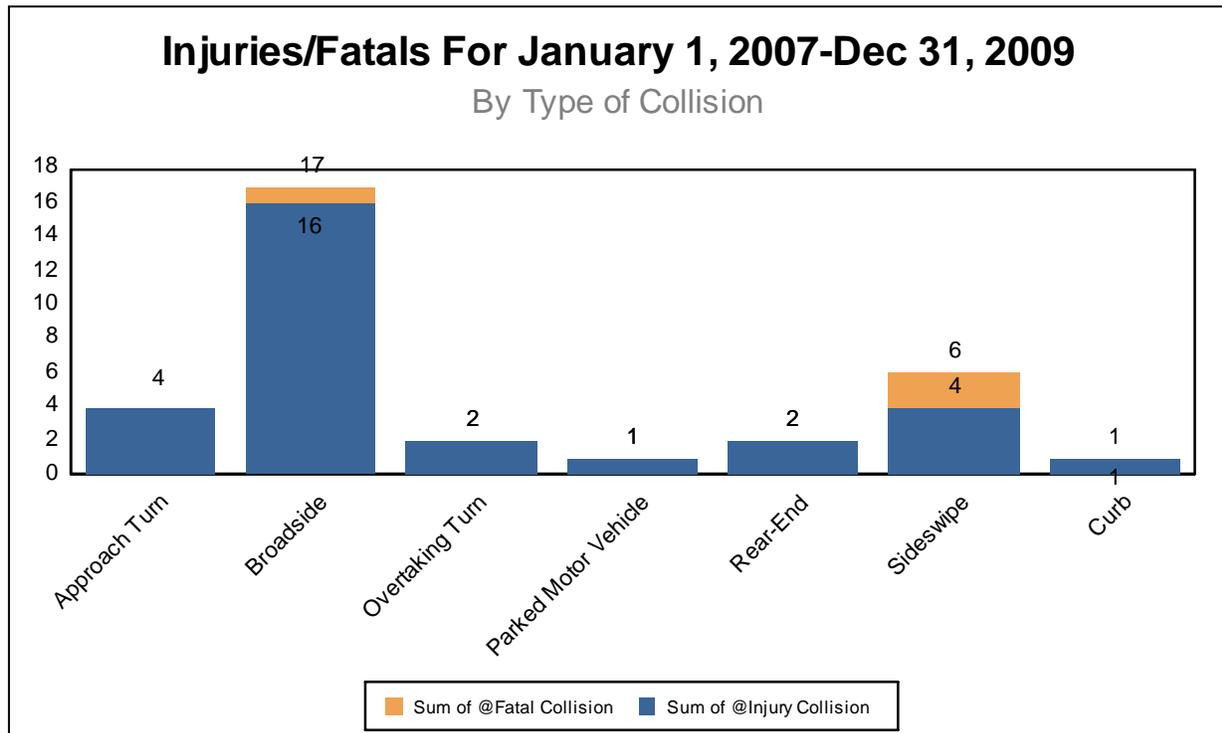
Other Collisions			
Description	Number of Collisions	Injury Collisions	Fatal
<b>Head-On</b>			
Bike Riding With Traffic In Street	1	0	
<b>Total Head-On</b>	1	0	0
<b>Rear-End</b>			
Bike Riding <i>Against</i> Traffic In Street	1		
Bike Riding <i>With</i> Traffic In Street	9	6	
<b>Total Rear-End</b>	10	6	0
<b>Backing</b>			
Bike Riding <i>With</i> Traffic In Street	3	3	
Bike Riding <i>With</i> Traffic On Sidewalk/Crosswalk	1		
Bike Riding <i>Against</i> Traffic On Sidewalk/Crosswalk	1	1	
Unknown Location of Bike	1	1	
<b>Total Backing</b>	6	5	0
<b>Parked Motor Vehicles</b>			
Bike Riding <i>Against</i> Traffic In Street	3	3	
Bike Riding <i>Against</i> Traffic On Sidewalk/Crosswalk	1	0	
Bike Riding <i>With</i> Traffic In Street	6	5	
Unknown Location of Bike	1	1	
<b>Total Parked Motor Vehicles</b>	11	9	0
<b>Curb</b>			
Bike Riding <i>With</i> Traffic In Street	1	1	0
<b>Total Curb</b>	1	1	0
<b>Non Collision</b>			
Bike Riding <i>With</i> Traffic In Street	5	4	
Unknown Location of Bike	2	1	
<b>Total Non Collision</b>	7	5	0
<b>Others - Parked Bikes, No Info</b>	3	1	
<b>Total</b>	<b>39</b>	<b>27</b>	<b>0</b>

Table 8



## Severe Injury or Fatal Collisions

Of the 433 bicycle accidents reported between January 1, 2007 and December 31, 2009, thirty two of them were severe injury or fatal accidents. As shown below the trends for these serious accidents are similar to those shown above for all accidents.



These accidents are further sub-categorized in the following table.

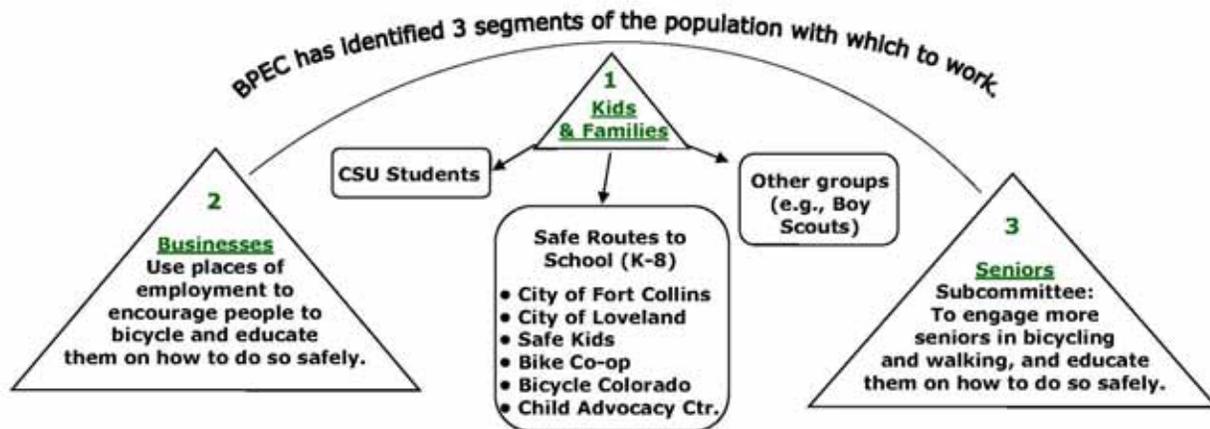
<b>Severe Injury/Fatal Collisions</b>			
<b>Description</b>		<b>Injury Collisions</b>	<b>Fatal</b>
<b>Approach Turn</b>			
Bike riding with traffic on sidewalk/crosswalk		2	
Bike riding with traffic on street		2	
<b>Total Approach Turn</b>	<b>12.5%</b>	<b>4</b>	<b>0</b>
<b>Broadside</b>			
Bike riding against traffic on sidewalk/crosswalk		2	
Bike riding against traffic on street		5	
Bike riding with traffic on sidewalk/crosswalk		4	
Bike riding with traffic on street		5	
Unknown Location of Bike			1
<b>Total Broadside</b>	<b>53.1%</b>	<b>16</b>	<b>1</b>
<b>Overtaking Turn</b>			
Bike riding with traffic on sidewalk/crosswalk		1	
Bike riding with traffic on street		1	
<b>Total Overtaking</b>	<b>6.3%</b>	<b>2</b>	<b>0</b>
<b>Rear-End</b>			
Bike riding with traffic on street		2	
<b>Total Rear End</b>	<b>6.3%</b>	<b>2</b>	<b>0</b>
<b>Sideswipe-Opposite Direction</b>			
Bike riding against traffic on street		1	1
<b>Total Sideswipe-Opposite Direction</b>	<b>6.3%</b>	<b>1</b>	<b>1</b>
<b>Sideswipe-Same Direction</b>			
Bike riding against traffic on street		1	
Bike riding with traffic on street		1	1
<b>Total Sideswipe-Same Direction</b>	<b>9.4%</b>	<b>2</b>	<b>1</b>
<b>Parked Motor Vehicle</b>			
Bike riding with traffic on street		1	
<b>Total Parked Motor Vehicle</b>	<b>3.1%</b>	<b>1</b>	<b>0</b>
<b>Curb</b>			
Bike riding with traffic on street		1	
<b>Total Curb</b>	<b>3.1%</b>	<b>1</b>	<b>0</b>
<b>Total</b>	<b>100%</b>	<b>29</b>	<b>3</b>

APPENDIX C

# BICYCLE AND PEDESTRIAN EDUCATION COALITION PARTNERSHIP FRAMEWORK



The BPEC, through education and encouragement, works to reduce the number of motor vehicle/bicycle/pedestrian crashes in our community, and increase knowledge and awareness about how to safely share roads. The BPEC works to increase the number of bicycle riders and pedestrians in the community, nurturing health and wellness.



11/18/2010



APPENDIX D

**BIKE CO-OP MASTER CYCLIST PROGRAM  
INFORMATION**



Bicycle Cooperative of Fort Collins, Inc.  
331 North College Ave.  
Fort Collins, CO 90524  
970-484-3804  
[www.fcbikecoop.org](http://www.fcbikecoop.org)

“Building Community through Bicycling”

## **Master Cyclist Program**

**Goal:** To build a culture of safe cycling in our community.

**How:**

1. Recruit and train a dedicated group of volunteers to teach bike safety to children, college students and adults.
2. Develop a cycling ambassador program to educate and inform cyclists on safe cycling practices while riding the city streets and urban bike trail systems.

**Who:**

With the emphasis on building the pool of instructors, the Bike Co-op is uniquely qualified to develop and administer the Master Cyclist program. The Co-op led the community effort to train 24 League Cycling Instructors (LCIs) in 2009. In 2010 and 2011, the Bike Co-op recruited and trained a group of volunteers to assist with bike education programs. Under the 2010-2011 SRTS contract, their goal is to train 35 PE teachers across Poudre School District and another 25 community volunteers in the skills necessary to deliver bike education programs.

## **How to become a Fort Collins’ Master Cyclist**

The Fort Collins Master Cyclist training program is free for those who commit to volunteer with the Safe Routes to School Program or to share their knowledge through safe cycling programs of the City of Fort Collins or the Bike Co-op. Volunteers need only provide their bicycle, helmet, gloves and a water bottle.

Training for Master Cyclists will leverage curriculum from the League of American Bicyclists. As updates are made to LAB training, the Master Cyclist program will also evolve. Curriculum info is available here: <http://www.bikeleague.org/programs/education/courses.php>

Master Cyclist training will include three parts:

1. Traffic Skills 101 class – an online course offered by the League of the American Bicyclists. You can take this course at [www.BikeEd.org](http://www.BikeEd.org). This self-paced course provides the theoretical basis for the content taught in this course and described below. The online class takes 3-4 hours.

2. On-the-bike training with a League Cycling Instructor. Details listed in Appendix I.
3. Assist in the delivery of a minimum of two youth or adult safe cycling presentations.

After completing all 3 parts, volunteers will become Master Cyclists and will be encouraged to continue to educate the community with their safe cycling knowledge.

Individuals who complete advanced training will be known as Master Cyclists. In addition to the safe cycling education described above, individuals will complete volunteer training through City of Fort Collins Natural Resources to learn techniques to engage the public for educational purposes. Master Cyclists will act as a role model for safe cycling practices and work to educate and inform the public they meet while riding around the city streets and bike paths. This role will not include enforcement authority.

This program will be modeled after programs such as:

1. Diamond Peaks Mountain Bike Patrol agreement with City of Fort Collins Natural Resources
2. City of Fort Collins Master Naturalist program
3. Master Cyclist programs other cities such as Chicago <http://bicyclingambassadors.org/>

# Appendix I

## Principles of Smart Cycling for Master Cyclists

### Master Cyclists learn:

1. The principles of vehicular cycling
  - a. Where to ride on the road to be safest and most visible
  - b. How to “drive your bike” like a car
  - c. The correct use of bike lanes and sidewalks
  - d. Rules of the Road
2. Essentials of riding for beginners, including
  - a. Correct procedures for starting, stopping, mounting and dismounting
  - b. Straight line riding
  - c. Scanning, signaling, merging and turning
3. Selection and use of appropriate equipment
  - a. Bicycle type, size and proper fit
  - b. Helmet use and the importance of helmets
  - c. “ABC Quick Check:” bike maintenance and diagnostics
  - d. Efficient cycling: where bike fit, maintenance, and skills come together
4. Teaching cycling skills to children under 10 (and the importance of reaching their parents)
5. Teaching cycling skills to children 10 to 14
  - a. How crashes happen and how to avoid them
  - b. The law as it relates to bicycles and more rules of the road
  - c. Hazard avoidance
6. Laying out a bicycle skills course (“bike rodeo”) and conducting youth skills classes
7. Practice:
  - a. On the road
  - b. On the trail
8. Teaching techniques and bicycle field trips

Cycling Ambassadors complete additional training on techniques to effectively engage the public as they work to “educate and inform” them about safe cycling practices.

APPENDIX E

# COLORADO STATE UNIVERSITY BIKE CONFLICT ZONES MAP

