

# 2011 Annual Report

# Engineering

*Engineering A Better Future For Larimer County*



# R

## eflecting Back and Investing Forward

Larimer County just celebrated its 150<sup>th</sup> anniversary. Over time, many of our major roads in the County that started out as wagon trails or farm to market routes have evolved to become high speed arterials connecting major urban areas.

*Learn from the past, watch the present, and create the future.*

This is a quote attributed to an English actor named Jesse Conrad. That expression reflects the focus and goals of the Engineering Department.

In this report we acknowledge our history with articles highlighting historical comparisons between services, equipment and materials as well as an exam-

ple of a timeline of changes and improvements to a section of CR 38E near Horsetooth Reservoir.

We are very much influenced by the actions of previous engineers, surveyors and transportation professionals as they mapped out and planned for the future of Larimer County. It was through the work of previous County Engineers like Bill Campton (from the 1950s-1980s) and Elaine Spencer (1980s and 1990s) that many of our current bridges and roads were updated and improved.

As we've moved into the 21<sup>st</sup> century, our role is still to take care of our citizen's investment in transportation infrastructure and through improvements

help make travel on our county roads easy and safe.

In this annual report, you'll find information on a number of improvements we've completed this year, including roads, reservoirs, bike trails, parking lots and bridges.

Looking forward, we truly do want to help create a better future for ourselves, our families, our citizens and those who will someday follow in our footsteps.

Mark Peterson, PE  
Engineering Department Head

# G

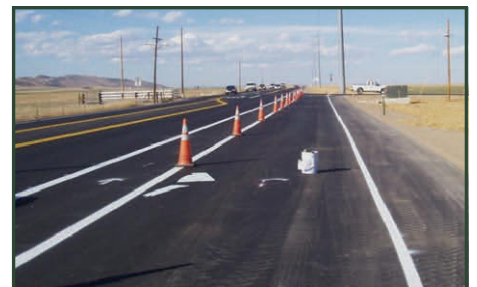
## etting More Done Through Partnerships

Larimer County is a regional government that includes a very wide range of local cities and towns, other governmental entities, and neighborhoods.

As budgets are tightened, and improvement needs increase, County engineering staff is focusing on finding project partners to assist with funding and meet multiple interests. Successful recent partnerships have included:

- Intersection improvements with the City of Loveland. The City and County partnered to provide local match dollars which were leveraged with federal funds.

- The Bureau of Reclamation provided more than \$1 million dollars for additional asphalt on the Horsetooth Reservoir dams.
- Continued work with 43 Public Improvement Districts allow neighborhoods to utilize their own dollars for road improvements.



The intersection of CR 19 (Wilson)/ CR 28 (57th Street) in North Loveland was improved with turn lanes through a federal grant and local match dollars provided by both Larimer County and City of Loveland. Photo: Frank Kurtyka



CR 23 along the east side of Horsetooth Reservoir was overlaid to address road maintenance issues. The Bureau of Reclamation provided funding for additional asphalt over the dams to even out dam height elevations. Photo: Marc Lyons



The Crown Point subdivision in North Loveland used funding in its Public Improvement District (PID) to complete road reconstruction for its neighborhood streets. Photo: Matt Johnson

**On The Cover:** Access road, culvert and riprap associated with the Coal Creek Flood Mitigation Project.

Photo: Preston Pierson

# Engineering Improvements - What A Difference A Project Makes!

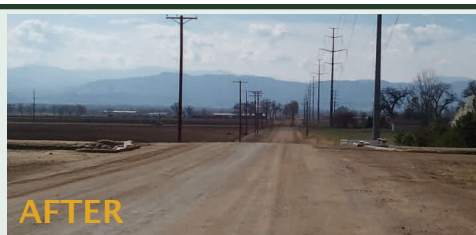
As the County celebrates its 150th year, much of the infrastructure is beginning to show its age. Engineering projects to make improvements are a vital part of the continued success of the region.

The before and after pictures on this page are a result of a wide variety of staff that contributed to project identification, feasibility, funding, design, bidding and construction.

The results can be dramatic.



*The CR 7 bridge over the North Poudre Inlet Canal was an old timber structure that had become structurally deficient. The new bridge is constructed out of concrete box girders.*  
Photo: Ron Winne



*CR 42E crosses over a pair of irrigation ditches just east of CR 5. The old crossings were badly deteriorating wooden structures with rotting wooden piles. The new structures are concrete box culverts.*  
Photo: Preston Pierson



*County Road 54G through the town of LaPorte had a very poor pedestrian trail with grated crossing over a canal. Through a partnership with the Department of Natural Resources and with support from Poudre School District, the Engineering Department was successful in getting federal transportation enhancement funds to replace the structure and complete the trail, which will also serve as a part of the Poudre River Trail system.*  
Photo: Kyle Arend



*This is an example of a storm drain enhancement completed as a part of a subdivision road improvement project funded through a Public Improvement District.*  
Photo: Matt Johnson

# Engineering History

The County's transportation system dates back to the 1800s with the Overland and Cherokee Trails. Then in the late 1870s the railroad was established, replacing much of the stagecoach transportation and horse drawn mail routes. Soon after the County was established in 1861, property owners began petitioning the County for roads to be established through their land, and the local public road system was born. Colorado was not yet even a state.

As the demand for public local roads emerged, the County's engineering expertise was born.

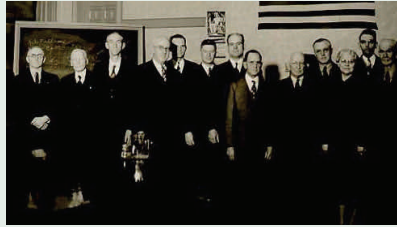
In the past 50 years, there have been significant changes in all aspects of the department. In the 1960s, the County's Engineering Department consisted of just a few staff that spent most of their time surveying in the field, drawing road alignments by hand, and then constructing roads with nothing more than a handshake and basic equipment.

Today's department includes eleven major service areas, 26 staff members, and state of the art design equipment. Responsibilities have evolved to include floodplain management, development review, improvement districts and a whole host of environmental regulations that must be adhered to. Contracting and bidding projects, and administering federal dollars requires substantial time and effort.

Yet ultimately, although 'times have changed', the department's mission is still mostly about managing the public's investment in transportation.

## Then and Now

### The People



### The Offices



### The Equipment



### The Materials



*The Larimer County logo has evolved over the decades and reflects the changes in interests and focus of the time.*



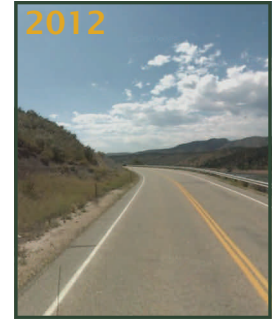
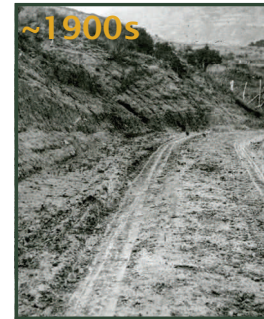
# Life of a Road.... Larimer County Road 38E

From wagon trail to paved regional facility, any one section of the road system requires development, maintenance, monitoring, improvement and reconstruction.

It's an ongoing effort to provide appropriate mobility, care for the county's infrastructure and be good stewards of the citizen's tax dollars.

## The Big Projects

- 1946 Road alignment prior to proposed Horsetooth Reservoir. The former road that traveled up the valley was relocated to the south side of the proposed reservoir **1**
- 1967 Road reconstruction **2**
- 1991 Road reconstruction **3**
- 1993 Road reconstruction **4**



## Maintenance and Improvements in the last 10 years

- 2003 Maintenance—Chipseal and Fogseal whole corridor
- 2004 Safety Project—Guardrail and minor curve realignment **5**
- 2005 Installation of trail underpass **6**
- 2007 Bridge Project—Replace structures and realign curves **7**
- 2010 Maintenance—Chipseal and Fogseal whole corridor
- 2010 Safety Project—culvert extension and sideslope improvements **8**

## Staff Recognized

Todd Juergens, Senior Construction Manager, was honored by the Colorado Chapter of the American Public Works Association (APWA) for his expert knowledge in installing public works improvements and ensuring the safety, health and welfare of the citizens. The statewide award was presented at the Construction Inspection Conference. Congratulations!



Todd Juergens with APWA award.  
Photo: Michelle Jenkins

## Changing Times

Consolidation, cross training, and dedicated team work are at the heart of the continuing success of the development review, floodplain administration and stormwater group in the department.

Just six years ago, floodplain administration and stormwater management was its own service area with a staff of four. At the same time, the development review group was singularly focused on the booming development market with a staff of three.

How quickly times can change. With the downturn in the economy resulting in a significant reduction in development applications, and a few staff retirements, adjustments and restructuring were in order.

Fortunately, engineers in the development review group also had some technical expertise in the area of stormwater

*“The staff reduction has been difficult but thanks to everyone’s positive mindset we’re able to adapt and adjust to the new reality.”*

*Traci Shambo, P.E.  
Group Manager for Development Services, Floodplains, and Stormwater*

and floodplains. So the groups were combined.

Two engineers completed the requirements to become Certified Floodplain Managers (CFMs), the group’s technician became indispensable for both service areas, and cross training is taking place for employees to cover the environmental requirements for stormwater discharge.

The changes have required a lot of flexibility and willingness of staff, but today’s combined group of four is more efficient, and better positioned for future times.

## Coal Creek Flood Mitigation Project Nears Completion



The dredge equipment to remove sediment from Clark Reservoir was trucked in from the east coast. Photo: Preston Pierson



Sediment from the reservoir was pumped in pipes more than a half-mile to large ponds for dewatering. Photo: Mark Peterson



A sheet pile retaining wall was pounded into the ground to channelize the inlet canal. Photo: Preston Pierson

More than 200 homes in the old-town area of Wellington as well as two schools and numerous businesses will be removed from the floodplain with the completion this year of the Coal Creek Flood Mitigation Project.

The project was mostly funded through a federal grant and required establishing

dedicated space in Clark Reservoir to temporarily hold stormwater from large rain events that might otherwise have flooded the Town. The space in Clark Reservoir was created in part by dredging more than 170,000 cubic yards of sediment from the bottom of the lake and pumping it to a dewatering and

disposal area more than one-half mile to the north.

The Engineering Department oversaw the project, completed survey and land acquisition negotiations and provided management staff for the design and construction.

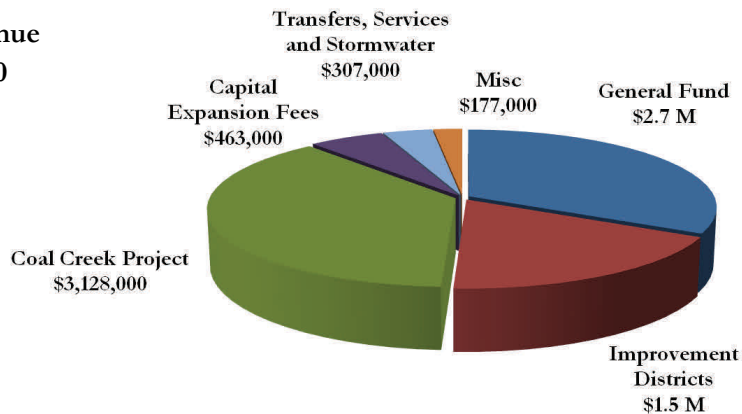
# Summary of Finances

Engineering Department funding comes primarily from the County's general fund. As part of a County-wide budget reduction, the 2011 budget for Engineering Operations was reduced by 3.4%. General funds covered 95% of the costs to operate the department.

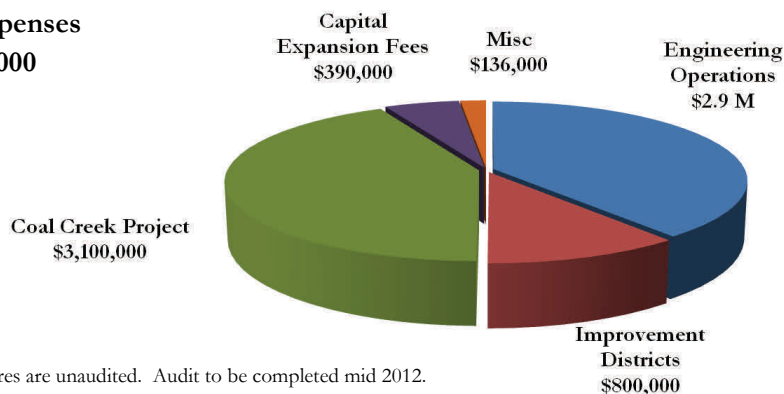
During 2011, the Engineering Department continued to manage the Coal Creek Project as well as special projects for the Departments of Natural Resources and Solid Waste.

The large difference between revenue and expenses for Improvement Districts reflects decisions by road boards to save funding for future projects.

## 2011 Revenue \$ 8,275,000



## 2011 Expenses \$ 7,286,000



These figures are unaudited. Audit to be completed mid 2012.

## The Importance and Acquisition of Public Right-of-Way

One of the most important components of road improvement projects is working with adjacent property owners to minimize impacts and establish the required public right-of-way.

Senior Land Agent Charlie Johnson works closely with engineers and property owners throughout the process which includes:

- Research Title and Ownership
- Owner Meetings and Discussions
- Development of an Agreement
- Determination of Fair Market Value
- Just Compensation

A key to the process for County staff is to build relationships with owners by understanding their concerns and working hard to accommodate specific needs. The property acquired for a capital improvement project is obtained

through a process that involves the land owners and payment of fair compensation.

Although the County has the authority to acquire property by exercising its power of eminent domain, the staff makes every effort to reach a mutually acceptable agreement. In the past 15 years and through literally hundreds of acquisition processes, eminent domain has only been required in three instances.

*“Our goal is to always work with owners to accommodate their interests, and to treat all citizens (tax payers and owners) fairly.”*

*Charlie Johnson,  
Senior Land Agent for the Larimer  
County Engineering Department*

## Engineering Department Major Service Areas:

- Asset Management
- Bridges
- Construction Management
- Development Review
- Engineering Design
- Improvement Districts
- Permitting
- Right of Way
- Stormwater and Floodplains
- Survey
- Traffic/Transportation Planning



Photo: John Olivas



## Engineering Department Contact Information

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8:00 a.m. - 4:30 p.m.  
 Monday - Friday

**On The Web At:** [www.larimer.org/engineering](http://www.larimer.org/engineering)



*Engineering Department provided engineering design and construction management services to the Solid Waste Department for the closure of the most recent cell at the landfill. Photo: Frank Kurtyka*



*The new parking lot and trailhead for the Poudre River Trail at the River Bluffs open space is an example of the partnerships between Engineering and Department of Natural Resources. Photo: Darrell Morrell*



*The placement of the new box culverts on CR 42E over two canals had to be completed during the off-season for irrigation. Photo: Preston Pierson*



*Helicopter placement of concrete for new transmission lines for the Platte River Power Authority included construction access permitting through the Engineering Department. Photo: Darrell Morrell*

### Engineering Department Staff Expertise

*Did You Know?*

- 10** Licensed Professional Engineers (PE)
- 1** Traffic Control Supervisor (TCS)
- 1** Technician with American Concrete Institute Testing Certification
- 2** Certified Floodplain Managers (CFM)
- 1** Professional Traffic Operations Engineer (PTOE)
- 1** Professional Land Surveyor (PLS)

### Public Works Division

- Engineering**
- Fleet**
- Natural Resources**
- Road and Bridge**
- Solid Waste**
- The Ranch**



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