VERSATILE PERFORMANCE

Wheeled excavator handles numerous jobs
The Cat® 950 GC Wheel Loader provides governmental agencies with solid performance and ease of operation in a well-designed, durable machine that fits your budget.

The loader is well-suited for utility work, material handling and a wide variety of other governmental applications.

The Z-bar loader linkage provides excellent digging capabilities and strong breakout force through the use of load sensing hydraulics and Cat Performance Series buckets.

Load sensing hydraulics enables on-demand hydraulic flow and pressure for the implement system only in the amount necessary to perform the task at hand. Performance Series buckets feature a long floor, wide opening, and curved side plates for a 10 percent higher bucket fill compared to legacy designs. This improves cycle times and fuel efficiency.

The Cat Fusion™ quick coupler and controls enable the use of Cat attachments across multiple wheel loader models for added versatility. The quick-coupler control arrangement includes a dual tilt kick-out system for bucket return-to-dig and fork operations, selectable from the cab.

The 950 GC features best-in-class hinge pin height of 13 feet, nine inches and 12-foot loader arm clearance for easy loading of high-wall truck beds/trailers and charging of large hoppers.

The loader meets Tier 4 Final emissions standards with a fully automatic and passive regeneration system. This system lowers operating costs without the need for an ash service interval, and has an overall DEF consumption of just two to three percent of fuel burned. No operator intervention is required.

Visit our dealership or Cat.com to learn more about how the durable 950 GC Wheel Loader can meet your agency's material handling needs.

<table>
<thead>
<tr>
<th>Model</th>
<th>950 GC Wheel Loader</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine</td>
<td>C7.1 ACERT</td>
</tr>
<tr>
<td>Max Power</td>
<td>241 hp</td>
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<tr>
<td>Operating Weight</td>
<td>41,644 lb</td>
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<tr>
<td>Bucket Capacity (yd³)</td>
<td>3.75-5.75</td>
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<tr>
<td>Breakout Force</td>
<td>33,238 lbf</td>
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<tr>
<td>Static Tipping Load</td>
<td>25,701 lb</td>
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</tbody>
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**Motor Grader Upgrade**

Bit systems address unique road maintenance needs

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**Preventing Contamination**

How to keep fluids, components contamination free

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**A Better Way**

Leasing improves quality of fleet and road maintenance

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**Goodbye Machine Bounce**

Stable Blade automatically reduces instability

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**Versatile Performance**

Wheeled excavator completes multitude of jobs

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**Do It Yourself**

Tips for milling with a compact loader and cold planer

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**On the Cover:**

Jeff Daniels, road superintendent for the Del Norte, California, Road Division, utilizes a Cat® M313D Wheeled Excavator for everything from ditch cleaning to mowing.
On a road flanked by a grove of second-generation Redwoods, a Cat® M313D Wheeled Excavator clears a ditch to help keep water off the roadway. It is raining, just like yesterday and the day before that. Water runs down an asphalt driveway into a ditch, which carries a briskly running stream of runoff approximately six inches deep.

Rain doesn’t keep the Del Norte County, California, Road Division crew from the job. The wheeled excavator has the reach necessary to work from the paved roadway, staying out of the water-soaked ditch. This enables the crew to work, despite steady rainfall. This is essential in Del Norte, the farthest northwest county in California, which receives an average of 75 inches of rain annually.

With that much rainfall, drainage to keep water off roadways is the road division’s top priority. This is accomplished, in large part, by wheeled excavators cleaning ditches and culverts, and scraping shoulders of accumulated plant debris. “Maintenance is constant. With the long growing season, we’re constantly mowing, scraping shoulders, and cleaning ditches,” says Jeff Daniels, road superintendent.

Richard Mello, assistant road superintendent, adds, “There’s woody debris in the drainage, and brush grows in. An alder tree in this environment can grow five feet in a year. You either have to mow, brush, or dig out ditches at least every other year, or you’ll lose them.” Proper water flow to ditches maintains the integrity of county roads. “Water is the biggest destroyer of
roads,” Daniels says. “Once it gets into the base, you get road failure.”

**Dig Deep**

The Road Division is responsible for the maintenance of 302 miles of roadway. The wheeled excavator maintains all deep ditches along the county’s 200 miles of paved roads. “None of those are grader-pulled ditches,” Mello states. “They’re deep ditches. You can’t get a grader in there with all of the water.”

The M313D not only possesses the reach and power to dig out deeper ditches, it can also load excavated materials into trucks without the use of another machine.

The wheeled excavator has the fine touch required to work in small spaces like behind mailboxes and ditch sections inhabited by fish. “We have ditches that have fish in them, but which need to be cleaned for public safety and infrastructure reasons,” Daniels says. “We use the excavator to do it gently, and clean the little pieces that need to be cleaned.”

If a county road doesn’t have a ditch, it has some other sort of drainage like a culvert. The machine stays on the roadway to clean and replace culverts. “With the wheeled excavator on the pavement, you don’t make a mess. If you get off the road, you’re going to tear things up and then you’ve got muddy water going into a fish-bearing stream,” Mello says.

Cleaning shoulders to improve drainage is another common job for the machine. “We need to get water off the road to prevent hydroplaning,” Mello notes.

Crews use the wheeled excavator to place pipe, excavate, and place backfill for road construction and repair. The wheeled excavator recently replaced 300

(Continued on Page 6)
feet of water pipe at depths up to 23 feet. “That was during the wettest winter on record,’ Daniels says. “We’ll use it to set rip rap, too.”

**Down The Road**

During the dry season from mid-May through mid-October, the wheeled excavator works off-road. “With Ride Control and an oscillating front axle, it does very well climbing over rock piles and uneven surfaces in the foothills and the canyons,” Daniels says. “We get a lot of small slides in ditches, maybe a truckload or a half-truckload. The wheeled excavator can clean up one, then while the truck is going to dump debris from that job, he drives down the road to the next one.”

And the machine uses a mower attachment to mow overgrowth alongside roadways. “Sometimes ditches are overgrown, so we have to first brush it and then ditch it,” Mello says. “That’s machine versatility. We don’t have to change machines to complete multiple jobs.”

The wheeled excavator works approximately 700 to 800 hours annually. “It’s one of the tools in our tool belt. I’d say our most important one. It works more hours than any other machine in our fleet,” Daniels notes.

Del Norte County has used wheeled excavators since the 1960s. “It’s the most cost efficient way to get the work done,” Daniels states.

Rain or shine. ☀

“**We don’t have to change machines to complete multiple jobs. That’s machine versatility**”

**RICHARD MELLO,**
Assistant Road Superintendent
Del Norte County, California, Road Division

Purchasing a Cat® M313D Wheeled Excavator with a cooperative purchasing agreement through Caterpillar and the NJPA (National Joint Powers Alliance) saved time and money for the Del Norte County, California, Road Division.

The contract streamlined the process because it meets bid requirements, so the county didn’t need to conduct a local solicitation. The county could also specify features that ensured the machine exactly suited road division applications.

For instance, the county wanted a blade, which is used to move rocks, rather than outriggers. The machine’s hydraulics were plumbed to power a wide variety of attachments, including a clam bucket, ditch bucket, and mowing attachment.

Attachments help the machine complete a wide variety of jobs. With the wheeled excavator able to travel at speeds exceeding 20 mph, the machine is typically driven to jobs, saving on transport costs. One attachment is mounted on the machine, and if necessary, a second attachment is loaded onto the bed of a pickup truck for transport to the worksite.

“The crew can change the attachments in the field,” says Jeff Daniels, road superintendent. “The machine we selected has great maneuverability and quickness. It fits into tight spaces, gets beneath wires, and the buckets will fit into the back of a pickup.”

The agreement enabled the county to pass on unwanted items to help keep the purchase price down. “I didn’t order fenders because I know that they tend to get beat up,” Richard Mello, assistant road superintendent, says. “We got exactly what we wanted.”

Serviceability was a factor in purchasing the machine. NJPA enabled the county to go with Caterpillar, and avoid a manufacturer that meets machine specs but doesn’t have dealership and parts readily available to keep equipment up and running.

“We’re an island,” Mello says. “We have to go with the brand that has the dealer network, and Peterson Cat is right here. If we have a problem, we make a call and they’re here to help without spending a bunch of money.”
Six tips for successful milling with a compact loader and cold planer

Your agency can economically restore asphalt and concrete surfaces using a Cat® Cold Planer mounted on a compact loader. This combination is ideal for milling imperfections prior to resurfacing, removing deteriorated pavement, removing traffic lane stripes and jobs where the use of dedicated planers is limited.

Cat Cold Planers are designed for use on Cat Skid Steer Loaders, Multi Terrain Loaders, Compact Track Loaders, Compact Wheel Loaders and Backhoe Loaders. Working width on the cold planers ranges from 14 inches to 47 inches.

If your agency owns any of these loaders, you can rent or purchase a cold planer to complete a variety of milling projects without the expense of hiring a private contractor. Tips for successful milling:

- **Inspect bits before beginning work.** Ensure bits rotate freely in their holders and they are not broken or excessively worn. Replace any dull bits for best results.
- **When patching failing asphalt, mill damaged pavement to the soil subgrade.** Mill all of the deteriorated material to produce a stronger, longer-lasting base.
- **Cut at a seam or layer.** Milling at a seam or layer is easiest because the pavement is weakest or least dense at these locations. When possible, try to mill at the same depth the pavement was placed.
- **Don’t force the planer.** Pushing too hard can stall the machine. Working too slow can wear out bits prematurely and cause regrinding of material. When milling concrete or deep asphalt cuts, try reducing cut depth and slightly increasing travel speed. Make a second pass if necessary to achieve full-depth milling.
- **Clean debris from radiators to prevent overheating.** Cold planing can strain your machine’s hydraulic system. Periodically clear debris from radiators to aid in cooling.
- **Run the compact machine at full governed rpm when milling.** This provides the torque and tip speed for effective cutting.

Visit our dealership or [Cat.com/governmental](http://Cat.com/governmental) to learn more about Cat attachments and how they can help you improve the versatility and effectiveness of your agency’s fleet. 🌍
Contamination can be devastating to the performance and overall life of your machine's engine and hydraulic system, causing the machine to run inefficiently and possibly result in unscheduled downtime and costly repairs.

Typically, contaminants enter a machine through the fluid systems. Common contaminants include dirt, metals, weld spatter, paint flakes and rag fibers. Many contaminants are so small they are virtually undetectable by the human eye.

To prevent contamination, follow strict contamination control for fluids use and storage, service and repairs, and parts storage and handling. Contamination prevention efforts in your agency's shop should include:

- When servicing machines, measure particle counts to ensure oils meet Caterpillar standards specified in each machine's operation and maintenance manual.
- Filter all bulk oils prior to use. Oil supply lines should be equipped with a final filter. Delivered oil should meet the ISO 16/13 cleanliness target.
- Be sure that solvent stands are filtered to meet the ISO 16/13 cleanliness target.
- Removal and installation processes must be completed in designated areas only.
- Utilize designated assembly benches that are covered with durable plastic or rubber matting to protect sensitive parts.
- A concrete apron at service bay entrances prevents dirt and mud from being tracked into your shop.
- Implement dust control procedures in all shop areas, including the use of workshop doors.
- Maintain parts inventories in a clean environment. Use dedicated, work support stands that keep parts and components off the floor. Use wooden blocks for large components that are infrequently used and don't justify dedicated stands.
- Keep new parts in their original packaging until use.
- Seal floors to help keep your shop clean. Painting is unnecessary and can be difficult to maintain.
- Stand grinders must be located far enough away that metal flakes cannot reach assembly areas.

Contamination control improves uptime and keeps your fleet running efficiently. Visit Cat.com/governmental for more tips on how to keep your fleet in top condition.
**SIX WAYS TO ADD VALUE TO A NEW MACHINE**

Your work hard to stay within your equipment budget. There are ways to improve the value of the machines that you so carefully select. Here are six possibilities:

- **Add cost-saving technologies** – When possible, utilize automated grade control, compaction control, payload monitoring and other technology that enable your crew to finish jobs faster with less fuel, rework, and materials.
- **Consider a quick coupler or extra attachments** – Increasing machine versatility may enable one machine to do the work of two.
- **Consult with our experts** – A new machine may be capable of more than you realize. Our dealership’s trained professionals can help you discover key changes to system matches, job setup, workflow or operator technique that can improve efficiency by as much as 20 percent.
- **Maintenance discipline** – Good maintenance practices increase uptime, reduce unplanned failures and keep repair costs down. They also extend component life and enhance resale value.
- **Explore financing options** – Look for a lender who understands your agency’s challenges, such as Cat® Financial. Don’t just borrow money; seek out a professional who will help meet your agency’s objectives.
- **Think safety** – Bringing a new machine into an agency is a good time to evaluate your safety culture. Is your safety training relevant? Are there technologies or processes you could be using to improve safety?

Talk to the trained professionals at our dealership to boost equipment value, right from the start.

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**APWA CALENDAR**

Upcoming training and education programs from the American Public Works Association (APWA) include:

**Aug. 27-30, 2017**

The Public Works Expo (PWX) will be held at the Orange County Convention Center, Orlando, Fla.

For more information or to register online, visit APWA.Net/Events. Questions? Call the APWA’s Education Department at 800.848.2792.

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**NIGP CALENDAR**

Training and educational programs offered by the National Institute of Governmental Purchasing (NIGP) include:

**Aug. 27-30, 2017**

The NIGP Forum will be held in Salt Lake City, Utah.

**Sept. 18, 2017**

The course, Fundamentals of Leadership and Management, will be held in Salem, Ore.

**Oct. 11, 2017**

The class, Introduction to Public Procurement, will be offered in Denver.

For additional information or to register online, visit nigp.org. More details are also available by calling 703.736.8900.
Economics certainly play a part when road superintendents make equipment decisions. But if a superintendent is fortunate, or maybe really good, a machine choice that addresses a budget issue also helps improve road maintenance.

This is certainly the case in Winn Parish, Louisiana, where Road Superintendent Perry Holmes recommended leasing four Cat® 120M2 Motor Graders. “We don’t have a lot of tax money coming in for equipment, so leasing equipment is the best option for us. Caterpillar had the best price, and the best equipment,” he said.

The motor graders are equipped with Cross Slope, which operators are learning to use to improve crowning and road quality, on the parish’s 400 miles of unpaved roadways. Cross Slope automatically adjusts pitch on one side of the blade based on the operator’s input for more precise blading with less fuel consumption.

Washboarding, erosion, material displacement, and rutting are some of the challenges facing maintenance crews. Roads are a mix of materials, but mostly gumbo clays. “Soils are not forgiving. They’re hard to maintain,” Holmes said.

Top Priority
The motor graders, which each work 1,000 to 1,500 hours annually, are being leased for 36 months through Cat Financial and Louisiana Cat. “We run our motor graders every opportunity that we have, year-round” Holmes said. “If we keep the roads maintained, it saves on repairs of vehicles and prevents accidents. Our number one goal is to save lives and property.”

Operators like the visibility of the M Series machines. The V-style of the cab features floor to
ceiling glass that provides an improved view of the work area. “A big part of the safety of the machines is how well the operators can see,” Holmes said.

The motor graders are as comfortable as “a recliner at home.” Advanced Control Joysticks are a great asset. “Operators have greater control, and they aren’t leaning forward in their seats,” Holmes noted.

He added, “Any mechanical issue, Louisiana Cat has been spot on. I have the service manager’s personal cell phone number. If I have any issue with a machine, he said to call day or night. Their service department is top notch.”

Top flight service, machines, and road maintenance—and it all fits Winn Parish’s budget. ₳

LEASING OPTIONS AVAILABLE THROUGH CAT FINANCIAL

Leasing is a great way to make the most of your agency’s equipment budget. Cat® Financial offers two leasing options specifically for governmental agencies:

**Governmental Lease Benefits**
- Special low interest rates are available. The interest charge is typically less than the total cost of issuing a bond.
- May not require voter approval, as with a bond issue.
- Cancel your contract without penalty (on the last day of the appropriations period) if funding isn’t approved for the following year.

**Governmental Tax Lease Benefits**
- Monthly payments are generally lower than purchase contracts.
- Use equipment without concern of disposal.
- Voter approval may not be required, as with a bond issue.
- Cancel the contract without penalty (on the last day of the appropriations period) if funding isn’t approved for the following year.

A wide variety of agencies, such as states, counties, towns, municipalities, and non-traditional governmental entities including hospitals, schools, and water districts are eligible.

The experienced team at Cat Financial provides fast service. In most cases, transactions are approved and documents issued on the same day. Flexible terms—annual, semi-annual, quarterly, monthly and skip—are available to meet your agency’s needs.

Visit our dealership to discuss leasing options or CatFinancial.com to learn more about the ways that leasing can benefit your agency.
All roads are not created equal. Each unpaved road presents its own unique set of challenges. That’s why Cat® motor graders can be equipped with a variety of bit systems, each matched for specific conditions.

The Cat GraderBit System and the Rotating Bit System are the two most commonly used by governmental agencies. Both systems feature individual cutting bits with tungsten carbide tips that form a serrated or solid edge to penetrate and lift material to the surface immediately. This enables you to complete most road maintenance jobs in a single pass.
Cat GraderBit System

The GraderBit System is an excellent choice for uneven surfaces, and when your agency wants to control the size of aggregate that can pass through. GraderBit adapter board options are available in two- and three-foot sections, each with a choice of two different bit spacing systems to match your desired aggregate flow.

Large rocks are removed to reduce the likelihood of damage to cars, and the system provides an outstanding surface so your crews don’t need to grade as often. The GraderBit System provides between 10 to 30 times more life than standard cutting edges, and bits can easily be changed by operators on the job.

Taking into account hardware and labor, the system will also save your agency 25 to 45 percent over the life of the bit system compared to standard edges.

Four GraderBit types are available to meet your agency’s particular road maintenance needs:

Standard Bits
• Baseline bit – 30 mm wide
• Moderate penetration
• Standard Board Bit
  Gap – 32 mm
• Mining Board Bit
  Gap – 48 mm

Penetration Bits
• Narrower than standard bit – 23 mm
• Wider gap enables the passage of larger aggregate
• Standard Board Bit
  Gap – 40 mm
• Mining Board Bit
  Gap – 55 mm

Sharp Bits
• 50% narrower than standard bits – 15.5 mm wide
• Enables the passage of larger aggregate
• Standard Board Bit
  Gap – 45 mm
• Mining Board Bit
  Gap – 62 mm

Wide Bits
• Can be configured as a continuous edge
• Twice as wide as standard bits – 60 mm
• Standard Board Bit
  Gap – 3 mm
• Mining Board Bit
  Gap – 18 mm

Mix and Match
• Mix and match bits to control the size of aggregate left behind
• Wide bits on the moldboard’s end prevent excessive wear

By changing the bits, the GraderBit System can be adapted to meet the challenges presented by a wide scope of surfaces and conditions. You can tailor the gap between bits to enable larger or smaller aggregates to pass through. And you can create a near continuous edge for finish grading, snow removal and other applications where a straight blade edge is useful.

Rotating Bit System

Rotating bits are constantly rotating and moving so they wear evenly and are self-sharpening for more uniform wear and long life.

Carbide tips can last as long as five to 10 sets of conventional grader blades. Rotating Scarifier Bits are the choice for dirt and gravel reclamation, road reclamation, and snow removal.

Taking into account hardware and labor, the Rotating Bit System could be less than half the cost of running standard edges over the same time period.

Some of the Rotating Bit System’s advantages:
• Less Waste – Material is brought to the surface for reuse, reducing the expense of spreading new gravel
• No Restrictions – No cast angle restrictions with the system
• Easy Installation and Maintenance – Bits are changed individually with no special tools required.

Visit our dealership to learn more about the ways that the Cat GraderBit and Rotating Bit systems can improve the performance of your motor grader fleet and maintenance of your roadway system.
Maintaining unpaved roads is a challenging job. One of the keys to keeping an excellent road system is managing machine bounce in your agency’s motor grader fleet.

Machine bounce reduces road surface longevity, causes rework and the need for more frequent grading, and increases your agency’s operating costs and fuel burn.

Cat® Stable Blade for motor graders is an industry exclusive, first-of-its-kind, patented technology that senses bounce and automatically reduces engine speed at 15 percent intervals until the machine stabilizes. Then it increases rpm systematically until a pre-set level is reached. This produces a smooth, even grade.

There are other methods of reducing machine bounce—running in crab mode, cross rear tire pressure, or simply letting off the throttle—but none works as quickly and efficiently as Stable Blade.

The system proactively manages engine speed to prevent bounce. And it works automatically, so it couldn’t be easier for your operators to use.

Stable Blade is available from the factory for all current Cat motor grader models, and is available for retrofit on all M Series motor graders.

In addition to Stable Blade, other technology that can be installed on Cat M Series motor graders includes Cat GRADE with Cross Slope, Auto Articulation and Advanced Control Joysticks, these all help control your agency’s operating costs and improve your operators’ performance.

Visit our dealership or Cat.com/governmental to learn more about how Cat Stable Blade for motor graders and other technology built into the machines can benefit your agency.

To learn more and to receive a coupon for free Stable Blade Technology, visit Cat.com/StableBlade.* This patented system automatically detects and eliminates machine bounce, making it easier for operators to achieve smooth grades—in less time and at a lower total cost.

*Governmental buyers only. PO must be issued between Feb. 1, 2017 and December 31, 2017. Eligible models: New Cat 120M2, 120M2 AWD, 12M3 AWD, 140M3, 140M3 AWD, 160M3, 160M3 AWD. Not available on existing inventory, new orders only. Machine must be ordered with Stable Blade option (458-2072), valued at $2590 list price.
Q: What is S•O•SSM Services Coolant Analysis?
A: Simply put, this is the sampling, testing, and diagnosing of the operating condition of a machine’s coolant to improve fleet management and reduce operating costs.

Q: Why is coolant analysis important?
A: With today’s diesel engines running at higher temperatures than in the past, analysis helps prevent cooling system issues and possible engine failure.

Q: How does it work?
A: The two-level coolant analysis program determines if your cooling system has the right chemical balance for maximum protection and efficiency. Level One Coolant Analysis helps uncover any major problems with coolant and predicts possible problems. Level Two Coolant Analysis provides an extensive chemical evaluation of the coolant and the overall condition of the inside of the cooling system.

Q: How does the information help machine performance?
A: The comprehensive tests identify four areas of concern: 1.) Coolant degradation products 2.) Cooling system problems 3.) Probable causes of problems 4.) Repair priorities. The two-level program is a quick, easy way to evaluate the effectiveness of your cooling system. Contact our dealership for more information.

6 REASONS TO CHOOSE CAT® S•O•SSM SERVICES

1. Results you can trust—Designed by Cat scientists and backed by product engineers, worldwide testing standards ensure consistent quality for accurate results.

2. Sophisticated Trend Analysis—Samples are evaluated based upon complete product knowledge, fluid properties and analysis of data points from a multitude of samples.

3. Stay Within Budget—A sampling schedule set to meet your agency’s fleet management needs helps you save money by fixing issues before they become serious. Scheduling service when convenient helps keep uptime high.

4. Complete Information—Integrating fluid data with other condition monitoring information provides insight into fleet health, performance, location and more.

5. Mixed Fleets Covered—To meet your fleet needs, analysis can be provided for machines other than Cat.

6. Wide Variety of Fluids—The service covers oil, coolant, and diesel fuel samplings for the many different equipment types in your fleet.
FLEET MANAGEMENT MADE SIMPLE

Fleet management is one of every agency’s top goals. Cat® Product Link™ is an easy, effective way to improve fleet management. The telemetric system provides accurate, timely, and useful information about the location, utilization, and condition of your machines.

Product Link transmits fleet information via cell and satellite. The corresponding web-based application, VisionLink®, enables customized health and utilization reports delivered to your computer, tablet and/or smart phone.

Visit our dealership or Cat.com/governmental to learn how to use Product Link and VisionLink to improve your agency’s fleet management.

MEETING YOUR AGENCY’S FINANCIAL NEEDS

With flexible terms, up to 100 percent financing for qualified entities, non-appropriations clauses, and insurance support, Cat Financial helps meet the specific financial needs of governmental agencies. Whether you’re buying equipment, protecting your investment, managing your accounts, or preparing for the future, the comprehensive financing and insurance solutions at Cat Financial can help make the most of your agency’s resources.

Visit our dealership or CatFinancial.com to learn more about the services available to help reach your agency’s budgetary objectives.