

WHITE PAPER

660 Minutes: How Improving Driver Efficiency Increases Capacity



With the recent suspension of some Hours of Service regulations and much discussion surrounding future changes, it is important to attain a thorough comprehension of the legal driving limits for commercial motor vehicles (CMVs). Perhaps most significantly, it is necessary to understand both the limitations and requirements of the 660 minutes – or the 11 Hour Driving Limit. This component of the Hours of Service regulation is key to increased driver utilization and optimization.

This paper will provide perspective on attaining the greatest value from these 660 minutes. Included below is a real-world example of a driver's day, included to broaden understanding of these often misunderstood regulations. Another portion of this paper will identify ways to make improvements on industry inefficiencies and become a "shipper of choice." Finally, there will be a short analysis of upcoming regulations, identifying stressing forces on driver utilization and capacity coming between 2015 and 2018.

If you would like more information regarding Hours of Service, please review these related documents:

- > [What are the Hours of Service?](#)
- > [Recent changes to Hours of Service](#)



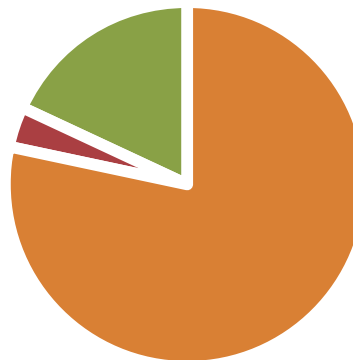
The Hourglass vs. the Stopwatch

In many ways, capacity shortage and driver inefficiency are a result of misinformation surrounding Hours of Service. Think of a driver's time as that of an hourglass, a perishable commodity which is continually diminishing. Whereas in the past a driver could, much like a stopwatch, start or stop his or her clock depending on the activity, a driver today cannot log time waiting at a shipper location or making a delivery as "off duty." Once a driver begins his or her safety check at the start of the workday, the clock is running down without pause.

According to Hours of Service, a driver's "on duty" time totals 840 minutes, or 14 hours, with a DOT-required 30 minute break.¹ Of the 810 remaining minutes, 660 minutes can be spent driving. That leaves just 150 minutes for all other activities, including pickup, delivery, safety inspections and shutdown. It is not uncommon for live loading and unloading alone to require more than 150 minutes. Any time spent beyond the 150 minutes performing these activities cuts into driving time, generating inefficiency.

Minutes of activity in a 14-Hour Duty Day¹

- **660 minutes** of driving per day maximum
- **30 minutes** mandatory break
- **150 minutes** on duty, not driving

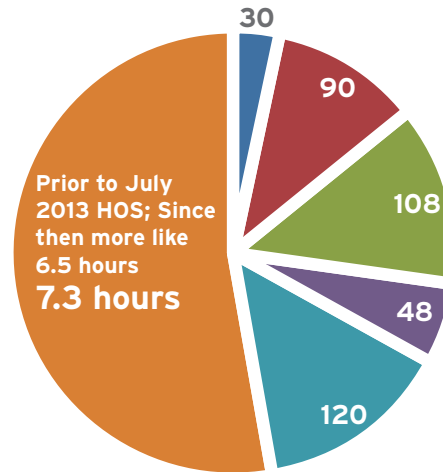


Real-World Application: Doing the Math²

A recent study by BB&T spanning more than a year and measuring a fleet of over 5,000 trucks found that, since the July changes to Hours of Service, an average 390 minutes (6.5 hours) of the 660 minutes of available driving time are spent behind the wheel.² This signals a 48 minute (0.8 hour) drop in actual driving time since the July, 2013 Hours of Service change. Other time-consuming activities cited in the study included empty drive time, appointment inflexibility and time spent at the shipper or receiver location.² A loss of minutes, even hours when multiplied over many loads, can create a severe impact on capacity.

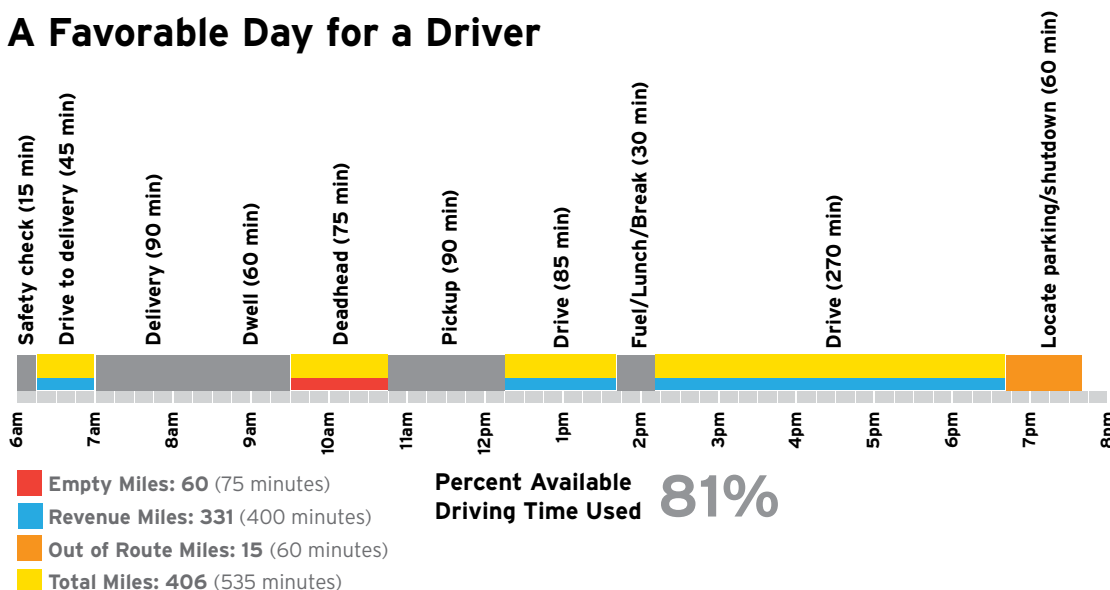
A Driver's 14-Hour Day (840 Minutes)²

- **Prep Time 30 mins:** pre-trip inspection, fuel, infrequent-mandatory inspections
- **Personal Time 90 mins:** breaks, meals, communications, route planning, manual logging as necessary
- **Time at Shipper/Receiver 108 mins:** inefficient appointments, paperwork, check-in, check-out
- **Drive Time Empty 48 mins:** holidays, surges, traffic, day of week bookings
- **Inefficient Time 120 mins:** appointment times, parking issues, fatigue, 70-hour rule, planning uncertainty, day of week bookings
- **Drive Time 438 mins:** most fleets believe they can add 30-75 minutes with shipper/receiver help



These time-consuming activities can provide further insight into the inefficiency outlined by BB&T. Represented below is a reasonably "good day" for a driver. He drives for a total of 406 miles, or 535 minutes, which is well above the average 390 minutes presented by BB&T. He spends only 30 minutes to fuel up, grab lunch and take his break. In reality, when drivers are required to stop moving, a "30-minute break" can exceed 45 minutes to an hour, allowing them time to find a place to park, perform necessary paperwork and fuel up. BB&T recently found that, in relation to the required 30-minute break, they "have yet to find a fleet whose drivers average fewer than 42 minutes."³ Therefore, the driver day represented below could be considered favorable.

A Favorable Day for a Driver



Despite having a "favorable" day, the driver in this situation has forfeited at least two hours he could have spent on the road. Excessive time spent at the delivery and the pickup (three hours in total), as well as time spent looking for a safe place to shut down

(60 minutes spent driving 15 miles out of route), has occupied valuable hours of his driving time. If the shipper and receiver had reduced delivery and pickup time by 30 minutes each and had provided onsite parking for the driver, the resulting two hours of time could have been put towards the driver's next load. Traveling at 50 miles per hour, these two hours would have become 100 miles for the day.

TIME LOST	Delivery	30 min
	Pickup	30 min
	Looking for parking	+ 60 min
		<hr/>
		2 hours per day (120 min)
Average speed	X	50 MPH
		<hr/>
		100 miles forfeited per day

That amount may seem small, but imagine losing those 100 miles on a larger scale. If a driver is on the road 250 days out of the year, with the same scenario represented above, he or she will sacrifice 25,000 miles over the course of the year. Assuming 700 total miles per load, given an industry average 639 mile length of haul plus reasonable empty miles⁴, these 25,000 lost miles will become almost 36 unavailable loads. Across a fleet of one hundred drivers, that's almost 3,600 unavailable loads in a single year. If a load averages 700 miles and all drivers average 50 miles per hour, that's equivalent to 2.52 million forfeited miles or 50,400 forfeited hours.

Miles lost per day		100 miles
Driving days per year	X	250 days
		<hr/>
		25,000 miles forfeited per year
Average miles per load	÷	700 miles
		<small>(639 miles per load + 61 reasonable empty miles)</small>
		<hr/>
		36 unavailable loads per driver per year
Sample fleet size	X	100 trucks
		<hr/>
		3,600 forfeited loads per fleet per year
		<small>Equivalent to 2,520,000 miles or 50,400 hours</small>

Translating those 3,600 unavailable loads into trucks taken off the road is even more insightful. If a truck travels, on average, the 406 miles represented in the "favorable" day above and a single load averages 700 miles, that truck can complete 0.58 loads per day. Multiplied by 250 days on the road per year, a single truck can achieve 145 loads per year. Thus, those 3,600 lost loads translate to almost 25 trucks no longer on the road. This is a huge amount of capacity that is no longer available to the marketplace.

Sample daily miles per truck	406 miles
Average miles per load	÷ 700 miles
	0.58 average loads per day
Driving days per year	× 250 days
	145 loads per truck per year
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Yearly forfeited loads	3,600
Yearly loads per truck	÷ 145
	25 trucks off the road per year

The reality of this situation is that any activity the driver performs once his or her clock starts, whether waiting at a shipper location or performing a safety check, are draining his or her “on duty time.” Though this driver has worked a full day, he has spent valuable hours in a way which is not beneficial to the shipper or the carrier.

Optimizing a Driver's 660 Minutes

The day presented above is just one unique example. In exploring driver utilization, it's important to understand the many factors inhibiting driver hours, diverting assets and creating inefficiency. Less time driving results in lower utilization, tightening capacity and increased rates.

In order to maximize limited resources, it is necessary to identify common, time-consuming activities and eliminate or consolidate them. Listed below are some often unconsidered activities and ways in which to optimize these hours:

Loading and Unloading Times

(Eliminate 60 minutes per day = 12,500 yearly miles gained per driver)

The time a driver spends at a dock supervising, assisting or simply waiting on freight to be loaded or unloaded must be clocked as “on duty time.” BB&T found that time spent at the shipper and receiver, not including appointment time, averaged 108 minutes.² When considering the 150 minutes allocated to all activities other than driving, it quickly becomes apparent that a driver who averages two hours each at a pick-up and delivery is not operating at peak efficiency. The driver must extend beyond the 150 minutes allocated as “non-driving time” and use portions of his or her 660 minutes of driving time to accommodate time at the shipper or receiver. This is without considering the additional time necessary to perform safety checks or search for a place to shut down.

With such limitations on drive time, it is important to examine whether two hours at

the delivery or pick-up is a reasonable wait time. Some carriers would suggest instead a maximum one hour wait time as industry standard and “best practice” for shippers and receivers, as this could drastically increase average drive time, presented to be 6.5 hours by BB&T.² By eliminating just 30 minutes at the shipper and 30 minutes at the receiver, a single driver could remain on the road for an extra hour each day, equivalent to 50 miles per day or 12,500 miles per year (assuming 250 days spent on the road per year).

Drop and Hook vs. Live Unloading

(Eliminate 48 minutes per day = 10,000 yearly miles gained per driver)

Utilizing drop trailers to handle trailer moves within a facility can allow drivers to return to the road. A recent J.B. Hunt study found that the average difference in time between a drop and hook and a live unload was 0.4 hours of wait time, 0.8 hours of service and detention time and -0.4 hours of dwell. In total, drivers spent 0.8 *more* hours (48 minutes) at a live unload than a drop and hook. If a single driver averages 50 miles per hour, that’s 40 forfeited miles per day or 10,000 forfeited miles per year (assuming 250 days spent on the road per year).

Average Drop and Hook vs. Live Unloading Time				
Stop Type	Occurrences	Avg. Wait Time	Avg. Service + Detention Time	Avg. Dwell Time
Drop	244,904	0.1	0.7	1.1
Live	215,246	0.5	1.5	0.7

Inflexible Pickup & Delivery Times

(Eliminate 45 minutes per day = 9,375 yearly miles gained per driver)

When shippers make pickup and delivery times more flexible, carriers are better able to accommodate shipping schedules while maintaining compliance with Hours of Service regulations. In general, carriers have greater driver availability on weekends and evenings. According to Supply Chain Brain, “It’s becoming very valuable to be a 24/7 shipper - if your facility can ship around the clock, seven days a week, that’s a tremendous asset to the carrier.”⁵

Furthermore, inflexible appointment times create unnecessary detention time and dwell. Proposed on April 29th, 2014, Section 5507 of the GROW America Act would grant the Secretary of Transportation authority to “issue regulations that would require motor carriers to compensate drivers for detention time and other similar non-driving work periods at a rate that is at least equal to the federal minimum wage.”⁶

In other words, any “on-duty” activity performed by a driver other than driving must be compensated. This includes detention times and dwell times.

Detention time - the appointment time has passed, but there are still uncompleted activities at the shipper or receiver location

Dwell time - time between delivery and pickup of next load, often due to inflexible appointment times (not to be confused with intermodal dwell)

Detention time and dwell can create inefficiency and contribute to higher rates for the shipper. In a recent study by research firm Transport Capital Partners (TCP), 75% of motor carriers polled thought freight was sitting on the shipper's dock.⁷ This suggests not only an overconsumption of driver hours at the shipper, it signals discrepancy between shipper and carrier expectations.

In the example of a driver's day above, our driver spent an hour waiting between delivery and pickup of his next load. Creating flexibility in appointment time enables the driver to almost entirely eliminate dwell. For example, if our driver had been able to get back on the road 15 minutes after his delivery, rather than wait 60 minutes, he would have been able to spend 45 more minutes on the road that day. Traveling at 50 miles per hour, those 45 minutes convert to 37.5 miles per day or 9,375 miles per year (assuming 250 days spent on the road per year).

Shutting Down

(Eliminate 60 minutes = 12,500 yearly miles gained per driver)

Often the transportation industry is confronted with the concept that, when a driver's clock expires, he or she pulls over and goes to sleep. This is simply not the case. A driver can spend over an hour searching for a safe, legal location to shut down and must budget this time accordingly. If a driver spends 60 minutes seeking out parking and drives, on average, 50 miles per hour, then 50 miles have been lost per day. For a driver spending 250 days on the road per year, that's 12,500 miles lost per year.

How can this time searching for parking be eliminated? When shippers provide onsite parking and amenities, a driver does not spend time locating a parking spot at the end of a shift. Providing drivers with greater available time on the road, as well as making shut down quick and accessible, can increase overall carrier efficiency and encourage driver safety.

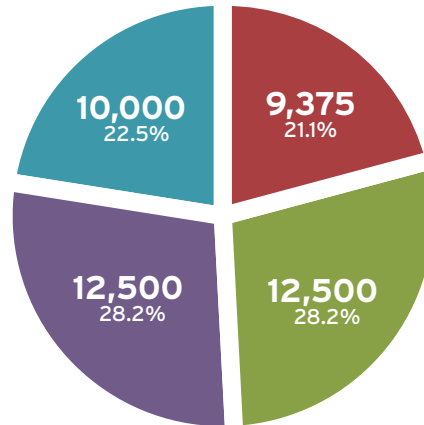
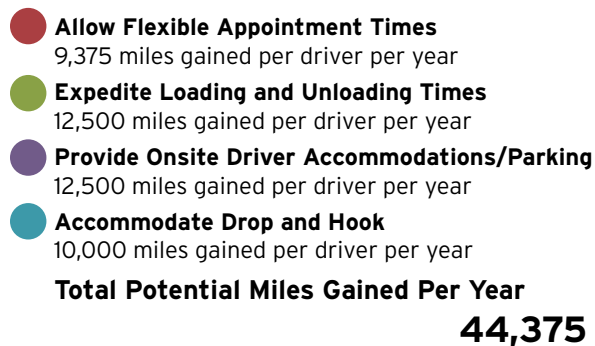
Inconsistent Loads and Lanes

Inconsistencies in loads and lanes create many challenges for carriers and can significantly delay the driver. Minimizing cancellations and short lead times, avoiding multi-stop loads (which create opportunity for increased wait times) and eliminating variation in shipment days and times can create a more predictable schedule, which can more readily optimize driver hours.

Totaling the Numbers Using Shipper Best Practices

As identified above, there are several immediate actions which can be taken to better utilize driver hours and effectively increase capacity:

- Allow Flexible Appointment Times **(9,375 miles gained per driver per year)**
- Expedite Loading and Unloading Times **(12,500 miles gained per driver per year)**
- Provide Onsite Driver Accommodations/Parking **(12,500 miles gained per driver per year)**
- Accommodate Drop and Hook **(10,000 miles gained per driver per year)**



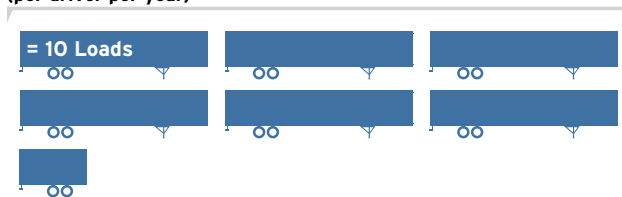
If the driver in our example could achieve "the ideal," in which all four of these actions were taken consistently and executed at peak efficiency, he could have increased his productivity. In fact, he could have saved enough time to travel 44,375 miles farther per year.

Assuming that a load is 700 miles, as calculated above, that's 63 additional loads the shipper could have harnessed from one driver in one year. Effectively, this change would have allowed three drivers to pickup and deliver a greater number of loads than every four drivers accomplish today (assuming each driver picks up and delivers 145 loads per year today). That's a more than 33% increase in productivity per truck per year - equivalent to at least 25 trucks of additional capacity. This is without considering the positive impact created when shippers offer consistent loads and lanes, as well as engage in proactive communication with their carrier.

Capacity Increase with Change in Practice

63 Additional Loads

(per driver per year)



equivalent to at least 25 trucks of additional capacity
(Assuming a fleet size of 100 trucks)

Becoming a Shipper of Choice

Further efficiency of driver hours can be achieved when shippers create long-term, strategic partnerships with their carriers. According to a recent article by Supply Chain Brain, “Economic conditions are improving, and capacity is tightening, giving carriers the luxury of choosing those accounts that are most profitable.”⁵

Becoming a Shipper of Choice is about providing consistent freight, maintaining a flexible delivery window, creating positive conditions for drivers and working with the carrier to generate a more efficient network. Listed below, in no particular order, are some key traits often considered in shippers:

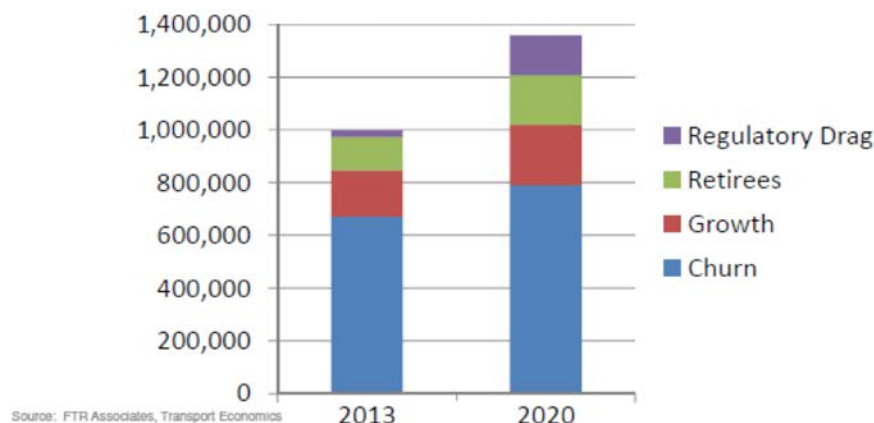
- Flexibility
- Attentiveness to Driver Hours
- Proactive Communication
- Driver Accommodation
- Load and Lane Consistency
- Expedited Payment Terms

For more information, please review our handout on [Becoming a Shipper of Choice](#).

Regulations and the Impact on Capacity

Why is it necessary for shippers and carriers to optimize driver hours? Capacity is finite. As discussed in our recent **Industry Challenges White Paper**, downward capacity pressures combined with freight volume growth are creating a tight market for some trucking services.⁸ According to the American Trucking Association (ATA), roughly 96,000 new drivers are required annually to keep pace with demand. If freight demand grows as expected, the annual driver shortage could balloon to nearly 240,000 by 2022.⁹

Trucking Faces a 36% increase in average hiring requirements¹⁰



Capacity constraints are worsened by regulatory pressures, forcing carriers to locate, hire and train more drivers to haul the same freight quantities. Several studies suggest increasing regulations, such as Hours of Service, have actually been a catalyst for driver turnover. On average, the hiring requirements for jobs in trucking have seen a 36% increase.¹⁰ Stifel, Nicolaus & Co., a Wall Street investment firm, has presented research suggesting that, despite the suspensions made in December, the changes to Hours of Service enacted in July 2013 are suppressing capacity at 2% to 3%.¹¹

Furthermore, a wave of regulations likely to hit 2015 through 2018 will prompt serious capacity concerns and rising cost pressures. The full impact of revised Hours of Service rulings won't be absorbed until the use of Electronic Logging Devices (ELDs) becomes mandated. An average 5% drop in productivity has been experienced by fleets in the first 9-12 months of incorporating ELDs into their operations.³

This and other upcoming regulatory changes could create a much greater impact on capacity than the current Hours of Service, constraining the environment in 2016 more than the December 2014 change relieved.

For more information, review our handout on [Regulations and the Impact on Capacity](#).

660 Minutes - Final Thoughts on Hours of Service

There are many pressures acting upon capacity and many upcoming regulations which could inhibit driver hours. It is necessary for shippers and carriers to not only attain a strong understanding of Hours of Service, but also to pursue best practices for improved driver utilization. Capacity constraints are worsened by increasing regulatory pressures, forcing carriers to locate, hire and train more drivers to haul the same freight quantities. As the economy begins its recovery and capacity tightens, shippers can create strategic carrier partnerships by treating driver hours as a perishable commodity on a running clock and by taking action to minimize excess time spent off the road.



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About J.B. Hunt

J.B. Hunt Transport, Inc. is a transportation logistics company focused on providing safe and reliable transportation services to a diverse group of customers throughout the continental United States, Canada and Mexico. Utilizing an integrated, multimodal approach, we provide capacity-oriented solutions centered on delivering customer value and industry-leading service. Freight solutions include Intermodal, Truckload, LTL, Dedicated and Refrigerated.

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