PrePass®

The Pros and Cons of Truck Tolling by Plate

What you need to know about unmanaged plate tolling vs tolling management solution

Most major toll roads are transitioning to **"all electronic tolling" (AET)**, a system that allows motorists and truckers to save time through "open road tolling," enabling them to maintain highway speeds without stopping.

AET operates in two primary ways: toll by plate and toll by transponder. Toll by plate captures images of license plates on trucks and trailers to identify users, while toll by transponder relies on a small, battery-powered device that communicates with toll authorities via radio signal.

Both methods eliminate the delays and inconvenience of toll tickets and booths, but they differ significantly in how they collect tolls—and those differences can directly impact your bottom line as a toll road user.

Let's break down the steps involved in a toll charge and explore the **pros and cons** of each method to help you choose the best option for your fleet.

1 Identifying The Vehicle Class Using the Toll Road

Toll by Plate:

This method relies on embedded loops in the pavement or overhead readers to detect vehicles and count the number of axles as they pass. Since most toll roads calculate charges based on the number of axles, this data is essential. Some toll facilities also account for trailer length or height of trailers in truck combinations, using roadside readers to measure these dimensions for accurate tolling.

Toll by Transponder:

While toll agencies still use embedded loops to count axles, transponder-based tolling simplifies the process. Vehicle classification details, such as weight and type, are already stored in the transponder. Using radio frequency identification (RFID), the transponder mounted on the windshield communicates directly with antennas in overhead gantries, streamlining toll collection and improving accuracy.

2 Matching the vehicle plate to owner's account

Toll by Plate:

This method uses cameras, often called "license plate readers" (LPRs), mounted above the road to capture images of vehicle license plates. Since not all states require front license plates, these systems typically rely on rear license plate images.

Toll agencies attempt to match the captured plate photo or video to the vehicle's registered owner. For in-state plates, agencies can access registration records directly, but for out-of-state plates, they often depend on third-party vendors—a cost passed on to users through "video tolling" or "plate read" fees.

However, toll by plate faces significant challenges beyond matching photographed license plates to vehicle registration records. Environmental factors like rain, sleet, snow, fog, and dirt accumulation on cameras can obscure plate numbers. Plates themselves may also be smudged, damaged, or obscured by mud, slush, or road debris, while flat lettering may be harder to read than raised lettering.

When cameras fail to accurately capture plate numbers, errors in matching can occur. This leads to **incorrect billing or billing the wrong vehicle owner.** Even when toll by plate matches are correct, blurred images may require manual matching of photographs to vehicle registration lists, adding to administrative costs. These additional expenses are passed on to fleets in the form of **higher "plate-read" rates.**

Toll by Transponder:

In contrast, transponder-based tolling avoids these issues entirely. Weather conditions and dirty plates do not affect performance, and matching plates to vehicle registration records is rarely needed. Transponder owners have pre-established accounts with toll authorities, enabling automatic toll assignment once the transponder is read. This streamlined process reduces errors and eliminates the extra administrative costs associated with plate tolling.

3 Customer Billing for Tolls

Toll by Plate:

A Minnesota DOT toll road study revealed that with toll by plate, the toll is assessed when the registered vehicle owner is charged—not at the moment the camera captures the license plate. This delay occurs because of the administrative process required to match license plate images with vehicle registration records, compounded by challenges such as blurred or unclear photographs.

With toll by plate, toll roads **often face delayed payments** compared to toll by transponder, leading to increased business costs. Additionally, commercial users like motor carriers cannot track toll by plate charges in real time due to the lack of established accounts. This makes toll charge recovery more challenging, increasing the likelihood of missed payments. As a result, toll roads charge higher rates for toll by plate to offset these added costs and risks.

Another drawback of toll by plate is the reliance on manual paper invoices. Each invoice sent to customers by toll authorities has a 'due by' date, and failure to pay on time can result in additional fees and penalties. For instance, a **$1.50** toll can quickly escalate to **$20–$50** or more due to violation fees, taxes, and other penalties. This makes toll by plate not only less efficient but also significantly more expensive for users.

Source: https://mdl.mndot.gov/items/m17416

PrePass provides a **Violation Prevention** Service that ensures continuous plate enrollment for your vehicles, even during periods of fleet maintenance. This means your plates stay enrolled in toll systems that allow plate-only tolling, even while vehicles are being updated with new transponders. The service also offers coverage when plates are temporarily removed from a device, helping prevent violations and ensuring seamless toll management.

Toll by Transponder:

Users have established toll accounts, allowing charges to be assessed immediately. While toll roads still send a printed monthly invoice to the address on record, transponder owners can view charges shortly after they are posted using software like INFORM™ Tolling from PrePass. This early access gives fleets a significant advantage, allowing them to review and address any discrepancies well before the mailed invoice arrives. And because charges are promptly recorded and payment is virtually guaranteed, toll authorities can offer discounts for transponder users to encourage adoption.

PrePass customers enjoy the **convenience of using a single transponder** across multiple toll agencies, paired with a consolidated invoice for all toll charges. This is a significant advantage over toll by plate billing with numerous invoices from different toll agencies. Additionally, PrePass automatically applies any available toll volume discounts, maximizing savings for its users.

How do toll charges in the U.S. compare between toll by plate and toll by transponder?

Pennsylvania Turnpike: Traveling from Pittsburgh, PA to Trenton, NJ.

- 5-Axle tractor-semi
- Low profile 7'6"
- 25,000 lbs

Sources: https://www.paturnpike.com/toll-calculator
https://www.paturnpike.com/toll-calculator

Toll by Plate:

$173.60

Toll by Transponder:

$85.90

Cost Saving:

$87.70

Colorado: Traveling from NW I-25 interchange to the Quincy Avenue interchange

- 6-Axle tractor-semi
- Noon to 9 am

Source: Toll Calculator Express Toll | E-470Toll Calculator Express Toll | E-470

Toll by Plate:

$90.25

Toll by Transponder:

$53.95

Cost Saving:

$36.30

Kansas Turnpike: Traveling from Guelph Township to I-670 in Kansas City

- 7-Axle vehicle

Source: Toll Calculator Express Toll | E-470Toll Calculator Express Toll | E-470

Toll by Plate:

$122.26

Toll by Transponder: (Express)

$61.13

Cost Saving:

$61.13

According to the Maryland Toll Authority,

"Video Toll rates are 1.5 times the based toll rates with a minimum of $1/maximum of $15 above the base rates. Video toll rates are the highest rates to offset the higher cost of processing Video Tolls."

Source: How Video Tolling Works in Maryland | DriveEzMD.comHow Video Tolling Works in Maryland | DriveEzMD.com

In summary, while toll by plate shares some advantages with toll by transponder, its drawbacks can significantly impact both motor carriers and toll authorities:

Toll by Plate Pros:
- Ideal for infrequent toll road users, as it eliminates the need to establish an account.
- Can capture tolls from any vehicle with a visible license plate.
- There are no upfront costs to the customer.

Toll by Plate Cons:
- May incur significantly higher charges compared to toll by transponder.
- Can lead to improper billing due to mismatches between license plate numbers and vehicle registrations.
- Charges are not immediately visible, making it difficult for users to monitor expenses or dispute inaccuracies in a timely manner.
- Late payments on toll by plate invoices often result in additional fees and fines, further increasing costs.

While toll by plate offers a notable improvement over traditional toll booths and manual transactions, toll by transponder is a more advanced and efficient solution in nearly every aspect.

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Contact PrePass today to discuss your tolling needs.

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