CITY OF LOVELAND
PUBLIC WORKS DEPARTMENT
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AGENDA ITEM: **1**
MEETING DATE: 2/28/2012
TO: City Council
FROM: Keith Reester, Director, Public Works Department
PRESENTER: David Klockeman, City Engineer
Kevin Gingery, Senior Civil Engineer, Stormwater Engineering
Mick Mercer, Manager of Streets, Solid Waste, Stormwater Maintenance & Mosquito Control

TITLE:
Stormwater 101

RECOMMENDED CITY COUNCIL ACTION:
Discussion of the functions of the City's Stormwater Utility

DESCRIPTION:
The presentation and discussion will provide an overview of the functions of the City's Stormwater Utility, including Engineering and Operations & Maintenance.

BUDGET IMPACT:
☐ Positive
☐ Negative
☒ Neutral or negligible

SUMMARY:
The City of Loveland's Stormwater Utility is responsible for the planning, design, construction, operations and maintenance of the facilities that address the quantity and quality of drainage runoff across the City. These drainage facilities are necessary to preserve and promote the general health, safety, welfare, and economic well-being of the City and the region. The presentation will discuss the functions of the City's Stormwater Utility which includes Engineering and Operations & Maintenance.

REVIEWED BY CITY MANAGER: William D. Cahill

LIST OF ATTACHMENTS:
1. Stormwater 101 PowerPoint Presentation
2. Stormwater 101 Supporting Narrative Report (The complete Master Drainage Plan is available at http://www.cityofloveland.org/index.aspx?page=1086)
3. Maps

STORMWATER 101

City of Loveland, Public Works

Stormwater 101 Agenda

- Stormwater Utility Overview
- Stormwater – The Early Years
- Inadequate Storm Sewer Systems
- Irrigation Companies Changing Role
- Early Funding
- Transition Phase 1979 to 1986
- Stormwater Utility Formed
- Stormwater Utility Today
- Current Funding
- Summary / Going Forward
- Questions & Answers

Stormwater Utility Overview

- Responsible for quantity and quality of drainage runoff across City
- Drainage facilities are necessary to promote:
  - General Health
  - Safety
  - Welfare
  - Economic Well-Being
- Requires extensive planning and coordination
- Stormwater Utility is an Enterprise Fund
  - Funded by:
    - Stormwater Utility Fees (collected monthly with City Utility bill)
    - System Investment Fees (Impact Fee for development)
- Two Divisions
  - Engineering / Capital Projects
  - Maintenance & Operations

Stormwater – The Early Years

- Older part of Loveland – Small inlets/pipes were installed
  - Only capable of handling ¼" to ½" of rain
- Storm pipes drain into irrigation ditches and reservoirs
- New developments were connected into existing systems
  - Further taxing the undersized system
- The O&M program was unreliable and underfunded
- Stormwater planning was non-existent
- Construction of new facilities only occurred as a result of:
  - Flooding damage
  - Citizen complaints
- Population was increasing rapidly

Runoff ponding on Caddoa Drive before construction, looking east

Irrigation Companies

Changing Role

- Ditches and reservoirs are located throughout the City
- Used to be “happy” to receive stormwater runoff
- When City was small, adding Stormwater runoff to irrigation facilities created few problems
- As City grew, new development
  - Increased runoff quantity
  - Was adjacent to more irrigation facilities
- Irrigation facilities saw increasing liability issues due to overflowing caused by stormwater contributions
- Started to refuse to accept stormwater
  - Slowing and even stopping development

Early Funding

- Funded by General Fund
- Problems created by stormwater were mounting
- Unable to keep up with population growth
- City needed to do something
- 1978 – 1986
  - Several stormwater studies were completed
  - Growth slowed tremendously during that same time period
    - Placed additional pressure on General Fund
- The future for stormwater improvement funding was in severe jeopardy of ending
- Funding became more of a political issue than an economic decision

Transition Phase
1979 to 1986

- Late 1970's through the 1980's - major changes occurred
- 1979 - Drainage Basin Delineation Study completed
  - Broke the City into manageable pieces
  - Created foundation to develop larger, regional strategies
- 1979 - Storm Drainage Criteria Manual completed
  - Required development to prepare consistent plans to address impacts
- City began to collect "drainage fees"
  - To address existing stormwater problems
- 1982 - Agreements were reached with irrigation companies
  - Allowed continuing use of irrigation facilities with completion and implementation of Stormwater Master Plan

Transition Phase (continued)

- 1984 – Cost Recovery System established
  - Created Capital Expansion Fees (CEF's)
  - Required new growth to pay its own way
- 1986 - Storm Drainage Criteria Manual updated
  - Further addressed requirements for new developments
- 1986 - Stormwater Master Plan completed and adopted
  - Looked at entire City, included future growth areas
  - Developed a list of capital projects
    - Addressed deficiencies in older part of City
    - Identified key infrastructure for future undeveloped outlying areas
  - Still serves as the guiding document for stormwater improvements
- Foundation had been created

Funding the Improvements

- Work was necessary to implement Master Plan
  - Funding was not adequate
  - Was this really a General Fund issue?
- Stormwater Citizen's Financial Advisory Committee formed
  - To evaluate long-term funding options
  - Make a recommendation to City Council
- Committee evaluated several funding options:
  - Sales tax
  - Property tax
  - Special Improvement Districts
  - Utility fees
  - State or Federal funds
- Significant public input was received

Result: Stormwater Utility

- Stormwater Utility established in 1987
  - Adopted by Ordinance
  - Responsibilities defined
  - Revenue sources established
    - Stormwater Utility Fees
    - System Investment Fees (Stormwater's version of CEF's)
    - Fee Amounts Adopted by Resolution
- Stormwater Utility fees
  - Included on monthly utility bills
  - Funds used for:
    - Addressing deficiencies within pre-1987 community boundary
    - Operations & Maintenance (O&M) of all public stormwater facilities
- System Investment Fees (SIF's)
  - Impact fees from new development
  - Funds used for:
    - Post 1987 regional improvements

Stormwater Utility Today

- Responsible for managing and maintaining the quantity and quality of stormwater runoff
- Two Public Works Divisions
  - Stormwater Engineering
  - Stormwater Maintenance

Engineering Division

- Staff consists of:
  - 3 Engineers (Senior Civil Engineer and 2 Civil Engineers)
  - Stormwater Quality Specialist
  - Stormwater Quality Inspector
- Responsible for:
  - Capital Improvement Program
  - Maintenance Improvement Program
  - Construction Administration
  - Citizen Input and Complaints Response
  - Master Plan Updates
  - Floodplain Administration
  - Stormwater Quality Program
  - Development Review

Capital Improvement Program

Maintenance Program

Curb cut/manhole connection before installation

Inlet/manhole connection after installation.

Annual Waterway Clean-up Events

Operations & Maintenance

- Staff consists of:
  - Stormwater Crew Supervisor
  - 6 Equipment Operators
  - 4 Seasonal Employees
- Responsibilities include:
  - Ensure system functions at maximum level
  - Keep debris and pollutants out of the local waterways
    - Street sweeping
    - Jet-clean storm sewer inlets and pipes
    - Vacuum catch basins/water quality vaults
    - Mow public detention ponds
  - Respond to flooding events
  - Perform minor reconstruction & repairs to drainage structures
  - Assist with snow & ice control

Operations & Maintenance

Current Infrastructure

- 2,565 catch basins
- 97 miles of storm sewer pipes
- 39 water quality vaults
- 13 public detention ponds (total area of 19 acres)

Operations & Maintenance

Equipment Replacement Schedule

Equipment Replacement Schedule										
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
8342 Vacuum Truck								480,000		
8215 one-ton Utility				66,000						
8216 one-ton Utility					81,400					
8122 Dodge pickup			30,800							
8124 Chevy pickup								37,500		
8340 rolloff truck				210,000						
6412 Schwarze sweeper	260,000					315,000				
6414 Elgin Sweeper		270,000					328,000			
6416 Elgin Sweeper		270,000								
6418 Elgin sweeper			280,000					340,000		
new sweeper 2020										
8502 Tennant Sentinel					207,000					252,000
8501 Elgin Broom Bear				291,000					353,000	
8315 Freightliner flusher					200,000					
Total	**$ 260,000**	**$ 540,000**	**$ 310,800**	**$ 567,000**	**$ 488,400**	**$ 315,000**	**$ 328,000**	**$ 857,500**	**$ 353,000**	**$ 252,000**
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Remaining Challenges & Opportunities

WADING IN TO LEND A HAND

Reporter-Herald photos/RJ SANGOSTI

Jacob Robida, 17, who works at a nearby Burger King, wades across Wilson Avenue on Thursday after heavy rain flooded the intersection outside his work. Storm drains couldn't keep up with the rain that flooded the road as deep as 3 feet in places. Robida braved the water to offer his assistance to a family that was stranded in a minivan in the intersection. "I ran out there to see if they were OK," Robida said.

Rains flood roads

Thursday was wettest day of '04 in Loveland

A Loveland firefighter carries two children across Wilson Avenue after their family's van stopped running in the flooded street.

By Kate Martin
Reporter-Herald Staff Writer

A pair of brief but intense thunderstorms caused flooding in some parts of Loveland as they rolled through town at 12:15 p.m. and 7 p.m. Thursday.

Across the state, tornado warnings and lane closures on major highways persisted throughout the afternoon as a cool weather front passed through.

The storms lasted a brief 30 minutes as they passed through Loveland. The raindrops at 12:15 p.m. were so large, and coming down so fast, that many motorists pulled to the side of the road to let the deluge pass.

On North Wilson Avenue near West Eisenhower Boulevard, the lunchtime storm was so intense that the storm drains couldn't keep up with the rainfall. The rain flooded the road as deep as 3 feet in places. Debris marked a high-water line above the sidewalks on both sides of the road. Traffic was diverted for 30 minutes.

See Weather/Page A-2

Current Funding

- Stormwater Utility is an Enterprise Fund
- Funded by:
  - Stormwater Utility Fees
    - Collected on monthly utility bills
  - System Investment Fees (Stormwater's version of CEF's)
    - Impact fees from new development

Stormwater Utility Fee

- Includes costs to:
  - Address deficiencies within pre-1987 community boundary
  - Operations & Maintenance of all public stormwater facilities
- Current Fee Structure

Residential Lot Size (square feet)	
Less than 3999	$4.61
4000-5999	$5.75
6000-7999	$8.30
8000-9999	$10.39
Greater than 9999	$11.53
Non-Residential Per Acre	
Commercial	$62.97
Industrial	$52.66
Institutional	$24.80
**no categories have exceptions at this time*	

  - Last adjusted in 2002
- 2012 Budgeted Revenue - $4,000,460
- 60 years left to build out pre-1987 deficiencies
  - Without additional fee adjustments

System Investment Fees

- Includes costs to:
  - Provide regional facilities for future development in outlying areas of the City
- Current Fee Structure

High Density – more than 11 units per acre	$3,000.00
Medium Density – more than 6 and up to 11 dwellings per acre	$2,740.00
Low Density – more than 1 and up to 6 dwelling units per acre	$2,480.00
Estate – up to 1 dwelling unit per acre	$537.00
Commercial, per acre	$4,920.00
Industrial, per acre	$4,630.00
Institution, per acre	$2,170.00

  - Last adjusted in 2005
- 2012 Budgeted Revenue - $369,000
- No set timeframe for completion of improvements
  - Dependent on speed of development

Summary / Going Forward

- Stormwater Utility provides a variety of services to manage quantity and quality of drainage runoff
- City has done a good job of maintaining the Stormwater system
- Progress has been made on pre-1987 deficiencies
- More focused effort is necessary going forward
- Stormwater Rate Study is underway
  - Presentation proposed for March 13, 2012 Council Study Session
  - Long-term needs
  - Funding scenario options

Questions & Answers

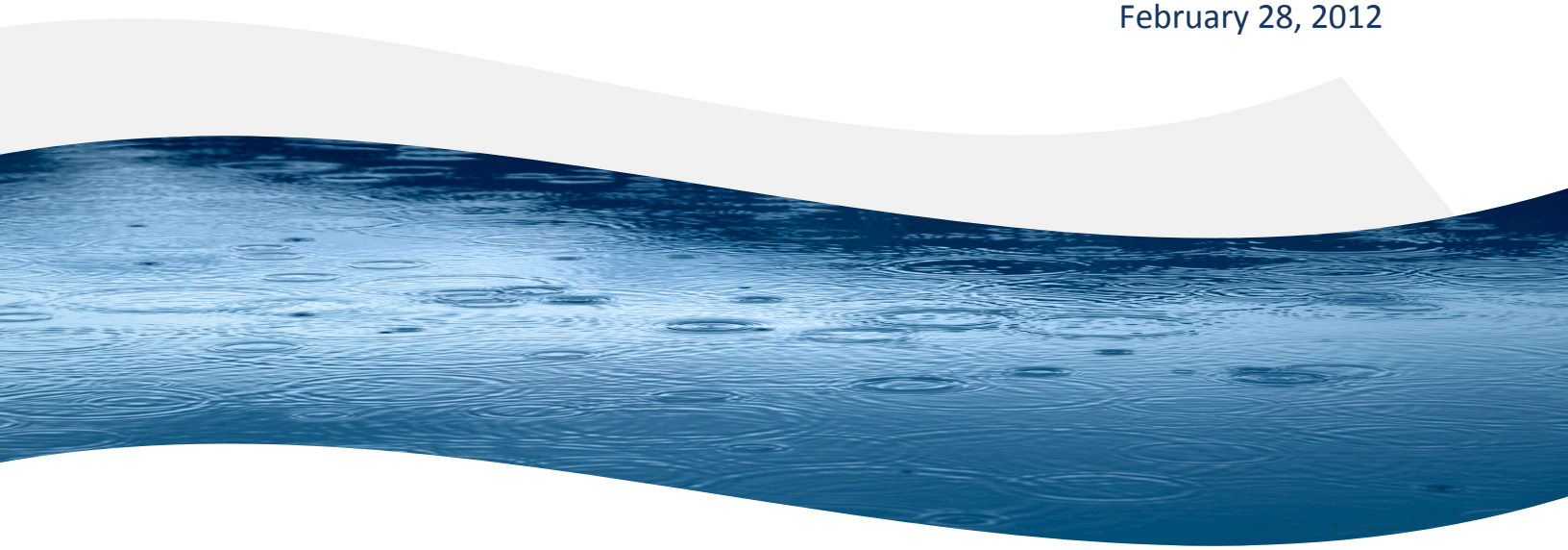
City of Loveland

STORMWATER 101

PUBLIC WORKS DEPARTMENT

STORMWATER DIVISION

February 28, 2012



STORMWATER UTILITY 101

The City of Loveland's Stormwater Utility is responsible for the planning, design, construction, operations and maintenance of the facilities that address the quantity and quality of drainage runoff across the City. These drainage facilities are necessary to preserve and promote the general health, safety, welfare, and economic well-being of the City and the region. Often referred to as a "stormwater management system", the City is required to look at drainage from its start as a drop of precipitation to how it travels through a series of facilities to its ultimate destination (i.e. an irrigation canal or reservoir, creek or river), including the "quality" (cleanliness) of the delivered product.

Why is this necessary? As an area develops, even though the amount of precipitation is the same, there is more "hard surface", resulting in less absorption. With buildings and other improvements installed, the drainage then flows around the structures in more concentrated patterns, and faster than across an open field. This concentrated runoff needs to be collected and diverted to a larger system before it gets deep enough to damage the adjacent structures.

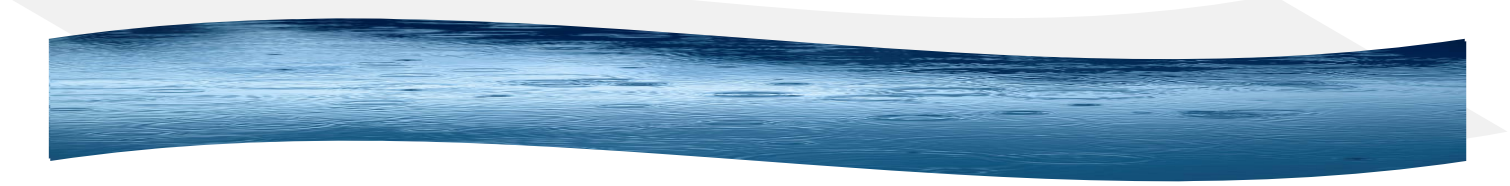
Determining how that drop of precipitation will get to its ultimate destination and how it will be successfully combined with all of the other drops of precipitation requires planning and coordination. It starts within a localized area (typically addressed in a "drainage study"), that fits within the bigger area (called a "Drainage Basin") which includes regional facilities, which are included in the overall large basins (part of "Drainage Master Plans"), and finally rolled into the City-wide Stormwater Master Plan, which includes the existing City and anticipated future development areas.

The City's stormwater management system includes extensive coordination with local irrigation companies, the Colorado Department of Transportation, developers, and citizens. The City also must comply with and manage all aspects of the National Pollutant Discharge Elimination System (NPDES) Permit.

The Stormwater Utility is an enterprise fund. The funding comes from the Stormwater Utility Fee collected monthly on City utility bills and from System Investment Fees (SIF's) collected from new development.

In order to address all of these areas, the Stormwater Utility is divided into two areas:

1) Engineering
    a) Capital Improvement Program
    b) Maintenance Improvement Program
    c) Master Plan Updates
    d) Floodplain Administration
    e) Stormwater Quality
    f) Development Review



2) Operations & Maintenance of Existing Stormwater Facilities
   a) Street Sweeping
   b) Flood Event Preparations
   c) Flood Emergency Management

The current infrastructure requiring maintenance includes: 2,565 catch basins, 97 miles of storm sewer, 39 water quality vaults and 13 public detention ponds that cover a total of 19 acres.

STORMWATER BACKGROUND – The Need for Change

Until the 1980's, Stormwater was a small program that was funded by the General Fund. Emergency response to stormwater issues was the Operations & Maintenance (O&M) Program. Stormwater construction projects only occurred as a result of flooding damage or significant citizen complaints. Long-term stormwater planning was nonexistent. As the City doubled in size during the 1970's from approximately 15,000 people to over 30,000, stormwater problems increased in frequency and intensity. The existing stormwater systems were inadequate, irrigation companies had major concerns, and the City had little financing capability for improvements.

INADEQUATE STORMWATER SYSTEMS


Runoff ponding on Caddoa Drive before construction, looking east

The stormwater systems within the older part of Loveland consist mainly of small inlets and pipes. Many existing storm pipes outlet into irrigation ditches that flow through the city. The older stormwater systems are only capable of handling water from small afternoon showers. At some locations, storm drain inlets are connected to underground irrigation pipes. In the absence of a comprehensive stormwater system plan, new developments were allowed to connect into existing systems with no regard for cumulative impacts. Stormwater was allowed to discharge into irrigation storage reservoirs without evaluation of spillway capacity and dam safety. The stormwater system O&M program was unreliable due to inadequate and inconsistent funding.

IRRIGATION COMPANIES – Changing Role

Several irrigation companies own and operate ditches and reservoirs throughout Loveland. In years past irrigation companies were happy to supplement their water supplies by receiving stormwater into their systems. Loveland was smaller then, and the stormwater volumes and peak flows caused few problems. As the City began to grow rapidly in the 1970's, irrigation companies became exposed to increasing liability issues due to overflowing caused by stormwater contributions. As a result, the irrigation companies began to monitor stormwater impacts from new developments much more closely. In fact, there were occasions when an irrigation company refused to accept stormwater any longer, thereby slowing and even stopping development. City officials viewed this as a severely negative impact on economic development for the community, and changes needed to be made.

EARLY FUNDING

It became apparent that the City had to do something to improve the stormwater systems throughout the community. During a period between 1978 and 1986, several stormwater studies were completed. Growth slowed tremendously during that same time period resulting in greater pressure on the City's General Fund. The future for stormwater improvement funding was in severe jeopardy of ending. Funding became more of a political issue than an economic decision.

THE TRANSITION PHASE – The Creation of Drainage Criteria and Stormwater Master Plans

A Drainage Basin Delineation Study was completed in 1979. Defining the drainage basins was the first step in breaking down the City into manageable pieces that some years later allowed the City to develop larger, regional strategies and plans (Drainage Master Plans). The adoption of the Drainage Criteria Manual in 1979 allowed the City to require more in-depth drainage studies from Developers. With criteria in place, the City was able for the first time to collect "drainage fees" which were designated for addressing existing stormwater problems.

In 1982, agreements were reached with three key irrigation companies (Greeley and Loveland Irrigation Company, Seven Lakes Reservoir Company, and Louden Irrigating Canal and Reservoir Company) which allowed the City to continue to use their facilities for stormwater outlets as long as a Stormwater Master Plan was completed and implemented.

The City enacted a Service Cost Recovery System in 1984, which required new growth to pay its own way, and included Capital Expansion Fees that were paid to the City at the time of development to cover the costs for parks, libraries, police and fire services, museum, streets, general government and stormwater.

By 1986, a Stormwater Master Plan was completed. This plan looked at the entire City, including future growth areas, and developed a list of projects necessary to address deficiencies in the older part of town as well as key stormwater infrastructure for future undeveloped outlying areas. The Stormwater Master Plan included conceptual designs and cost estimates for improvements within the community. The Stormwater Master Plan was adopted by City Council in 1986 and still serves as the guiding document for all future stormwater improvements within the community. An updated Storm Drainage Criteria Manual was also completed in 1986, which further addressed requirements for new development.

STORMWATER UTILITY FORMATION

Once the Stormwater Master Plan improvements were identified, it was necessary to implement the plan. A Citizen's Financial Advisory Committee was formed to study funding options and make recommendations to City Council. The Financial Advisory Committee and City Council evaluated several funding options including: sales tax, property tax, special improvement districts, utility fees, and state or federal funding. Several public meetings were held, public information programs were conducted, and much public input was received.

The result of these efforts by the community, Committee, City Council, and City staff was the enactment of an ordinance establishing a Stormwater Utility and a subsequent resolution setting various monthly Stormwater Utility fees. The monthly Stormwater Utility fees fund Stormwater Master Plan improvements within the pre-1987 community boundary. Future regional Stormwater Master Plan improvements are funded through the drainage fee portion of the City Capital Expansion Fees referred to as System Investment Fees (SIF's).

STORMWATER UTILITY TODAY

Today, the Stormwater Utility consists of two major areas within Public Works: Engineering and Operations & Maintenance.

Stormwater Engineering Division Responsibilities Include:

Capital Improvement Program

The Stormwater Utility is responsible for planning, designing and constructing capital improvement projects related to Stormwater as well as coordinating with other City projects that have Stormwater components. Examples of capital improvement projects include: regional detention ponds, storm sewer system upgrades, and drainage channel construction/reconstruction. Some of the specific tasks associated with this are: the preparation of budgets for future capital improvement projects; the selection and oversight of consultants; the review of the engineering designs; the preparation of project manual/technical specifications for bidding purposes; meeting and conferring with consultants, utility companies, irrigation companies, citizens, and contractors; and coordinating the review and approval of capital improvement projects with other City departments. This work group has five employees.

Maintenance Improvement Program

The maintenance improvement program generally consists of the planning, design and construction for repairs and modifications to the existing Stormwater system. These projects can consist of: inlet or pipe replacement; channel grading or re-grading; the installation of water quality structures; and other similar improvements. Some of the specific tasks associated with this are: the preparation of budgets for future maintenance projects; the preparation of in-house engineering designs for each project; meeting with and conferring with utility companies, irrigation companies, citizens, surveying companies, and contractors; and coordinating the review and approval of maintenance projects with other City departments.

Inlet/manhole connection after installation.

Curb cut/manhole connection before installation

Citizen Input and Complaint Response

The majority of issues related to Stormwater are localized. Since they only happen when it is raining, they can be very difficult to identify. Therefore, the Stormwater Utility has a very extensive public outreach and complaint response program. Some of the specific tasks associated with this are: receive, investigate, and resolve citizen complaints; meet with citizens in order to understand and resolve their complaint; coordinate with operation and maintenance staff on cleaning issues; and preparing in-house engineering designs.

Construction Administration

A key part of the construction of large and small stormwater projects is the ability to successfully oversee the construction process, including project management and inspection. In many cases, the project location is in front of or near existing properties. The Stormwater Utility staff is well trained and experienced in this area, managing the majority of projects in-house.

For larger projects (i.e. the recently completed Washington Avenue Phase 4 Project), Stormwater staff was supplemented by outside consultants in order to provide the necessary oversight. Some of the specific tasks associated with this are: manage the bidding process according to City policies; manage the construction to ensure budget, construction contract, and schedule compliance; participate in construction inspection to ensure that materials and construction methods are in compliance with construction plans and technical specifications; provide input to contractors regarding surveying and materials testing issues; handle unforeseen construction problems; and negotiate change orders as warranted.

Master Plan Updates

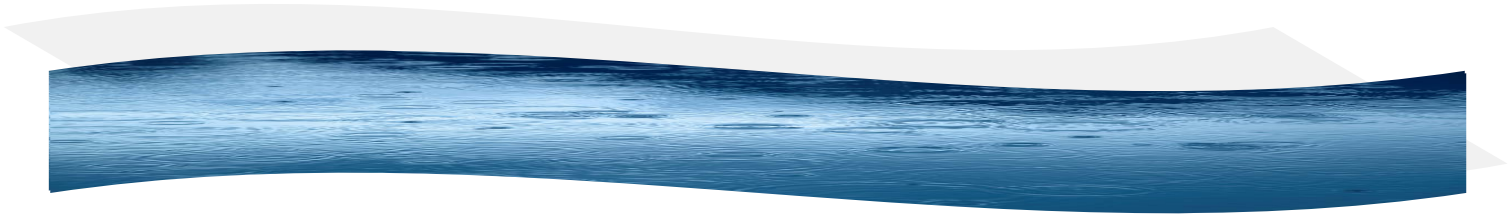
Since conditions and criteria often change, periodic updates are required for Master Plans. Each large drainage basin has its own Master Plan, so the entire City does not have to be looked at each time. Some of the specific tasks associated with this are: evaluate the City's ability to provide adequate services based upon current and future master plan needs; prepare budgets for master plan update projects; select consultants as warranted; master plans prepared by consultants; address concerns with utility companies, irrigation companies, and citizens; and achieve adoption by the Construction Advisory Board and City Council.

Floodplain Administration

The Stormwater Utility administers the existing floodplains within the City, which have been designated for the Big Thompson River, a portion of Dry Creek, and the area around Lake Loveland. Some of the specific tasks associated with this are: assist internal and external customers with floodplain designation research and answering questions; process Floodplain Development Permit Applications as development within our FEMA floodplains warrant; administer the Early Flood Warning System program; update FEMA floodplain studies as warranted (Big Thompson River, Dry Creek, & Lake Loveland); assure compliance with the City's Floodplain Building Code and Floodplain Regulations for new construction and remodeling within FEMA floodplains; and administer the FEMA Community Rating System (CRS) program; and prepare for and participate in bi-yearly FEMA audits administered by the Colorado Water Conservation Board.

Stormwater Quality Program

The EPA Stormwater Phase II Final Rule requires communities whose population exceeds 50,000 people to obtain a Stormwater General Permit as their stormwater discharges are considered point sources of pollution. Loveland's National Pollutant Discharge Elimination System (NPDES) Permit requires that the conditions of the permit be satisfied yearly and that reports must be submitted on the status and effectiveness of each program element.



Under the Stormwater General Permit, the City is required to implement six programs that are designed to reduce the amount of pollutants entering rivers, ditches, and lakes as a result of residential, commercial and industrial developments. The required Stormwater General Permit programs include:

1. Public Education & Outreach on Stormwater Impacts
2. Public Participation/Involvement
3. Illicit Discharge Detection & Elimination
4. Construction Site Stormwater Runoff Control
5. Post-Construction Stormwater Runoff Control
6. Pollution Prevention/Good Housekeeping for Municipal Operations

Annual Spring Waterway Cleanup Event

Development Review

Each new development within the City is required to address the quantity and quality of runoff. In some cases, developers are required to design and construct their local improvements and/or regional improvements. Some of the specific Stormwater Utility tasks associated with this are: meet and confer with developers, builders, consultants, and contractors; review engineering designs for conformance with the City's Stormwater Master Plan, Storm Drainage Criteria and Standards; prepare written comments to developers and consultants concerning conditions for compliance with City criteria; assist internal and external customers in locating needed reference reports; attend development meetings, Planning Commission meetings, and City Council meetings as warranted.

Operation & Maintenance Division Responsibilities Include:

Stormwater Maintenance Crews ensure the stormwater system and facilities function at maximum capacity and keep debris and pollutants out of the local waterways. This includes sweeping streets, cleaning gutters, and mowing drainage ways. Crews follow the Solid Waste routes a day later to ensure that every street is swept. The sweepers remove debris from the gutters where sand, dirt and trash build up, preventing significant cleaning of inlets and pipes where the materials settle out. Separate crews jet clean a portion of the storm drain sewer pipes each week. Target areas that need more attention are cleaned more often due to mature landscape or smaller pipes that clog more frequently. These same crews respond to minor flooding events due to clogged inlets or drainage ways. Our Stormwater Maintenance division has 6.25 regular employees and four additional seasonal employees.

Above, crews inspect a 6 foot storm sewer. At right, crews remove a blockage at the Big Thompson River.

The Stormwater maintenance and operation crews are also responsible for performing minor reconstruction and repairs of drainage structures. This includes replacing cracked or broken inlets or manholes found in local streets, grates in inlets wear out and need replacement. The crews also assist with snow and ice removal when weather prohibits cleaning operations.

VacCon crew jetting storm drains.

Street sweeper cleaning a residential street.

Crews use a bobcat to clean a ditch vault

Above, Rich Wienland surveys the grade. Crews are responsible for maintaining and mowing public detention ponds.

PERFORMANCE MEASUREMENT AND PRODUCTIVITY ENHANCEMENT

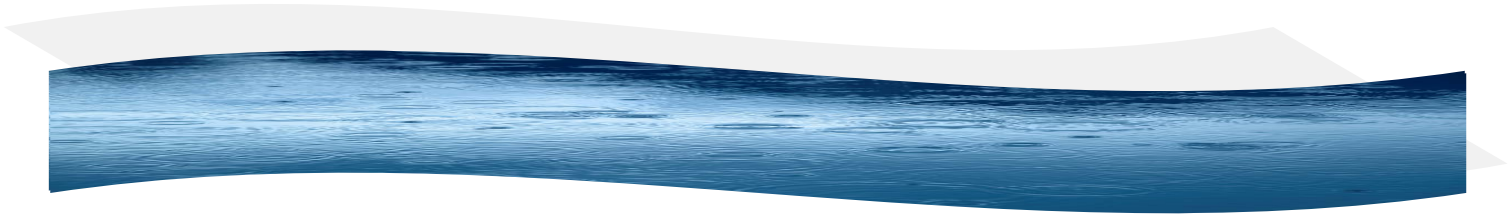
The Stormwater Utility tracks performance throughout the year to assure quality and performance and develop new and effective methodologies for improved service. The monthly performance measures for all Public Works divisions are posted online and provide to Council quarterly. In the Stormwater area citizen complaints, development review cycles, and construction management are tracked on the administrative side; while street sweeping catch basin and vault cleaning goals are set and tracked on the operations side. There is also a special target for sweeping downtown which receives sweeping at rate 5 times the average of the rest of the City.

In 2009 Stormwater became the first Public Works division to pilot implementation of City Works; a GIS enabled data collection system which allows staff to identify every facet of the Stormwater system in the GIS database. The City Works database includes GPS locations, size and flow capacity information, and manufacturer of installed facilities, life expectancy, and photos. Prior to this change estimates only existed of all datasets, the transition to this GIS based system has enabled substantial improvements in productivity and water quality management. Additionally, all sweepers are enabled with AVL (Automated Vehicle Locator) technology allowing staff to more accurately track sweeping program efforts, improve techniques of brush and sweeping management, and target recurrent problem areas more effectively.

The City of Loveland's program has consistently received recognition from various associations for the work performed; staff also frequently is sought out by agencies across the nation for expertise and knowledge, including cities as close as Fort Collins and as far as Oakland, CA.

EMERGENCY OPERATIONS

According to our City's emergency operations planning the two highest likely occurrences for disasters in Loveland are snow storms and flood events. The division plays an integral role in supporting and leading planning and operational efforts for disaster planning and community resiliency. The Stormwater Utility provides in-depth small and large scale emergency flood planning, Emergency Operations Center Support, and frequent exercising with the City's Emergency Operations Staff to assure community preparedness. When a repeat occurs of the Big Thompson flood event of the 1970's our community will be far more prepared. An example of this preparedness is the City's commitment to resisting calls to develop properties with the high risk flood zones of the City, assuring a safer community when disaster strikes.



ENTERPRISE FUNDING

The Stormwater Utility is an enterprise fund. Revenue for the Stormwater Utility comes from the Stormwater Utility Fee collected monthly on City utility bills and from System Investment Fees (SIF's) collected from new development.

The Stormwater Utility Fee is based on the costs to upgrade the existing Stormwater system that was in place prior to 1987 as well as maintain all of the public Stormwater facilities across the City. The last adjustment to these fees was in 2002. The anticipated revenue for 2012 as shown in the adopted budget is $4,000,460. The fee structure per month is as follows:

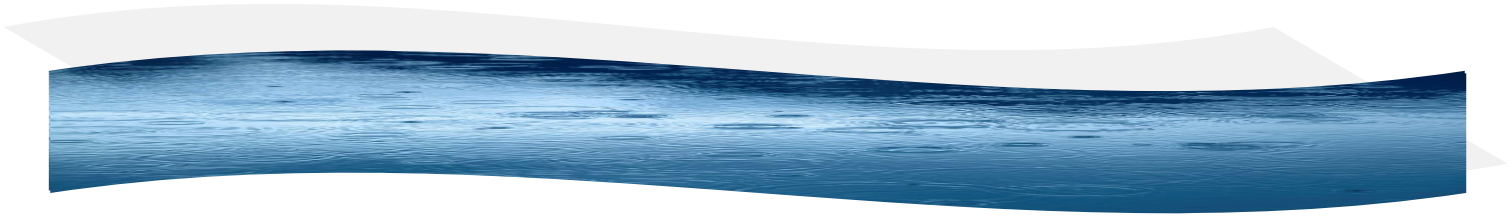
Residential Lot Size (square feet)	
Less than 3999	$4.61
4000-5999	$5.75
6000-7999	$8.30
8000-9999	$10.39
Greater than 9999	$11.53
Non-Residential Per Acre	
Commercial	$62.97
Industrial	$52.66
Institutional	$24.80
**no categories have exceptions at this time*	

Without additional increase to the rates, based on the current funding, it is anticipated that it will take another 60 years to complete the projects that were identified in the 1986 Master Drainage Plan.

The System Investment Fees (Stormwater's version of Capital Expansion Fees) are collected with each new development in order to provide regional facilities. The last adjustment to these fees was in 2005. The anticipated revenue for 2012 as shown in the adopted budget is $369,000. The fee structure is as follows:

High Density – more than 11 units per acre	$3,000.00
Medium Density – more than 6 and up to 11 dwellings per acre	$2,740.00
Low Density – more than 1 and up to 6 dwelling units per acre	$2,480.00
Estate – up to 1 dwelling unit per acre	$537.00
Commercial, per acre	$4,920.00
Industrial, per acre	$4,630.00
Institution, per acre	$2,170.00

Since this funding is related to development, there is no timeframe associated with this item. Adjustments to the rates need to be indexed for construction cost changes based upon an appropriate scale.



SUMMARY/GOING FORWARD

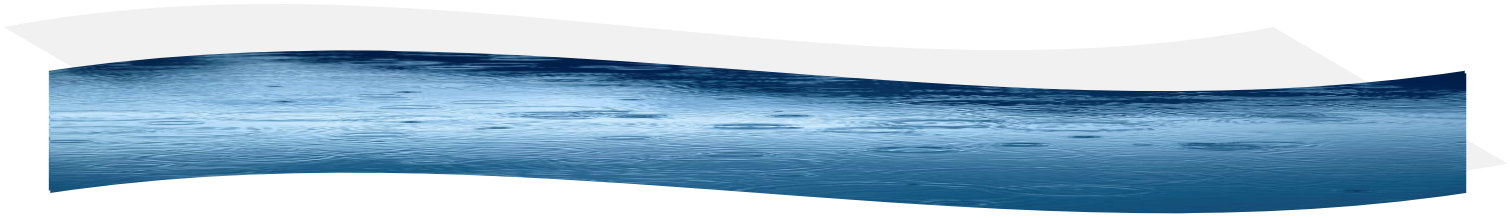
The following items constitute a summary of the information presented in this document and the next steps going forward:

Summary

- The Stormwater Utility provides a variety of functions to the City of Loveland to address the quantity and quality of drainage runoff
- The City has done a good job of keeping the Stormwater system maintained
- While progress has been made in the Stormwater improvements area, especially since the late 1980's, a more focused effort is necessary in order to address long-outstanding concerns in a more timely manner
- Over the past 30 years nationally, a greater focus has been incorporated on controlling stormwater runoff at the source point to enhance water quality before it enters waterways and other bodies of water. The representation of this is the City's commitment to maintaining standards under the NPDES permit
- The City's Stormwater Utility continues to be an innovator in providing high quality solutions with a very small staff compared to similar size cities and districts, and provides leading edge solutions to our community

Going Forward

- The Stormwater Utility is currently working on a Rate Study to update and address the financial needs going forward, specifically related to the 60 years remaining to update items identified in the 1986 Master Plan
- The rate study will show Loveland's needs and investments, plus how this compares to meeting our community needs. The study will also review how our rate structure and level of service compares with similar communities in Colorado
- Presentation scheduled for Council on March 13, 2012
- Staff will seek Council direction on adoption of criteria to adjust fees and budgets annually with an adjusted construction costs index to address inflationary pressures, and how the rate structure should address the length of time to build out the projects necessary to support the community
- Staff will continue to pursue cost effective leading edge solutions to decrease the necessary stormwater improvements while enhancing water quality. Recent leading projects include the award-winning Wernimont Pond Project, the Ames parking lot permeable concrete installation, the "Carlsonator" water quality vault project, green roof options in development, and enhanced integration of stormwater quality features as mixed use areas in parks, open space, and development tracts



Irrigation Facilities

- Canals
- Channel
- Loveland City Limits

N

0 0.5 1 2 Miles

Date: 2/21/2012

Louden Ditch
Louden Ditch
Horseshoe Lake
Dry Creek
Big Lateral
Boyd Lake
Houts Reservoir
Equalizer Lake
Unknown
Chubbuck Ditch
Lake Loveland
Silver Lake
Greeley & Loveland Ditch
Farmers Ditch
Louden Ditch
Big Barnes Ditch
Little Barnes Ditch
George Rist Ditch
Rist & Goss Ditch
Unnamed
Boyd Lake Outlet Exchange
Hillsborough Ditch
Boedecker Lake
Home Supply Ditch
Mariano Exchange
Unknown
Farmers Ditch
Buckingham Ditch
Big Thompson Ditch & Manu
Lon Hagler Reservoir
Gard Lateral
Southside Ditch
Lake Ditch
Lake Ditch
Home Supply Ditch
Unknown
Handy Ditch

City of Loveland

Drainage Basins

- Canals
- Channel
- 1987 Existing Development
- Drainage Basins

N

0 0.5 1 2 Miles

Date: 2/22/2012

Louden Ditch
North Airport
Louden Ditch
Dry Creek
Horseshoe
Airport
Caddoa Basin
Dry Creek
Boyd Lake
Big Lateral
Houts\Equalizer
Basin 210
Lake Loveland Outlet Channel
Golf Course
Westerdoll
Basin 220
Hogback
Louden Ditch
Silver Lake
Unknown
Rist Benson
Lake Loveland
Chubbuck Ditch
Basin 230
Greeley & Loveland Ditch
Big Barnes Ditch
Wilson
Boyd Lake
Farmers Ditch
George Rist Ditch
Little Barnes Ditch
Outlet Mall
Basin 240
Basin 250
Basin 260
Big Thompson
Loveland\Greeley
Boyd Lake Outlet Exchange
Marianna Butte
Rist & Goss Ditch
Basin 160
Anderson
Unknown
Home Supply Ditch
Mariano Exchange
Farmers Ditch
Hillsborough Ditch
Basin 140
Basin 150
Lon Hagler
Buckingham Ditch
Basin 130
Basin 175
Basin 185
Big Thompson Ditch & Manu
Basin 120
Hollowell Corner
South Loveland
Southside Ditch
Basin 110
Basin 180
Basin 195
Gard Lateral
Basin 173
Ryan Gulch
Lake Ditch
Lake Ditch
Home Supply Ditch
Unknown
Basin 190
Handy Ditch
Basin 170
City of Loveland
Unknown

CITY OF LOVELAND
PUBLIC WORKS DEPARTMENT
Administration Offices • 410 East Fifth Street • Loveland, Colorado 80537
(970) 962-2555 • FAX (970) 962-2908 • TDD (970) 962-2620

AGENDA ITEM: **2**
MEETING DATE: 2/28/2012
TO: City Council
FROM: Keith Reester, Public Works Department
PRESENTER: Dave Klockeman, City Engineer
Ray Moe, LSA Associates, Inc.

TITLE:
Bicycle and Pedestrian Plan

RECOMMENDED CITY COUNCIL ACTION:
Discussion and feedback on the Draft Bicycle and Pedestrian Plan

DESCRIPTION:
Public Works staff will be presenting the Draft Bicycle and Pedestrian Plan for discussion prior to finalizing the plan for Council adoption.

BUDGET IMPACT:
☐ Positive
☐ Negative
☒ Neutral or negligible

SUMMARY:
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 complete Draft Bicycle and Pedestrian Plan can be reviewed at http://www.cityofloveland.org/index.aspx?page=1148.

REVIEWED BY CITY MANAGER: 

LIST OF ATTACHMENTS:
PowerPoint Presentation

City of Loveland

LSA
LSA ASSOCIATES, INC.

City of Loveland
Bicycle and Pedestrian Plan

Loveland City Council
February 28, 2012

Why We Are Doing a Bicycle and Pedestrian Plan

- Providing Choice for those that Cannot Drive
- Latent Demand
- Benefits to the Individual and Family
- Ideal Climate/Topography and Geographic Region
- Quality of Life

City of Loveland

What Questions Does the Bicycle and Pedestrian Plan Answer?

- 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 do you prioritize projects?

City of Loveland

Plan Objectives

- Provide and maintain a safe and effective bicycle and pedestrian system to be able to chose to bike or walk as a means of travel, attaining health, and quality of life.
- Fill in the missing bicycle and pedestrian segments and intersection crossings to reach their destinations.
- Instill bicycle and pedestrian safety, awareness and encouragement through education programs for all levels and abilities
- Develop a sustainable and reliable source of bicycling and pedestrian funding

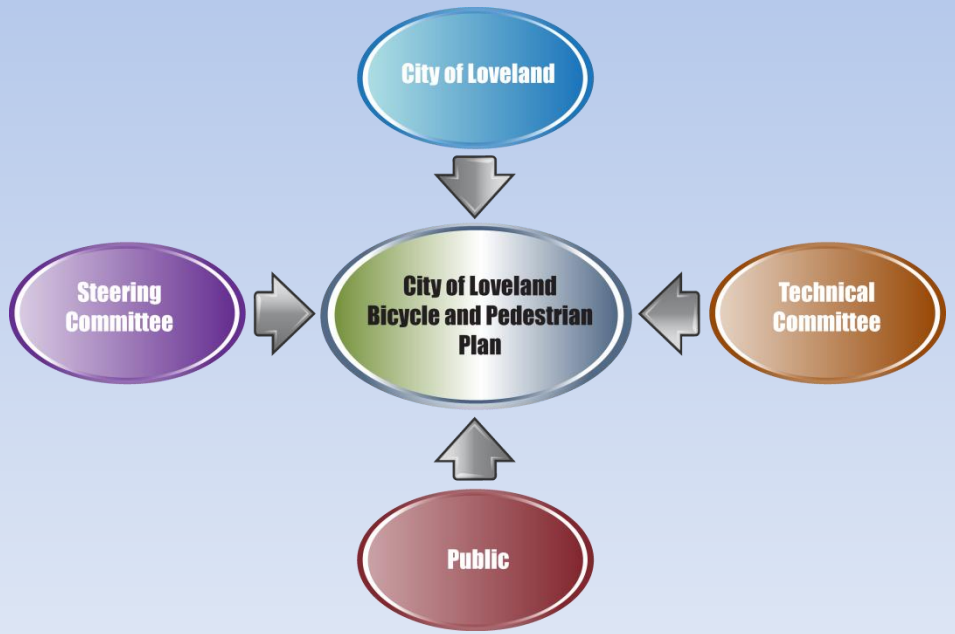
City of Loveland

Plan Overview / Process

- Phase 1: Assessment of Existing Conditions
- Phase 2: Needs Assessment
- Phase 3: Guidelines and Priorities
- Phase 4: Plan and Map

City of Loveland

Plan Input



Three Rounds of Public Input

1. Issues and Needs
2. Plan Alternatives
3. Draft Plan

Steering Committee

- 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
- Chamber of Commerce
- Developer

City of Loveland

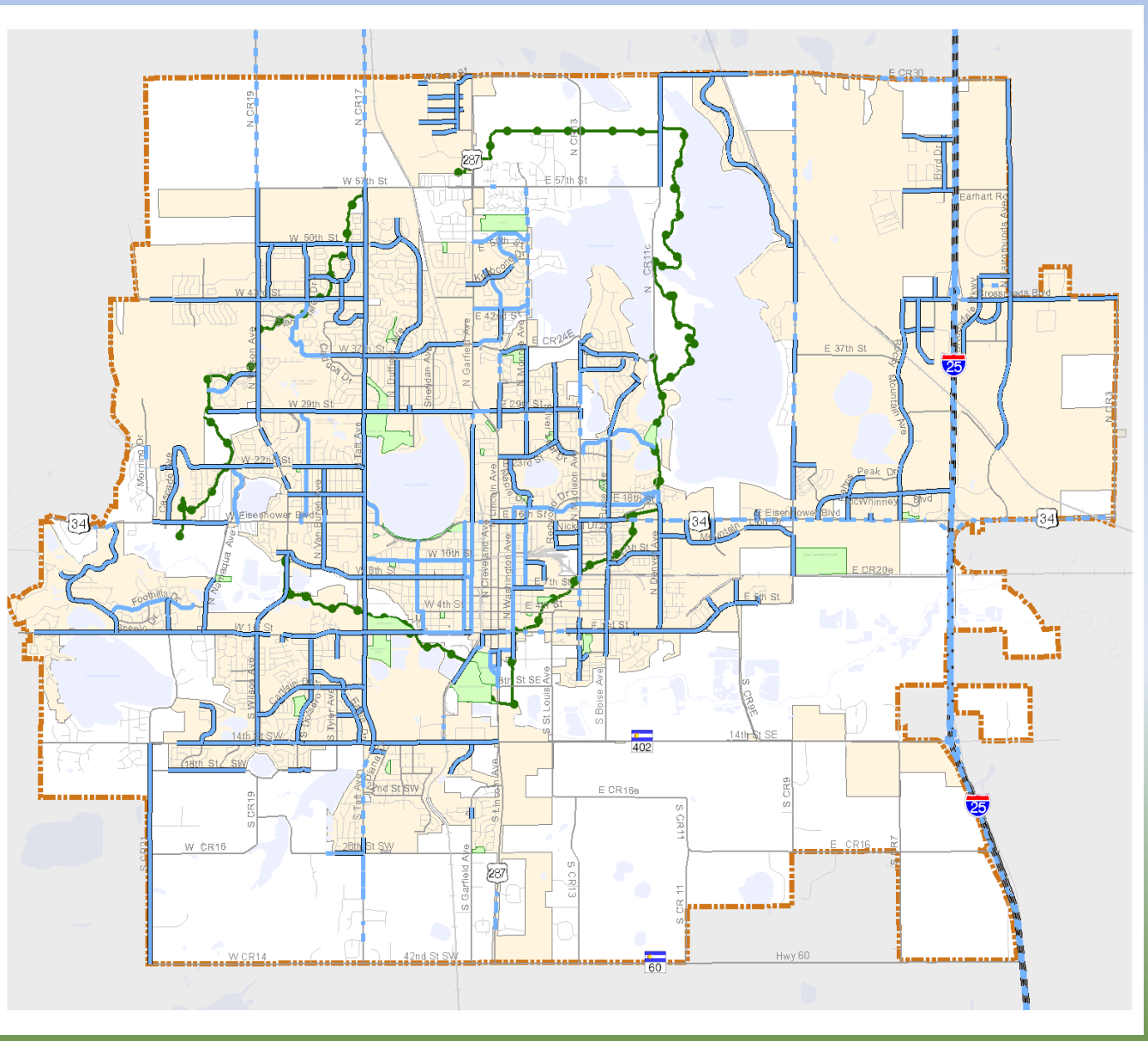
Existing Bicycle Facilities

Legend

- City Limits
- Growth Management Area
- Parks

Bicycle Facilities

- Existing Bike Lanes
- Existing Bike Routes
- Existing Striped Shoulders (4 Ft. in Width or Greater)
- Existing Recreation Trails



City of Loveland

Existing Bicycle Facilities

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

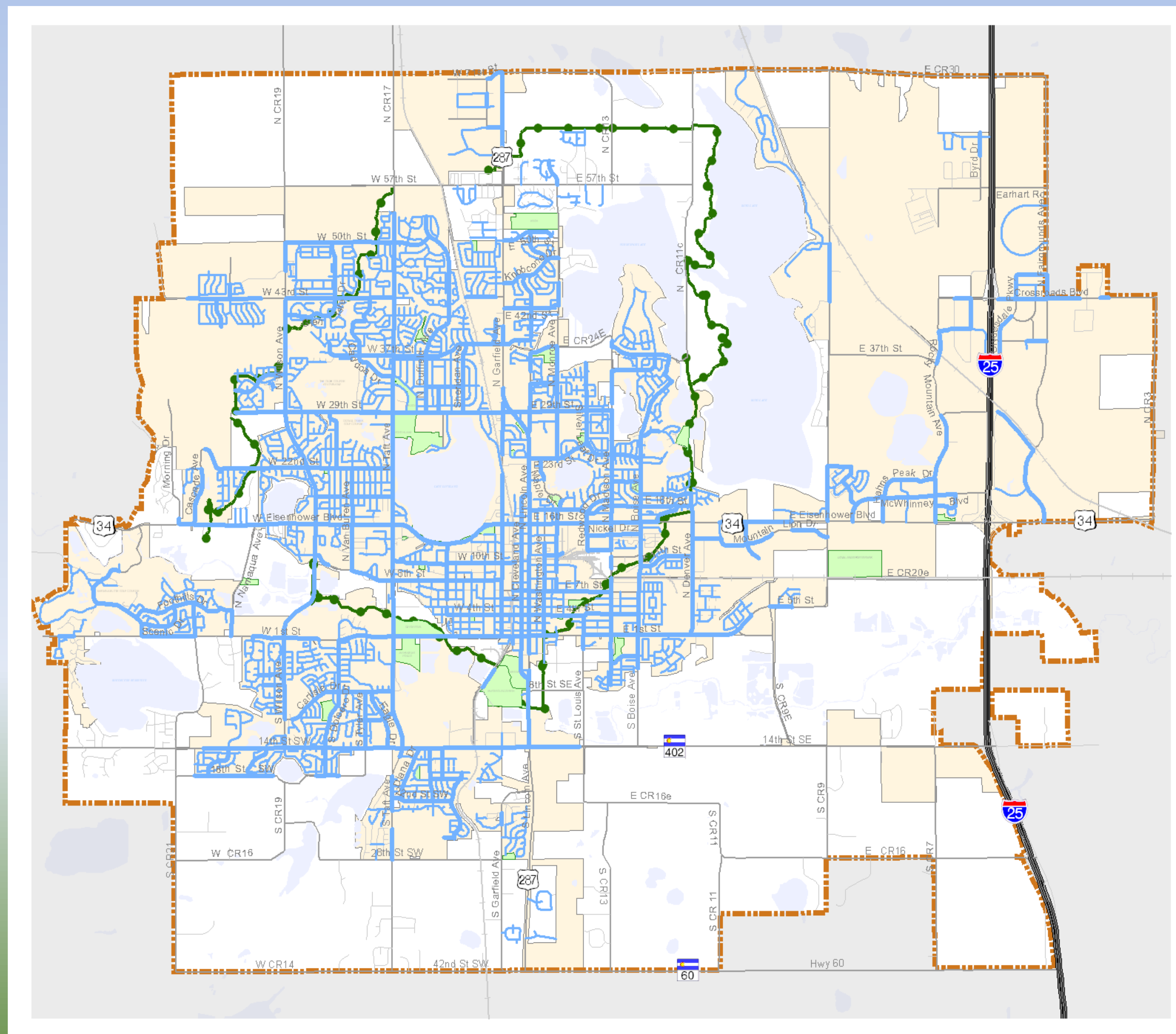
Existing Pedestrian Facilities

Legend

- City Limits
- Growth Management Area
- Parks

Pedestrian Facilities

- Existing Sidewalks
- Existing Recreation Trails



City of Loveland

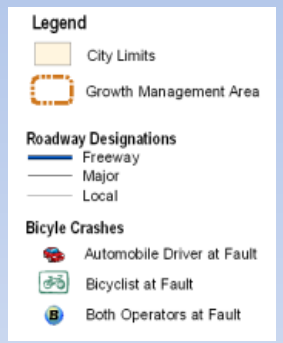
Existing Pedestrian Facilities

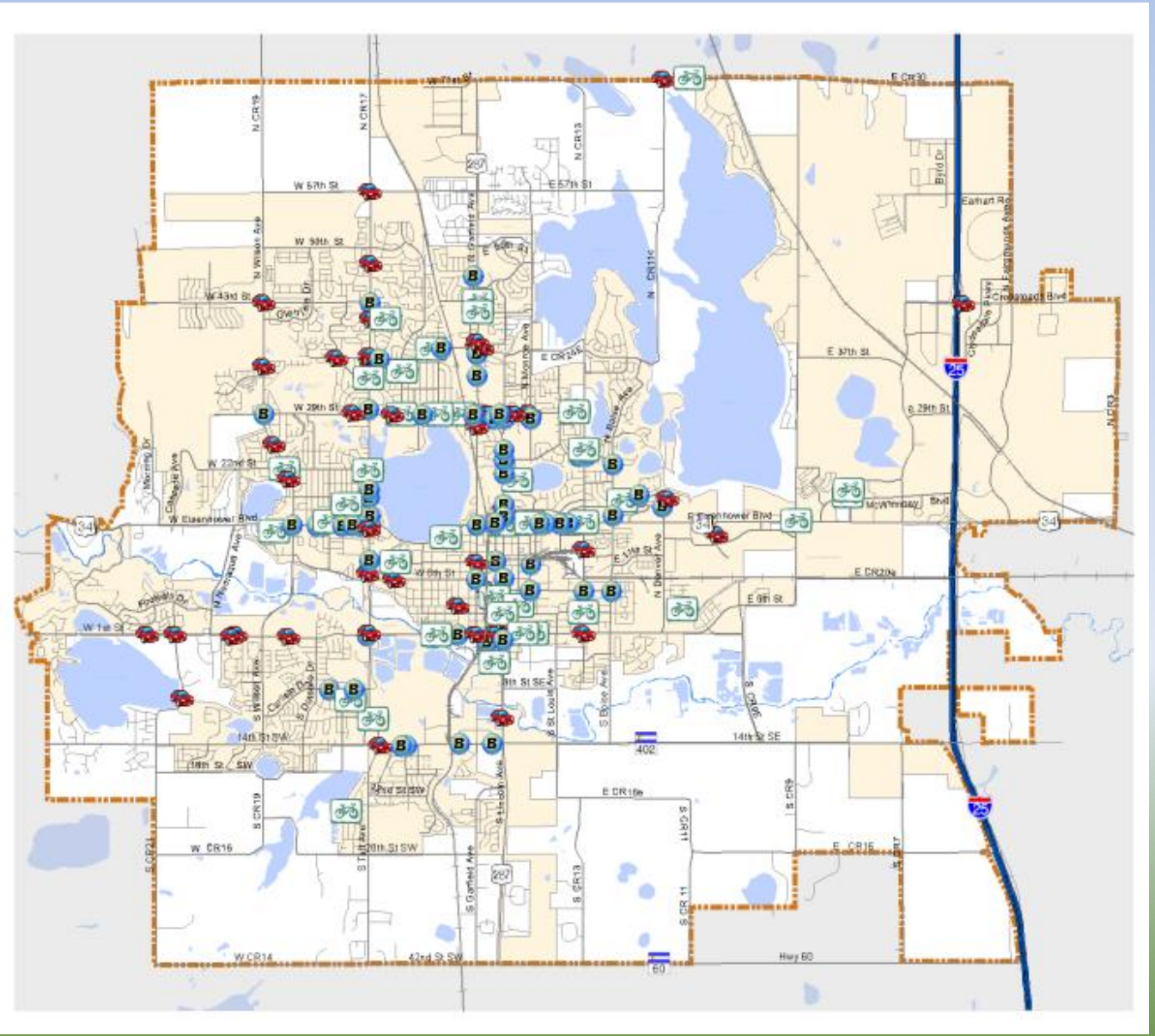
Pedestrian Mobility Issues
Comments from the Public

- 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

City of Loveland

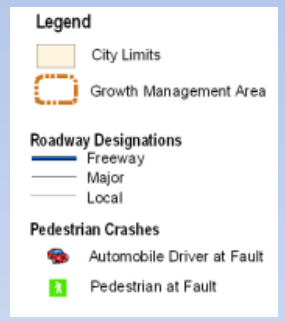
Bicycle Crash Analysis

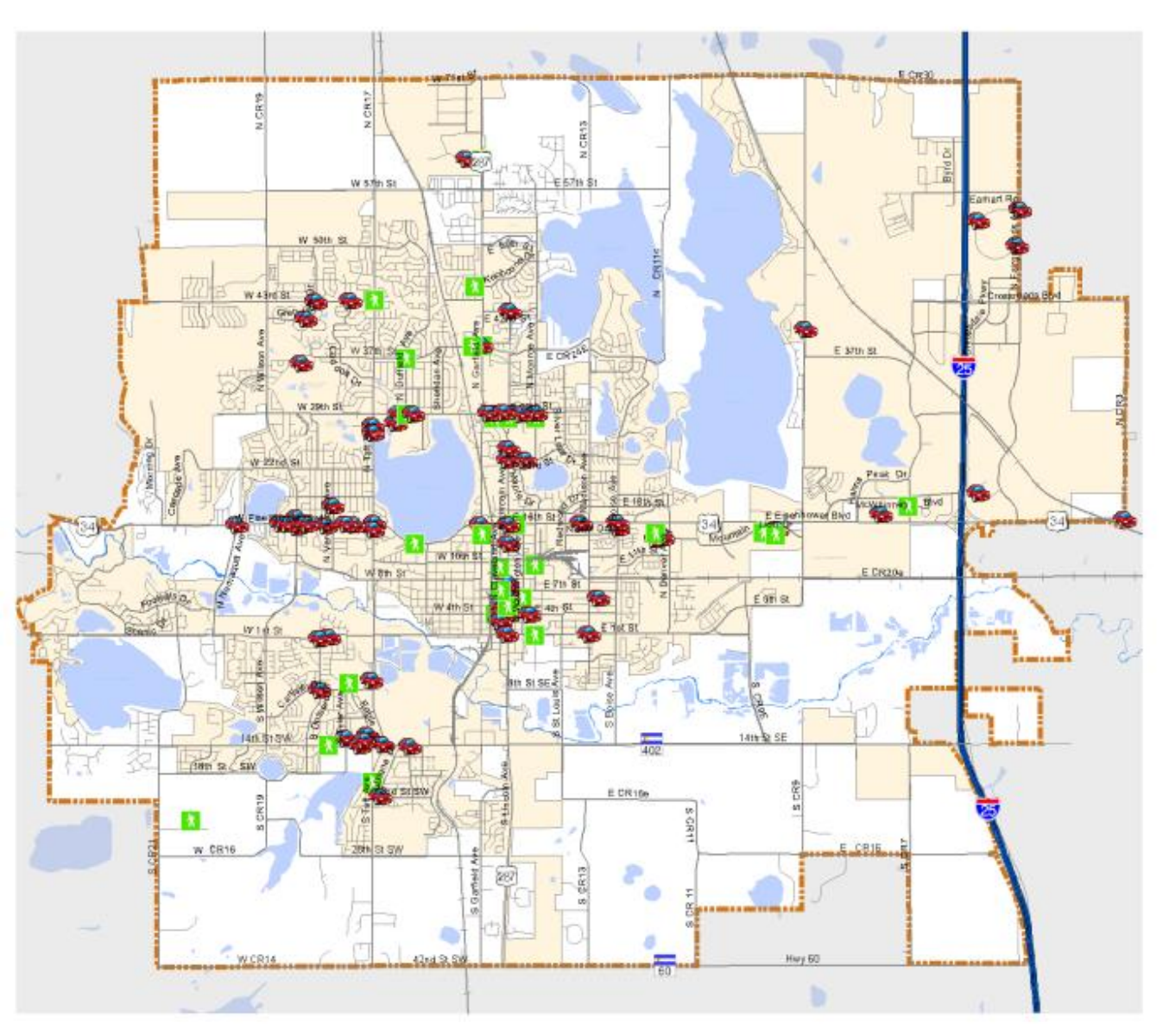




City of Loveland

Pedestrian Crash Locations





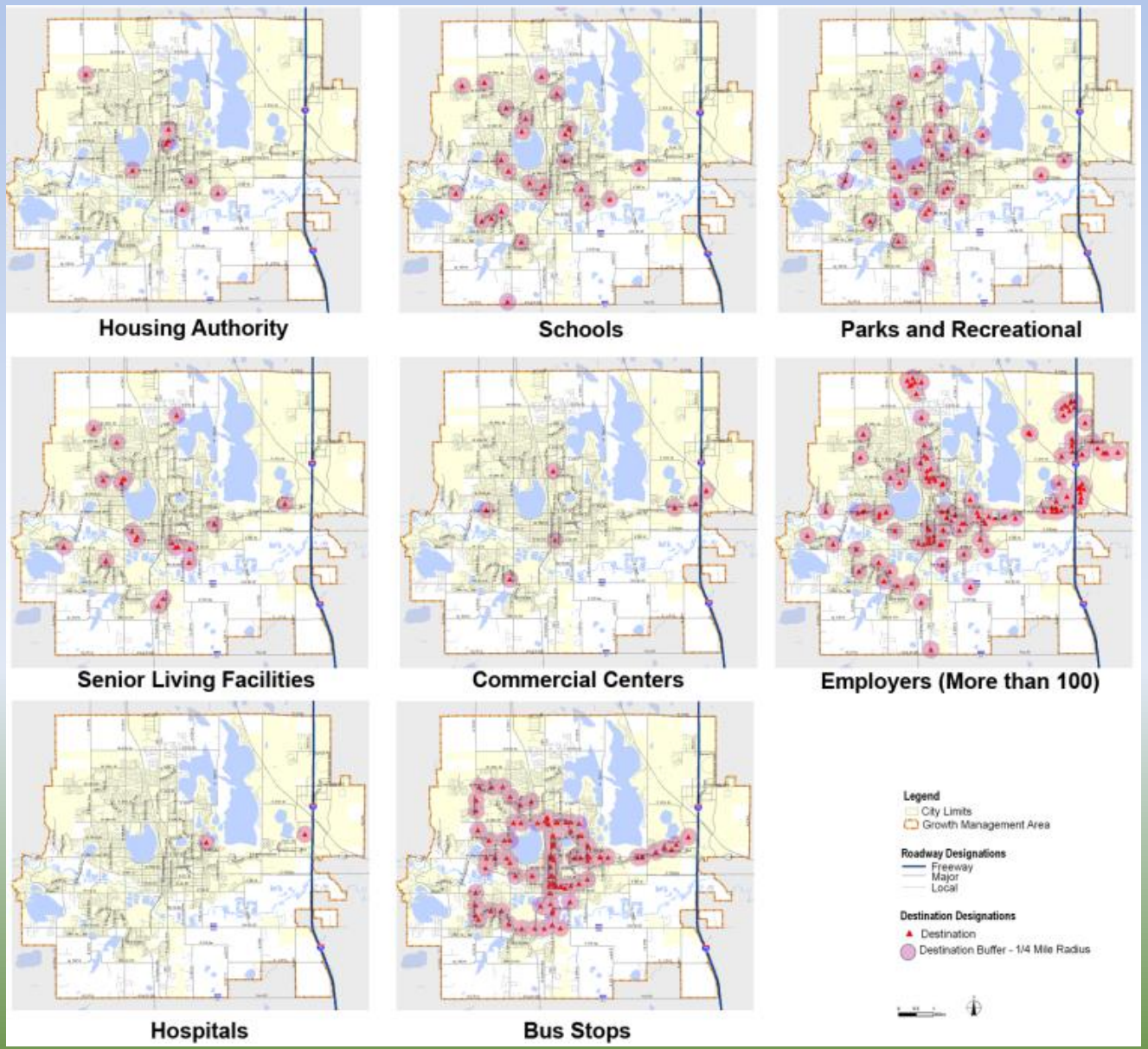
Crash Analysis (2005-2009)

- Between 2005 and 2009 there were 154 bicycle crashes and 110 pedestrian crashes.
- Crashes occurred throughout the City with the majority occurring at intersections or along streets that do not have bicycle facilities.
- Half the bicycle crashes were those 20 years old or less.
- The driver was at fault 74 % of the time for pedestrian accidents.

City of Loveland

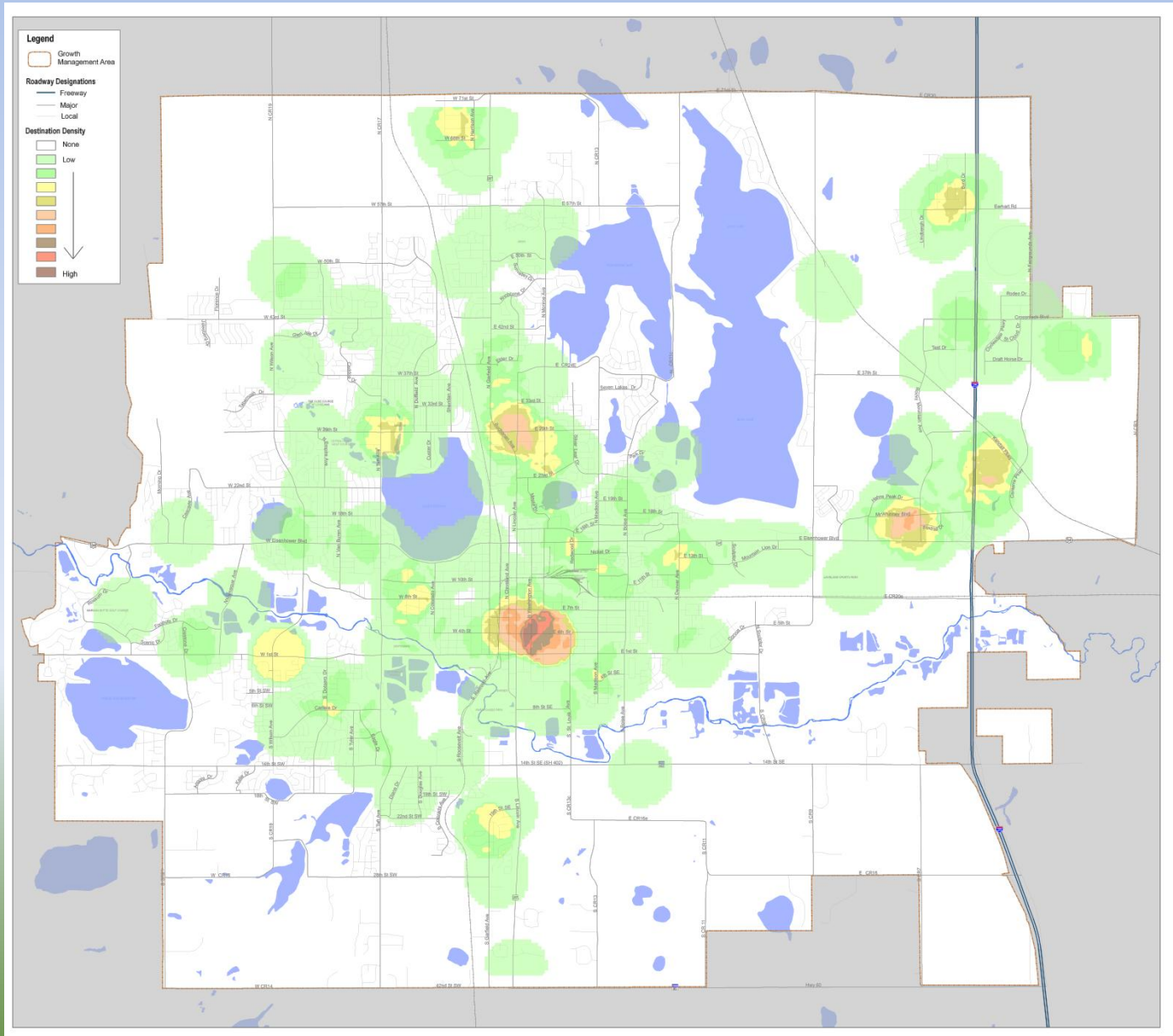
Bicycle and Pedestrian Destinations

- Commercial Centers,
- Employers,
- Schools,
- Senior living facilities,
- Bus stops,
- Hospitals,
- Public housing, and
- Park and recreation facilities



City of Loveland

Bicycle and Pedestrian Destinations



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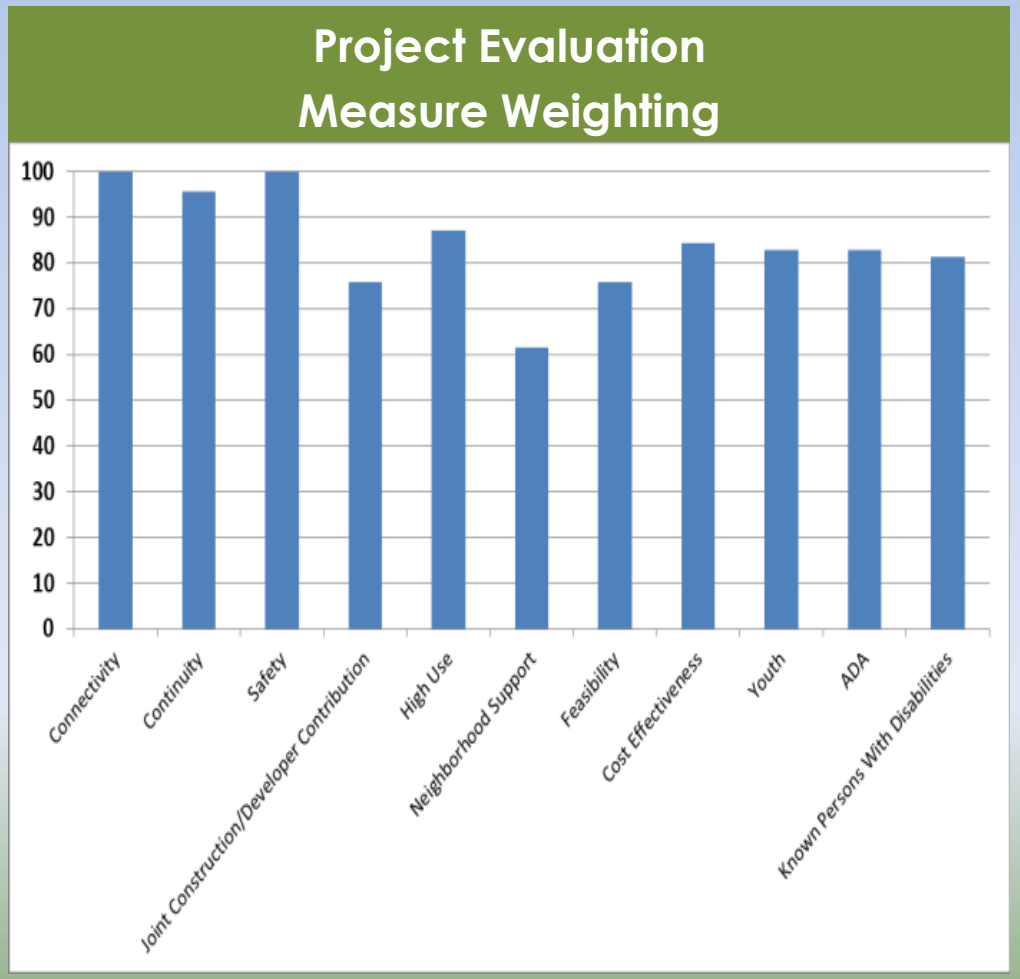
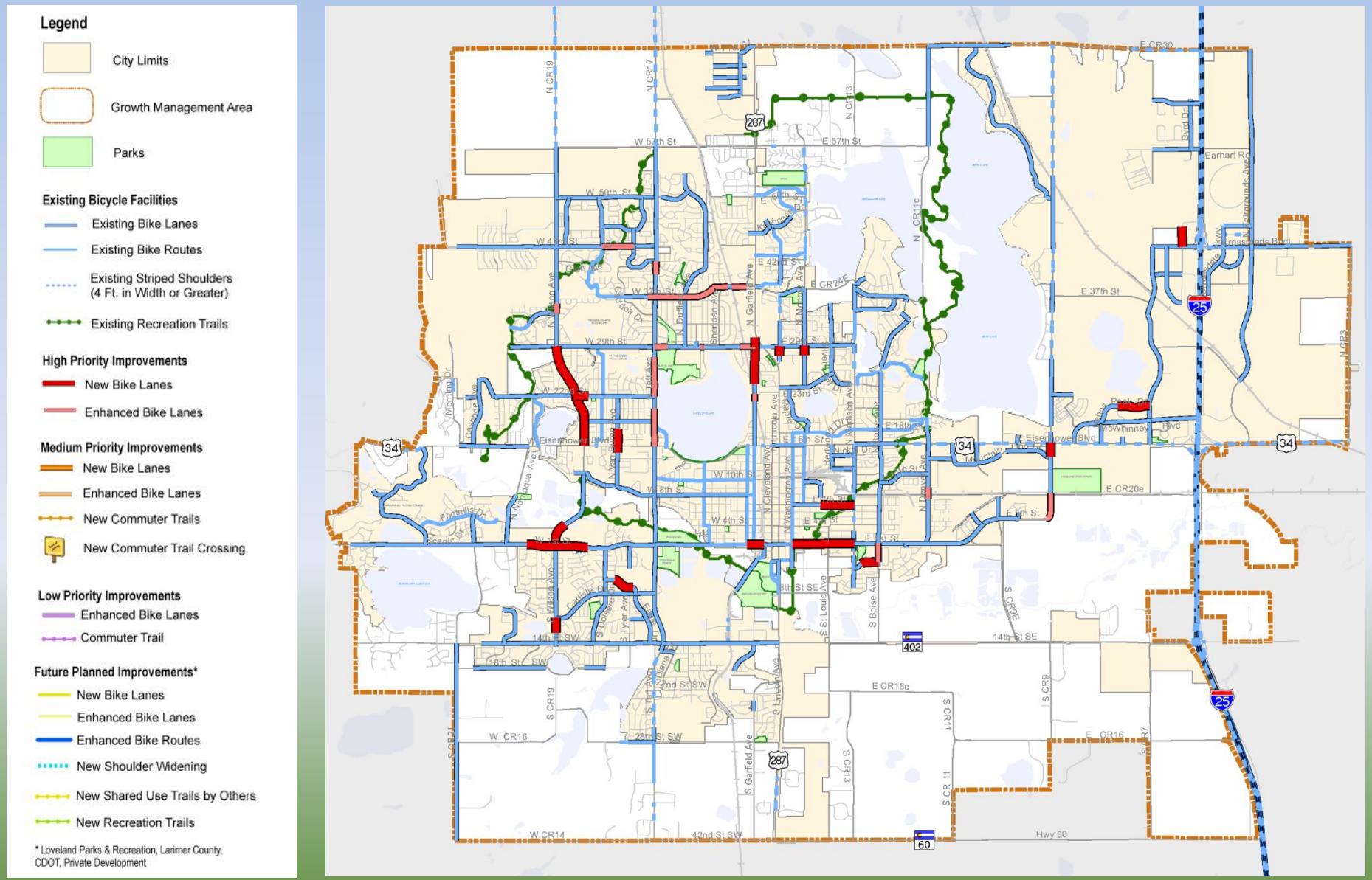
Bicycle and Pedestrian Project Selection and Priority Criteria

- *Connectivity*
- *Continuity*
- *Safety*
- *Joint Construction/ Developer Contribution*
- *High Use*
- *Neighborhood Support*
- *Feasibility*
- *Cost Effectiveness*



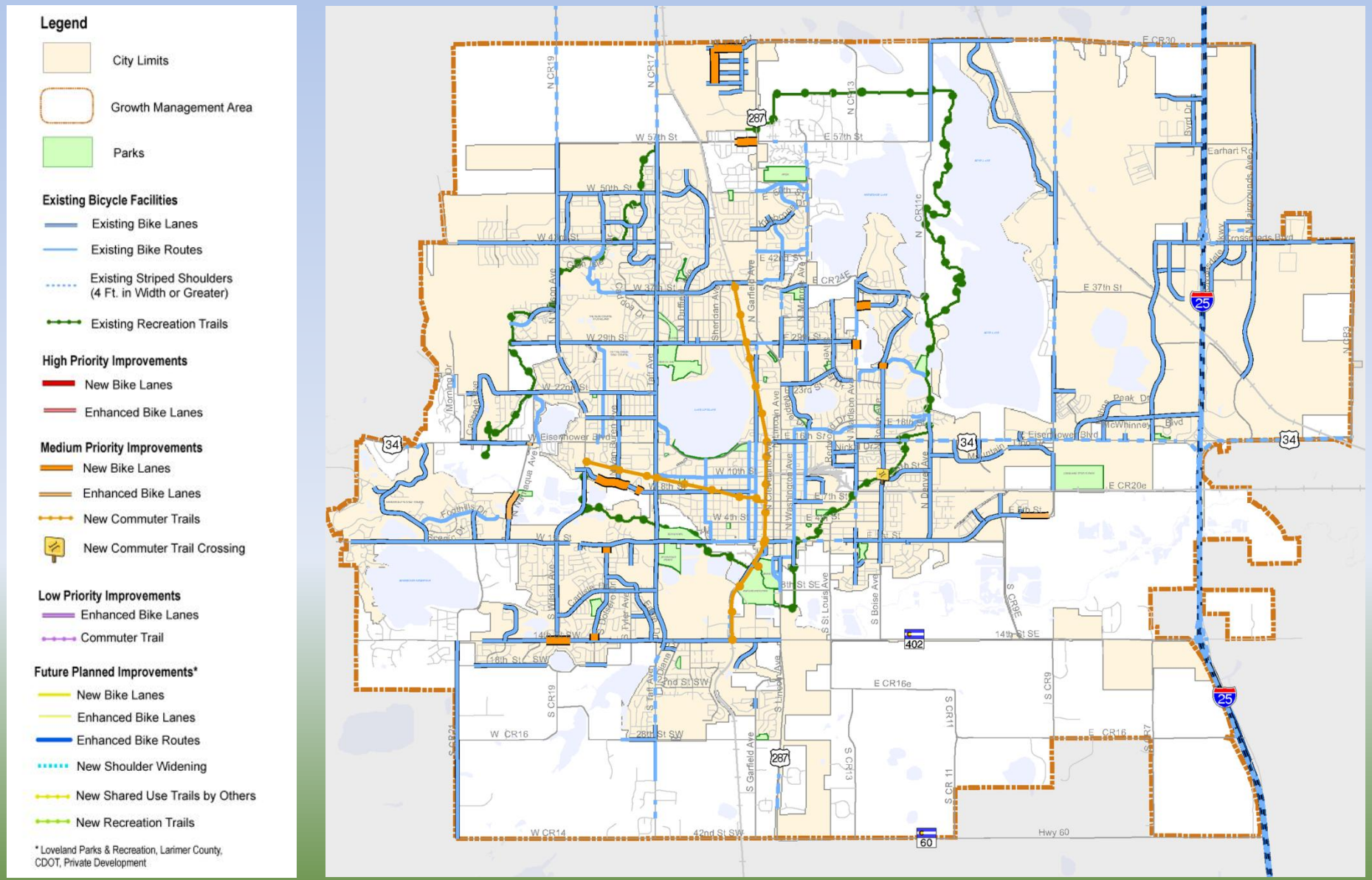
City of Loveland

Proposed Bicycle Facility Map: High Priority Bicycle Improvements



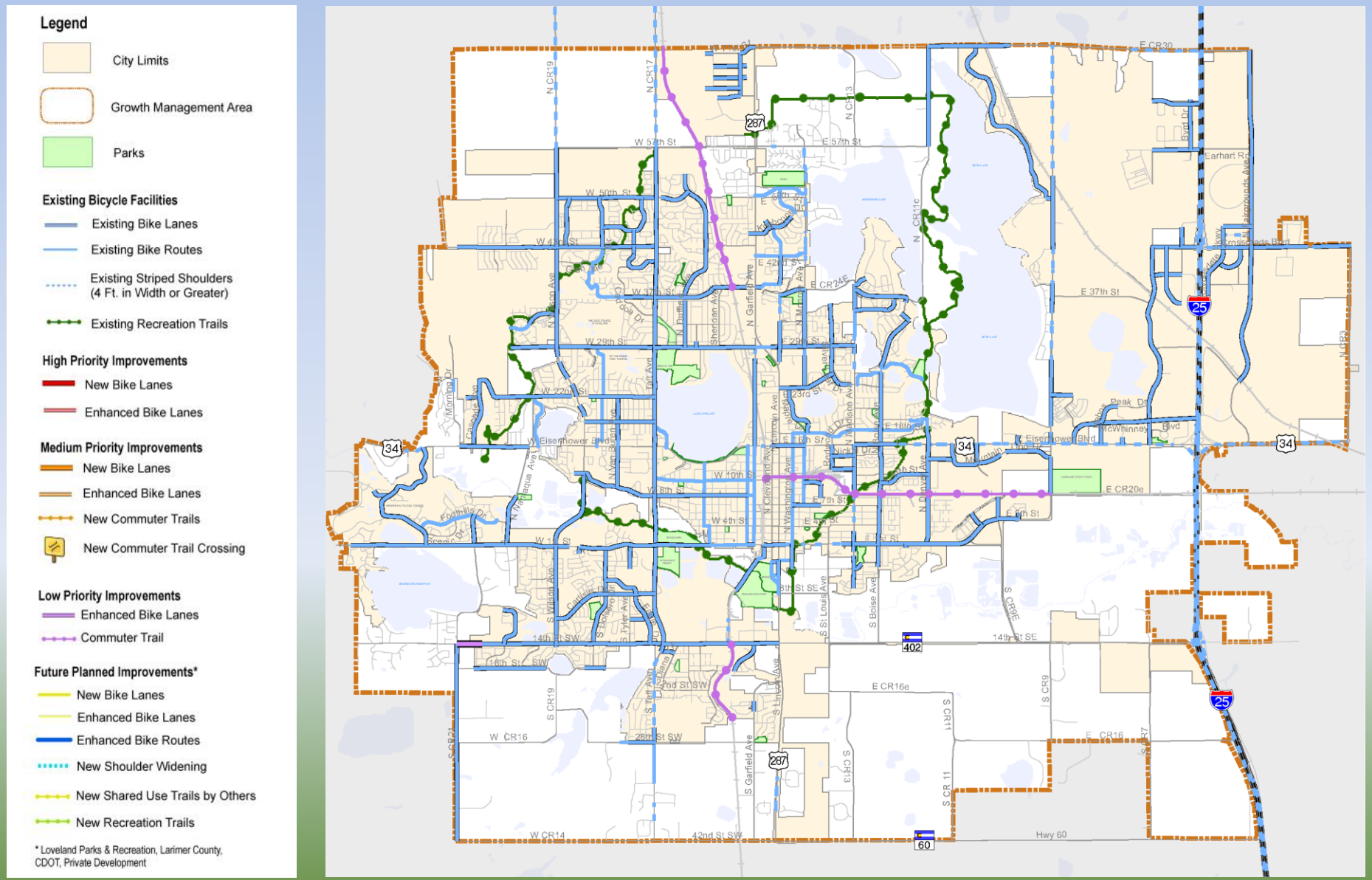
City of Loveland

Proposed Bicycle Facility Map: Medium Priority Bicycle Improvements



City of Loveland

Proposed Bicycle Facility Map: Low Priority Bicycle Improvements



Proposed Bicycle Facility Map: Future Planned Bicycle Improvements

Legend

- City Limits
- Growth Management Area
- Parks

Existing Bicycle Facilities

- Existing Bike Lanes
- Existing Bike Routes
- Existing Striped Shoulders (4 Ft. in Width or Greater)
- Existing Recreation Trails

High Priority Improvements

- New Bike Lanes
- Enhanced Bike Lanes

Medium Priority Improvements

- New Bike Lanes
- Enhanced Bike Lanes
- New Commuter Trails
- New Commuter Trail Crossing

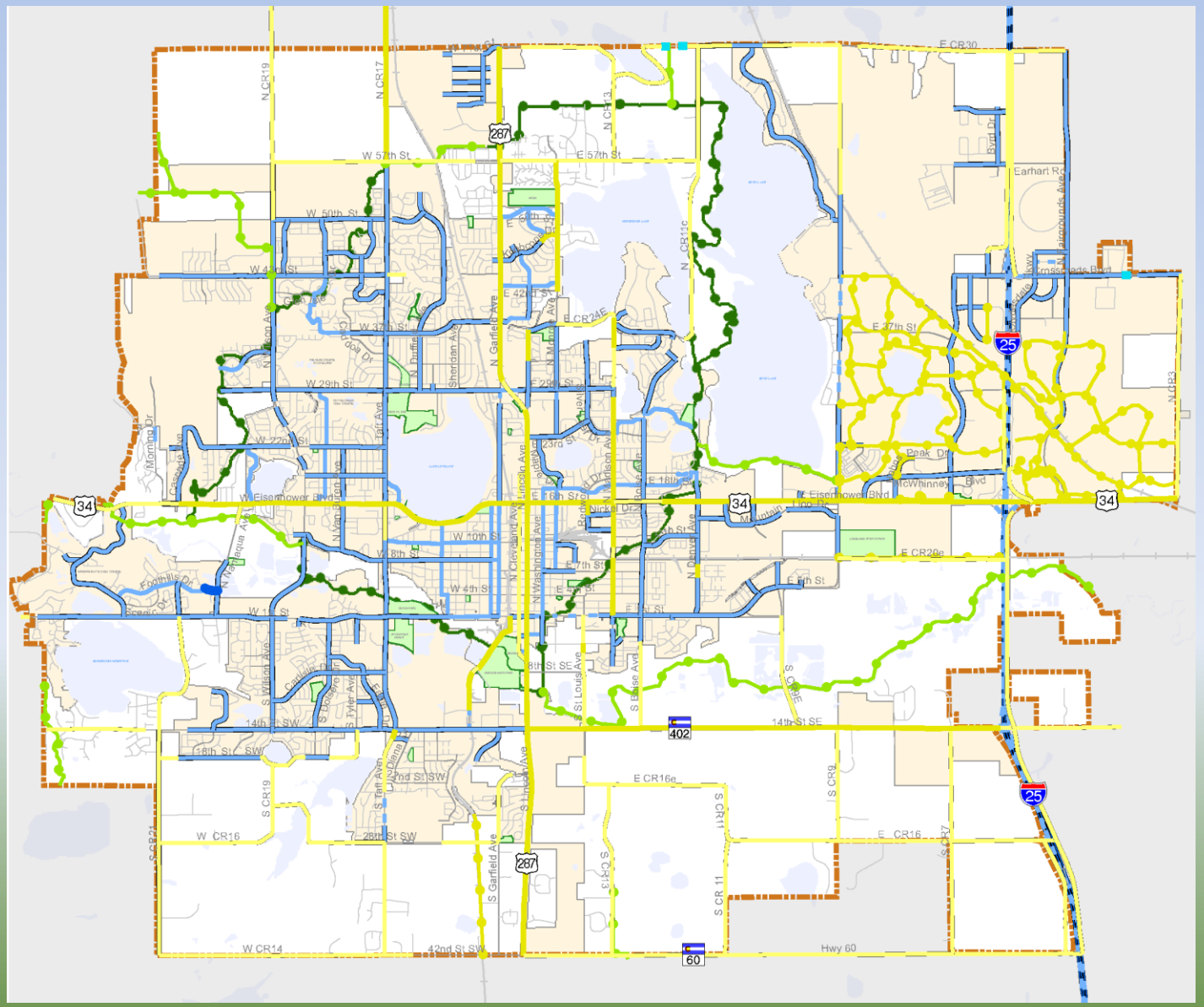
Low Priority Improvements

- Enhanced Bike Lanes
- Commuter Trail

Future Planned Improvements*

- New Bike Lanes
- Enhanced Bike Lanes
- Enhanced Bike Routes
- New Shoulder Widening
- New Shared Use Trails by Others
- New Recreation Trails

* Loveland Parks & Recreation, Larimer County, CDOT, Private Development



City of Loveland

Proposed Bicycle Facility Map: All Proposed Bicycle Improvements

Legend

- City Limits
- Growth Management Area
- Parks

Existing Bicycle Facilities

- Existing Bike Lanes
- Existing Bike Routes
- Existing Striped Shoulders (4 Ft. in Width or Greater)
- Existing Recreation Trails

High Priority Improvements

- New Bike Lanes
- Enhanced Bike Lanes

Medium Priority Improvements

- New Bike Lanes
- Enhanced Bike Lanes
- New Commuter Trails
- New Commuter Trail Crossing

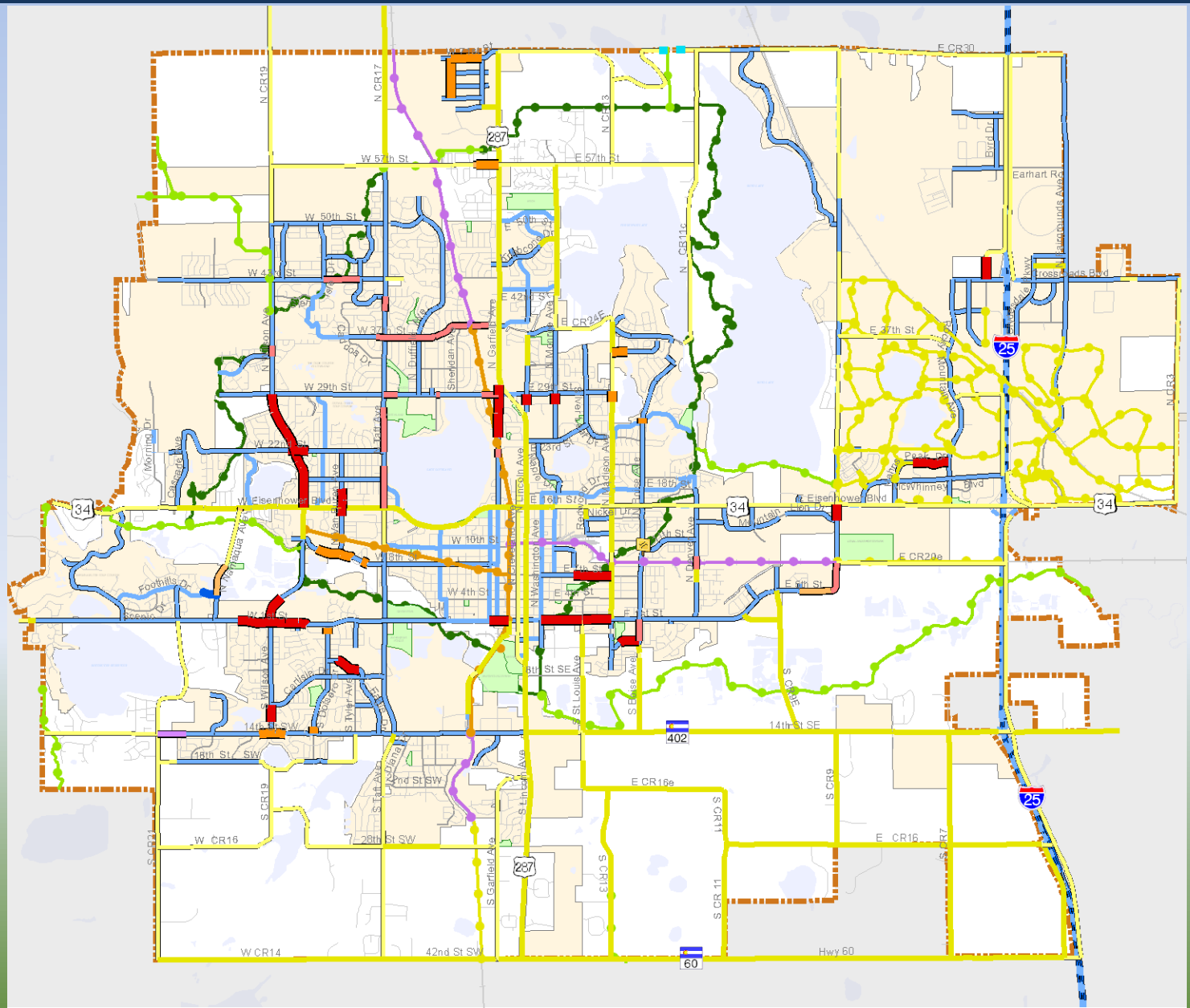
Low Priority Improvements

- Enhanced Bike Lanes
- Commuter Trail

Future Planned Improvements*

- New Bike Lanes
- Enhanced Bike Lanes
- Enhanced Bike Routes
- New Shoulder Widening
- New Shared Use Trails by Others
- New Recreation Trails

* Loveland Parks & Recreation, Larimer County, CDOT, Private Development



Pedestrian Plan Map:
High Priority Pedestrian Improvements

Legend

City Limits

Growth Management Area

Parks

Existing Pedestrian Facilities

Existing Sidewalks

Existing Recreation Trails

High Priority Improvements

New Intersection Improvements

New Sidewalks

Medium Priority Improvements

New Intersection Improvements

New Sidewalks

New Commuter Trail Crossing

Low Priority Improvements

New Intersection Improvements

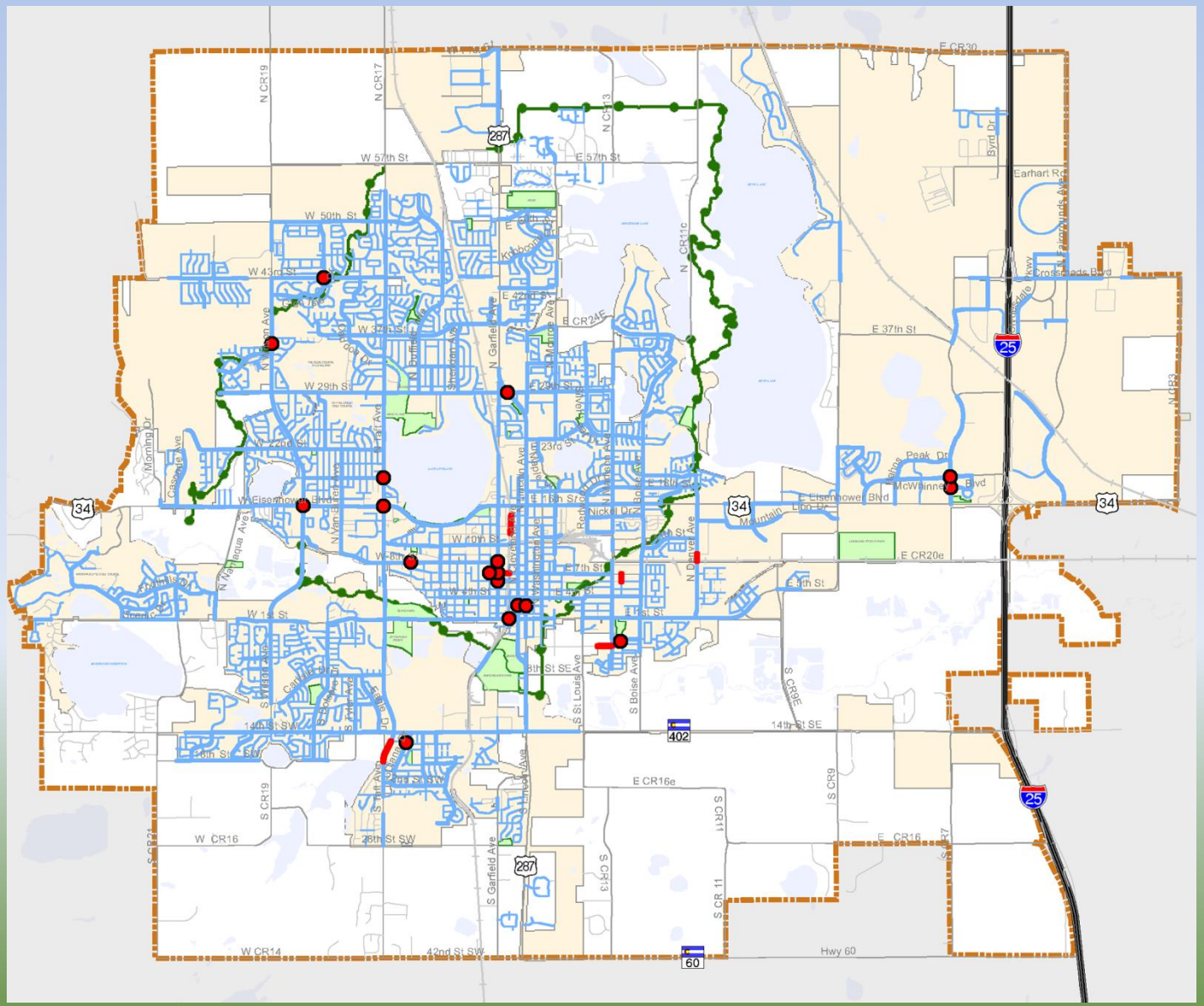
New Sidewalks

Developer Responsible Improvements

New Sidewalks

Future Planned Improvements

New Recreation Trails



Pedestrian Plan Map:
Medium Priority Pedestrian Improvements

Legend

City Limits

Growth Management Area

Parks

Existing Pedestrian Facilities

Existing Sidewalks

Existing Recreation Trails

High Priority Improvements

New Intersection Improvements

New Sidewalks

Medium Priority Improvements

New Intersection Improvements

New Sidewalks

New Commuter Trail Crossing

Low Priority Improvements

New Intersection Improvements

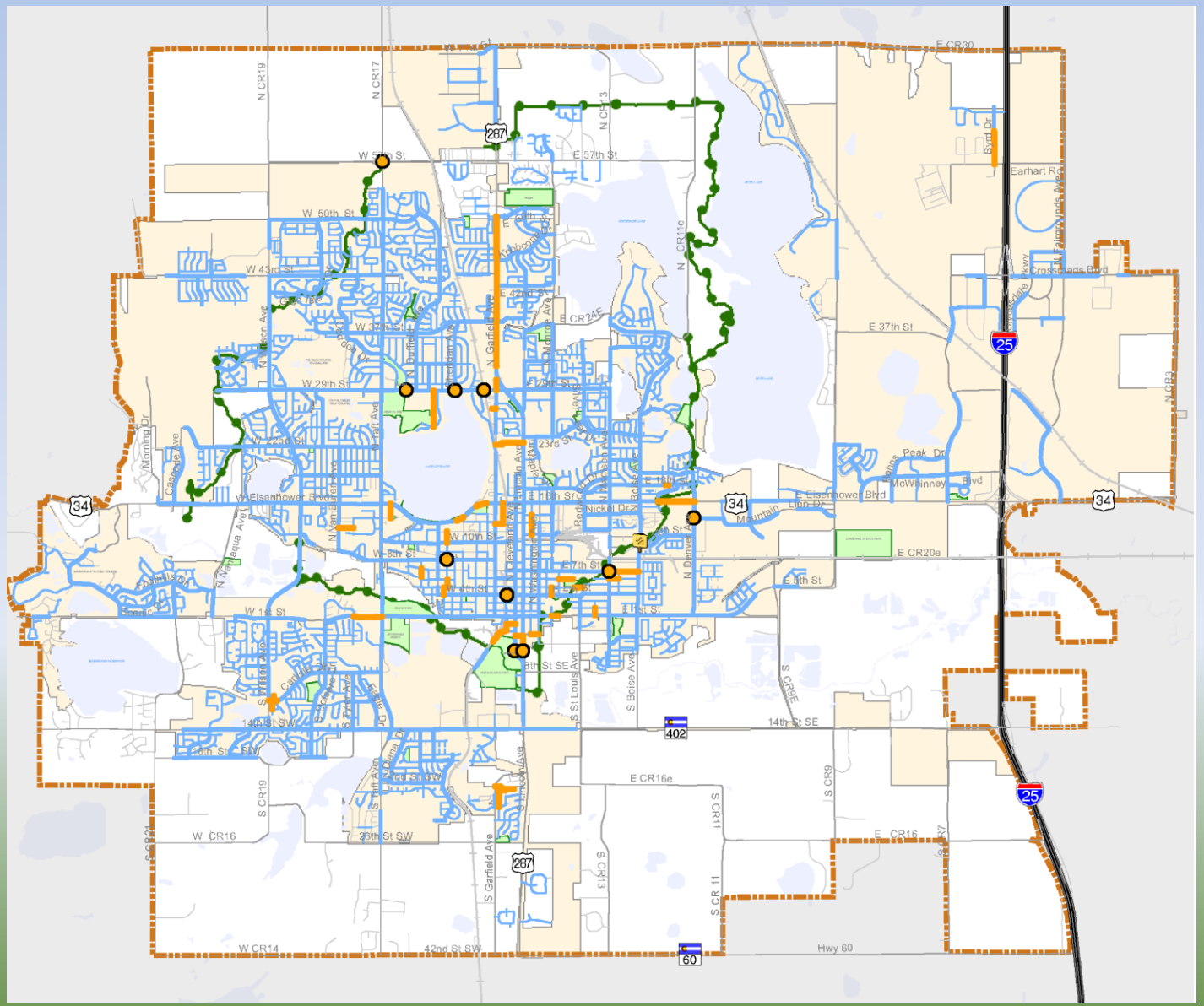
New Sidewalks

Developer Responsible Improvements

New Sidewalks

Future Planned Improvements

New Recreation Trails



Pedestrian Plan Map:
Low Priority Pedestrian Improvements

Legend

- City Limits
- Growth Management Area
- Parks

Existing Pedestrian Facilities

- Existing Sidewalks
- Existing Recreation Trails

High Priority Improvements

- New Intersection Improvements
- New Sidewalks

Medium Priority Improvements

- New Intersection Improvements
- New Sidewalks
- New Commuter Trail Crossing

Low Priority Improvements

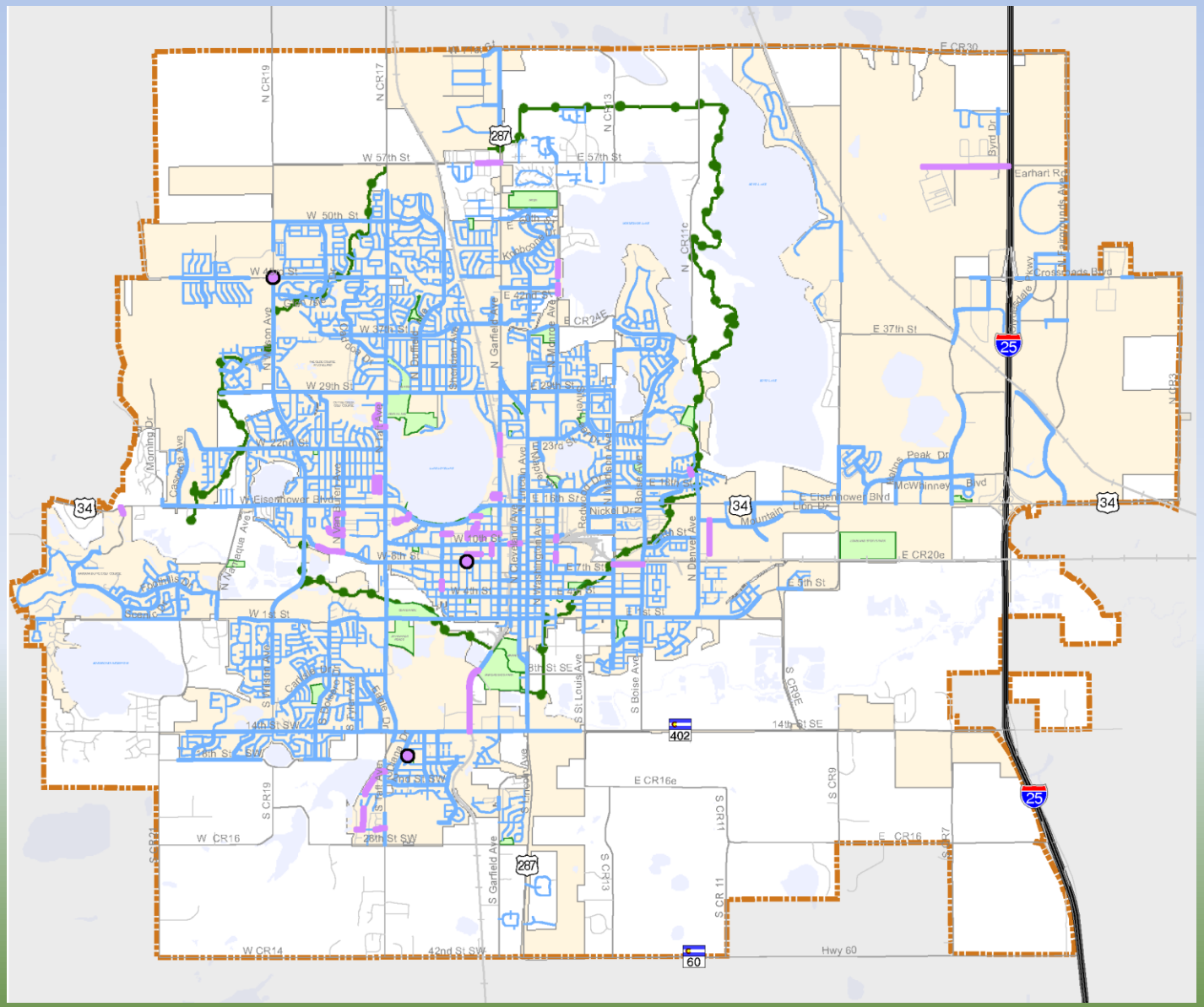
- New Intersection Improvements
- New Sidewalks

Developer Responsible Improvements

- New Sidewalks

Future Planned Improvements

- New Recreation Trails



Pedestrian Plan Map:
Developer Responsible Pedestrian Improvements

Legend

City Limits

Growth Management Area

Parks

Existing Pedestrian Facilities

Existing Sidewalks

Existing Recreation Trails

High Priority Improvements

New Intersection Improvements

New Sidewalks

Medium Priority Improvements

New Intersection Improvements

New Sidewalks

New Commuter Trail Crossing

Low Priority Improvements

New Intersection Improvements

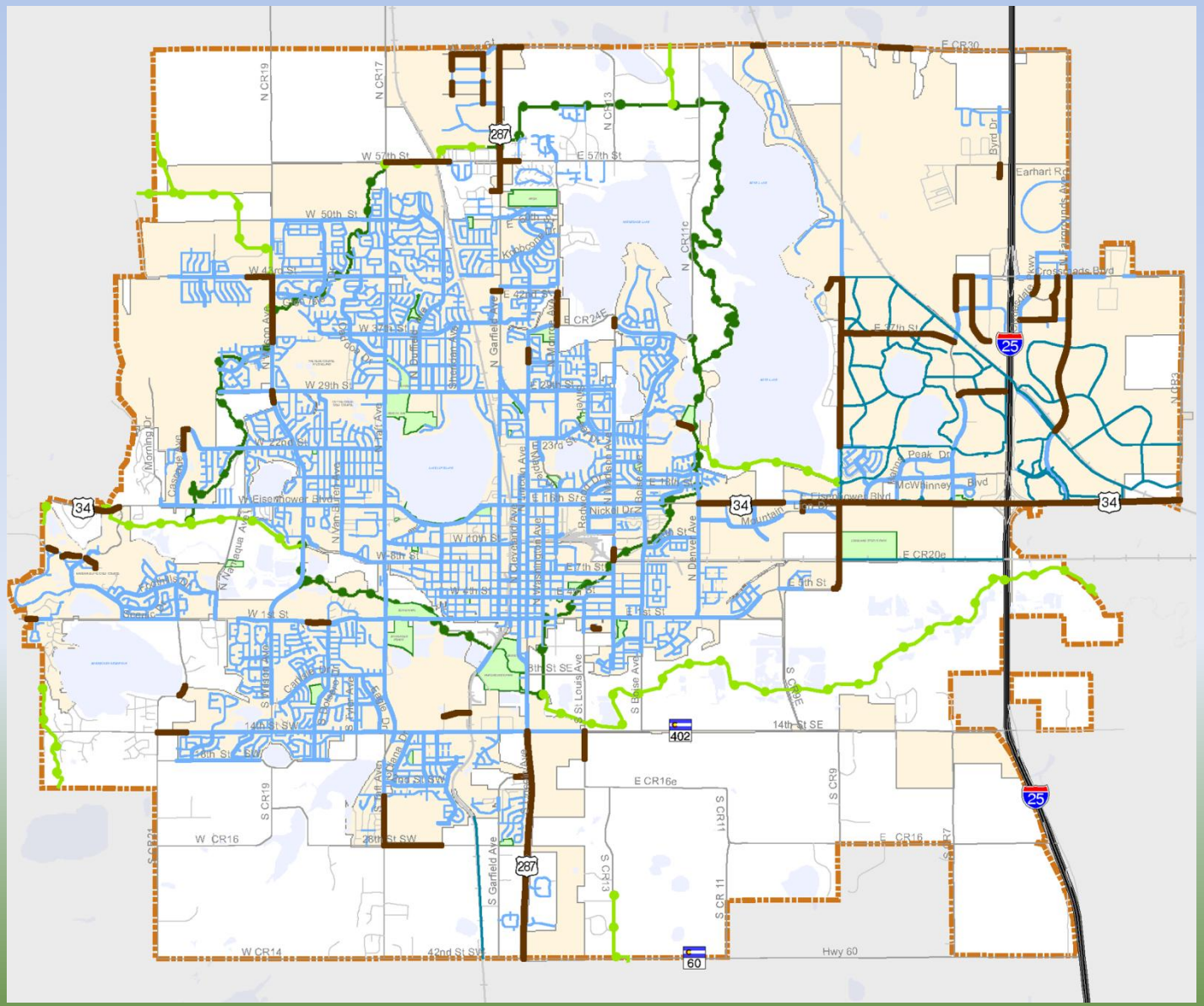
New Sidewalks

Developer Responsible Improvements

New Sidewalks

Future Planned Improvements

New Recreation Trails



Pedestrian Plan Map:
All Proposed Pedestrian Improvements

Legend

- City Limits
- Growth Management Area
- Parks

Existing Pedestrian Facilities

- Existing Sidewalks
- Existing Recreation Trails

High Priority Improvements

- New Intersection Improvements
- New Sidewalks

Medium Priority Improvements

- New Intersection Improvements
- New Sidewalks
- New Commuter Trail Crossing

Low Priority Improvements

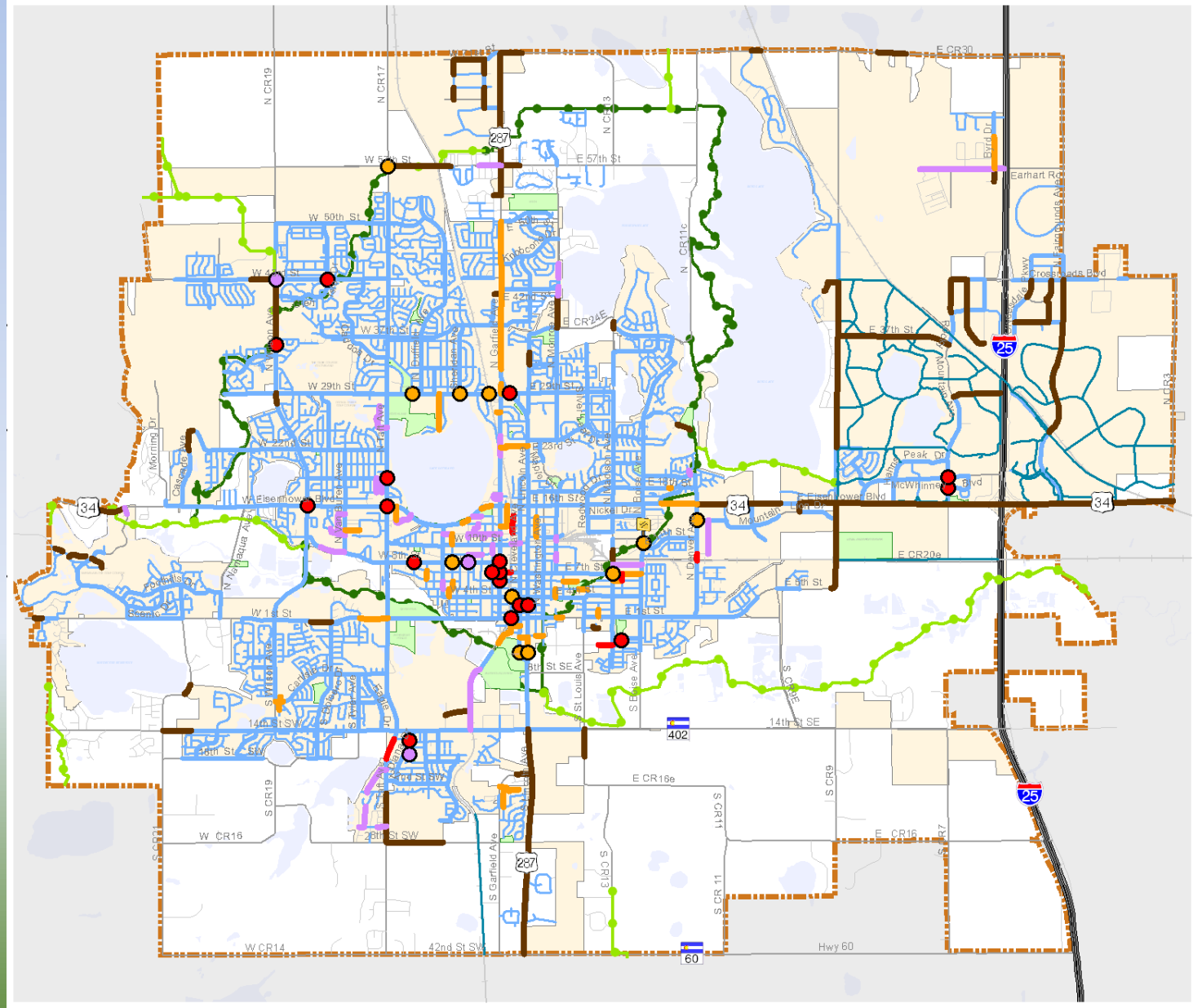
- New Intersection Improvements
- New Sidewalks

Developer Responsible Improvements

- New Sidewalks

Future Planned Improvements

- New Recreation Trails



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	$0.9	$2.1	$0.9	$1.4	$1.8	$3.5
Medium Priority	$1.0	$2.1	$0.9	$1.6	$1.9	$3.7
Low Priority	$0.9	$1.7	$0.9	$1.8	$1.8	$3.5
Enhanced Crossings					$1.0	$2.0
Sub Totals	**$2.8**	**$5.9**	**$2.7**	**$4.8**	**$6.5**	**$12.7**
Developer Responsibility	$3.0	$6.1	$2.8	$5.6	$5.8	$11.7
Totals	*$5.8*	*$12.0*	*$5.5*	*$10.4*	*$12.3*	*$24.4*

City of Loveland

Funding

- The total cost to implement the Bicycle and Pedestrian plan is estimated at approximately $6.5 and $12.7 million dollars.
- Assuming a 25-year life span of this project, an annual bicycle and pedestrian funding source between $250,000 and $500,000 would be required ($100,000 per year currently).

Outside Funding Sources

- *Federal*
  - Safe Routes to School (SRTS)
  - Transportation Enhancement activities (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

Implementation Strategies

Code Enforcement

Coordination

The 5 E's:

Engineering,
Education,
Enforcement,
Encouragement, and
Evaluation

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.
- 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.
- Each factor will be tracked for the current year as well as past years with applicable data.

Bicycle/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

Implementation Strategies

- ***Safe Routes to Schools***
  - The City of Loveland's Public Works Department has partnered with the Thompson School District to promote the Safe Routes to School Program (SRTS).
  - Safe Routes to School 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.
  - 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.
  - 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 group is currently focused on Safe Routes to School, senior citizens, bicycle commuters, and CSU students.

- ***Bike Wise***
  - Bike Wise (Linking Northern Colorado) is the regional extension of the City of Fort Collins' bike program.

What's Next - Calendar

- Final Plan Open House 3/15/2012
- Transportation Advisory Board – Action 4/2/2012
- Planning Commission – Action 4/9/2012
- Parks & Rec Advisory Commission – Review 4/12/2012
- City Council – Approval 5/1/2012

City of Loveland

Questions of the City Council

1. Are there any important things that we missed?
2. In your review of the high, middle and low bicycle and pedestrian improvement priorities, did we generally get them right?
3. Does the City Council support the multi-jurisdictional public and private partnership and general funding levels?

City of Loveland