



Larimer County Public Works Division

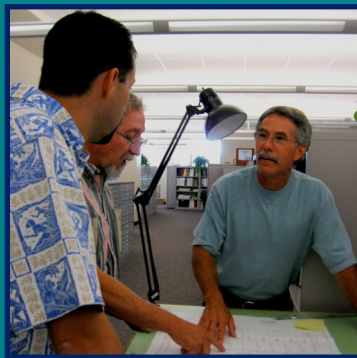
Engineering Department

Engineering Design, Construction Management, Bridges, Traffic, Development Review, Survey, Environmental, Asset Management, Stormwater, Improvement Districts, Right of Way, and Permitting

Annual Report 2008



*Engineering
A Better Future for
Larimer County*



Engineering our Future....

Welcome to our first **annual report** for the Larimer County Engineering Department! I'm pleased to highlight the efforts of our professionals that work hard each day to improve the lives of citizens and make Larimer County a better place to live and work.

We preserve, protect and improve one of the County's most valuable assets – our transportation infrastructure. It is this system that allows people to move about the County, goods and commerce to come and go, and provides routes for emergency responders. Our primary focus is to appropriately manage, plan for, design and make improvements to the County's roadways, bridges, drainage facilities, traffic signs and signals.

For example, we recently completed

improvements to Taft Hill Road that have dramatically increased the capacity and safety of this roadway in north Fort Collins. While many of the infrastructure needs are immediate, we also look ahead to plan for the future needs in areas such as the Owl Canyon Corridor.

This last year we've continued to work closely with the County's Natural Resources Department to help improve their recreational facilities. These accomplishments include Carter Lake, Hermit Park and Red Mountain.

I'm extremely proud of the dedicated professionals that work in this department. Whether responding to a citizen inquiry, or making sure that construction near a floodplain is conducted safely and appropriately, we strive to provide accurate and timely information. Our Transportation Report Card, now available on the web, is another example of how we are making information readily available and easily accessible.

Roadway safety is also a high priority for the County. Read more on page 4 about how

we are implementing and monitoring relatively low-cost traffic improvements for the safety and benefit of roadway users.

2009 will present both challenges and opportunities. With continued dedication, innovation, and the experience of our staff, we look forward to continuing to successfully meet the needs of our citizens.

Mark Peterson, PE
Engineering Department Head



County Engineer Mark Peterson (right) and Assistant County Engineer Rusty McDaniel
Photo: Charlie Johnson

Reconstructing Taft Hill Road

Innovation Brings First Roundabout to Unincorporated Larimer County

What a difference two years makes. In mid 2007, when Larimer County Engineering staff first considered a modern roundabout at the intersection of Taft Hill Road and Vine Drive in north Fort Collins, the majority of residents were strongly opposed to the concept.

Only after much discussion, extensive public outreach and dialogue, and experienced engineering analysis and design was a modern roundabout selected and constructed as a part of a mile-long



Larimer County's first modern roundabout at the intersection of Taft Hill Road and Vine Drive. The long backups of years past are gone, the number and severity of accidents at the intersection are dramatically reduced, and 85% of survey respondents now support the roundabout. Photo: Kyle Arend

project of roadway improvements. The roundabout selection process and public outreach efforts were nationally recognized at the Transportation Research Board conference in Washington DC.

From an engineering perspective, success is measured in the fact that the long backups are gone, and there has not been a single injury accident at the intersection where previously about 3 injury crashes occurred each year.

But more telling is that 85% of citizens responding to a survey now support the roundabout.

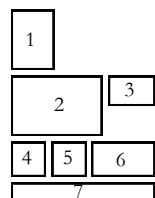
While roundabouts are not appropriate everywhere, they are an important new component to our 'toolbox' of options and will continue to be considered for county intersections in the future.

Visit www.larimer.org/engineering to download a roundabout use brochure.

**“Roundabout is great!
Bravo for having the courage
to try something new.”**

Citizen comment from post-construction survey

On The Cover:

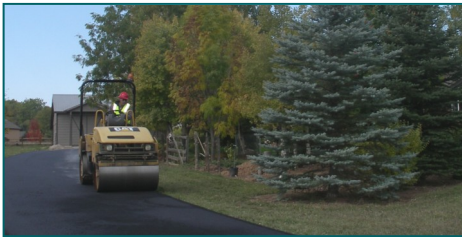


1. CR 5. Photo: Joe Temple
2. Surveying. Photo: Brian Barnes
3. Plan Review. Photo: Scott Cornell
4. Utility Inspections. Photo: Marc Lyons
5. Design Work. Photo: Michelle Jenkins
6. Water Quality Testing. Photo: Jeri Feil
7. Taft Hill Roundabout. Photo: Brian Barnes

Public Improvement Districts Vital in Local Road Maintenance

Due to a lack of funding, Larimer County in 1994 ceased maintaining new subdivision roads. This has resulted in there now being 250 miles of public roads with no public maintenance.

The Public Improvement District (PID) program, managed by the En-



“To finally have a paved road... is wonderful!”

*Rhonda and Jim Cooper,
Foothills Shadow PID*

gineering Department, provides a way for property owners in Larimer County to self finance, construct and maintain public improvements such as neighborhood roads in the public right of way.

There are 34 active Public Improvement Districts within the County; in 2008, almost \$2 million dollars was spent on maintenance and improvements such as:

- gravel road grading,
- asphalt street improvements,
- drainage improvements, and
- snowplowing.

Each year, three to five new improvement districts are formed. Engineering Department staff members assist new applicants through each step of the district formation process includ-



During 2008, the Centro Business Park completed more than \$ 1/2 million dollars of badly needed maintenance and road reconstruction through their newly created Public Improvement District. The work significantly improved the safety, mobility and accessibility in this commercial and industrial area. Photo: Matt Johnson

ing informational meetings, setting district boundaries, preparing plans, construction cost estimates, petitions, and finally public election.

Once a district is formed, staff works cooperatively with the District Advisory Board Members each year to set goals, develop plans, and provide the technical expertise to bid projects and oversee construction.

Visit www.larimer.org/engineering or call 970-498-5722 for more information.

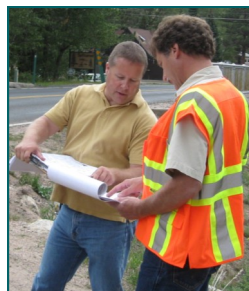
In House Expertise Continues to Serve Well

The expertise of the Larimer County Engineering Department in-house staff results in responsive, cost effective, and high quality projects throughout Larimer County.

For capital design and construction management projects, direct interaction and close collaboration between staff engineers, surveyors, right-of-way agents, and construction inspectors creates a seamless transition from project design to completion.

Travis Road north of Fort Collins is the only access point for a number of residences and is located on a water control structure between two irrigation reservoirs. The failure of the dam resulted in the need to quickly construct a short-term detour, design a replacement facility and coordinate carefully among the County, the irrigation company, and residences.

From design to construction, Engineering Department staff in right of way acquisition, survey, design, and construction management ensure quality projects. Photos: Martina Wilkinson and Rusty McDaniel



Intersection improvements at the crossroads of CR 30 / CR 9 will result in the first rural roundabout to be built in the area. The project is being designed in-house in partnership with the City of Loveland.

The combination of state-of-the-art technical skills, an eye towards innovation, and historical knowledge of long-term employees provides the County with an exceptional value.

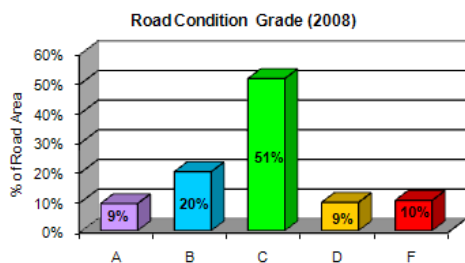
Engineering Department Fast Facts

- 30 dedicated individuals!
- 12 major service areas: Engineering Design, Right of Way, Stormwater and Floodplains, Construction Management, Survey, Traffic/Transportation Planning, Permitting, Asset Management, Improvement Districts, Bridges, Environmental, and Development Review.
- Oversee inspection, improvement and operations for more than 1,000 miles of road, 640 structures, and over 3,000 culverts.
- Regulate 220 miles of mapped floodplain.
- Plan, design and construct \$6-8 million dollars of capital improvement projects each year (roads and bridges, natural area / parks, and solid waste).

Preserving Our Investments



It is much less expensive to maintain pavement than rehabilitate it once it has failed. Photo: Engineering Staff



The Transportation Report Card provides yearly overview of road conditions and needs. Graphic: Brian Fraaiken

Larimer County's roadway system is valued in excess of \$400 million dollars; monitoring and preserving this investment is paramount to a responsible and effective government.

The Engineering Department maintains a **transportation report card** that utilizes annual road inspection data to quantify the overall state of County roads. This provides citizens and decision makers with essential information regarding both status and needs.

Managed in partnership with the Road and Bridge Department, the GIS-based asset management system, called **EXOR**, is an extremely valuable tool for identifying roadway needs and addressing citizen inquiries.

The annual asphalt **overlay program**, is planned, designed and undertaken together with the Road and Bridge Department. It provides surface improvement to maximize pavement life.

The **permitting program** ensures the integrity of the County's right of way.

Partnerships at Work!



Overseeing construction work on the completion and closure of a section of the Larimer County Landfill. Photo: Rusty McDaniel

Using a range of engineering design and construction management technical skills, the Engineering Department staff embraces partnerships with a variety of projects and departments.

The development review team works closely with the **Planning and Building Departments** to provide the technical review of development proposals, and ensure application and currency of the code and standards. DevRev staff (as they are commonly called), focus on customer service when working with applicants towards successful projects.

The Engineering Department provided design and construction management services to the **Solid Waste Department** for the Phase II closure at the Larimer County Landfill. This project included closure and reclamation of a section of landfill.

As the **Natural Resources Department** expands amenities in its Parks and Open Lands, engineering staff provides related planning, traffic, design, and construction management services. Work during 2008 included projects at Carter Lake, Hermit Park and more than two (2) miles of new road for the Red Mountain Open Space.

Engineering leadership and staff will continue to seek areas where interests, funding, and skills can be leveraged for the greater good of the Larimer County citizens.

Protecting Public Safety

The Engineering Department oversees a number of vital ongoing reviews that contribute to safeguarding the public.

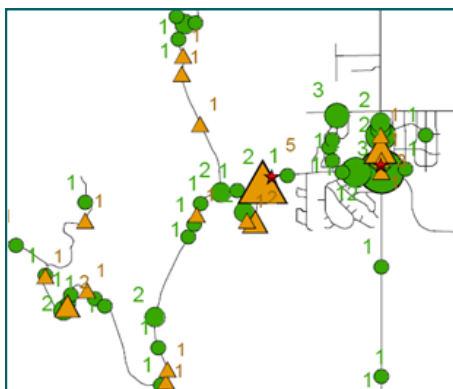
Bridge inspections quantify the structural integrity of the County's 203 major and 437 minor structures. This identifies issues for preventative maintenance and highlights trends for planning purposes. Careful attention in recent years has reduced the number of structurally deficient bridges in Larimer County.

The **Flood Review Board** helps protect against flood risks and ensures that new building or development is adequately protected.

The newly created **Low Cost Traffic Safety Program** formalizes (and funds) an annual effort to identify, analyze, prioritize and undertake traffic safety improvements along the County's mainline roads.



The Memorial Signing Program is a new endeavor. Citizen funded signs provide educational reminders to road users. Photo: Bill Glejforst



Mapping of vehicle accidents allows critical review of spot safety issues. Graphic: Brian Fraaiken

Community Connections

Without question, the strength and value of the Engineering Department comes from within the staff. While the daily technical responsibilities are a priority, the department also welcomes its role in the Larimer County community through education.

Summer Intern Program

The Larimer County Engineering Department offers the largest engineering summer intern program in the northern Colorado area. Approximately 10 engineering or construction management university students are hired each year to assist in department activities. The department benefits from a significant labor force that completes more than 1,000 miles of roadway condition inspections, hundreds of traffic counts, etc. Students gain valuable experience and insights into engineering work and governmental functions.



Summer intern completing water quality testing. Photo: Scott Cornell

Public Outreach / Education

Although the staff's daily tasks clearly require numerous technical skills, many of the engineering efforts in the department encompass a component of communication and dialogue.

Brochures, direct mailings, web information, community presentations, and event booths are all mechanisms used in the past year to introduce, inform, discuss, encourage and educate citizens in the County.

Engaging and Encouraging Tomorrow's Engineers

Each year on a Saturday in October, about 150 young boy scouts (Webelos) complete all the requirements for their engineering badge in just one day.



Introducing engineering to Scouts. Photo: Martina Wilkinson

This massive outreach and educational effort is a partnership with Colorado State University, and requires over 40 volunteers. The event is co-chaired by Engineering Department staff.

“Our Scouts had a great time. My son ... has decided he wants to be an engineer. You all did a great job communicating and relating to the kids!”

Matt Pickett, Webelos Den Leader

Public process efforts specific to a project (such as that undertaken for the Owl Canyon Corridor Project) are key in understanding concerns and refining project plans.

More general educational outreach this year included a Right-of-Way acquisition brochure, roundabout driving information, and a handbook for improvement district Board Members.

Stormwater education (see information at right) was also a focus and will continue to be expanded through 2009.

County Recognizes Two Engineering Department Staff



Brian Fraaken



Jerry White

The 2008 County Wide Employee of the Month celebration included two Engineering Department staff.

Senior Engineer **Brian Fraaken** does extensive work with the asset management system and performance management tools. Nominators called him ‘*indispensable*’, highlighted his “*amazing technical abilities*”, and deeply appreciate his commitment to projects and team members.

The nominations for Senior Land Agent **Jerry White** (who divides his time between the Engineering and Natural Resources Departments) included: *wise, diligent, efficient, and generous*. Also of note was that Jerry is exceedingly fair to both landowners and the County taxpayers. A nomination letter from an engineering co-worker eloquently stated: “*Jerry deserves the award for doing his job the way he ordinarily does it—which is extraordinarily well.*”



H₂O Jo is a raindrop mascot that teaches about stormwater issues. An informational guide with handy tips for protecting water quality was created by Engineering Staff and sent to 8,000 homes in Larimer County.

Planning for the Owl Canyon Corridor

Larimer County Engineering staff, with significant input from area citizens completed a corridor plan for the Owl Canyon area. The plan identifies the alignment for an eventual improved County Road.

The Owl Canyon area includes many miles of non-paved roads, some of which are carrying three times the traffic acceptable on non-paved roads, causing maintenance, safety, and air quality is-

sues. The corridor planning process included:

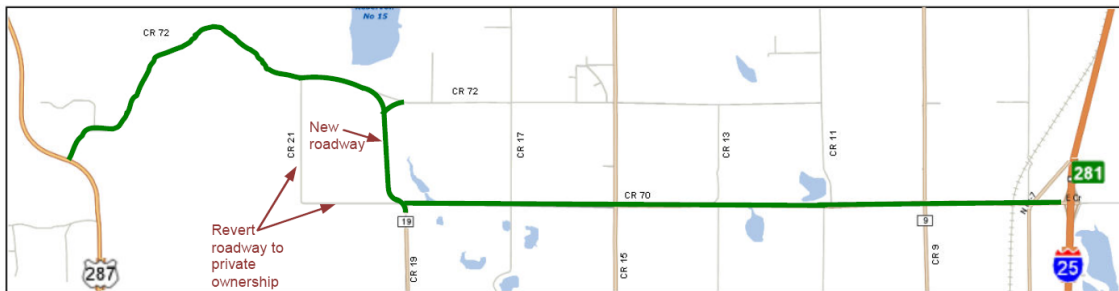
- Reviewing existing conditions,
- Establishing future needs,
- Evaluation of every roadway segment in the corridor ,
- Determination of three final alternative alignments in the corridor,
- Selection of a recommended alignment.

Through newsletters, open houses, web information, and various meetings, public involvement was a key component to the process. Interested citizens forwarded details and anecdotal knowledge, developed a weighting system for evaluation criteria, and provided feedback on various options.

Improvements along the approved alignment have been divided into phases to be completed as funding becomes available. Safety concerns in the corridor will be addressed first.

The completion of this plan eliminates decades of uncertainty regarding potential improvements in the corridor and allows for a thoughtful and systematic approach to future projects.

The final report is available at www.larimer.org/engineering.



The Owl Canyon Corridor Project identified an alignment for an eventual paved roadway in the area. Transportation planning, engineering analysis and extensive public input were combined to determine the roadway location, identify safety needs, and prioritize phasing.

Regional Cooperation Leads To Boxelder Stormwater Authority



Working with residents on Authority Plans. Photo: Paula Gamble

After years of effort, Larimer County, the City of Fort Collins, and Town of Wellington jointly created the Boxelder Stormwater Au-

thority to address regional stormwater concerns.

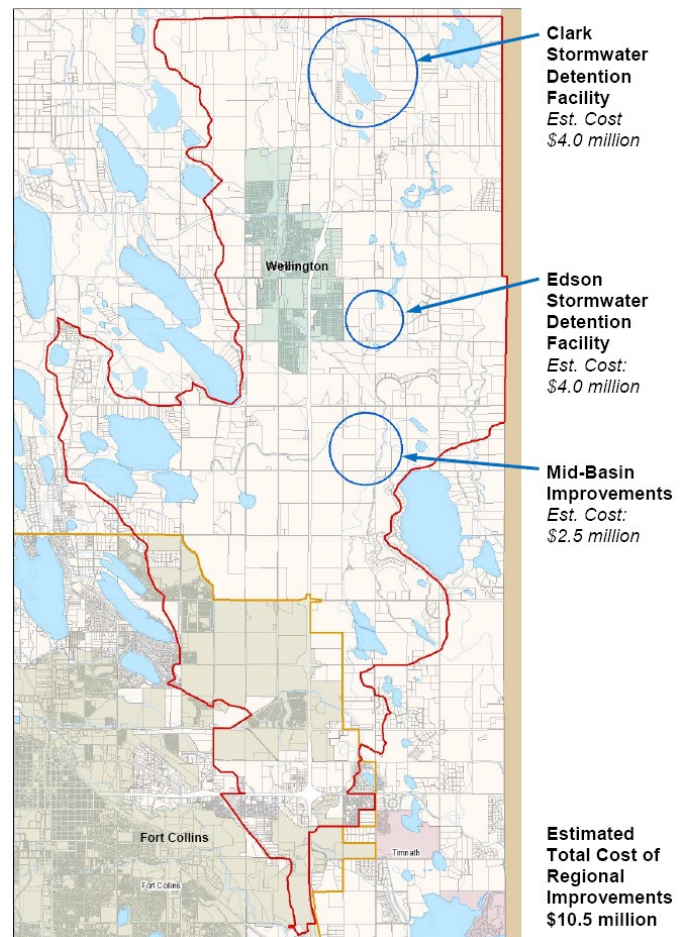
The Authority will design, construct and operate three regional stormwater management projects (shown at right). This regional solution will help mitigate flood risks and increase safety in much of the basin. The regional approach is more efficient and much less costly than completing a number of smaller, independent projects.

Funding for the improvements comes from stormwater user fees charged to developed properties in the area, and a \$3 million dollar grant received from FEMA.

Larimer County engineering staff oversaw development of the regional master plan, submitted the FEMA grant application, undertook extensive public outreach, and developed and evaluated various potential fee structures.

Construction is expected to begin in late 2009.

Regional projects are shown that will address flooding hazards throughout the Boxelder Basin Service Area.



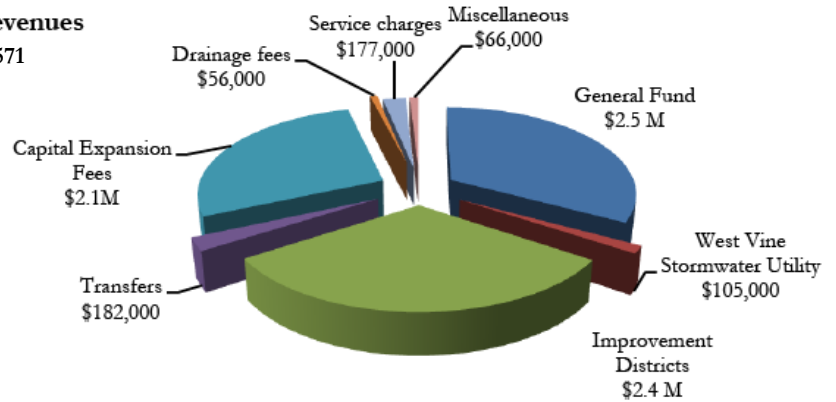
Summary of Finances

Engineering Department funding comes primarily from the County's general fund. For 2008, the budget for Engineering Operations totaled \$2.9 million and covered staffing, operating expenses and program costs for stormwater quality. General funds covered 87% (\$2.5 million for 2008) of the costs to operate the department.

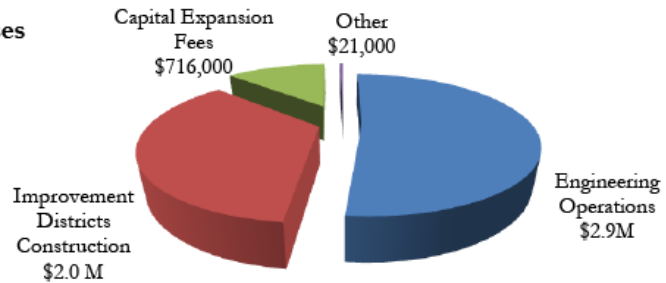
The Engineering Department also manages 34 active improvement districts and administers the transportation capital expansion fee program. The financials for these programs are reflected in the totals for the department. Expenditures in these programs vary from year to year depending upon the magnitude and timing of projects, and funds may carry over for use in subsequent years.

During 2008, the Engineering Department managed the construction of approximately \$ 6 million in capital improvements funded by the Road & Bridge Department, Department of Natural Resources and Solid Waste Department.

2008 Revenues \$ 7,560,571



2008 Expenses \$ 5,572,105



These figures are unaudited. Audit to be completed mid 2009.

Note: The Public Improvement district revenue and expense amount were unusually high in 2008 due to a bond sale and construction of 2 major projects.

Driving towards the Future

The American Engineers Council definition of civil engineering can be summarized as:

The creative application of knowledge and skills to realize a desired vision.

At Larimer County we embrace our technical specialties, and coupled with the County's vision, leverage them to engineer a better future for Larimer County. In this constantly changing world, we look forward to the transitions, challenges and opportunities of 2009 with the following focuses:

Regionalism. As the northern Colorado area grows, the distinction between entities narrows. In this era of extremely limited funding, regional cooperation and partnerships provide broader benefits, and can become vital to project implementation. In 2009 we're working with Loveland to im-

prove the CR 30/9 intersection and together with Weld County we're applying for a DOLA grant to fund a paving project. Larimer County's leadership as regional transportation issues begin to be addressed is critical.

Sustainability. Our existing transportation infrastructure is valued at more than \$400 million. We carefully manage these assets to maintain and sustain them for future generations. For 2009 this means broadening our data collection on the health of the system, and applying practical, environmentally-sensitive and cost-effective measures to address issues or make improvements. For example, when we replace a bridge, we do so knowing that it may need to remain in service for 50 to 75 years.

Technology. We'll continue to implement new technologies that offer improved efficiencies, cost savings and better access to information. This includes global positioning system (GPS) and robotic total stations for surveying, data loggers for mapping roadway assets and new technologies for rapidly com-

municating both internal to the department as well as more quickly making information available to our citizens.

People. The heart of every organization is the people within it. Our focus will continue to be in retaining the top notch staff, encouraging continued education and new innovations, and supporting the County and community.

We're committed and passionate about creatively applying our specialties in making Larimer County a better place to live and work – both now and in the future.



New bridges on CR 38E in the Masonville area addressed structural, stormwater and safety concerns. Photo: Charlie Johnson

Contact Information

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On the Web At:

www.larimer.org/engineering



Reviewing plans for work in the Public Right of Way. Photo: Frank Kurtyka



Overseeing asphalt work on CR 23 (Centennial Drive) near Horsetooth Reservoir. Photo: Marc Lyons



Helping customers at the counter Photo: Rusty McDaniel

Did You Know?

For every dollar **\$ 1.00** of county property tax paid,
The county receives about **25 CENTS.**
Of those 25 cents, **2 CENTS** is allocated to Public Works
and Highways.

In the past five years (2003 – 2008),
The Construction Cost Index increased **200% ↑**
(meaning that **\$1.00** in 2003 buys **\$ 0.50** of improvements today).

Meanwhile, annual funding for roadway capital improvements
has remained the same (**0% CHANGE**).

Public Works Division

Marc Engemoen, Director

Engineering
Fleet
Natural Resources
Road and Bridge
Solid Waste
The Ranch



This publication is
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