

## Staff Advisory Group

In response to citizens' concerns for pedestrian safety at intersections and street crossings, the City of Fort Collins' Transportation Service Area has organized an inter-departmental group of staff members to conduct a study and explore means to improve pedestrian safety on our community. This is a multi-disciplinary team, which includes Transportation Planning, Engineering, Traffic Operations, Smart Trips, the City Attorney Office, and Police Services. The Group has adopted the "Three E" approach to address pedestrian safety: Enforcement, Engineering and Education. Examples of tasks to be performed include, reviewing and educating citizens and staff on the City's existing FCTC examine the role of law enforcement, evaluate characteristics of well engineered intersections and crosswalks for pedestrian safety, as well as an extensive motorist and pedestrian education campaign.

The objective of this effort is to develop alternatives and recommend strategies to increase pedestrian safety and driver awareness at intersections and crosswalks in Fort Collins.

### Staff Advisory Group's Findings and Recommendations

Pedestrian safety is not only a Fort Collins concern, but a national problem. Creating safer street crossings is part of the solution. There are numerous new 'best practices' that have emerged to make street crossings more safe. Throughout Colorado and the country jurisdictions have changed their design standards to reduce the length of street crossings,

conducted strict law enforcement operations, held many educational workshops, used new "Yield to Pedestrian" devices, and new light emitting diode (LED) applications in combination with signage. Several of these applications have been used or recently installed at several locations within the City, and have become a standard practice in Fort Collins.



**Flashing Pedestrian Signal (Mountain Ave. at Remington)**

An early stage recommendation for improving pedestrian safety not only at street crossings, but in all aspects of the pedestrian transportation system, is to update the City's *Pedestrian Plan* as recommended in the *Transportation Master Plan* update. A pedestrian panel should be created to update the plan; it should consist of expert City staff, representatives from various City boards and commissions, public and private agencies, such as the Poudre School District and the Downtown Development Authority, senior citizen groups,

people with disabilities, neighborhood associations, local businesses, and a variety of residents throughout Fort Collins.

Traditionally, safety problems have been addressed based on police crash reports and improvements were only made after they were warranted by the crash numbers. However, the objective of this program is to take a proactive approach to identify and address problems. The program will review the City's goals, policies, codes, street standards, and educational means to achieve a safe pedestrian environment through various City boards and commissions, and talking with police and other City departments to identify and understand problems. The goal of this proactive approach is to address problem areas and prevent crashes before they occur. It will also involve citizens in the process of improving pedestrian and motorist safety and mobility in their own community.

### **'Walk Safe, Drive Smart' Safety Campaign**

The foremost recommendation to improve pedestrian safety in the City should be to conduct a new and extensive educational safety campaign for motorists and pedestrians through public outreach efforts. The campaign should begin by familiarizing residents on the local rules for crossing streets, including the operation of pedestrian signals. The campaign should also focus on the responsibilities of motorists and how they relate to safe pedestrian mobility. Coupled with the educational component of the campaign should be a law enforcement effort to reinforce the punishment for individuals that break laws designed to improve public safety.

**The Insurance Institute for Highway Safety reports that the largest change in driver behavior comes from the enforcement of traffic safety laws.**

The Insurance Institute for Highway Safety reports that the largest change in driver behavior comes from the enforcement of traffic safety laws. These steps will be important in creating and maintaining a safe pedestrian environment.

Tools and recommendations to accomplish this effort include:

- Create an interactive website to provide educational materials and allow citizens to provide input via the website to City staff regarding pedestrian safety concerns or suggestions.
- Design a website quiz to tests motorist's and pedestrian I.Q. pertaining to pedestrian safety and local law.
- Create education manuals for motorists and pedestrians. Contents of the manuals should be focused on targeted audiences and age groups. Manuals for new and experienced motorists should include statistics on motor vehicle and pedestrian collisions, turning movements that are most hazardous for pedestrians, safe ways to

conduct turns, and how to comply with the City's traffic code. Manuals for younger students (K through 5<sup>th</sup> grade) should include ways to cross the street safely, hazards to look out for, and how to operate a pedestrian signal. Well written and illustrated driver manuals are increasing in importance as public schools phase out driver education classes.

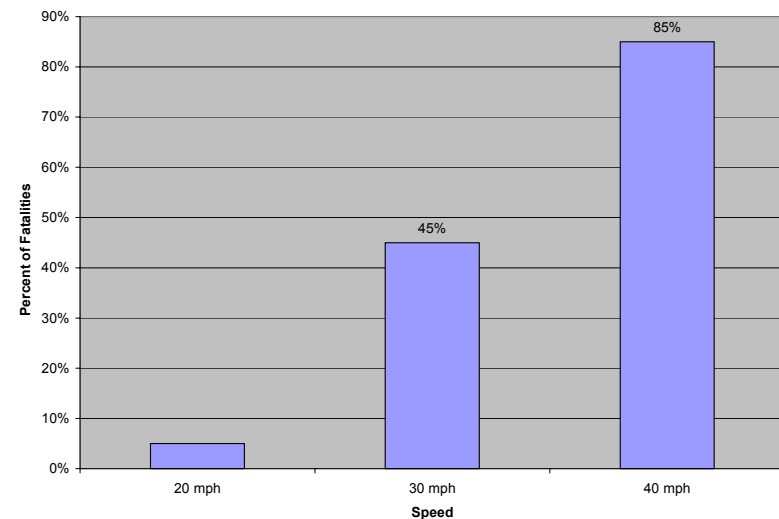
- Utilize media sources, such as newspapers, television, etc... to provide educational material to targeted audiences.
- Meet with neighborhood groups regarding issues or concerns on pedestrian safety in their neighborhoods and throughout town.
- Utilize local insurance representatives for public driver safety presentations and include additional information concerning pedestrian safety. Explore further possible joint efforts with local insurance companies.
- Inform motorists and pedestrians the penalty for violating pedestrian safety traffic laws through outreach efforts such as signage, publications, or presentations.
- Partner with other organizations and events.
- Conduct a law enforcement workshop followed by a pedestrian right-of-way enforcement effort (see recommendation under Enforcement).

Below are additional preliminary findings and recommendations based on the “Three E” approach to pedestrian safety. Some of these recommendations have already been implemented by City staff. Other recommendations will be examined and reviewed as part of the *Pedestrian Plan* update process.

## Enforcement

### Findings

- Several residents have reported that not enough is being done to enforce the pedestrian right-of-way laws. They are frustrated by a perceived lack of interest by the City to resolve the pedestrian right-of-way problem.
- National data suggests that pedestrians involved in collisions with motor vehicles are more likely to be injured or killed as vehicle speeds increase. Below the graph shows that a pedestrian struck at 40 M.P.H. has an 85% chance of being killed; at 30 M.P.H. the fatality rate decreases to 45%, while at 20 M.P.H. the fatality rate is only 5%.<sup>4</sup>



<sup>4</sup> Federal Highway Administration – Bicycle & Pedestrian Program

- Results from the stop sign compliance survey indicate that motorists do not always come to a complete stop at intersections controlled by stop signs. And when a complete stop is made motorists sometime stop within the crosswalk even when a pedestrian is in the crosswalk, thus, increasing the likelihood of a motorist colliding with a person crossing the street.
- According to the Fort Collins' Police Department, the current City's traffic code, as it relates to pedestrian right-of-way is vague and difficult to enforce.
- The Fort Collins' City Attorneys Office and the Police Department have reviewed and recodified the pedestrian right-of-way ordinance into the FCTC.

#### *Recommendations*

- Conduct a two day pedestrian safety and law enforcement workshop. Subject matter may include the role of law enforcement in pedestrian safety, the causes of pedestrian and motor vehicle collisions, a review of Fort Collins pedestrian ordinances and State laws, enforcement strategies and techniques, and implementing interagency cooperation.
- The law enforcement workshop should be followed by a targeted pedestrian right-of-way enforcement operation or "pedestrian sting." The operation would target motorists who commit traffic code violations that result in unsafe conditions for pedestrians attempting to lawfully cross the street. The event should be undertaken in cooperation with a comprehensive

educational and media outreach effort to raise awareness for pedestrian safety issues prior to the enforcement operation. The event could coincide with the start of the new school year.

- Further analysis of police reports and field investigations are necessary to determine reported crash types, existing conditions, and other factors to accurately attribute the cause and identify the appropriate or recommended countermeasures.
- City staff will review and compare the existing FCTC regarding pedestrian right-of-way at crosswalks to determine if the City's code could be revised to more easily allow law enforcement officers to enforce the code and allow the Traffic Operations Department to design safer crosswalks.
- A legislative review of the FCTC should also include a determination if the severity of the punishment is adequate for the offense to ensure it acts an effective deterrent. For example, if it is determined that the current fine for failure to yield to a pedestrian in a crosswalk is insufficient then the fine for the offense should be raised.
- Fort Collins police officers should routinely enforce the pedestrian traffic safety laws, including the pedestrian right-of-way in crosswalks. Known "hot spots" and the downtown area should be targeted for increased pedestrian traffic safety enforcement. These efforts should also include enforcement of pedestrian compliance (jaywalking).

## Engineering

### *Findings*

- The City of Fort Collins along with Larimer County and the City of Loveland has recently adopted the Larimer County Urban Area Street Standards. These standards have greatly improved pedestrian safety for crossing the street in areas developed under these standards. However, parts of town developed within the last 20 to 50 years severely lack safe pedestrian design for street crossings. As a result the pedestrian transportation system has many inadequate and disconnected links that place people at risk in unsafe and uncomfortable environments when crossing these locations.
- Many people have said that they do not have sufficient time to cross the street at signalized intersections, especially for families, seniors, and people with disabilities.
- People have also mentioned that there are not enough traffic signal controlled crosswalks.
- Turning movements at intersections cause higher incidents of collisions between motorists and pedestrians.<sup>5</sup> Left turning vehicles are about four times

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<sup>5</sup> Sarkar, Sheila and Van Houten, Ron and Moffatt, John. *Missed Opportunity: Educating Drivers Using License Manual to Increase Awareness about Pedestrian Hazards at Intersections.*

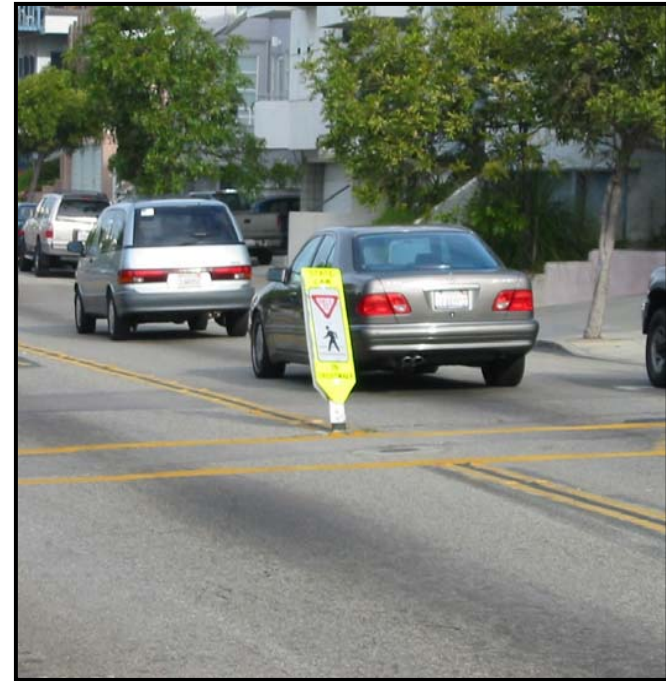
as hazardous as through movements and the hazard is even greater at signalized intersections.

- Citizen complaints have primarily centered on motorists not yielding to pedestrians in crosswalks when making left or right turns at intersections. Once motorists receive a green light they immediately turn right even if a pedestrian is present in the crosswalk. This can result in a possible collision, or force the pedestrian to alter their path or stop and wait until cars have completed their right turn. The pedestrian is then at risk of being caught in the intersection when the light changes or stuck in the middle of the road.
- People report that they become increasingly less comfortable crossing the street as the crossing distance, or street widths and intersections increase in size.
- Motor vehicles often come to a stop in the crosswalk impeding the path of the pedestrian. Sometimes motorists will stop in the crosswalk when a person may be crossing, thus increasing the chances of striking a person.
- Based on pedestrian and motor vehicle crash data, over 50 percent of pedestrian collisions occur along the roadway between intersections.
- Older adults are more susceptible to injury or death in pedestrian and motor vehicle collisions. The Federal Highway Administration reports that older adults are more likely than younger people to die after being in a crash with an automobile.

- Safety complaints from seniors have ranged from insufficient time to cross the street at traffic signal controlled intersections, destinations are too far away, sidewalks to the destinations are absent or are not direct, or if sidewalks do exist they are in disrepair or inappropriately built or scaled for older people and their mobility needs.

### *Recommendations*

- The user's perspective is critical to a successful crosswalk design. Utilize the crash data from the police reports to identify the top three intersection "hot spots" involving pedestrian and motor vehicle collisions. From this data conduct a "Real Intersection Design" workshop or a "Pedestrian Crossing Action" in which a diverse group of citizens, outside experts and City staff is assembled. The group then examines each intersection and explores possible design solutions to increase the pedestrian safety, but still meet the needs for all modes of transportation. As part of the event, groups will also review new design concepts and standards for pedestrian facilities being used in other parts of the State or country.
- Install recently approved *Manual on Uniform Traffic Control Devices* to improve pedestrian crossings, such as Supplemental Pedestrian Crossing Channelizing Devices on two lane streets with high pedestrian traffic. Signs can be installed around schools or along routes to school, and around large activity centers such as the Foothills Fashion Mall or downtown.



### **Supplemental Pedestrian Crossing Channelizing Device**

- Presently most traffic signals are programmed to release pedestrians and turning vehicles at the same time, or with little to no separation time. One industry technique the City is utilizing in some high pedestrian areas (i.e. Doctors Lane at Lemay) is to provide a Leading Pedestrian Interval (LPI). This practice releases pedestrians several seconds early to cross the street before turning vehicles are allowed to enter the intersection. Recent research has shown that a LPI of three seconds significantly reduces the conflicts between pedestrians and possible conflicts with turning



vehicles. By allowing pedestrians into the crosswalk prior to turning vehicles, drivers are able to acknowledge their presence and more likely to yield the right-of-way. LPI's can potentially provide a safer and a more comfortable pedestrian street crossing environment and should be considered at additional signalized intersections with high pedestrian traffic or where conflicts between turning vehicles and pedestrians need to be reduced.

- Examine the City's street standards for intersection and crosswalk design, as well as the striping treatment, to determine if there are possible revisions that could improve pedestrian safety. The City should also elevate the pedestrian and the safety factor when planning, designing and constructing streets since they are most at risk.
- Continue to review the City's standard for pedestrian signal timing with new or proposed engineering changes, especially how they relate to the proposed changes from the Americans with Disability Accessible Guidelines.
- The City of Fort Collins should continue with its data collection and analysis of pedestrian-motor vehicle collisions that is used to improve dangerous street crossings.
- The City should continue to operate the Safe Routes to School program, but should be expanded to include student routes to bus stops.
- Relocate inconveniently located mid-block transit stops closer to intersections or traffic signal controlled crosswalks to encourage transit users to cross the street at crosswalks.
- Consider reducing the number of right turn on red at intersections with high pedestrian traffic, such as intersections around the Colorado State University and downtown, or at frequent crash "hot spot" sites. Capitalize on new technologies that improve the compliance rates for vehicles not to turn right on red lights.



**No Right Turn On Red Signal Head**

- Review and update the City's *Multi-modal Level of Service Manual*, especially the street crossing standard for pedestrians.
- In locations with high senior citizen pedestrian traffic, route planning and street design should take into account the following items to increase safety for senior pedestrians: safe and appropriately designed and scaled sidewalks, clearly marked crosswalks and pedestrian signals, sufficient time to cross the street, benches for resting, reduced traffic speeds, and include pedestrian refuge islands in the center of the streets.
- The City's Traffic Engineer should continue to consider pedestrian and bicycle safety as factors when roadway speed limits are established.
- To reduce the number of motorists stopping in crosswalks and to improve pedestrian safety, advance stop bars or yield lines should be painted at all intersections or mid-block crossings that contain marked crosswalks. Mid-block stop bars or yield lines should be placed in accordance with the Manual on Uniform Traffic Control Devices at a range of 20 to 50 feet from the crosswalk. This is especially important on multi-lane roadways to improve pedestrian visibility.
- Continue to fund the *Pedestrian Plan*, including the Safe Routes to School element and the SWFC pilot program's educational and public outreach component. There are numerous pedestrian projects in older areas of the community, as well as areas that need to become more accessible for people with disabilities. Even if

existing funding levels were to continue, it would take many years to bring the entire pedestrian system up to the City's current standards.

## Education

### *Findings*

- Educational efforts centered on pedestrian and traffic safety are found to be more effective when combined with law enforcement efforts. This is consistent with the report by the Insurance Institute for Highway Safety that states the largest change in driver behavior comes from the enforcement of traffic safety laws.
- Many citizens of Fort Collins, including City staff and outside law enforcement officials do not have a clear understanding of the City's traffic code and the ordinances relating to pedestrian right-of-way at crosswalks. There is also a vague understanding of what constitutes a crosswalk.
- Motorists continue to break the City's traffic code by not yielding the right-of-way to pedestrians in crosswalks and pedestrians continue their failure to comply with traffic signal regulations. It is unclear if this is a result of poor education regarding the law or aggressive driving behavior.

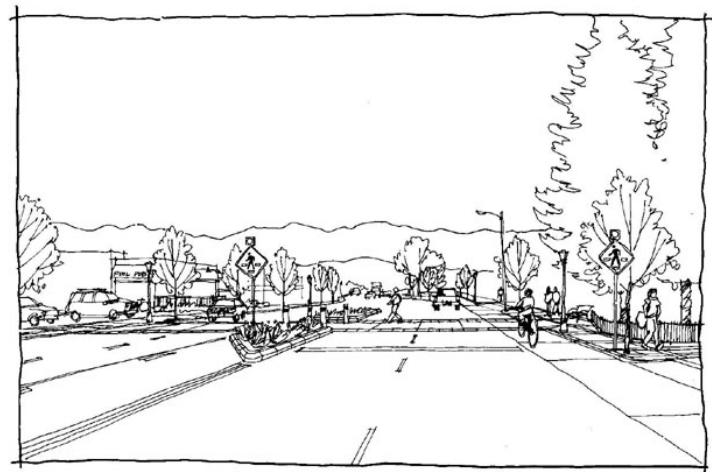


### *Recommendations*

- On-going educational partnerships with outside public and private agencies should continue to promote pedestrian safety and awareness. However, to maximize the effectiveness of this effort the partnership needs to be expanded to include the police department, health and safety advocacy organizations, neighborhood associations, the business community, senior citizens, persons with disabilities, and those for whom English is a second language.
- The City's Smart Trips Department and the Safe Routes to School program should combine efforts with the Poudre School District to conduct interactive school workshops focused on pedestrian, bicycle, bus and auto safety. Workshops should be geared toward specific age groups (K-12) and provide a training course with hands-on exposure to sidewalks, streets, driveways, crosswalk signals, railroad tracks, and even dogs.
- In addition to school age children the Safe Walk Fort Collins Program's educational component should target other members of the community, including parents, law enforcement agencies, boards and commissions, hospitals, community and business groups, the physically disabled, the elderly, and even the City of Fort Collins staff. Topics can range from safe pedestrian behavior to the responsibilities of the motorist and pedestrian. As for City staff and law enforcement officers, educational material can consist of reviewing pedestrian crash data to understand causation, how to factor in human behavior,

understanding current codes and ordinances regarding pedestrian right-of-way, and new engineering trends and techniques to reduce pedestrian-motor vehicle collisions.

- Combine law enforcement and educational efforts through a cooperative partnership.
- Review current city and state driver education practices for new drivers and reeducation of existing drivers as it relates to pedestrian right-of-way. Also review course material for any references for right-of-way to pedestrians in crosswalks.



**Artist Rendering of a Mid-block Pedestrian Crossing**

## Conclusion and Action Plan

The findings and recommendations identify potential changes to policies, goals, standards and future projects that promote a citywide effort to create a safe and “walkable” community. For the last several years many pedestrian projects have been constructed to improve the City’s pedestrian infrastructure, but many projects still remain on the City’s capital improvement project (CIP) list. Appendix C contains the CIP list of prioritized pedestrian projects. However, this list does not include deficient or problematic areas that are constantly brought to City staff’s attention by citizens.

As part of this study’s effort the recommendations should be explored and implemented where appropriate. For implementation the recommendations will require additional review by City staff, such as Traffic Operations, Police Services, and the City Attorneys



**Car Stopped In Crosswalk**

Office. Further engineering judgment will also be necessary to determine the specific locations and elements of each recommendation.

Furthermore, the *Pedestrian Plan* is eight years old and needs to be updated as recommended in the *Transportation Master Plan* update. This should occur within the next couple of years. Recommended changes in the City’s LUC and LCUASS shall be reviewed as part of the regular update process for the development code and street standards.

As mentioned earlier in the report the foremost recommendation to improve pedestrian safety throughout the City is to implement the “*Walk Safe, Drive Smart*”, safety campaign. The following Action Plan lists action items that should be undertaken as part of this educational outreach effort. This is the first step that needs to be taken by the City of Fort Collins to create a safe and “walkable” community.

## **Action Plan**

### ***“Walk Safe, Drive Smart” Safety Campaign***

Project staff has identified several action items that can be undertaken in development of the ***“Walk Safe, Drive Smart” Safety Campaign***. These action items are intended to be assumed primarily by City staff, including collaborative efforts with Transportation Planning, Smart Trips, Engineering, Traffic Operations, Public Information/Channel 27, and Police Services. In addition, project staff will seek collaborative opportunities with other agencies such as the Larimer County Safe Kids Coalition, Poudre Valley Hospital, Poudre School District, and Colorado State University. These steps can be developed and implemented gradually as staff resources and budget allow.

#### **Near Term Action Items** (estimated costs in parentheses)

Action items that could be implemented immediately (2004/2005) include:

- Final printing and distribution of final report (\$1,000) – Project staff with outside printing service
- Begin meeting with allied organizations and relevant City department representatives for feedback and ideas about incorporating this program into ongoing efforts – Project staff
- Develop key campaign messages, themes, including use of focus groups to test and refine messages (\$2,500-\$3,000) – Project staff w/marketing consultant assistance
- Develop webpage, incorporating SWFC elements such as:
  1. Key messages and campaign themes
  2. On line quiz or questionnaire testing people on their knowledge as it relates to pedestrian right of way laws, and correct means to operate a pedestrian signal. Immediate test results with the correct answer need to be provided at the end of the questionnaire.
  3. Web page should include links to similar web pages and information regarding pedestrian safety, such as the [www.walkinginfo.org](http://www.walkinginfo.org) web site. In addition, there should be web page links to the City’s Pedestrian Plan Program and the Safe Routes to School Program web pages so that visitors can provide feedback.
  4. Clearinghouse for general information on pedestrian safety issues.
- (\$3,000) - Project staff with City IT staff direction
- Develop and implement a pilot education campaign working with Parent Teacher Organizations, aimed at getting key messages regarding pedestrian safety to parents of school age children – Project staff

- Develop and implement a pilot, age-appropriate education campaign for students. (\$2,500) - Project staff. Elements include:
  1. Activity pamphlet for 7-12<sup>th</sup> grade use
  2. Activity booklet for combined use with Smart Trips for K-6

To be distributed at schools and through Smart Trips booths/events, as well as at Boys & Girls Clubs, Recreation Centers, etc.

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**Total Estimated Near Term Action Item Costs: (\$10,000)**

**Long Term Action Items**

Several additional strategies will be developed as the program evolves and as resources allow. As noted in the report recommendations, pedestrian education and outreach activities should target not only students, but all segments of the Fort Collins community, including adults, senior citizens, the physically disabled, law enforcement agencies, civic and business groups, boards and commissions. Long term strategies include:

- Print ads targeting parents and community members in general (\$5,500) – Project staff in conjunction with media sources
- Radio/TV advertising spots – (\$5,000) – Project staff in conjunction with media sources
- Channel 27 Educational Program for the Police Beat show. Work with the City of Fort Collins Police Department and SmartTrips to create an educational program for pedestrians and motorists regarding pedestrian safety and appropriate laws (i.e. yielding the right of way to pedestrians) – Project staff with Channel 27
- Law Enforcement Workshop & Operation. The educational and outreach efforts should be immediately followed by a law enforcement workshop and a targeted pedestrian right of way enforcement operation. The workshop is a two-day event for 50 participants. (\$8,500) - Project staff with Police Services and other law enforcement agencies.
- Walkability Audits - Conduct walkability audits with interested neighborhoods to gather additional information from residents, identify problem areas and to aid in educating residents on the issues to create a safe walkable city. Include forms on the web page for people to download and conduct on their own. – Project staff

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**Total estimated long term Action Item Costs: (~\$20,000)**

These action items represent the advisory staff's findings and recommendations as outlined in the *Pedestrian Safety at Intersections and Crosswalks* report. However, these action items are not all inclusive. They reflect only the elements that should be included within the foremost recommendation to create a pedestrian educational safety campaign. Additional recommendations should follow the implementation of the safety campaign. There are also ongoing elements, such as the regular review of the City's Land Use Code and the Larimer County Urban Area Street Standards. This review process should consider some of the findings and recommendations identified within this report. This combination of efforts and targeted audiences will create a safer and more walkable Fort Collins.