City of Loveland

City of Loveland

May 1, 2012

Bicycle and Pedestrian Plan

LSA
LSA ASSOCIATES, INC.

Report |
Table of Contents / Acknowledgements

Table of Contents

Acknowledgements

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Chapter 1 | Introduction

Located along the eastern base of the Rocky Mountains, the City of Loveland enjoys a spectacular natural setting, serving as a gateway to Rocky Mountain National Park and the mountain communities to the west. Its residents enjoy a high quality of life and have expressed a desire to preserve it. The City has a diverse employment base, attracting clean, high tech industries. Other public and private amenities, including recreation and cultural facilities, as well as natural amenities such as the Big Thompson River, the Hogback areas, and many lakes make Loveland an attractive place to live.

With an estimated 2010 population of 66,859, Loveland is typical of many of the communities along the Front Range. It continues to experience above average population growth and the corresponding traffic congestion concerns. Loveland's land use plan anticipates substantial new commercial and employment development along east Eisenhower Boulevard and the I-25 corridor, both of which are actively underway. New residential development will likely be predominantly single-family in the northwestern and southeastern sectors of the City. Additional industrial development is forecast near and east of the Fort Collins-Loveland Airport and new schools will be required to serve the growing population.

These factors continue to have a dramatic effect on the present and future condition of Loveland's transportation system. Mobility plays a large role in the standard of living for residents in the community. A well-balanced, well-maintained transportation system is critical for sustaining Loveland's high quality of life. A well-balanced transportation system includes choice of travel, including walking and bicycling, in addition to automobile and transit.

The City of Loveland's Bicycle and Pedestrian Plan is a response to the City's desire for a well-balanced transportation system. The Bicycle and Pedestrian Plan analyzes the existing bicycle and pedestrian system, examines the existing and future growth within the City to identify bicycle and pedestrian destinations, incorporates public input for a preferred plan, and provides implementation strategies for prioritizing projects and implementing a successful plan. Considerable research, analysis, and public participation contributed to the preparation of the City of Loveland's Bicycle and Pedestrian Plan. As part of this document, summary maps have been prepared to convey essential information in a concise, graphic format that is easy for the average reader to understand.

Why We Are Doing a Bicycle and Pedestrian Plan?

Why "think biking and walking"? Nationally, there is a growing sentiment among the public, elected officials, and transportation planners to improve provisions for biking and walking as a viable form of transportation, for health/fitness benefits, and for recreation opportunities. There are a number of reasons to bike and walk. A few of them are:

Quality of Life

Quality of life is a hard concept to define clearly. However, it is something that most individuals seek either consciously or in a less-direct fashion.

It does include the City of Loveland's western idea of an outdoor environment and provides bicycle and pedestrian facilities that are attractive and safe for people to pursue short trip travel, health, and exercise goals.

National surveys taken regarding bicycle and pedestrian mobility indicate that pedestrian connections to transit, continued development of our street system to include bicycle lanes and detached sidewalks, and reducing our sole reliance on the automobile are but a few additional bicycle and pedestrian related quality of life objectives of interest to respondents.

Providing Choice for those that Cannot Drive

Providing a bicycle and pedestrian system is an important alternative to driving an automobile. Like all cities, the City of Loveland has a population of those that are unable to drive, whether from a disability, the inability to afford a car, age, or not wanting to drive.

Children rely on walking, bicycling, and being chauffeured to get around. Children are also at risk as bicyclists or pedestrians for a number of physical and maturity factors:

- Young children believe if they can see a driver, a driver can see them;
- They think cars can stop instantly;
- They can't tell where sounds are coming from;
- Few can judge how fast traffic is moving;
- Their field of vision is one-third that of an adult; and
- They don't recognize danger or react to it quickly enough.

The elderly are more likely to walk for trip purposes. Older adults tend to be over represented in traffic crashes and require a safe bicycle and pedestrian network.

Latent Demand

National surveys consistently find that over 20% of respondents would consider bicycling or walking to work, shopping, and other local activities if adequate facilities were available.

Benefits to the Individual and Family

Two major reasons why individuals choose to walk or bike are for psychological and physical health. Individuals and families can also save their financial resources through a reduction in motor vehicle use, as well as reduced chauffeuring time.

Ideal Climate/Topography and Geographic Region

The City of Loveland is fortunate to have an ideal climate to walk and bike. The City has over 300 days of sun per year and relatively low winds. The topography is flat, making it easy to walk and bike from place to place. The City also has a density that provides for many places to walk or bike to.

Cost of Transportation and Conservation

With the increased cost of gasoline and forecasts of gasoline exceeding $5 a gallon, households are being financially impacted. Providing a network of bicycle and pedestrian facilities provides for a low cost alternative mode of transportation for shorter trips and conserves gasoline.

Economic Vitality

Similar to quality of life, defining economic vitality is difficult and many different components. One measure that is often considered is how a community can retain their 25 to 45 year olds who are entrepreneurs, generating jobs and income which is spent on goods and services within the community. Based on surveys of this population group on what attracts them to their community, a good bicycle and pedestrian network is often cited.

Purpose

The City *of Loveland's Transportation Plan* is the planning document that guides the City and development community on the orderly and planned implementation of the City's multimodal transportation system. One of the goals of the Plan is to "plan a safe, efficient, continuous, coordinated and convenient multi-modal transportation system that serves the needs of the community now and establishes the foundation for a transportation system that is sustainable for future generations." A multi-modal transportation system must incorporate bicycles and pedestrians into the planning and implementation of transportation improvement projects.

The purpose of the Bicycle and Pedestrian Plan is to identify strategies and activities that increase the use, safety, and convenience of bicycling and walking within and around the City of Loveland and to promote bicycling and walking as integral components of the region's multi-modal transportation system.

What questions will the Bicycle and Pedestrian Plan answer?

In simple terms, a Bicycle and Pedestrian Plan is a plan that addresses a wide-range of bicycling and pedestrian issues and questions:

- How complete is the current bicycle and pedestrian system?
- Where do bicyclists and pedestrian want to go?
- What are the recommended bicycle and pedestrian improvements for the City of Loveland?
- How many dollars should be invested in the bicycle and pedestrian system?
- How do you prioritize the limited number of dollars available? and
- What are the recommended changes to current codes, ordinances, standards, and policies?

Plan Goals

The City of Loveland's Comprehensive Plan contains extensive vision statements, goals and objectives regarding bicycle and pedestrian mobility. These statements address a wide range of important elements within the City including community design, transportation, parks and recreation, education and community health. A complete list of all of the bicycle and pedestrian related vision statements, goals and objectives is contained in the appendix of this report.

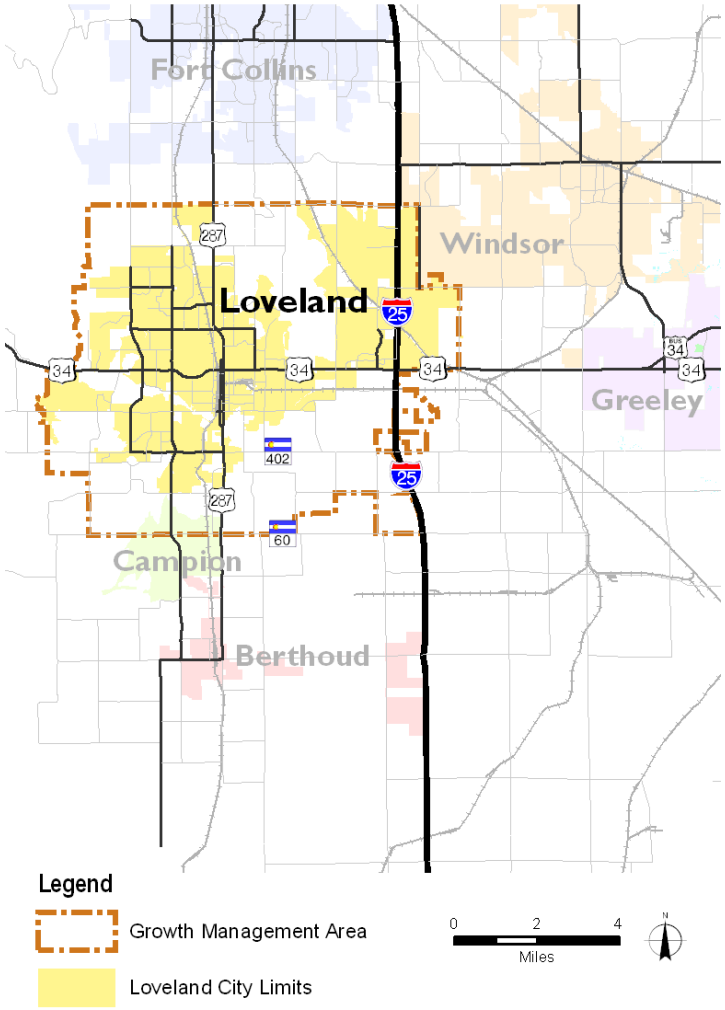
In review of these statements and input from the public, Steering Committee, and Technical Committee the following City of Loveland Bicycle and Pedestrian Plan Goals were developed as follows:

- Provide and maintain a safe and effective bicycle and pedestrian system that allows individual citizens of all ages and abilities to be able to efficiently chose to bike or walk to a variety of destinations throughout the City as a means of travel, attaining health, and quality of life.
- Fill in the missing bicycle and pedestrian segments and provide for safe intersection crossings that connects residences and places of work, shops, schools, transit, activity centers and public activities, so that people can reach destinations by walking or bicycling in addition to relying on personal vehicles.
- Design and develop a "complete streets" bicycle and pedestrian system that adheres to local, state and national codes.
- Instill bicycle and pedestrian safety, awareness and encouragement through education programs for all levels and abilities for bicyclists, pedestrians and motorists, and promote the appropriate use of traffic and code enforcement.
- Develop a sustainable and reliable source of bicycling and pedestrian funding. Provide accountability through annual bicycle and pedestrian performance reporting to determine what bicycle and pedestrian enhancements result in the greatest benefit for bicycle and pedestrian travel.

Plan Area

The primary plan area is comprised of the City of Loveland's Growth Management Area and associated links to adjacent communities. As shown in Figure 1-1, these adjacent communities include the Cities of Fort Collins and Greeley, and the Towns of Windsor, Johnstown and Berthoud as well as Larimer County.

FIGURE 1-1: CITY OF LOVELAND'S GROWTH MANAGEMENT AREA



Plan Overview

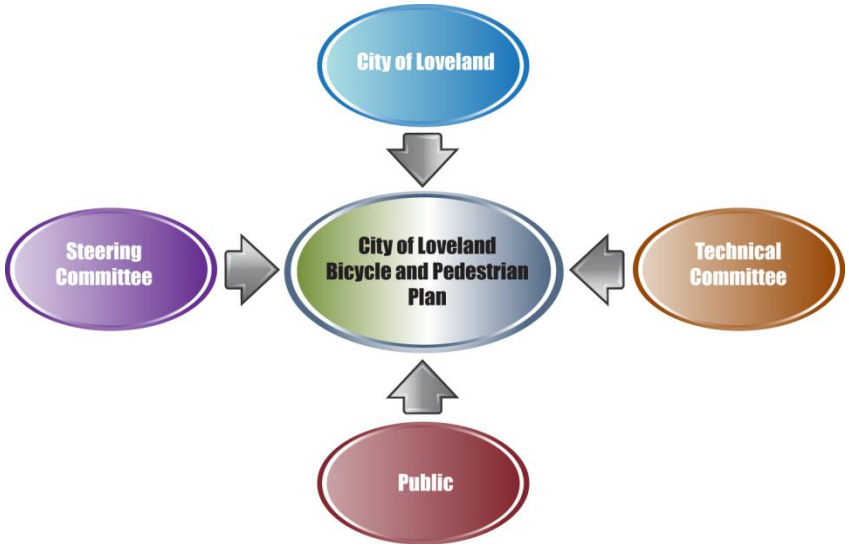
The City of Loveland Bicycle and Pedestrian Plan provides a comprehensive approach to identifying bicycle and pedestrian needs, reviewing improvements, and prioritizing implementation strategies and viable funding sources. The Bicycle and Pedestrian Plan looked for opportunities to connect and integrate existing facilities. Precise alignments may be determined during the implementation process.

The project was divided into four (4) phases:

- **Phase 1: Assessment of Existing Conditions:** This effort included mapping the existing bicycle and pedestrian system to understand where facilities are provided and where missing segments occur. In addition a crash analysis was conducted to determine where bicycle and pedestrian crashes have occurred, their severity and cause.
- **Phase 2: Needs Assessment:** This process examined primary bicycle and pedestrian destinations and identified where missing segments occurred in being able to get to those destinations.
- **Phase 3: Guidelines and Priorities:** In this phase, guidelines were developed to identify and select needed bicycle and pedestrian improvements. A prioritization process was developed to help determine how these improvements might be implemented.
- **Phase 4: Plan and Map**: In this phase, the City of Loveland Bicycle and Pedestrian Plan was developed that will be incorporated into the City of Loveland's Transportation Plan.

Plan Framework

This plan was produced by the City of Loveland with input and guidance from a steering committee, a technical committee and through public input at workshops.



Steering Committee

A dedicated Steering Committee was selected to provide review of data, comments, suggestions and recommendations throughout the Plan development process. The Steering Committee included representation from stakeholders involved with bicycling or walking. Their dedication in attending meetings, doing homework, and providing assistance was critically important to the development of the Plan.

The Steering Committee included members from each of the following organizations or stakeholder groups:

- Transportation Advisory Board
- Planning Commission
- Parks & Recreation Advisory Commission
- Disabilities Advisory Commission
- Senior Advisory Board
- Youth Advisory Commission
- School District
- Bike Club
- Bicycle Shop/Business
- Pedestrian Advocate
- Citizen

Technical Committee

In addition to the Steering Committee, preparation of the City of Loveland Bicycle and Pedestrian Plan included input and review from a Technical Committee, which included a wide number of representatives from various City of Loveland departments, including Public Works, Planning, Parks & Recreation, CanDo (Coalition for Activity and Nutrition to Defeat Obesity), and the Thompson School District.

Public Involvement

Public input was instrumental to the development of the City of Loveland Bicycle and Pedestrian Plan. Three rounds of public meetings were held over the course of the planning process for citizens to weigh in on the current operation of the existing bicycle and pedestrian system and the improvements and programs they would like to see in the future.

The following provides a brief summary of these public events and what was heard.

Public Event 1: Bicycle and Pedestrian Plan Kickoff

The City of Loveland Bicycle and Pedestrian Plan public kickoff event occurred on Saturday afternoon, June 26, 2010 at the Loveland Museum. The event included five activities:

1. **Open House and Bike and Pedestrian Tour Sign-Up:** The open house included the opportunity for members of the public to review a summary of the work plan and base maps of existing bicycle and pedestrian facilities within the City. Attendees were asked to respond to a questionnaire regarding their bicycling and walking experience in the City. In addition, participants could sign up for a bicycle or walking tour.

2. **Power Point Presentation of Plan Overview & Timeline:** A brief Power Point presentation summarized the Plan process, objectives and schedule. In addition, the existing bicycle and pedestrian system was presented along with some initial comments and observations regarding what makes a good bicycle and pedestrian system and areas of improvement.

3. **Bike Tour Option:** A one-hour bicycle tour of the downtown area was conducted to present a wide range of bicycle facilities including problem areas.

4. **Pedestrian Tour Option:** A separate one-hour walking tour of the downtown area was conducted to present a wide range of pedestrian treatments including variations of sidewalks, ramps or lack thereof, pedestrian signals, and missing facilities.

5. **Discuss Tours and Public Comments:** After the tours, the public was able to share their observations and provide suggestions on areas to be addressed in the Plan.

ROUND 1 SURVEY QUESTIONS
WHAT'S MOST IMPORTANT TO YOU?

The City of Loveland Bicycle and Pedestrian Plan covers the area in and around Loveland. It will address priorities for bicycle and pedestrian travel.

1. Now that you have reviewed the display boards that outline the scope of the Plan, please share any comments you have about the scope:
2. What Purpose or Objectives of the Plan are missing, if any?
3. Fill in the Blank! I believe that the 3 most important issues to address in this plan are:
4. Ask your Question! What, if any, questions do you have that you would like to see answered in this plan?
5. Please Provide Your ZIP Code: _____

Public Event 2: Bicycle and Pedestrian Plan Alternatives

The second public event was a sketch planning workshop held on December 8, 2010 at the City of Loveland's Police Department. This event included a PowerPoint that presented elements of a good bicycle and pedestrian system, important destinations with which the bicycle and pedestrian system should connect, planning definitions, examples of different treatments, and a summary of the existing bicycle and pedestrian conditions and missing segments in the system.

Approximately 40 people attended the workshop. Attendees met in breakout tables to discuss and identify issues and potential solutions that affect bicycling or walking, and participate in a mapping exercise, where they could identify missing critical links and improvements.

At the end of the mapping exercise, each table was permitted to share their top three ideas on recommended bicycle or pedestrian plan improvements. Each map was collected and used for the development of alternatives improvements as part of the Bicycle and Pedestrian Plan.

Public Event 3: Presentation of the Draft Bicycle and Pedestrian Plan

The third round of public meetings was held on Wednesday, April 13, 2011. This open house event provided an opportunity for over 50 people to review a summary of the boards that highlight the Plan process with maps and charts of the preferred plan. On this date, the Plan was also placed on the City's website for public review and comment.

Public Event 4: Draft Bicycle and Pedestrian Plan Review

The fourth public meeting was held on March 15, 2012. This open house included a presentation of the plan and the opportunity for comment regarding the plan elements and priorities. This public meeting also included a presentation of the North Front Range Metropolitan Planning Organization (NFRMPO) regarding their planning process for the development of a regional bicycle plan. Attendees at the meeting were able to both comment on the City of Loveland's Bicycle and Pedestrian Plan as well as provide input to the NFRMPO regarding which regional bicycle routes into and out of the City should connect regionally to destinations such as Fort Collins, Berthoud Windsor and Johnstown.

Plan Organization

The City of Loveland Bicycle and Pedestrian Plan is divided into four (4) chapters and support appendices. The following provides a list of the chapters and their general contents:

1. **Introduction:** This chapter provides the background, purpose, and need for the Plan.

2. **Existing Conditions:** This chapter presents the existing bicycle and sidewalk system within the City of Loveland. This chapter also identifies bicycle and pedestrian crash locations.

3. **Bicycle and Pedestrian Plan:** This chapter begins with evaluation tools and some basic best practices to be considered when developing a bicycle and pedestrian plan. This chapter also presents a map of destinations to be connected via a pedestrian and bicycle system. The financially unconstrained Bicycle and Pedestrian Plan presents the compilation of all proposed bicycle and pedestrian improvements within the City. Because this Plan does not include a dedicated source of funding, it represents a vision for the City. Planning level cost estimates were also developed for the Bicycle and Pedestrian Plan.

4. **Implementation:** This chapter presents various funding options for the Plan. Because available funding will be insufficient to complete the Plan, the chapter presents a prioritization process for selecting and implementing preferred plan elements. This chapter also presents implementation strategies and performance measures to evaluate plan implementation.

Appendices:

A. **Goals and Objectives:** Appendix A provides a list of bicycle and pedestrian goals, objectives, and strategies from the City of Loveland Comprehensive Plan and other documents.

B. **Bicycle and Pedestrian Standards and Guidelines:** Appendix B summarizes best practices in bicycling and pedestrian planning.

C. **Proposed Improvement Cost Estimates:** List of proposed bicycle and pedestrian improvements by priority for input to the City of Loveland's Capital Improvement Program (CIP).

Chapter 2 | Existing Conditions

Chapter 2 of the City of Loveland Bicycle and Pedestrian Plan consists of an inventory of existing bicycle and pedestrian facilities and a review of their missing segments. This chapter also includes a bicycle and pedestrian crash analysis to assess current safety needs.

Existing Bicycle and Pedestrian Facilities

At the outset of this work effort, the City of Loveland created a Geographic Information System (GIS) map of the existing bicycle and pedestrian system within the City. The City used currently available data supplemented by field inventory to create the best possible map of the existing bicycle and pedestrian system within the City.

Bicycle

The City of Loveland's existing bicycle system is presented in Figure 2-1. The bicycle system includes recreational trails, shared use paths, bike lanes, and bike routes. These facilities are defined as follows.

In review of Figure 2-1, Existing Bicycle Facilities, a number of observations can be made, summarized as follows:

1. The system of bicycle trails, lanes and routes provides the framework for a good bicycle system to serve the City of Loveland.

2. Many existing bicycle facilities have missing segments that impact the continuity of the system and can impede bicycle mobility and travel.

3. Some bicycle facilities begin and end erratically, often associated with new development improvements adjacent to land areas that have not been developed with an unknown timeframe for completion.

4. Many of the bicycle facilities have obstacles, such as missing bike lanes along roadways with high traffic volumes or difficult to cross streets.

5. Many of the City's bicycle facilities are in need of repair and require basic maintenance such as sweeping or removing tree overhangs.

6. Bike lanes are often depositories for snow, making them unavailable to bicyclists during winter conditions.

Bike Routes, Lanes, and Paths - How Are They Different?

Bikeway - A general term for any street or trail which in some manner is specifically designated for bicycle travel, regardless of whether such facilities are designed with bike lanes for the exclusive use of bicycles or are to be shared with other transportation modes.

Trails/Paths - This is a shared use bicycle and pedestrian facility that is physically separated from motor vehicle traffic by open space or a barrier and is either within the road right-of-way or within an independent right-of-way. These are also referred to as a shared-use or multi-use paths or recreation trails.

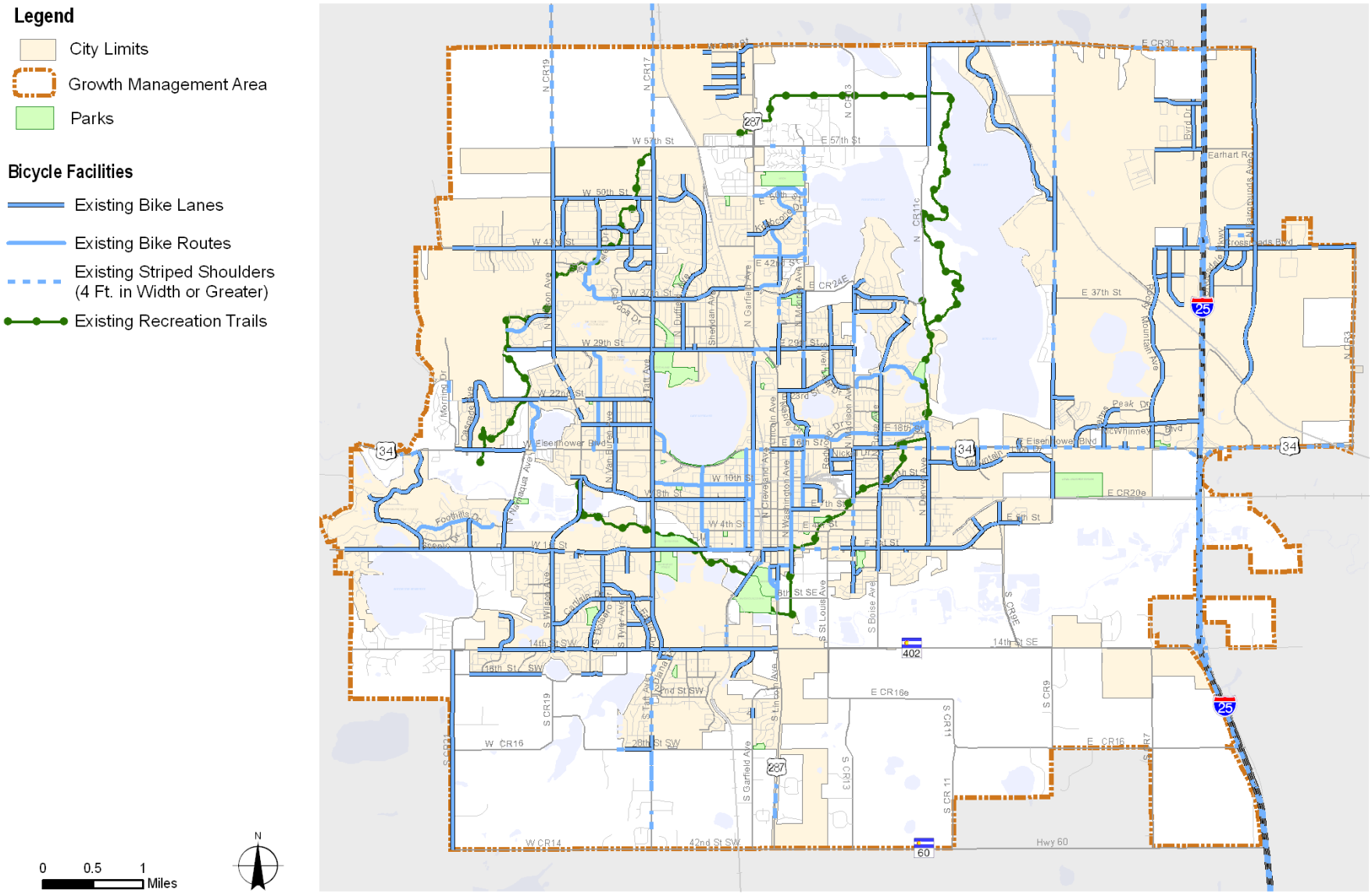
Bicycle Lane - This is a bikeway on a portion of a street that has been designated by striping, signage, and pavement markings for the preferential or exclusive use of bicycles.

Bicycle Route - A segment of a system of roadways signed for the shared use of automobiles and bicyclists without striping or pavement markings.

Striped Shoulder – A shoulder on rural road that provides an edge line that separates the vehicle from the bicyclist.

Rural Road Shoulder – A shoulder on a rural road that is at least four feet wide from edge line to pavement edge that provides a separation between the vehicle and bicyclist.

Figure 2-1: Existing Bicycle Facilities



In reviewing the bicycle system, it is also important to consider the types of bicycle travel, the experience of the bicycle rider, and the type of facilities riders may use.

In general, there are three types of bicycle travel: commuting, adult recreation, and children. The design of bikeways differs considerably for each of these purposes. Commuter bicyclists are typically advanced riders and use their bicycles as they would a motor vehicle. They want direct access to destinations with minimal detour or delay and are typically comfortable riding besides motor vehicle traffic. However, they need sufficient operating space in a bicycle lane or shoulder to eliminate the need for either themselves or a passing motor vehicle to shift position. Commuting bicyclists often want to ride the most direct route from their origin to their destination. Normally, extensive development along such routes limits the construction of detached bicycle/multi-purpose paths. However, prevalence of heavy traffic along such routes is only a minor hindrance to commuting bicyclists.

Recreational adult riders may also use their bicycles for transportation purposes (e.g., to get to the store or to visit friends), but prefer to avoid roads with fast and busy motor vehicle traffic unless there is ample roadway width to allow easy overtaking by faster motor vehicles. Thus, recreational riders are comfortable riding on recreational trails, shared use paths, and neighborhood streets. They may also consider bicycle lanes or wide shoulder lanes on busier streets. Recreational riders may also use their bicycles for pleasure and exercise without a specific destination in mind. Such riders may prefer recreational trails along open spaces instead of traveling adjacent to or with motor vehicle traffic.

Children under 12, riding on their own or with their parents, may not travel as fast as their adult counterparts, but still require access to key destinations in their community, such as schools, convenience stores, and recreational facilities. Residential streets with low motor vehicle speeds linked with recreational trails or shared use paths are the preferred bicycle routes for children.

In review of the existing bicycle system from the perspective of the types of riders, the existing bicycle system primarily serves the experienced commuter and to a lesser extent, the children recreation riders.

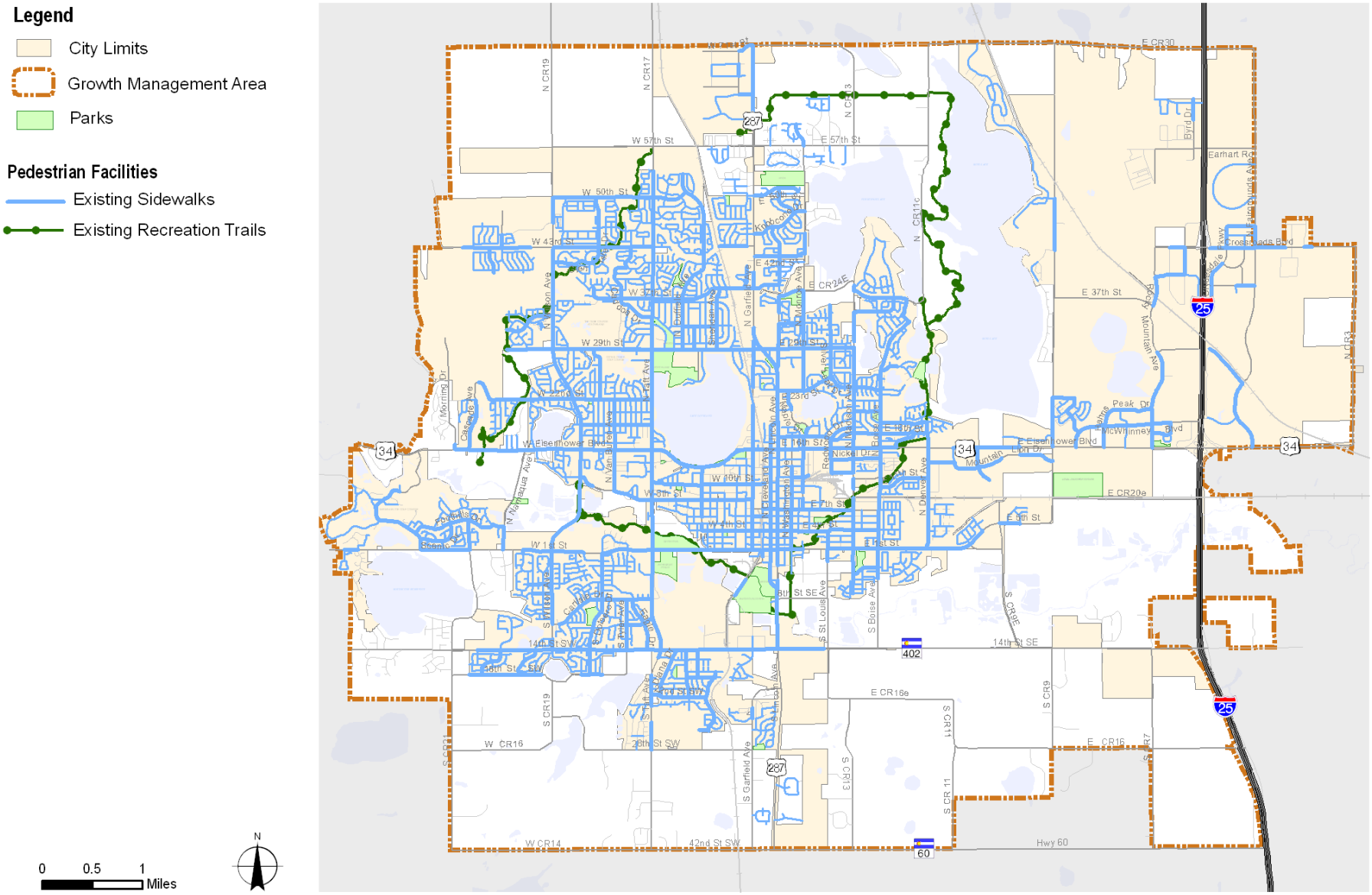
Bicycle Mobility Issues
Comments from the Public

- Incomplete Bicycle Network
- Commuter versus Recreational
- Types of Facilities (To lane or not to lane?)
- Bike Mobility in the Downtown
- Design Guidelines for new Facilities
- Retrofitting Older Sections of Town (Road Diet)
- Regional and Trail Connections
- Bike Racks
- Bikes on Transit
- Education
- Use of Railroad Right-of-Way (North Buchannan 28th to 37th & Connection east of I-25)

Pedestrian

The City of Loveland's existing pedestrian facilities is presented in Figure 2-2. The pedestrian system includes the sidewalks along our streets, recreational trails, and shared use paths. The pedestrian system also includes street crossings.

Figure 2-2: Existing Pedestrian Facilities



The ideal pedestrian system is best described as a grid system of streets with sidewalks on both sides that provide easy and direct connections between the trip origin and destination. The ideal pedestrian system should also provide for convenient and safe street crossings and include some basic amenities, such as sidewalks separated from streets and shade from trees.

In general, the City of Loveland has good sidewalk coverage. As presented in Figure 2-2, most neighborhood streets have sidewalks along both sides, although some neighborhood streets have sidewalks along one side or no sidewalks at all.

Although most arterials also have sidewalks along both sides of the street, there are some arterials that have no sidewalks or only on one side. This lack of sidewalks requires a pedestrian to make additional street crossings in their pedestrian trip or walk in the street.

Some of these arterials are major facilities such as east Eisenhower, which supports major commercial centers that generate pedestrian trips. Eisenhower also has transit; in which both ends of a transit trip is a pedestrian trip.

Garfield north of 29th Street is another retail, service, and transit corridor that does not have sidewalks.

Along our older commercial corridors, particularly US 287 and US 34, that while there are sidewalks present, the condition and design of these sidewalks and surrounding areas does not create an environment that is conducive to people walking. Pedestrians feel exposed to the speeding traffic because the sidewalks are too narrow and they are attached to the curb.

The presence of frequent curb cuts inhibits pedestrian activity by creating more points for pedestrian and vehicle conflict and because the sidewalk is attached, the sidewalk must slope to allow for vehicle access. In many cases, there is no separation between the sidewalk and adjacent parking lots, which can lead to vehicles intruding into the pedestrian realm sidewalk area.

The general lack of trees and landscaping create an uncomfortable microclimate for pedestrians because there is no shade and the pavement creates an urban heat island effect. Also, the traffic passing at high speed creates a wind that affects pedestrians.

The ability of pedestrians to safely cross US 34 and US 287 is also an issue. The controlled crossings are infrequent and the pedestrian is exposed to multiple lanes of high speed traffic. This impedes the ability of residents in the surrounding neighborhoods to access businesses along these corridors by foot or bike.

On a positive note, it should be noted that the City of Loveland's downtown area has a very strong grid system with short blocks and sidewalks on all facilities. The narrow streets in the downtown area increase the safety of travel for the pedestrian because traffic travels slower and the pedestrian has reduced exposure to the automobile crossing a narrow street.

Pedestrian Mobility Issues
Comments from the Public

- Missing Sidewalks
- Street Crossings
- Safety
- Access to Transit
- Maintenance
- Funding
- Physically and Visually Impaired
- Standards for New Development and Facilities
- Prioritization of Improvements
- Business Curb Cuts

Barriers on Why We Don't Walk or Bike

In order to plan for a walkable and bikeable City, it is important to consider what factors contribute to travelers' decisions not to walk or bike to local destinations. Some decisions involve physical impediments, such as an incomplete bicycle or sidewalk system that prevent bicyclists and pedestrians from being able to complete their trips. Other decisions involve personal safety.

Barriers to riding a bike or pedestrian activities can occur in any neighborhood in any city. Barriers can arise from oversight, budget constraints, or natural physical conditions regardless of the age, location, or layout of an area. Solutions to pedestrian barriers may include planning, design, maintenance, and altering the perceptions of pedestrians or potential pedestrians. The following are types of barriers that can contribute to a person's decision to walk or not to walk.

Bicycle Facility and Sidewalk Conditions

The character of the bicycle facility or sidewalk to be used by a pedestrian affects his or her decision to walk to their destination. Sidewalks that are not properly planned, designed, constructed, or maintained are less likely to encourage pedestrian activity. Most bicycle and sidewalk-specific issues can be corrected with proper planning, construction, or maintenance. Poor bikeway and sidewalk conditions can be experienced in several different ways, such as:

- Uneven bike lane or sidewalk surfaces (examples include: pavement segments that are not level, heave from frost or tree roots, poorly designed driveway curb cuts, tree grates not level with the walking surface, drainage, and substandard or unmatched paving materials);
- Sidewalk pavement in poor condition;
- Sidewalks that are too narrow (precludes two or more persons walking together, or prevents wheelchair access);
- Missing segments in sidewalks or discontinuous sidewalks;
- "Curb walks" or sidewalks attached directly to the curb with no separation between the pedestrians and traffic; and
- Snow removal.

Physical Obstacles

The landscape through which bicyclists and pedestrians must travel can affect their decision to bike or walk. Routes that cause bicyclists or pedestrians to climb steep slopes, to cross major streets or highways, or that include poor design may preclude bicycle or pedestrian usage.

Separation of Land Use

Through zoning and other land use codes and ordinances that have evolved over the decades, zoning has separated places where one may live from locations of employment, shopping, and recreation. These zoning codes have created a land use pattern that creates and reinforces auto dependence. The movement toward mixed-use development creates an environment where mixed-uses produce and attract trips within walking distances between one another.

Site Planning

The grid street system has been replaced with curvilinear streets and cul-de-sacs. With this change, direct connections, which are critical to the bicyclist and pedestrian have been lost and overlooked. Walls and fences around a residential neighborhood or commercial development can further exacerbate the problem by separating homes from shopping, services, and employment destinations.

Intersections and Crosswalks

The most common setting for pedestrian/bicycle-vehicle interaction is at intersections, particularly signalized intersections. Lack of street crossings or inadequately designed intersections affect pedestrian activity. Eliminating barriers at intersections can often be achieved with design improvements.

As the number and width of lanes increases, the bicyclist and pedestrian must take more time to cross the street, resulting in greater exposure to potential danger. In addition, the number of lanes often reflects automobile traffic volumes, which increases the amount of conflicts that will occur. Barriers at intersections can be encountered in several forms such as:

- No crosswalk signals, or insufficient time to cross the street;
- No islands or medians (especially at wider or higher-volume streets);
- Uneven curbs or no curb ramps;
- Pavement treatments (decorative treatments may confuse drivers, or may deter visually impaired pedestrians);

- Heavy turning volume that deters pedestrian crossing (especially heavy right-turn movements, that can occur on red lights); and
- Discontinuous walking route through the intersection (curb cuts that occur at different locations within an intersection).

Personal Well-Being

Most pedestrians will avoid settings in which they feel threatened or unsafe. Real or perceived, compromising personal well-being will deter pedestrian activity. Improved design, more visible law enforcement, or educational programs might remove these types of barriers. Personal health barriers include:

- Safety (from motorists—speed and volume—bicyclists or rollerbladers, publicized history of crashes);
- Security (lighting, high crime area, excessive graffiti, emergency telephone availability);
- Health (odors, carbon monoxide levels, or exhaust inhalation on very busy streets);
- Designs not favorable for visually impaired pedestrians (no curb cuts, unfamiliar pavement treatments, lack of audible crossing signals); and
- Designs not accessible for disabled pedestrians (pavement treatments, no curb cuts, inadequate crossing time).

Personal Preference

Barriers to pedestrian activity may be based on perceptions rather than physical obstacles. Sidewalks that are complete and well maintained will not be heavily used if interesting destinations are lacking, or if distances are perceived as too great. Some personal preference barriers can be eliminated with local planning, economic development, public awareness or educational campaigns. Some personal preference barriers include:

- Distance between origin and destination, or lack of destinations in neighborhoods;
- Amenities and ambience (visually interesting setting, occasional seating, rest rooms, trash receptacles, drinking fountains, bike parking/storage); and
- Convenience (linkages to transit or other non-motorized modes).

Temporary Barriers

Some pedestrian barriers will disappear with time. Temporary barriers may include seasonal factors that are weather-related, or those related to construction activities. Some temporary barriers can be avoided with detours or improved planning, while others require more patience. Temporary barriers may be comprised of the following:

- Weather impacts (snow, low or encroaching branches on trees, drifts of tree leaves or snow, cold temperatures, wind exposure); and
- Construction (equipment/signs in sidewalks, eliminated sidewalks).

Crash Analysis

One of the primary goals of the City of Loveland Bicycle and Pedestrian Plan is to provide a safe bicycle and pedestrian system to serve the city's population. To address this objective, 2005 to 2009 crash data was collected and analyzed to determine whether specific issues needed to be addressed in the Plan.

Between 2005 and 2009, 154 bicycle crashes and 110 pedestrian crashes occurred. These crashes are presented in Figure 2-3 (bicycle crashes) and Figure 2-4 (pedestrian crashes). A summary of various crash statistics is presented in Table 2-1.

A review of the bicycle and pedestrian crash maps indicates that bicycle and pedestrian crashes occur throughout the city, with many of these crashes occurring at intersections. A number of bicycle crashes also occur along streets that do not have bicycle facilities, which indicates bicycle trips are occurring even if there are no bicycle facilities to accommodate them.

Bicycle and Pedestrian Crash Data Findings

Location

As would be expected, 68% of all bicycle crashes and 47% of all pedestrian crashes occur at intersections. Sight distance, intersection design, and bicycle and pedestrian features at intersections can improve intersection safety.

Approximately 24% of all pedestrian crashes were reported in parking lots, where significant backing up of vehicles occurs. Improved site design with dedicated pathways from the parking areas to the buildings can reduce vehicle and pedestrian conflicts.

Interestingly only 15% of all bicycle crashes occurred while riding a bike along the street. An equal amount, 15% occurred at driveways.

Age

One-half of all bicycle crashes and 40% of all pedestrian crashes occurred with children under the age of 20, most of which were between 10 and 19. Improving the bicycle and pedestrian safety programs for all, particularly teenagers will be extremely important in improving safety within the City of Loveland.

Severity

As would be expected injuries caused by a vehicle-bicycle or vehicle-pedestrian crash is extremely high, with 60% of all bicycle accidents and 90% of all pedestrian accidents having injury.

Fault

Approximately 43% of all vehicle and bicycle crashes are the fault of both the driver and rider. In all other crashes, the fault was 32% by the automobile driver and 25% by the bicyclist. The results are significantly different for the pedestrian crash, where 74% of all crashes are caused by the vehicle driver and 26% by the pedestrian.

Victim Direction

The majority of all bicycle crashes (55%) and pedestrian crashes, (85%) occur when the bicyclist or pedestrian are going straight. It should be noted, however, that 43% of all bicycle crashes occurred when the bicyclist was going the wrong-way on the street or sidewalk.

Vehicle Direction

Not surprisingly a large percent, 41%, of the bicycle crashes occurred when the vehicle was turning right at an intersection. This situation can occur when the vehicle overtakes a bicycle and turns right in front of him when the bicycle is going straight. Left turning vehicles can find themselves in conflict with bicyclists and pedestrians in trying to turn within a gap of opposing through vehicles while not being aware of the bicyclist or pedestrian crossing the street.

Cause of Crash

The crash database identifies a long list of causes for crashes. In the case of bicycle crashes, over 50% resulted from the driver failing to yield the right of way to the bicyclist or the driver hitting a bicyclist on a sidewalk, typically at driveway locations. Seventeen percent of bicycle crashes occurred when the bicyclist was traveling the wrong way.

In the case of pedestrian crashes, 66% of all crashes occurred because the vehicle driver failed to yield the right-of-way. Conversely, 8% of crashes occurred when the pedestrian did not yield the right-of-way.

FIGURE 2-3: BICYCLE CRASH LOCATIONS

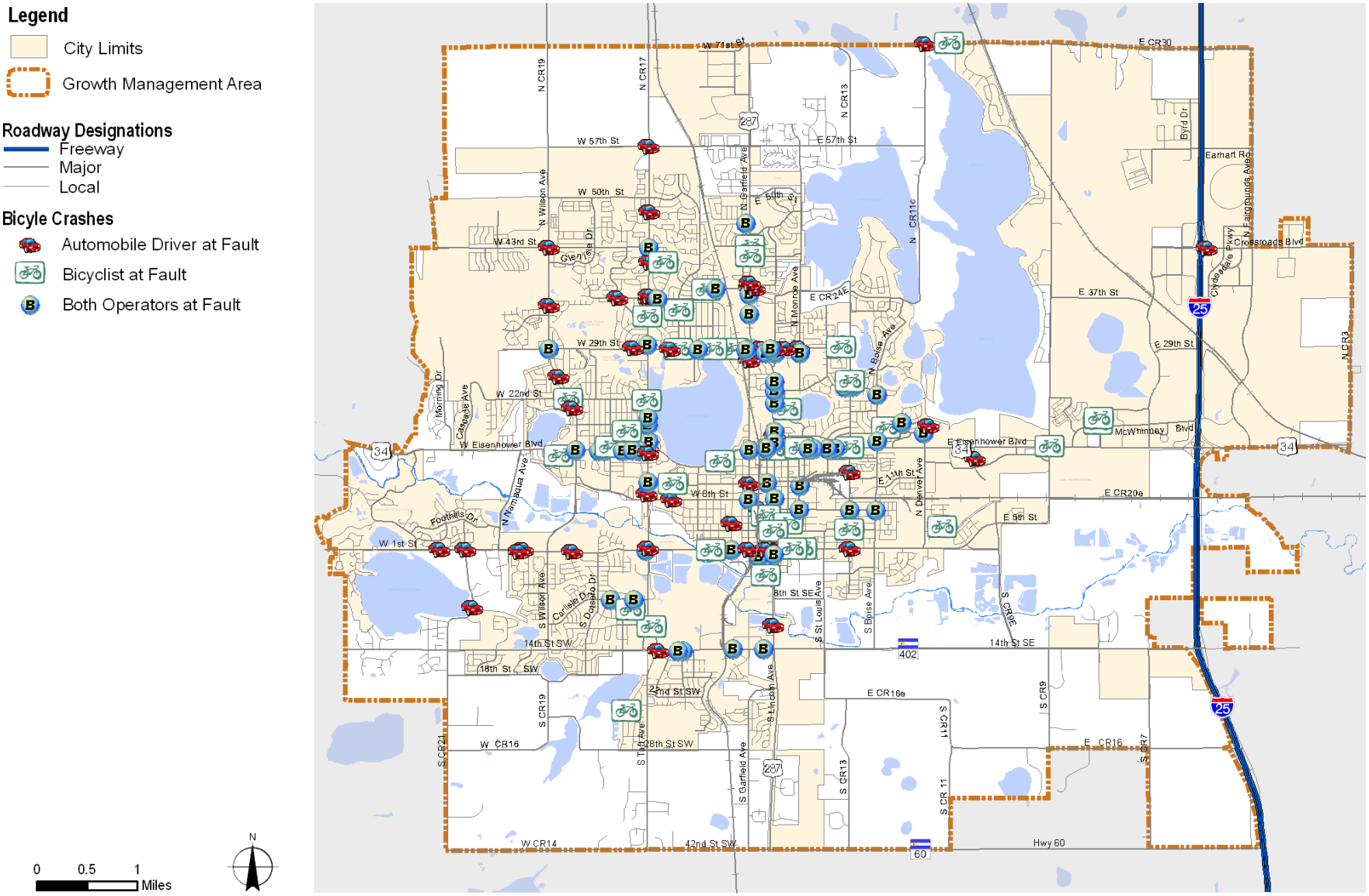


FIGURE 2-4: PEDESTRIAN CRASH LOCATIONS

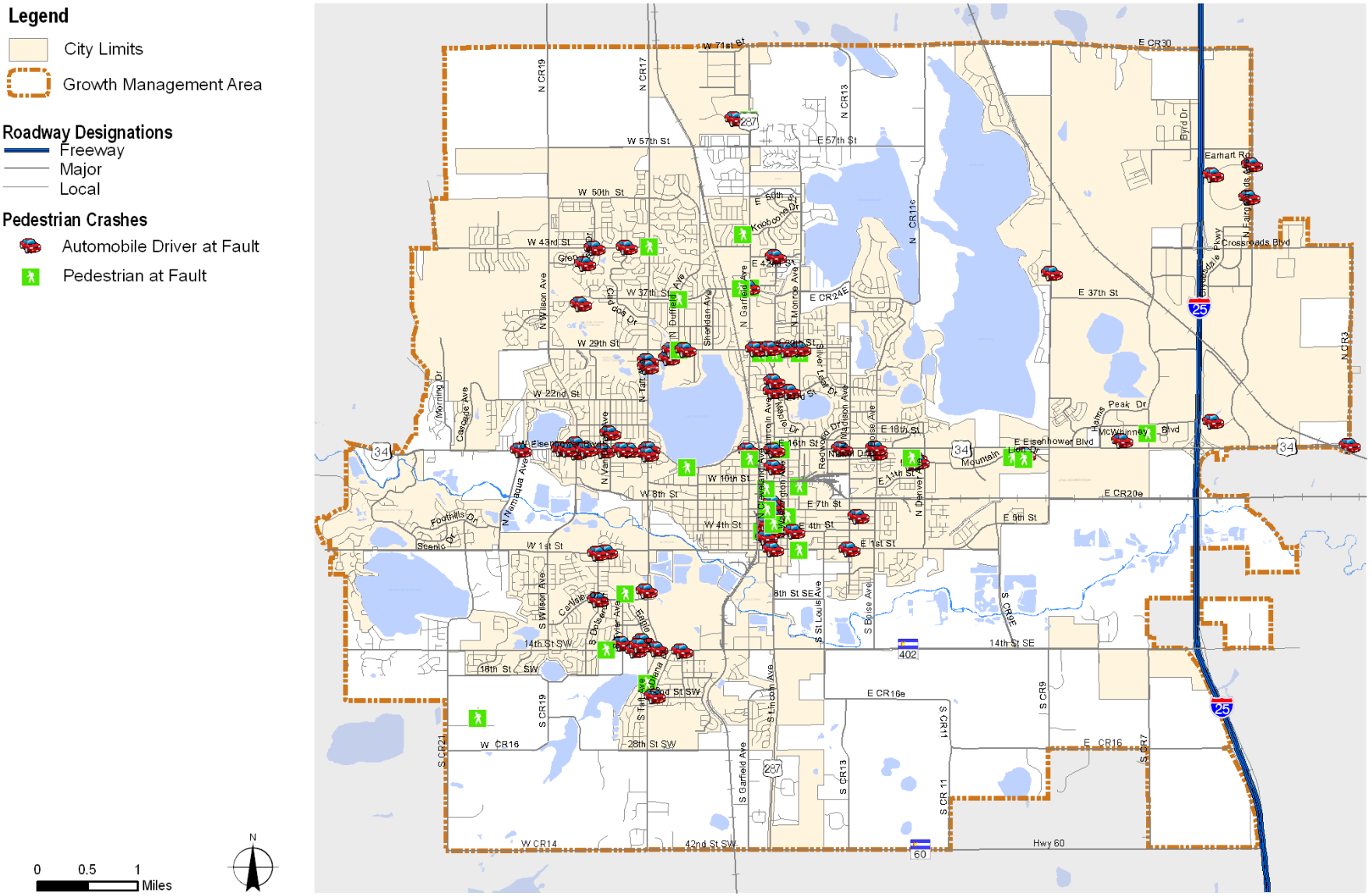


TABLE 2-1: CITY OF LOVELAND BICYCLE AND PEDESTRIAN CRASHES (2005-2009)

		Bicycle		Pedestrian	
Location	Driveway	23	15%	8	7%
	Intersection	105	68%	52	47%
	Parking Lot	1	1%	26	24%
	Street	23	15%	23	21%
	Roundabout	2	1%	1	1%
Victim's Age	0-9	4	3%	5	5%
	10-19	72	47%	38	35%
	20-29	19	12%	13	12%
	30-39	14	9%	7	6%
	40-49	17	11%	11	10%
	50-59	13	8%	14	13%
	60-69	9	6%	10	9%
	70+	2	1%	12	11%
	Unknown	4	3%		0%
Victim's Gender	Female	30	19%	53	48%
	Male	124	81%	57	52%
Severity	Fatality			2	2%
	Injury	93	60%	99	90%
	No Injury	48	31%	9	8%
	Unknown	13	8%		0%
Fault	Both	66	43%		0%
	Driver	49	32%	81	74%
	Bicyclist or Pedestrian	39	25%	29	26%

		Bicycle		Pedestrian	
Victim Direction	Left Turn	1	1%		0%
	Right Turn	1	1%		0%
	Stopped	3	2%	16	15%
	Straight	84	55%	93	85%
	Wrong Way	66	43%		0%
	Unknown		0%	1	1%
Vehicle Direction	Backing	2	1%	15	14%
	Left Turn	25	16%	26	24%
	Right turn	63	41%	15	14%
	Parked	5	3%		0%
	Straight	46	30%	54	49%
	Stopped	6	4%		0%
	Unknown	7	5%		0%
Description	Bike Carless Riding	5	3%		0%
	Bike/Ped Failure to Yield	16	10%	9	8%
	Bike Hits Parked Vehicle	9	6%		0%
	Bike Lost Control	6	4%		0%
	Bike Sideswipes Vehicle	3	2%		0%
	Driver Carless Driving	6	4%		0%
	Driver Fails to Yield	38	25%	73	66%
	Driver Hits Bicyclist on Sidewalk	42	27%		0%
	Driver Hits Bicyclist Going Wrong Way	26	17%		0%
	Driver Sideswipes Bicyclist	3	2%		0%
	Pedestrian Crossed Against Light		0%	4	4%
	Pedestrian Failed to use Crosswalk		0%	7	6%
	Other		0%	16	15%

Chapter 3 | Bicycle and Pedestrian Plan

The Bicycle and Pedestrian Plan provides the framework for a citywide bicycle and pedestrian system. The Plan reflects what is required to provide a choice in travel as modes an alternative to the automobile.

The Bicycle and Pedestrian Plan is not financially constrained, so priorities will need to be developed separately (see Chapter 4).

The Plan begins with an understanding of basic evaluation tools and best practices for developing the Plan. This chapter provides an overview of some of those key elements. Appendix B: Bicycle and Pedestrian Standards and Guidelines, includes a comprehensive list of potential tools and applications for inclusion in the Plan.

The Plan is based in part on addressing current missing segments and deficiencies in the existing bicycle and pedestrian system. These deficiencies were defined, in part, through the public outreach for the Plan.

The Plan is also based on a technical evaluation of work, shopping, business, and recreation destinations.

Evaluation Tools

While it would be ideal to have great bicycle and pedestrian facilities on every street within the City of Loveland, it is not practical. It is also not possible to retrofit every street within the City.

Therefore, in order to determine what bicycle and pedestrian improvements should be considered in the City of Loveland Bicycle and Pedestrian Plan, it becomes necessary to identify basic evaluation tools used for the development of the Plan.

Bicycle and Pedestrian Level of Service

Level of Service is a method of evaluation used to identify how well a facility may operate. “Level of Service” is a common term used in evaluating automobile congestion. Similar to a report card grade, levels of service A through C are passing, level of service D is border line, and levels of service E and F are considered failing.

Ideally, the City of Loveland should strive for level of service of C or better. This is particularly important in areas which potentially have high pedestrian and bicycle demand, such as around schools, parks, and commercial/business centers.

Although the following level of service methodology was initially developed for evaluating the pedestrian system, these principals can also be applied and considered when developing the bicycle system. The five level of service measures are as follows:

1. **Directness** – Does the system provide the shortest possible route?
2. **Continuity** – Is the system free from missing segments and barriers?
3. **Street Crossings** – Can the bicyclist and pedestrian safely cross streets?
4. **Visual Interest and Amenities** – Is the environment attractive and comfortable?
5. **Security** – Is the environment secure and well lighted with good line of sight to see the bicyclist and pedestrian?

The following level of service assessments are not intended to identify specific walkability problems or improvements, but rather to identify the types of issues and concerns that might exist.

Directness

The directness measure represents the actual distance from trip origin to destination. Since bicycle and pedestrian trips are highly dependent on trip length, the ability of bicycle and pedestrian infrastructure to provide the shortest and most direct route is critical. This fact is easily observed on college campuses and in parks where the most direct route is often worn into the landscape, despite the lack of paving. The ideal system is the grid system, since curvilinear street patterns add additional distance to the potential trip.

Making a decision to walk is highly correlated to distance and the time it takes to walk to your destination. If the bicycle and sidewalk system is direct and minimizes travel time, a person is much more likely to ride a bike or walk than if the route is circuitous and adds length and time to the trip. Directness is the measure of distance between destinations including home, transit stops, schools, parks, commercial areas, or activity centers.

The frequency or density of intersections also correlates with directness and walkability. A pedestrian is typically willing to walk three or four hundred feet. In downtown areas with high pedestrian activity, the frequency of street crossings needs to be higher than in outlying areas.

Barriers will impact bicycle and pedestrian travel. Freeways, rivers, and railroads can divide the community and restrict direct connections between one area and another except at a limited number of street over/under crossings.

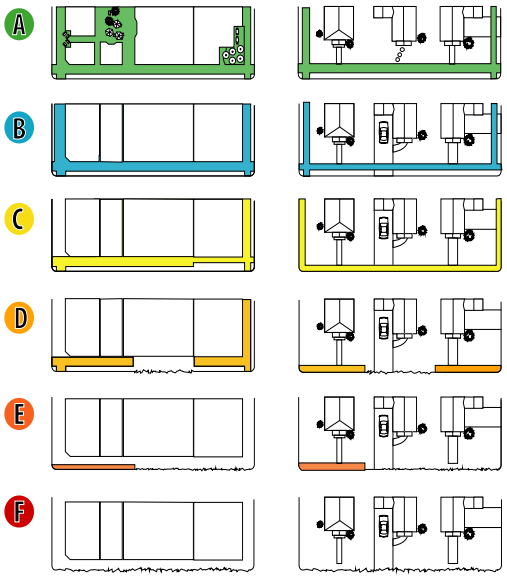
Continuity

Continuity measures the completeness of the bicycle or pedestrian system.

A continuous sidewalk system allows the pedestrian to make an uninterrupted trip. The sidewalk system must also be of sufficient width and a surface without cracks and bumps, to accommodate a stroller or wheelchair.

Similarly, a bicyclist may not make a bicycle trip if there is no system. Lack of continuity can come in the form of missing segments, broken or overgrown vegetation, or physical barriers such discontinuous streets or fences.

If there is not a continuous pedestrian system between point A and point B, causing the bicycle or pedestrian to bike/walk in the street creating an unsafe condition, the bicycle/pedestrian trip is typically not made.



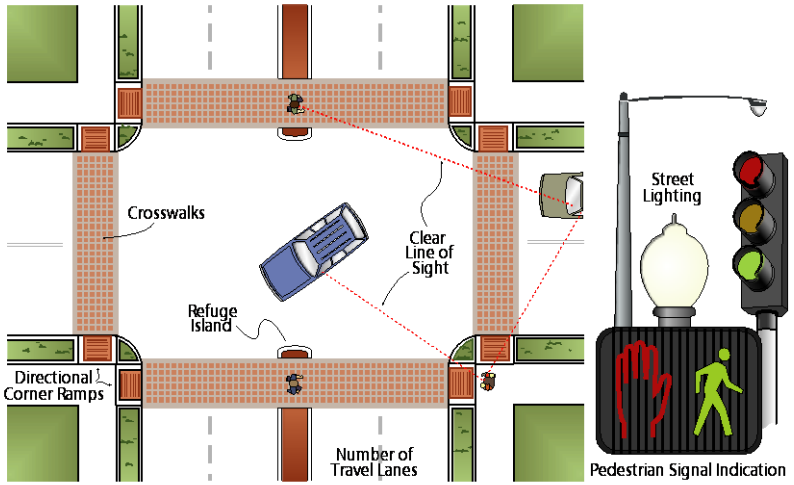
Other aspects of continuity are whether there are bicycle lanes and sidewalks along one or both sides of the street and whether there exists an overall line of sight from block to block.

Street Crossings

The weak link of the bicycle and pedestrian systems is often the intersections where bicycles and pedestrians must cross a street and interface with automobiles, which can result in safety concerns. As streets get wider and carry higher volumes of traffic, potential bicycle riders and pedestrians may avoid making a bicycle or pedestrian trip if safety becomes a concern. Many factors affect the bicyclists and pedestrian's real and perceived comfort and safety in crossing the street, including the following:

- The number of lanes and the widths of the lanes to cross;
- The presence of a raised median or refuge island;
- The presence of a bike lane or crosswalk;
- Use of a pedestrian actuated signal and location of push button;

- Clear sight lines to and from the motorists with the bicyclists or pedestrians;
- Directional corner ramps,
- Street lighting; and
- The presence or lack of on-street parking which impacts vehicular and pedestrian sight distance.



Visual Interest and Amenity

This measure of the pedestrian system's attractiveness and appeal is the most difficult to quantify and compare, and the most likely to change as the area matures. Some aspects of this measure relate to facilities that enhance the comfort of the user, including elements such as shade trees, street lighting, and benches that may be particularly important to pedestrians with mobility or visual impairments, but can also be important to the bicyclist. Other elements are important to visual appeal such as landscaping, planter boxes, trash receptacles, and public art.

Bicyclists and pedestrians often choose to ride a bicycle or walk depending on the quality of the environment. Areas that are pleasing and appealing with activities along the route are used much more than areas that are stark and uninviting. To promote bicycling and walking, the bicycle and pedestrian system should have a basic visual quality with some amenities.

Bicycle and Pedestrian Security

The bike and pedestrian environment must feel like a safe place for people to walk. The key security facility element is whether the bicyclist or pedestrian is clearly visible to other pedestrians or activities. This measurement is more appropriate at a site level where one can begin to identify areas where security might be an issue at the neighborhood level. Bicyclists and pedestrians require a sense of security, both through visual line of sight with others and separation from vehicles. They also require well-lighted pathways and sidewalks for night use.

Types of Bicyclists

One of the complexities in developing a plan is providing a bicycle system that addresses the different skill levels of all users.

The bicyclist that often commutes to work and uses their bicycle in making other trips is typically more experienced. They ride daily from point to point and typically view their bicycle as a mode of transportation. The experienced rider is much more comfortable riding their bike in a bike lane on a higher speed and volume street or with mixed flow traffic along a bicycle route.

Recreational riders are typically less experienced. They often view their bicycle as recreational or exercise equipment. They tend to prefer the separation of bicyclists and automobiles found by riding on a designated trail rather than in the mix of traffic.

Designing a bicycle system that can also include children is the most difficult. They are often inexperienced and do not understand the rules of bicycling. As determined through the crash analysis, children under 20 are involved in one-half of all bicycle crashes.

Bicycle Facility Criteria for Locating Bike Lanes and Routes

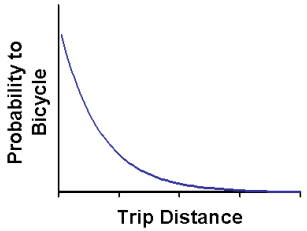
While it may be desirable to have a sidewalk on both sides of every street to accommodate the pedestrian, a bicycle lane on every street is not practical or necessary. There is, however, some general guidance for developing a good bicycle system.

- Bicyclists want to travel to the same destinations as cars travel to. Therefore, if the primary corridor to get to these destinations cannot accommodate bike facilities then, identify a bicycle route on local streets or low volume collectors that is parallel to the major street corridor.
- Bike routes and lanes should be spaced between 0.5 and 1.0 miles apart, similar to a collector/arterial street system.
- Bicycle facilities should be reasonably continuous across the City and avoid jogs and turns to maintain continuity.
- Provide traffic signals at major intersections.

Bicycle and Pedestrian Destinations

It is critical to identify high bicycle and pedestrian demand areas and then assess the bicycle and pedestrian facilities in those high demand areas to determine if adequate bicycle and pedestrian facilities are provided or need to be planned, to reach those high demand destinations.

To estimate potential high demand destinations eight types of potential bicycle and pedestrian activities or destinations were analyzed to create an activity index. These destinations included:



- commercial centers,
- employers,
- schools,
- senior living facilities,
- bus stops,
- hospitals,
- public housing, and
- park and recreation facilities.

A map that contains the location of each of these destinations and a one-quarter mile buffer around each activity is presented in Figure 3-1. The reason that a one-quarter mile buffer was added to each activity is that one-quarter of a mile is the general distance one may decide to walk if a good pedestrian system with safe street crossings is available. Beyond one-quarter of a mile, pedestrian trips are not often made, even with a good pedestrian system.

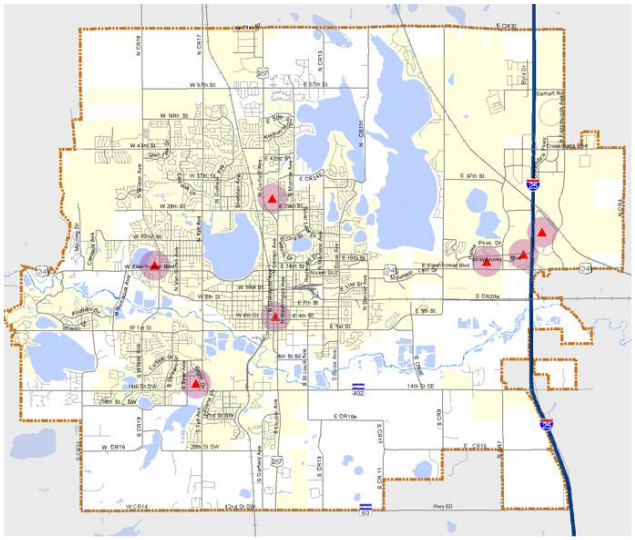
Each destination and one-quarter mile walking radius was combined to create a composite map, where the darker overlapping areas defined multiple destinations that would have high probabilities for attracting future bicycle and pedestrian trips. This map is presented in Figure 3-2. As the composite map of all destinations illustrates, major activity center destinations are located throughout the City. These activity center destinations should have good bicycle and pedestrian access and facilities. Areas with overlapping destinations are particularly prevalent in the City's downtown area, near Garfield and 29th, along the Eisenhower corridor and the Centerra area.

Completing missing segments in the system and providing good street crossings are particularly important in these higher density destination areas.

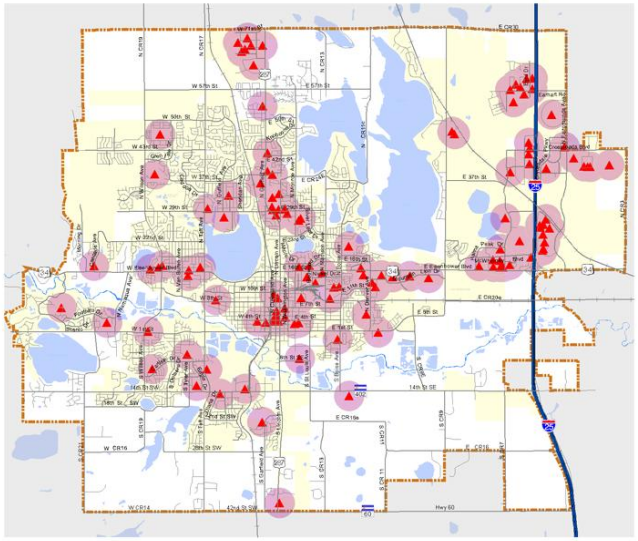
As would be expected, the primary corridors that would be used to accommodate the short trip assignment are the same corridors that contained many of the destinations bicyclists and pedestrians would want to bike or walk to. These tend to be along Eisenhower, Lincoln/ Cleveland, Garfield, 29th and Taft.

It should be noted that in many cases, trying to accommodate a bicycle lane along these corridors might not be practical given right-of-way constraints or high-speed traffic volumes. Therefore, identifying parallel routes might be more practical in developing the bicycle plan.

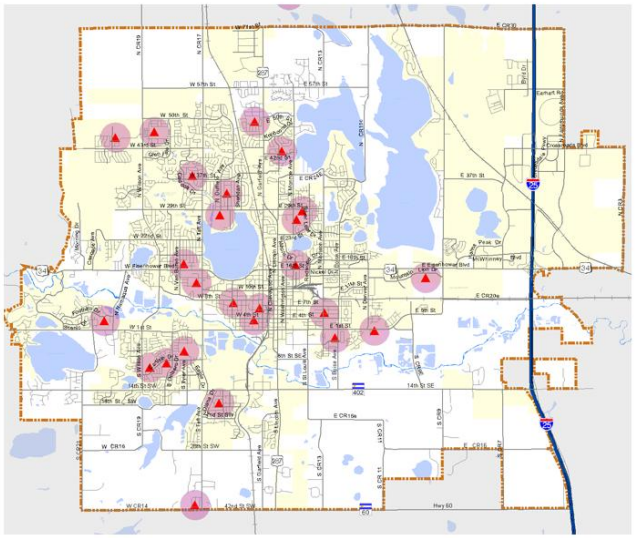
FIGURE 3-1A: LOVELAND BIKE/PEDESTRIAN DESTINATIONS



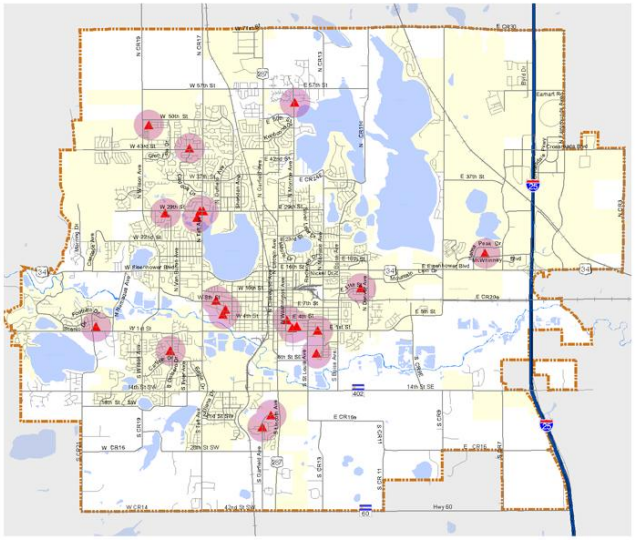
Commercial Centers



Employers (More than 100)

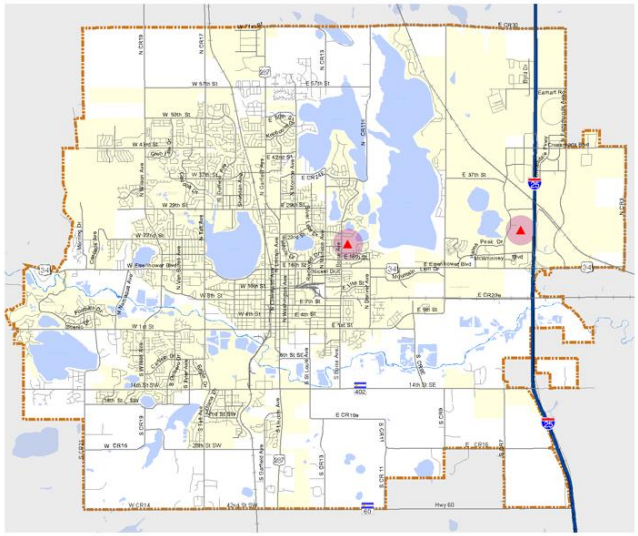


Schools

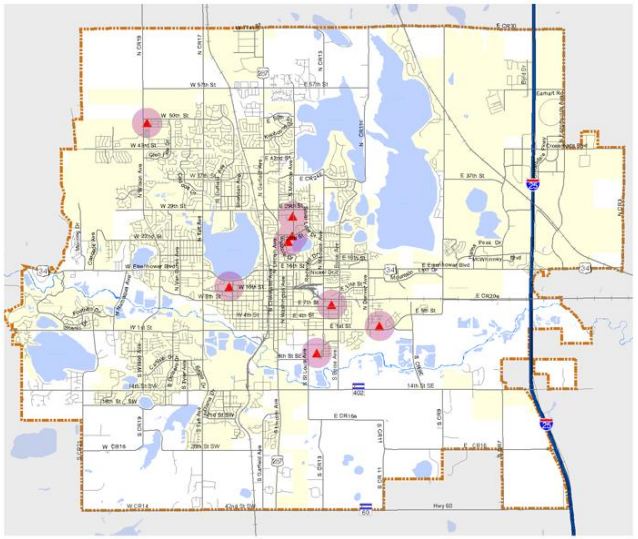


Senior Living Facilities

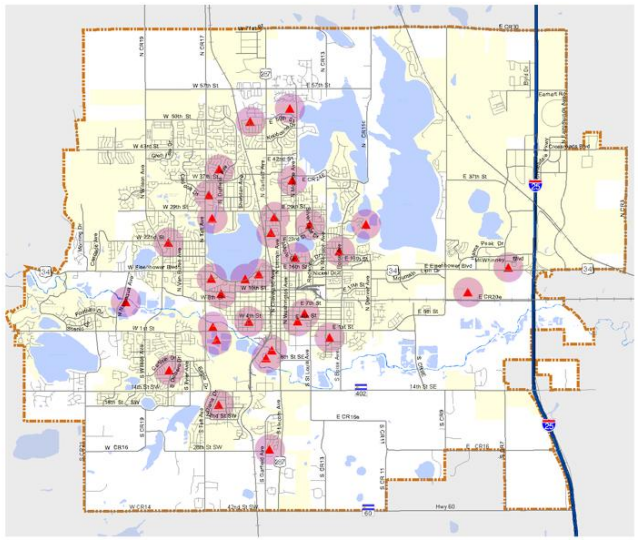
FIGURE 3-1B: LOVELAND BIKE/PEDESTRIAN DESTINATIONS



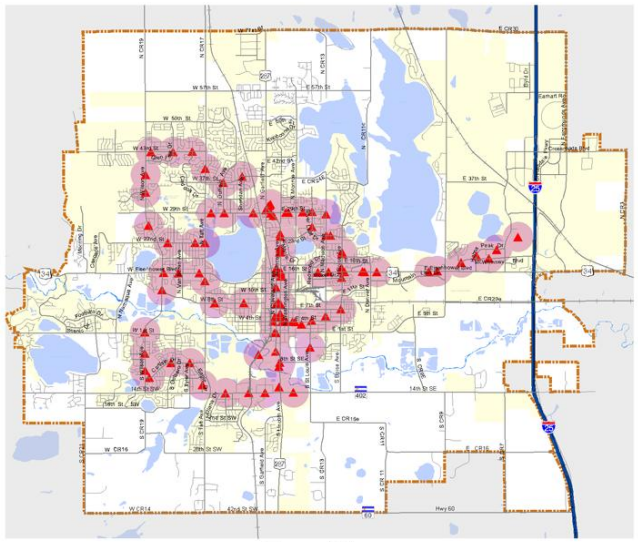
Hospitals



Housing Authority



Parks and Recreational



Bus Stops

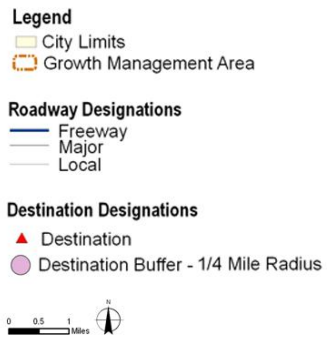
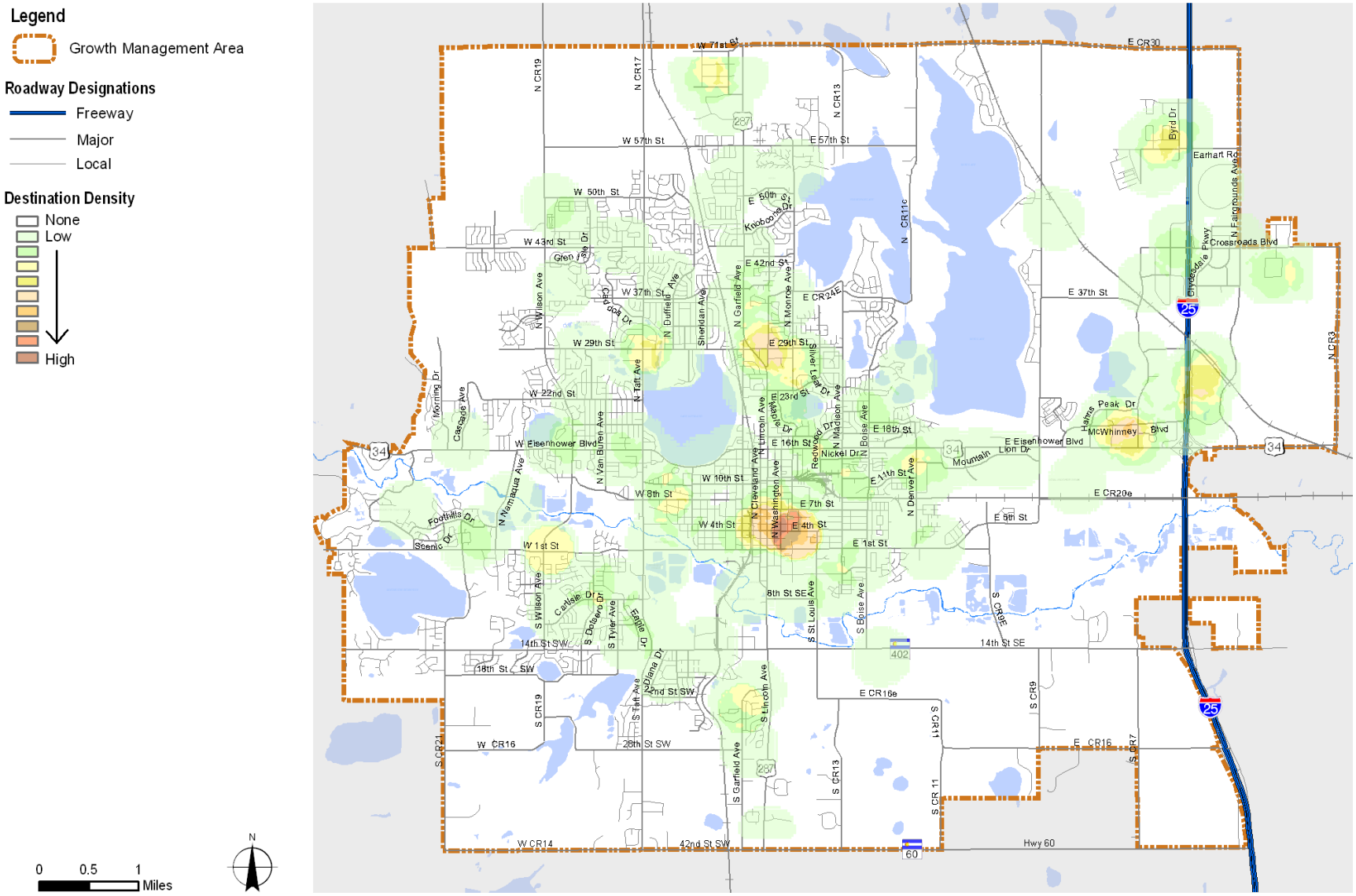


FIGURE 3-2: COMBINED DESTINATIONS



Proposed Bicycle and Pedestrian Plan

The development of the Proposed Bicycle and Pedestrian Plan was based on a number of sources including input from the public, Steering Committee and Technical Committee, GIS and field survey data collection, and analysis. The input and resulting analysis can be summarized as follows:

- Missing segments in the bicycle and sidewalk system,
- Crash analysis,
- Proposed bicycle and sidewalk improvements to provide access to primary destination areas,
- Sidewalks and bike lanes or trails along or parallel to the arterial street system, and
- Input from the public regarding missing segments, barriers, safety problems, and needs.

Based on the initial inventory of all identified bicycle and pedestrian improvements, there were approximately 2,000 individual bicycle and pedestrian improvements that would be needed to complete the entire bicycle and sidewalk network. However, not all of these improvements are critical.

Therefore, it was necessary to develop an evaluation process to first pare down the long list for the development of the City of Loveland's Bicycle and Pedestrian Plan. Then from the shorter list, prioritize the most important projects.

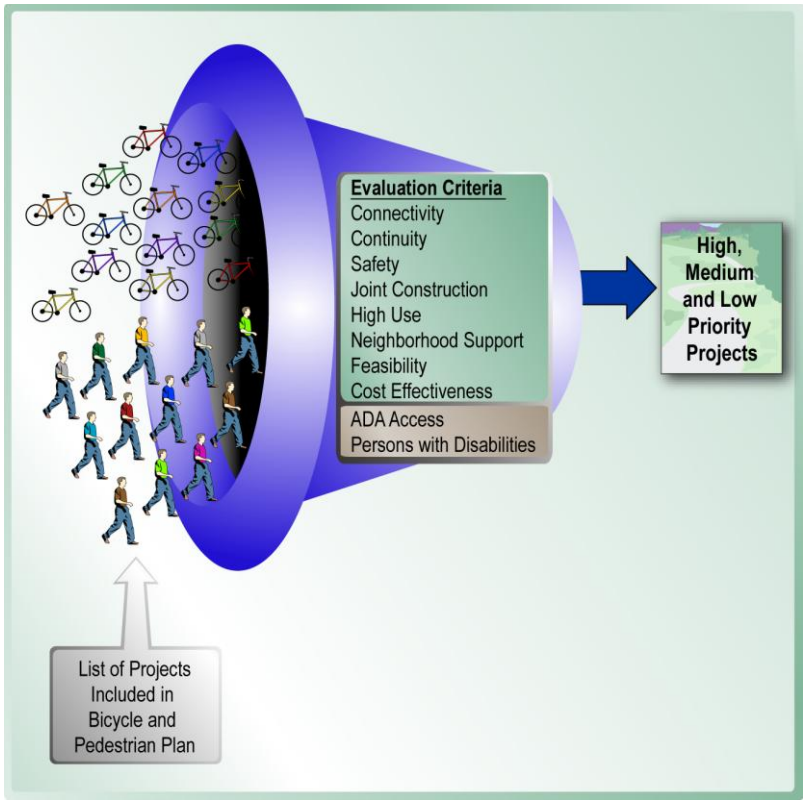
Project Evaluation and Prioritization

In order to prioritize the bicycle and pedestrian projects, it was necessary to develop a simple and concise method to evaluate bicycle and pedestrian projects.

This consisted of developing a list of evaluation criteria that responded to the City of Loveland's issues and needs, used to develop the full list of improvements.

These needs and issues included connections to key destinations, completing missing segments, addressing safety problems, etc. Through this process, eight evaluation measures were developed with two additional measures for ADA and those projects that would directly benefit a known person with disabilities that would benefit through the project. The resulting evaluation concept is presented in Figure 3-3, with the evaluation criteria defined in the following box.

FIGURE 3-3: BICYCLE EVALUATION AND PRIORITIZATION CRITERIA



Bicycle and Pedestrian Project Selection and Priority Criteria

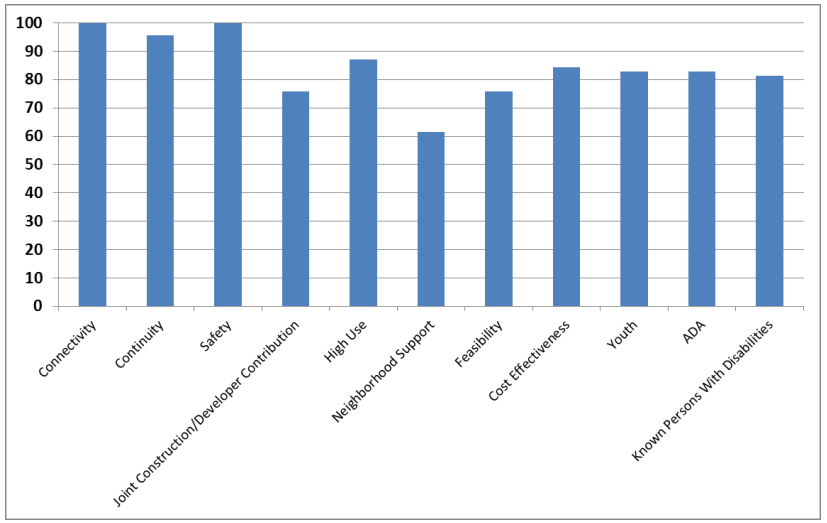
Connectivity:	Will the project provide connections or access to major employment, business, shopping, civic uses, schools, senior facilities, and public housing?
Continuity:	Does the project provide for a missing link in the system or eliminate a barrier that inhibits use?
Safety:	Does the project mitigate a known safety hazard?
Joint Construction/ Developer Contribution:	Can the project be "piggybacked" with other major project(s), such as a road widening or land development project?
High Use:	Will the project result in a likelihood of use (*i.e.*, satisfy demand, increasing use)?
Neighborhood Support:	Is there strong neighborhood support for the project?
Feasibility:	Is the project ready to be implemented (*i.e.*, right-of-way acquired, preliminary engineering completed)?
Cost Effectiveness:	Does the project represent a good value for the investment?

Pedestrian Facilities

ADA:	Is the project required to comply with ADA?
Persons with Disabilities:	Does the project provide improvements with disabilities?

Each evaluation criteria was weighted through input from the Steering and Technical Committee members who represent a wide range of bicycle and pedestrian interests within the City. Each member was asked through a web survey their opinion of the importance of each measure. The scores of each committee member was recorded and averaged and normalized to a top score of 100. The results of this weighting effort are presented in Figure 3-4 below.

Figure 3-4: Project Evaluation Measure Weighting



As can be seen, the measures of connectivity (connections to destinations), continuity (completing a missing gap), and safety were the three highest ranked measures. Whereas the remaining measures were lower, they were all ranked as important.

Based on a simple scoring process of high, medium, and low, each project was evaluated. The projects overall priority was based on a simple sum of the products of evaluation measure score and weight.

Bicycle Plan

The bicycle is a potential alternative to the automobile for many trips. It can also play an important role in helping the City to improve its air quality and to develop a more balanced transportation system. This element of the Transportation Plan proposes improvements to existing street and trail facilities that are presently suitable for bicycles and development of an expanded system of bicycle-friendly roads and trails for Loveland's future. The plan has been developed based on the analysis of existing conditions, as well as input from Loveland's Bicycle and Pedestrian Committee. The following mission statement was developed by the committee and guides this plan:

> *"To make the City of Loveland a place where walking and bicycling are safe, accessible and convenient modes of transportation and recreation. It is the objective of this plan to improve bicycle ... and intermodal safety and mobility because the increased use of these modes of travel will have significant benefits for the community's quality of life, environment and economy. Implementation of the Plan will make it possible for Loveland residents of all ages, abilities, and income to have the choice to bicycle...to work, educational facilities, shopping centers and other destinations as an integrated component of the City's Transportation Master Plan."*

The proposed 2035 Bicycle Plan recommends significant improvements to the existing bicycle system, including new roads with added bike lanes, improvements to existing roads without bike lanes, and a comprehensive commuter trail system to compliment the City's recreational trails system and accommodate all modes of travel. With these improvements, the future City of Loveland bike system will be of the highest quality, providing safe convenient bicycle facilities to go from virtually any place to anywhere on bicycle within the City.

As previously stated, the initial list of bicycle and pedestrian projects exceeded the needs for a system to serve the City of Loveland's non-motorized travel. In order to pare down the long list, a series of GIS analysis was performed to determine which projects might fall from the desirable complete list to a needs based list. The GIS overlay process included targeted bicycle projects that provided connectivity, continuity, addressed safety problems, and provided access to schools.

The short list of bicycle improvement included 125 projects. Based on planning level unit cost estimates, these improvements would require between $2.8 and $5.9 million dollars.

Based on this short list of needs-based bicycle improvements, each project was evaluated for all evaluation measures. A composite score was developed and the projects were sorted by importance. These projects were then divided by high, medium, and low importance based on their composite score. Each group accounted for approximately one-third the overall costs.

The resulting City of Loveland Bicycle Plan is presented in Figure 3-5. As can be seen, this plan includes both new bicycle lanes and enhancements to existing bicycle lanes, such as bike lane widening, stripping, and signage. These improvements are also presented for high, medium, and low priority projects.

Pedestrian Plan

Similar to the process for developing the Bicycle Plan, the Pedestrian Plan began with a long list of potential improvements. Through the GIS overlay process pedestrian projects that provided connectivity, continuity, addressed safety problems, and provided access to schools were identified. This included 153 pedestrian improvements that included construction of new sidewalks, filling in missing segments, intersection improvements and widening of existing sidewalks. The City of Loveland's Pedestrian Plan map is presented in Figure 3-6.

The pedestrian projects are divided into high, medium, and low priority improvements based on the evaluation of each project based on the evaluation criteria. In addition, a fourth category was added, projects required of future developers. These projects are not priorities, but would be developed as part of future development.

Coordination with Other Plans

The Bicycle and Pedestrian Vision Plan also makes reference to facilities that are controlled and planned by other entities that provide a comprehensive Bicycle and Pedestrian system. Many planned improvements are from the Colorado Department of Transportation (CDOT); Larimer County; the Centerra master planned community; as well as many regional recreational and commuter trail plans.

Also included in the map are existing and future Recreational (Multi-Use) Trails. Although these Recreational Trails are constructed and maintained by the City of Loveland's Park and Recreation Department, they were included in the map to illustrate the system of bicycle connections that would be available with the completion of both on-street bicycle facilities and the recreational trails. The phasing of these trails is the responsibility of the Parks and Recreation Department.

Although the Recreation Trail is primarily for recreation use and this plan deals mainly with transportation use, there is a lot of synergy between the two. Some people use the Recreation Trail for commuting while others use the bicycle and pedestrian facilities along certain streets for recreational use. Coordination is critical where the Recreational Trail connects or crosses with the bike and pedestrian facilities.

Because a lot of these planned facilities by other agencies have a lot of cross-over benefits, there may be opportunities to share in the cost and also receive bonus consideration when being evaluated for grant funding.

Cost Estimates

As part of the development of the City of Loveland Bicycle and Pedestrian Plan, planning level cost estimates were made for the bicycle and pedestrian plan elements. Because these costs can vary significantly based on terrain, right-of-way acquisition, and structures, a low and high unit cost per linear foot was identified for each improvement. These unit costs were applied to all bicycle and pedestrian improvements defined in the Bicycle and Pedestrian Plans. The results of this are presented in Table 3-1.

Many of the bike and pedestrian facilities in this plan will need to cross streets. How these crossings need to be handled depend on the location, classification of street to be crossed, and many other factors beyond the scope of this plan. The Bicycle and Pedestrian Plan is not intended to determine the crossing treatments at this time, however, the Plan can provide some guidance through the best practices section. The type of crossing treatment will be determined as these proposed projects are designed and constructed. A rough estimate of the additional cost for these enhanced crossing treatments has been included in the cost estimates for the Bicycle and Pedestrian Plan.

As can be seen, the total planning level cost estimate for the Bicycle and Pedestrian Plan, excluding other responsibilities, is estimated at between $6.7 and $13.6 million. This only includes the projects defined as the needs-based improvements to provide for a bicycle and pedestrian system of improvements to accommodate non-motorized travel demand. In addition to the City bicycle and pedestrian facilities, an additional $6.1 to $12.3 million of improvements will be necessary to complete the network that will be the responsibility of developers which are required to provide bicycle and pedestrian improvements per the current street standards, and bicycle and pedestrian improvements along state highways and county roads.

TABLE 3-1: PLANNING LEVEL COST ESTIMATES FOR THE BICYCLE AND PEDESTRIAN PLAN

	Bicycle Plan Planning Level Cost Estimates ($ million)		Pedestrian Plan Planning Level Cost Estimates ($ million)		Total Planning Level Cost Estimates ($ million)	
	Low	High	Low	High	Low	High
High Priority	$1.0	$2.5	$0.9	$1.5	$1.9	$4.0
Medium Priority	$1.1	$2.6	$0.9	$1.5	$2.0	$4.1
Low Priority	$0.9	$1.7	$0.9	$1.8	$1.8	$3.5
Enhanced Crossings					$1.0	$2.0
Sub Totals	**$3.0**	**$6.8**	**$2.7**	**$4.8**	**$6.7**	**$13.6**
Other Responsibility (developers, CDOT, county)	**$3.0**	**$6.1**	**$3.1**	**$6.2**	**$6.1**	**$12.3**
Totals	**$6.0**	**$12.9**	**$5.8**	**$11.0**	**$12.8**	**$25.9**

FIGURE 3-5: PROPOSED BICYCLE FACILITY MAP

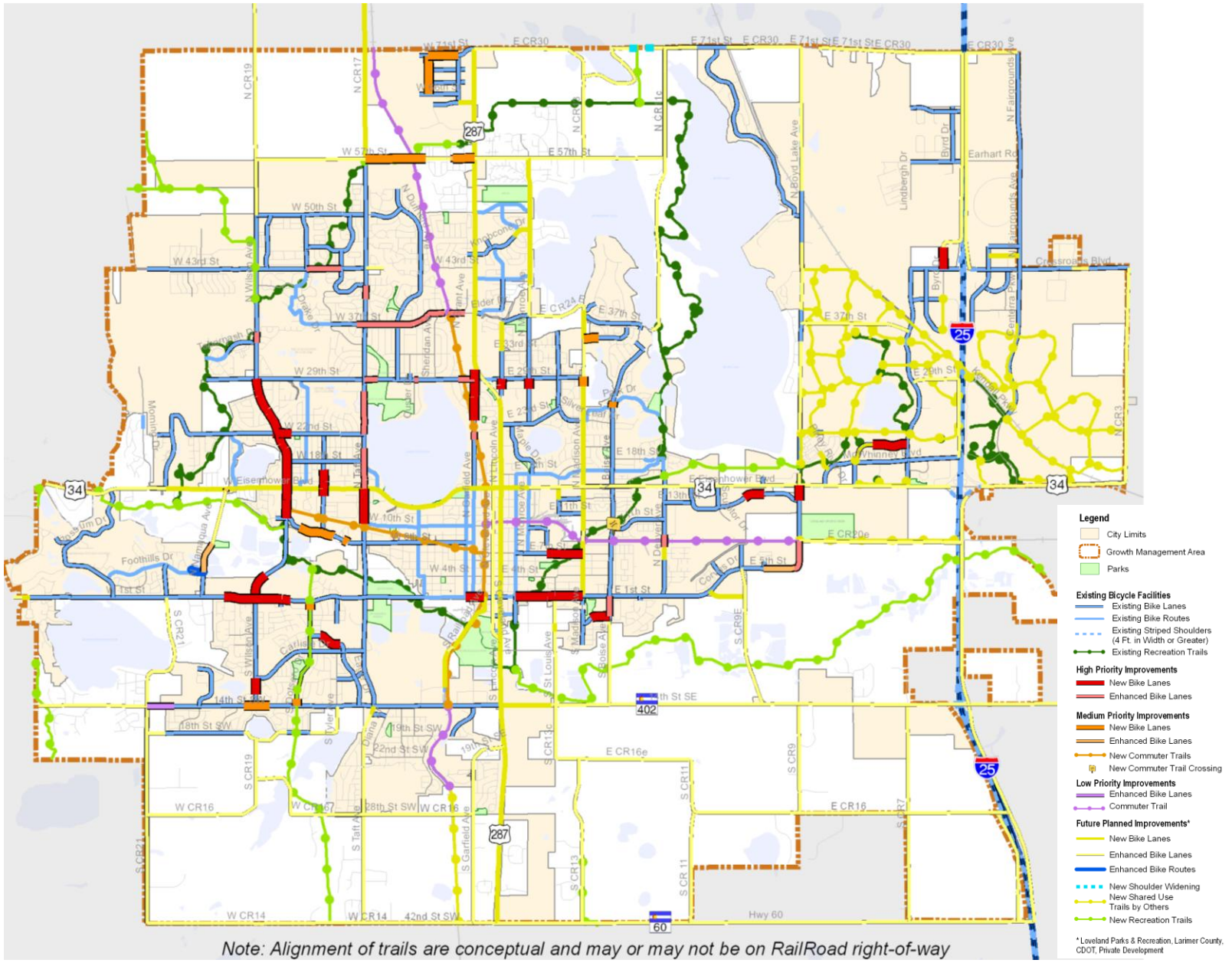
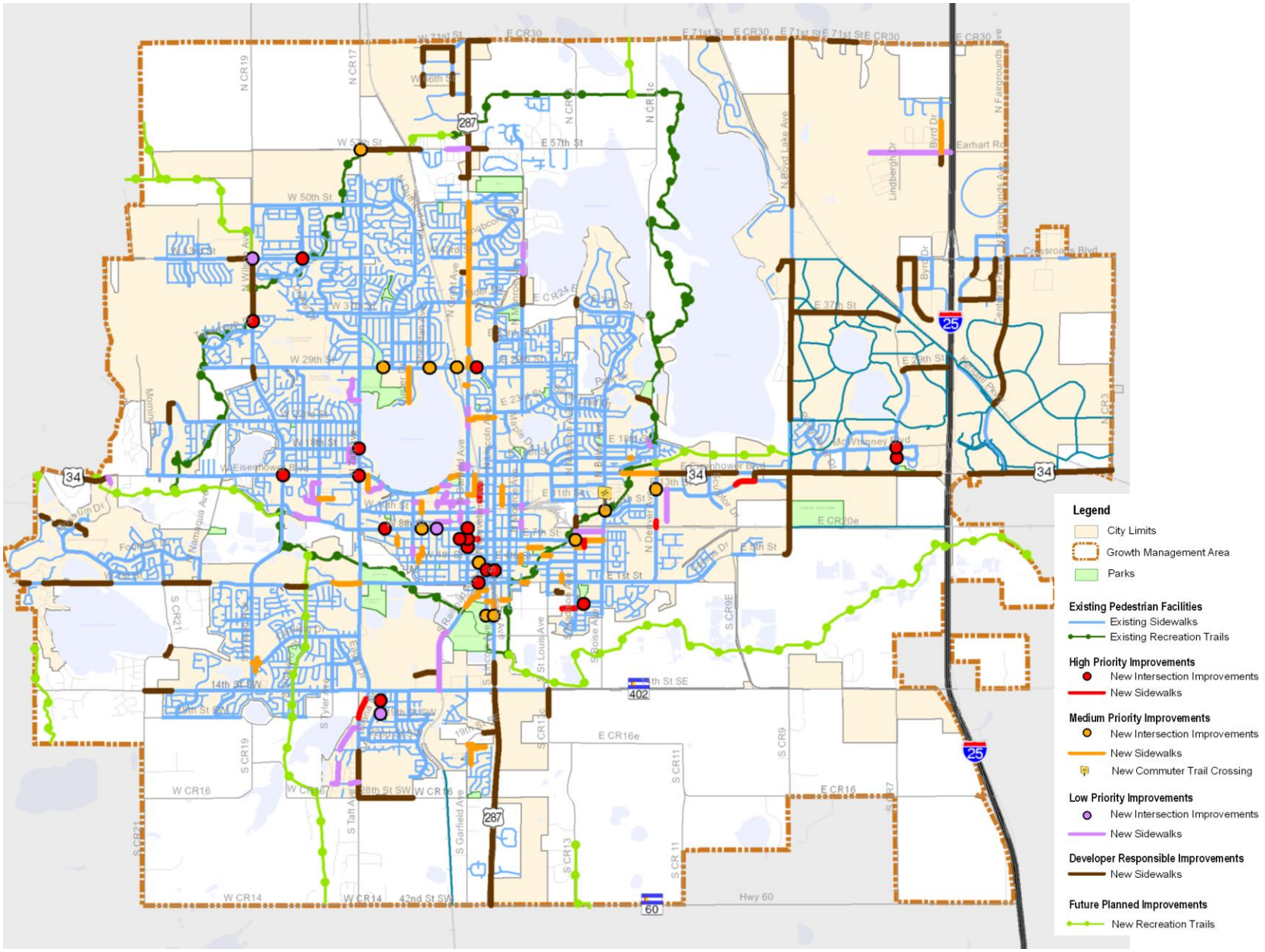


FIGURE 3-6: PROPOSED PEDESTRIAN PLAN MAP



Chapter 4 | Implementation

The Plan does not present the best practices guidelines and funding tasks necessary to implement the Plan. Therefore, the purpose of this chapter is to provide a framework for implementation and funding the Plan and suggestions for future monitoring to assure the Plan is on tract.

Implementation Strategies

As part of the development of the City of Loveland's Bicycle and Pedestrian Plan, a list and description of implementation best strategies was developed. Key implementation strategies follow with a longer list provided in Appendix B.

Maintenance

City Code (Sections 12.20 & 12.24) states that property owners are responsible for sidewalk construction and maintenance, including snow removal. The City of Loveland needs to be politically sensitive to how these requirements are applied. A lot of cities share the sidewalk replacement burden with the property owners on an equal (50/50) basis. The City may need to re-look into these policies to determine how this plan will affect these existing policies and codes. Broken glass and debris tend to accumulate near curbs where bicyclists ride, resulting in flat tires and accidents. Certain streets become mud-covered after rain, making the riding surface hazardous, while others are prone to icy conditions. Painted lanes delineating bike routes wear off over time and are no longer usable without proper upkeep. During the winter months, snow either gets plowed onto the right-most edge of the roadway (which forces bicyclists to ride father left) or off the roadway and onto the sidewalks.

Consistent upkeep and maintenance of bikeways should be top priority. On-street routes need to be regularly swept of debris. Bike lane lines should be repainted at least as regularly as those on the rest of the street. Weather-related obstacles such as ice and mud cannot be eliminated, but can be minimized through good design practices. Bikeway segments that regularly have these problems should be identified and corrected when and where it is possible. It is recommended that all paths that are part of the bicycle system be paved.

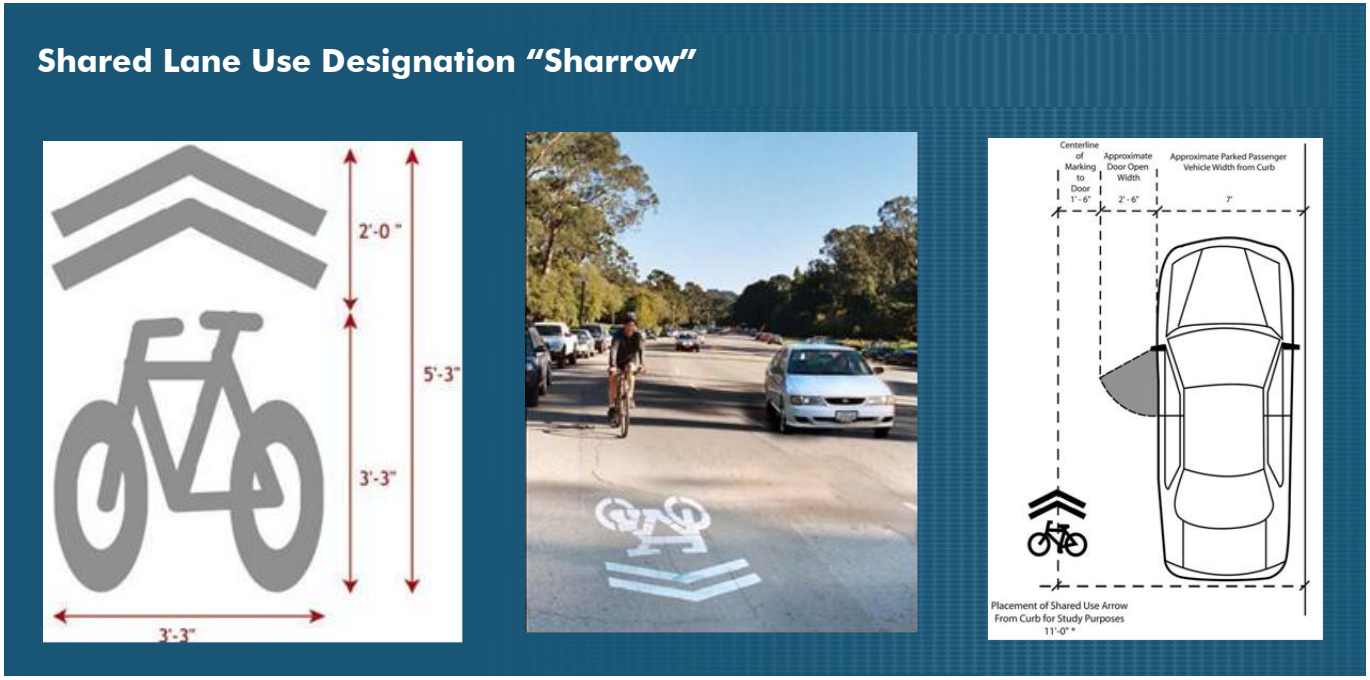
The Public Works Department is currently reviewing its road maintenance procedures to incorporate maintenance of bike lanes or routes on streets. A Public Works Department policy has recently been created that when an existing street with substandard bike lanes is rehabilitated, the bike lanes will be widened to the standard width, if practical. If widening the bike lanes to standard width is not possible to obtain outside of any curb and gutter section, the Public Works Departments will install "bike friendly" inlet grates to facilitate bicycle travel.

Operation and maintenance of any off-system commuter trails shown in the plan will need to be addressed, since the Public Works Department does not have any of these facilities at this time.

Shared Lane Use Designation "Sharrow"

Sharrows are becoming a popular form of striping bike routes on lower volume roadways that are to be shared by automobiles and bicyclists. Benefits of Sharrows include:

- Encourages motorists to be more aware of bicycles.
- Increases the distance between bicyclists and parked cars.
- Increases the distance between bicyclists and passing vehicles.
- Reduces the number of sidewalk riders.
- Significantly reduces the number of wrong-way riders.

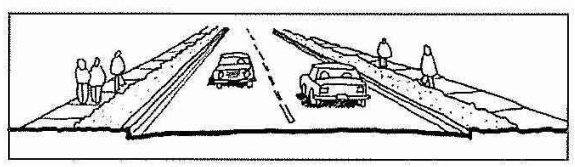


Road Diet

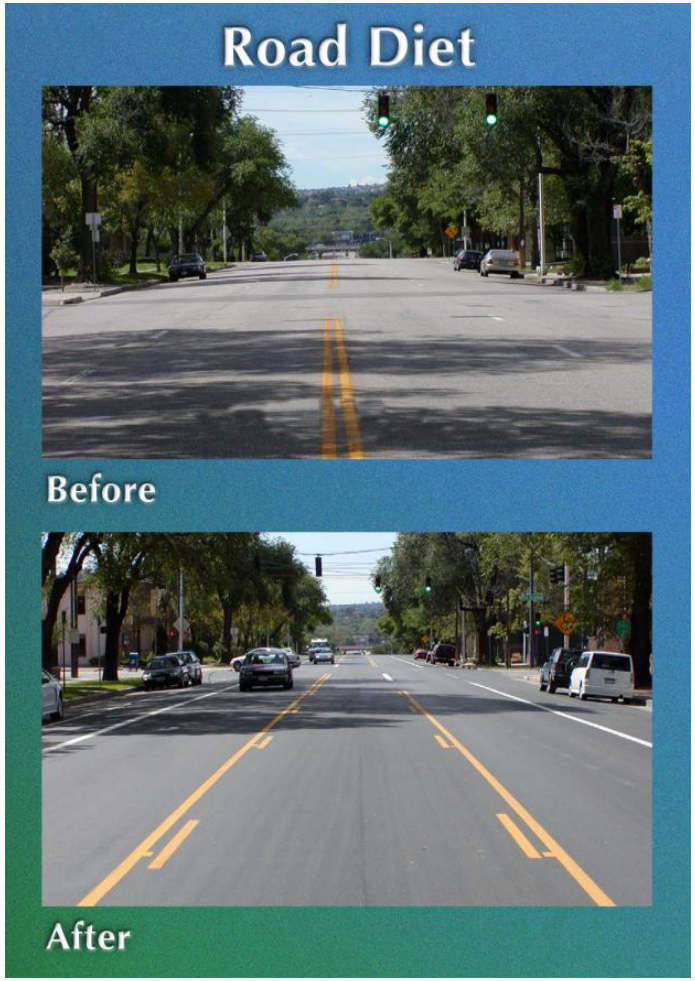
"Road Diet" is a term used to describe the process of reducing the number of travel lanes on a given roadway. Road diets are often conversions of four-lane undivided roads into three lanes (two through lanes and a center turn lane). The fourth lane may be converted to bicycle lanes, sidewalks, and/or on-street parking. Road diets have been shown to improve mobility and access for all travel modes, to enhance safety by reducing vehicle speeds, and to promote economic vitality for the community. A variety of reconfigurations are possible for lane number reductions depending on the current configuration, user needs, and potential operational and safety outcomes.

Along with lane elimination, roadway lane narrowing may also help to reduce vehicle speeds and enhance movement and safety for pedestrians and bicyclists. Lane narrowing is best used where motor vehicle speeds are low. Lane width reduction can be achieved in several different ways:

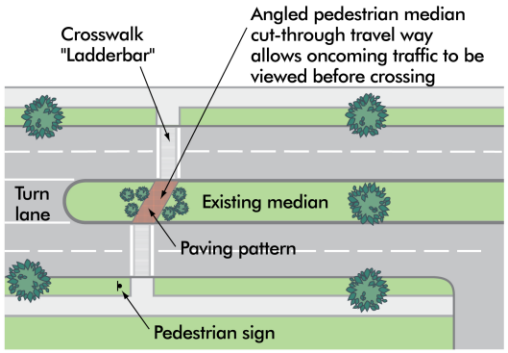
- Lane widths can be reduced to 10 or 10.5 feet and excess pavement striped with a bicycle lane or shoulder.
- Excess lane width can be reallocated to parking.
- The street and lanes can be physically narrowed by extending the curb for wider sidewalks and landscaped buffers or by adding a raised median.



Before (top) and after (bottom) width of lanes is reduced.



Median Crossing Islands/Mid-Block Crossings



Median crossing islands help manage traffic, particularly left-turn movements, and reduce the number of potential conflict areas between pedestrians, bicyclists, and motorists. Restricted access to side streets may also help to reduce cut-through traffic and calm local streets. Median crossing islands provide a refuge for pedestrians and bicyclists crossing a busy street at un-signalized locations. The medians must be at least six feet wide to provide sufficient waiting space for bicyclists.

The objective of a mid-block crossing is to make an off-street bike path crossing safer and more visible. Various traffic calming devices exist, such as refuge islands and speed tables, which may be appropriately used at mid-block bicycle crossings. This application is appropriate at the mid-block intersection of an off-street bikeway and a street, and is suitable for streets with faster moving traffic. A bicycle logo and "XING" pavement legend are installed prior to the crossing, at a distance dependent on the roadway design speed.

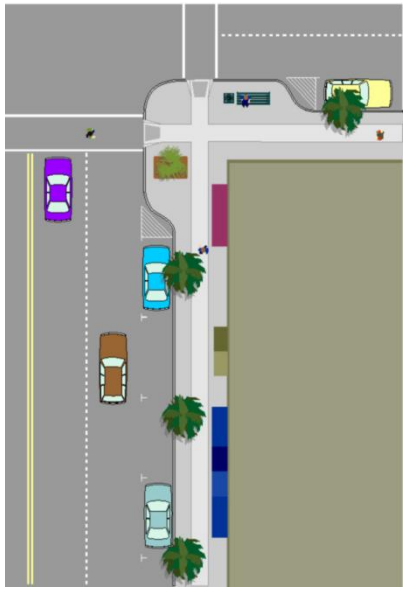
Pedestrian Actuated Rectangular Rapid Flashing Beacon (RRFB)

One alternative to a traffic signal is the Pedestrian Actuated Rectangular Rapid Flashing Beacon (RRFB). The RRFB is a special LED flashing device installed below a crosswalk sign and placed at marked, unsignalized crosswalk locations. The RRFB increases pedestrian visibility by attracting driver attention with the flashing beacons and making them aware of the pedestrian's presence.

Pedestrian Hybrid Beacon- High Intensity Activated Crosswalk (HAWK)

A pedestrian hybrid beacon (commonly referred to as a HAWK) uses a Yellow-Red lens configuration (two red lens on top and yellow lens on bottom) to provide a signalized, mid-block pedestrian crossing. The pedestrian hybrid beacon is used to warn and control traffic to assist pedestrians in crossing a street at a marked crosswalk. The pedestrian hybrid beacon is designed to require traffic to stop for the pedestrian walk interval (steady red) and to allow traffic movement during the flashing 'don't walk' stage of the pedestrian crossing (flashing red). The pedestrian hybrid beacon also provides flashing yellow and solid yellow warning indication to traffic that indicates the upcoming 'walk' stage/steady red.

Bulbouts/Curb Extensions



In special applications, the City may consider bulbouts to reduce traffic speed and to improve pedestrian safety. Bulbouts are simply intersection curb extensions, which extend past the parking lanes, but not into the bicycle or through lanes. The advantages of bulbouts are as follows:

- Bulbouts provide an entry or gateway statement into activity areas or where high volumes of pedestrians are present. Entering an area where a bulbout is present

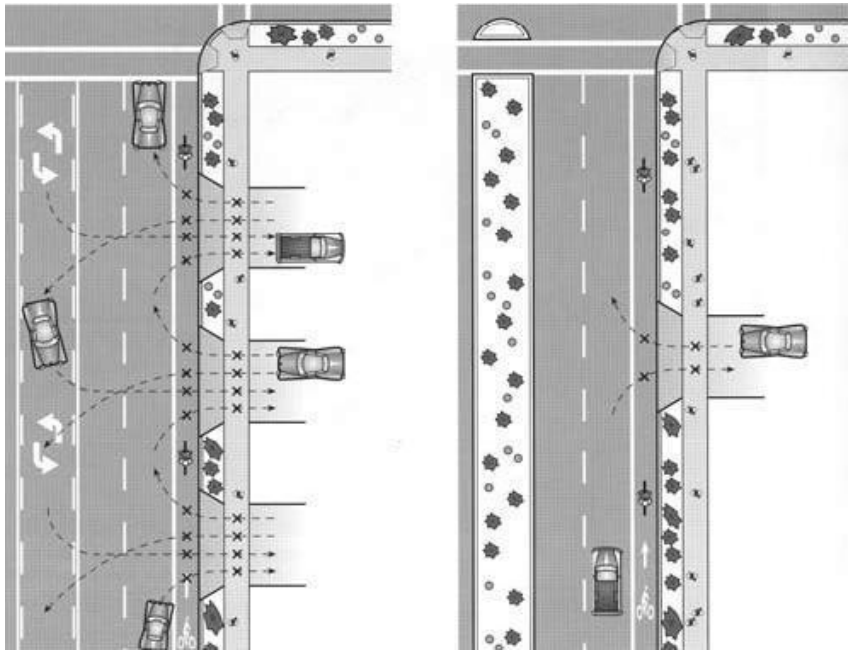
provides a clear difference between the arterial function and a local pedestrian activity area.

- Bulbouts enhance the visibility of the pedestrian because they physically permit the pedestrian to be located closer to the travel lanes, especially where parking is permitted, and allow the pedestrian to be seen more easily by the driver.
- Bulbouts constrict traffic flow through reduced lateral clearance. This reduction effects a reduction in travel speed along the corridors and improves safety for both pedestrians and vehicles.
- The bulbout changes the turning radius at the intersection, which reduces turning speed and vehicle and pedestrian conflicts.
- The extension of the bulbout reduces the time it takes pedestrians to cross from curb to curb. This reduction in pedestrian crossing time consequently reduces the time the pedestrian is exposed to moving vehicles.
- Bulbouts change the character of the intersection from automobile-dominant to pedestrian-friendly and multimodal-shared.
- Bulbouts can be an extremely positive visual and aesthetic enhancement. Features such as pedestrian lighting, planters, and benches create a focal point for pedestrian activity and change the character of the intersection from automobile to pedestrian. It should be noted that care must be taken when aesthetically enhancing bulbouts as such enhancements can block sight distances and create accident problems.

Access Management/ Driveway Improvements

Managing the number, spacing, access, directional flow, and other aspects of driveway and side street connections protects those traveling along the roadway, including bicyclists and pedestrians, from conflicts with those entering/leaving the roadway. Access management includes such measures as limiting the number or establishing minimum spacing between driveways; providing for right-in, right-out only movements; restricting turns to certain intersections; and using non-traversable medians to manage left- and U-turn movements.

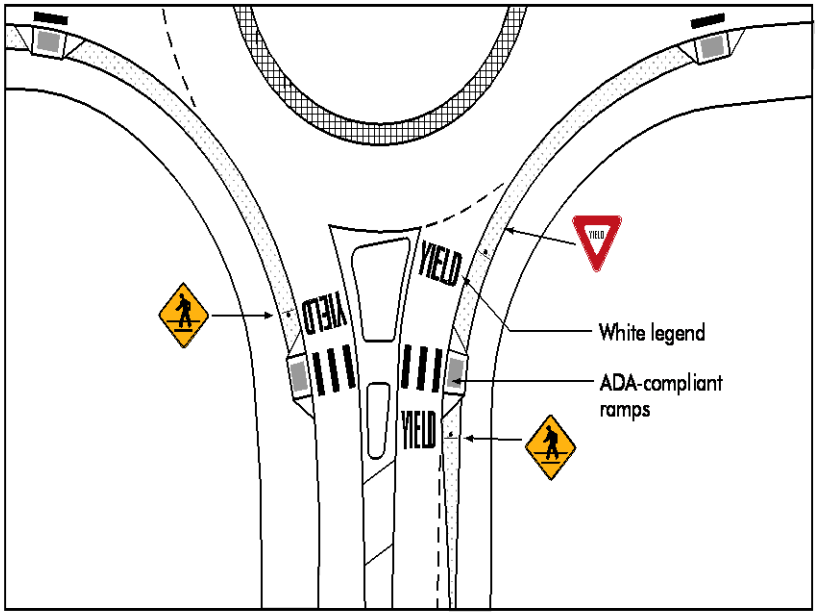
Driveway design affects sight distance for both motorists and bicyclists accessing roadways, as well as the speed and care with which drivers enter or leave the roadway. Right-angle connections are best for visibility of approaching traffic, as well as slowing the turning speed for vehicles exiting or entering the roadway. Tighter turn radii at driveways, as well as ramps to sidewalk level, also slow vehicles speeds.



Modern Roundabouts.

The use of modern roundabouts as an alternative to conventional stop and signal control intersections has been used at intersections within the City of Loveland. Studies conducted by the insurance industry have determined that these types of intersections result not only in a significant decrease in automobile traffic at an intersection, but also a reduction in pedestrian accidents as well.

Modern Roundabout Pedestrian Crosswalk Treatment



At a conventional intersection, the pedestrian faces four (4) potential vehicle conflicts:

1. Crossing movements on red (typically high-speed, illegal);
2. Right-turns on green (legal);
3. Left-turns on green (legal for protected-permitted or permitted left-turn phasing); and
4. Right-turns on red (typically legal).

Pedestrians at roundabouts, on the other hand, face two (2) conflicting movements on each approach:

1. Conflict with entering vehicle; and
2. Conflict with exiting vehicle.

The crossing of the roundabout is relatively simple. The pedestrian waits for a gap in traffic and crosses from the curb to the splitter island that provides protection, and then crosses from the splitter island to the far curb when a gap in traffic occurs. Crossing in two steps reduces the vehicle exposure in half for each segment. In addition, safety is improved because the vehicles are forced to go slower through the roundabout than at a conventional intersection. The modern roundabout pedestrian crosswalk treatment consists of:

- ADA Compliant Ramps;
- Conventional Crosswalk Striping;
- Raised Splitter Island Pedestrian Pass Through and Refuge;
- Pedestrian Crossing Sign;
- Yield Street Markings; and
- Yield Signs.

Typically, the crosswalk is placed approximately one car length from the yield bar to permit the pedestrian to safety walk behind a vehicle that is awaiting a merge into the roundabout when traffic permits.

Funding

Chapter 3 presented the process to develop the long-range Bicycle and Pedestrian Plan. This Plan does not include all bicycle and pedestrian improvements, but only those pared down to reflect a needs-based plan that would provide for a system of bicycle and pedestrian improvements to support non-motorized travel within the City of Loveland.

As presented previously, the total cost to implement the Bicycle and Pedestrian Plan is estimated at approximately $6.7 and $13.6 million dollars. Ideally, it would be important to provide for a dedicated funding source from which the City could annually select critical bicycle and pedestrian projects from the priority list of projects. Given the 25-year life span of this project, a current year annual bicycle and pedestrian funding source between $270,000 and $540,000 would be required.

The City of Loveland 2030 Transportation Plan is currently being updated and will become the 2035 Transportation Plan. The proposed improvements and cost estimates in this plan will be weighed with the proposed improvements and anticipated costs from the other modes of transportation (vehicle and transit). The amount of funding for bicycle and pedestrian improvements and programs will be determined within the 2035 Transportation Plan.

Other existing City funding is currently being used for bicycle and pedestrian improvements. The City of Loveland Public Works Department's Street Resurfacing Program – Concrete Rehabilitation Project (Target Area) currently budgets $475,000 for curb, gutter, drainage, sidewalk, and American's with Disabilities Act (ADA) ramp improvements for streets that are being reconstructed or resurfaced. The City of Loveland Public Works Department's Street Rehabilitation City-Wide Blanket Bid Concrete Program utilizes some of its available budget for ADA ramp improvements to assist citizens with disabilities. Some of the proposed pedestrian improvements are ADA requirements.

The City should continue to pursue outside funding sources. Additional funding from the following and other sources could help leverage or offset the City's investment in bike and pedestrian improvements and programs:

Federal *(see http://www.fhwa.dot.gov/environment/bikeped/bp-guid.htm for complete list)*

- Safe Routes to School (SRTS)
- Transportation Enhancement activites (TE)
- Congestion Mitigation & Air Quality Improvement Program (CMAQ)
- Highway Safety Improvement Program (HSIP)
- State & Community Highway Safety Grant Program
- Highway Users Tax Fund (HUTF)
- Surface Transportation Program (STP)
- Recreation Trails Program (RTP)

State

- Funding Advancements for Surface Transportation & Economic Recovery (FASTER)
- Great Outdoors Colorado (GOCO)
- Department of Local Affairs (DOLA)

Private

- SRAM Cycling Fund
- Bikes Belong Grant

Investment in the bicycle and pedestrian system also improves the City's economic vitality. The study, Estimating the Employment Impacts of Pedestrian, Bicycle, and Road Infrastructure, examined job creation data from 2008 provided by Baltimore, Maryland and found that pedestrian and bike infrastructure projects create 11 to 14 jobs per $1 million of spending, while road infrastructure initiatives created 7 jobs per $1 million of spending. The linkage between retaining young professionals between 25 and 50, who are the primary income producers in a City, have an increased propensity to stay if there is a good bicycle and pedestrian system.

Another positive aspect of investment in bicycle and pedestrian improvements is that they have a minimal operating and maintenance costs when compared to other capital projects.

It will be important that City staff be good stewards with the available resources. As an example, some projects can be as simple as moving painted lines on streets after new surfaces are placed from the existing street rehabilitation or maintenance program. Many of the projects can be done in house, like the signage and striping.

The future bicycle and pedestrian plan is a high priority to complete a system of bicycle and pedestrian improvements that allow citizens that cannot drive or people who cannot afford a car to bike or walk to work.

Policy Recommendations

Code Enforcement

As mentioned earlier, the City of Loveland currently has existing codes and ordinances that if enforced would address much of the needed plan improvements and would create a much more useable bicycle and pedestrian system. As an example, there are already existing ordinances that require property owners to maintain their sidewalks or require new developments to provide for bicycle and pedestrian improvements. Providing enforcement on these existing rules is very important to the success of the Plan.

Coordination

Coordination and communication among the various City Departments regarding bicycle and pedestrian planning and implementation of improvements or programs is critical. During a recent re-organization within the City of Loveland, a new position within the Public Works Department was created in 2009 that included part time responsibility as a Bicycle and Pedestrian Program Manager. The Cities current internal and external review processes should re-evaluated to incorporate this new position to help with coordination and implement the Plan effectively. Authority for this position and the ability to leverage funds for bicycle and pedestrian improvements that can be incorporated into projects by other entities have proven to have the greatest success. The duties of the existing Bicycle and Pedestrian Program Manager also include coordinating City bicycle and pedestrian planning efforts and programs with other local, regional and state agencies.

The 5 E's – Engineering, Education, Enforcement, Encouragement, and Evaluation

Facilities are only one of several elements essential to building a successful bicycle and pedestrian planning transportation system. With bicycle and pedestrian safety education and training encouraging walking and bicycling, and enforcing the rules of the road as they pertain to bicyclists, pedestrians, and motorists should be combined with facilities development to form a comprehensive approach to bicycle and pedestrian use. The Colorado Guide for the Development of Local and Regional Bicycle and Pedestrian Plans identifies the 5 E's - Engineering, Education, Encouragement, Enforcement, and Evaluation – as the basis for comprehensive bicycle and pedestrian planning.

- **Engineering**. Engineering includes facilities, maintenance, and parking. An adequate bicycle or pedestrian transportation system is one that allows users with varying abilities to safely and efficiently travel from origin to destination. Bicycle facilities include on-street facilities such as bike lanes, bike routes, low-volume roads and roads with adequate shoulders, and off-street facilities such paths, bridges, overpasses, and underpasses.

- **Education.** Education of the public is the most important element in reducing bicyclist and pedestrian injuries, reducing hostility between the various transportation modes, ensuring that the law is obeyed, and facilities are properly designed and built. Bicyclists, pedestrians, and motorists need safety education. Police officers need education regarding the manner in which to enforce bicycle and pedestrian laws, and engineers and planners need facility design education.

- **Encouragement.** Encouraging bicycling and walking can help mitigate air pollution and traffic congestion, as well as promote healthier, friendlier communities. One-way trips of five miles or less are often suitable for bicycling. Often bicyclists are willing to travel even further distances for commuting trips or recreation. Shorter trips are often suitable for walking. Providing safe, well-designed and maintained facilities encourages bicycling and walking. Annual events, such as Metro Rides Bicycle and Trails Festival, CDOT's Colorado Bike Month (June), Bike to Work Day, Colorado Pedestrian Month (October), Walk to School Day, and National Trails Day promote bicycling and walking through events and media attention. These events are designed to celebrate non-motorized transportation, encourage people to bicycle or walk, build awareness through safety campaigns in the media, and institutionalize bicycling and walking as viable modes of transportation.

- **Enforcement.** Enforcement goes hand in hand with education. Education is not effective if there is not enforcement to back it up. Therefore, it is important to enforce the rights and responsibilities of all modes of transportation by ticketing motorized and non-motorized transportation users alike. Bicyclists and pedestrians should be expected to be ticketed for traffic offenses the same as motorists.

- **Evaluation:** Evaluation involves monitoring outcomes and documenting trends through data collection before and after transportation improvements. Evaluation includes review of existing policies and standards, monitoring traffic volumes and flow, evaluating crashes, prioritization of future projects and identifying potential funding sources.

Safe Routes to School

The City of Loveland's Public Works Department has partnered with the Thompson School District to promote the Safe Routes to School Program. This program benefits children and the community by reducing traffic congestion in school zones, improving air quality, increasing physical activity of children and adults, and promoting safe neighborhoods.

Safe Routes to School (SRTS) is a program that encourages families to use alternative modes of transportation, such as walking, riding a bike/scooter, or rollerblading when going to school. Exercise and safety are key components of the program.

In 1969, roughly half of all 5 to 18 year olds walked or biked to school. Today, nearly 90% are driven by vehicle or bus. Loveland's SRTS Program hopes to change these statistics locally.

With more students walking or bicycling to school, traffic congestion around school zones will decrease, creating safer school zones. Students will become more active, leading to healthier habits.

Bicycle and Pedestrian Education Coalition (BPEC)

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 Department, 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.

BPEC
The Bicycle and Pedestrian
EDUCATION COALITION

Several local organizations, including the City of Loveland, teamed up to form a coalition to address bicycle and pedestrian safety in November of 2009. The coalition adopted the name Bicycle 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.

Bike Wise

Bike Wise (Linking Northern Colorado) is the regional extension of the City of Fort Collins' bike program. Bike Wise was created in order to encourage and expedite regional connections among cities in Northern Colorado; to share best bicycle planning practices with respect to infrastructure and facilities; and to provide consistent bicycle safety education and encouragement outreach throughout Northern Colorado. It is the mission of Bike Wise to create a bicycle friendly region, in that, no matter what city or town you travel in, bicycle safety and accessibility will be prioritized.

It is anticipated that participation will include representatives from municipal and county governments, the North Front Range Metropolitan Planning Organization, and non-profit organizations throughout the Northern Colorado region. It is envisioned that an advisory committee comprised of these stakeholders to provide guidance, direction, momentum, resource sharing, and overall collaboration to plan for and create a bicycle friendly region, safely boost transportation and recreation options, as well as, create tourism destination opportunities in Northern Colorado.

Performance Measures and Critical Success Factors

Defining success and measuring performance is essential to execution of any plan, both in the short and long term. In the 2020 Transportation Plan, no clear performance measures were defined and enunciated to assess Loveland's progress in meeting the criteria defined in the Transportation Plan. The 2030 Transportation Plan is a dramatic step forward in this direction.

The measurement of the Plan is tied directly into the City of Loveland and Public Works Performance Measurement system. Annually, the Department of Public Works will publish Transportation Master Plan Performance Results in the Public Works Department Annual Report. Performance Measures that will be included the annual report is as follows.

Bike/Pedestrian Measures

- Total Bike Facilities
- Percent Change in Bike Facilities
- System Missing Link Percentage
- Total Pedestrian Facilities
- Total Bike Facilities
- Percent Change in Bike Facilities
- Percent Pedestrian Facilities ADA-Compliant

These data points represent a sampling of measures that will be included in the annual transportation report. Each factor will be tracked for the current year as well as past years with applicable data. Recommended annual performance goals in each area will define progress toward the key achievements defined in the 2035 Transportation Plan.