

# Marriage of ITS & Toll Technologies

## Gantry Controlled Access: Georgia's Electronic Barrier & Enforcement System

**Christopher Tomlinson**  
*Deputy Executive Director & General Counsel*

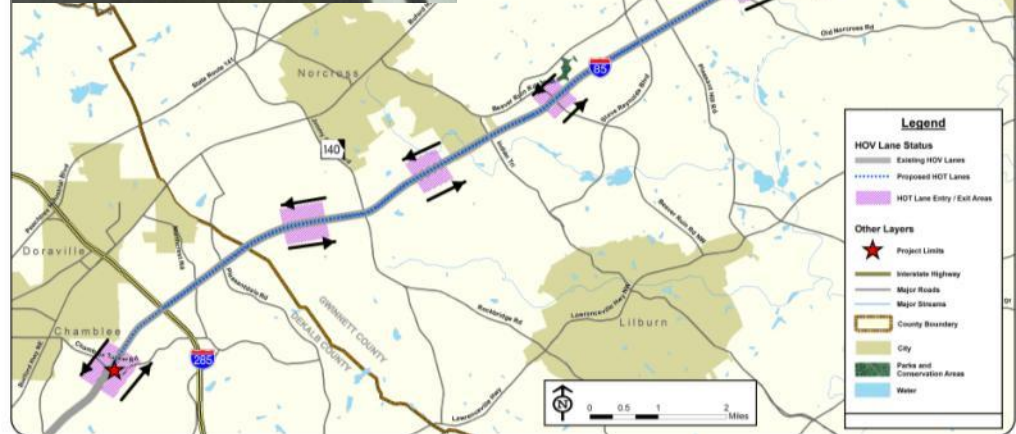


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# I-85 Express Lanes Overview

- 15.5 miles
- 1 lane in each direction
- painted buffer; no physical barriers
- 67 toll points, ½ mile apart
- Dynamically priced
- 24/7 operations
- Registered lane, even for toll-exempt vehicles



# Overview: I-85 Express Lane Users

Toll-Exempt*	Tolled	Prohibited
<ul style="list-style-type: none"><li>• Transit</li><li>• 3 or more person carpools</li><li>• Motorcycles</li><li>• Alternative Fuel Vehicles (AFV)**</li><li>• On-call emergency vehicles</li></ul>	<ul style="list-style-type: none"><li>• SOVs</li><li>• 2 person carpools</li></ul>	<ul style="list-style-type: none"><li>• more than 6 wheels</li></ul>

\* All Express Lane Users must register prior to using the lanes

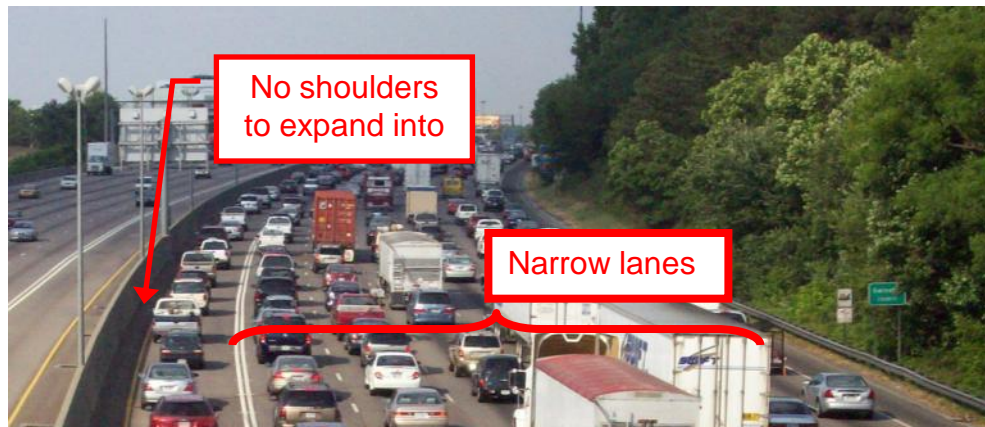
\*\* AFV Vehicles must have the proper license plate (does not include hybrids)

# Enforcement Challenges in Highly Constrained Urban Corridors

- Difficult enforcement of HOV lane configuration



- Limited right-of-way for engineering solutions



# Enforcement Needs for I-85 Express Lanes

## 1. Lane Integrity and Weaving

- Separation between HOT lane and general purpose lanes due to lack of physical barrier
- Access and egress allowed only in designated sections to reduce weaving to maintain effective capacity & flow

## 2. Toll Avoidance

- Lack of transponder, insufficient funds, or avoidance of physical toll readers (avoiding transponder detector stations)

## 3. Vehicle Occupancy Enforcement

- Meeting occupancy level for toll-free passage in HOT lane
- Peak period HOV violation rate in Atlanta: 11-12%



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# Double White Line Enforcement Challenge on I-85

- Separation between HOT lane and general purpose lanes due to lack of physical barrier
- Access and egress allowed only in designated sections to reduce weaving to maintain effective capacity & flow
- **Challenge: Monitoring and enforcing the prohibition against crossing the solid, double white line**

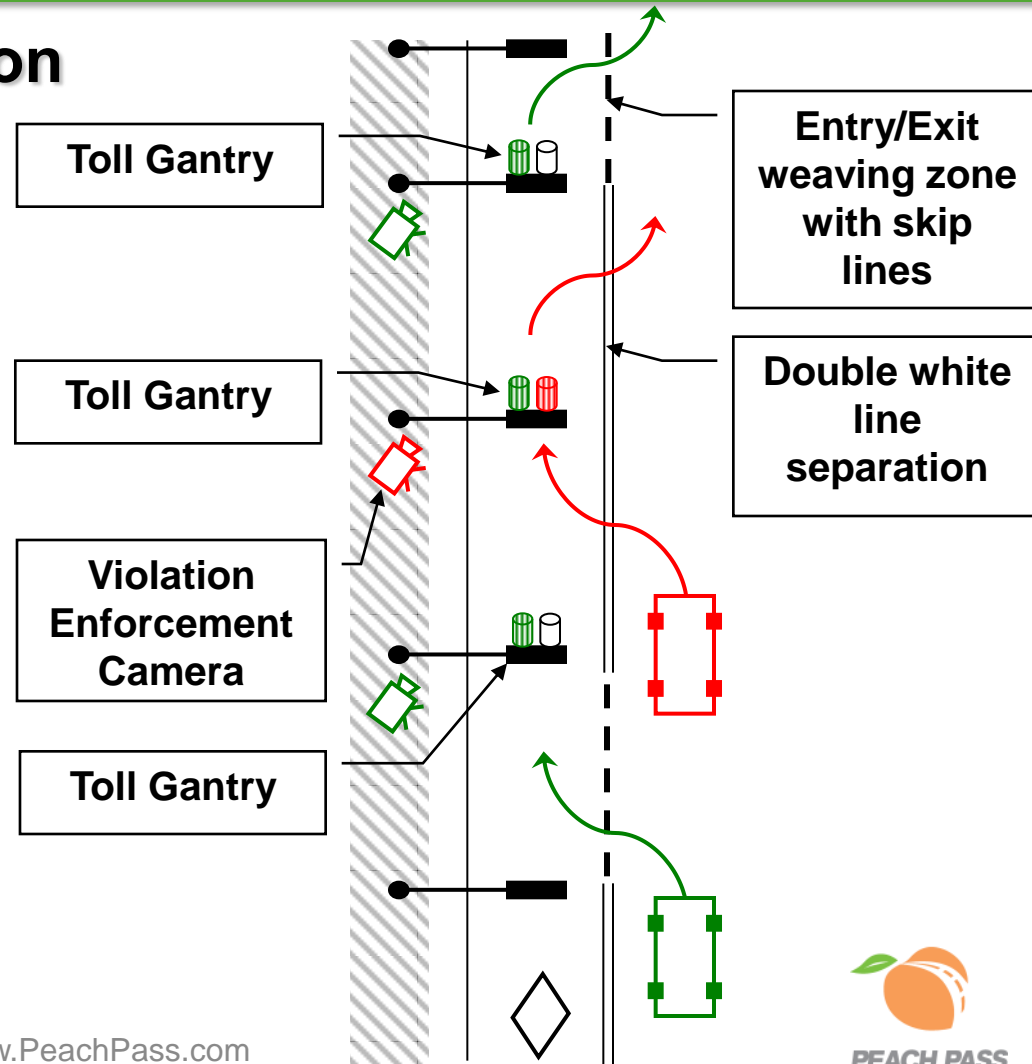


# Gantry Controlled Access (GCA)

## US Patent #: 8,044,824

### “Invisible Barrier” solution

- Overhead tolling system detects vehicle entry/exit
- Gantry spacing deters dodging into the HOT lane
- Gantry to gantry monitoring detects entry/exit violations
- Tolling system logic will issue toll violation notices, based on number of missed gantries
- Enforces double white line weaving





# I-85 Gantry Tolling & ITS Equipment

**Violation  
Camera**



**Laser  
Profiler**



**AVI Antenna**



**RTMS  
Traffic  
Counter**



**Civil Cabinet  
& Tolling  
Cabinet**



# GCA Automated Violations

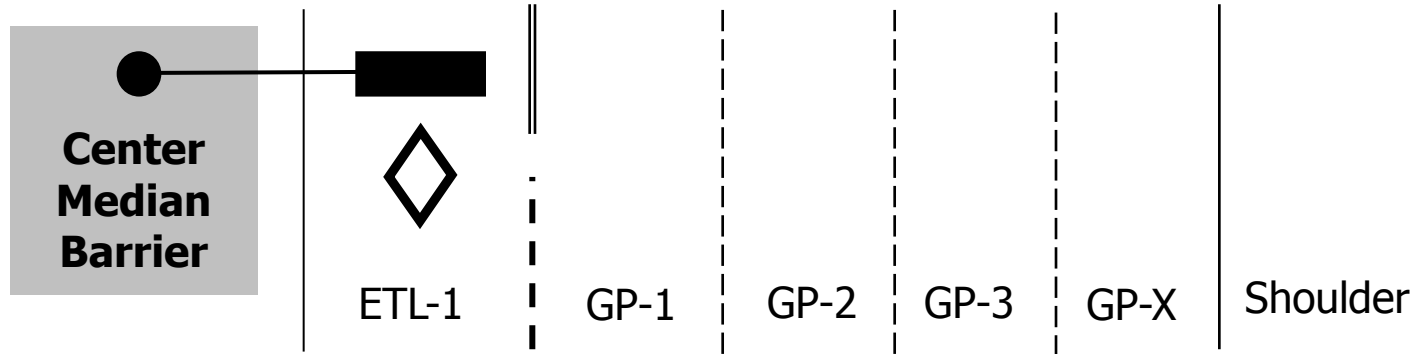
- **DWL Violations:** Entering or exiting Express Lane by crossing the solid, double white line
- **Unregistered Use:** Using the Express Lanes without a transponder
- **Penalty:** \$25 Violation Fee + unpaid toll amount

Note: Law enforcement may also issue citation for officer-observed DWL as well as Occupancy violations

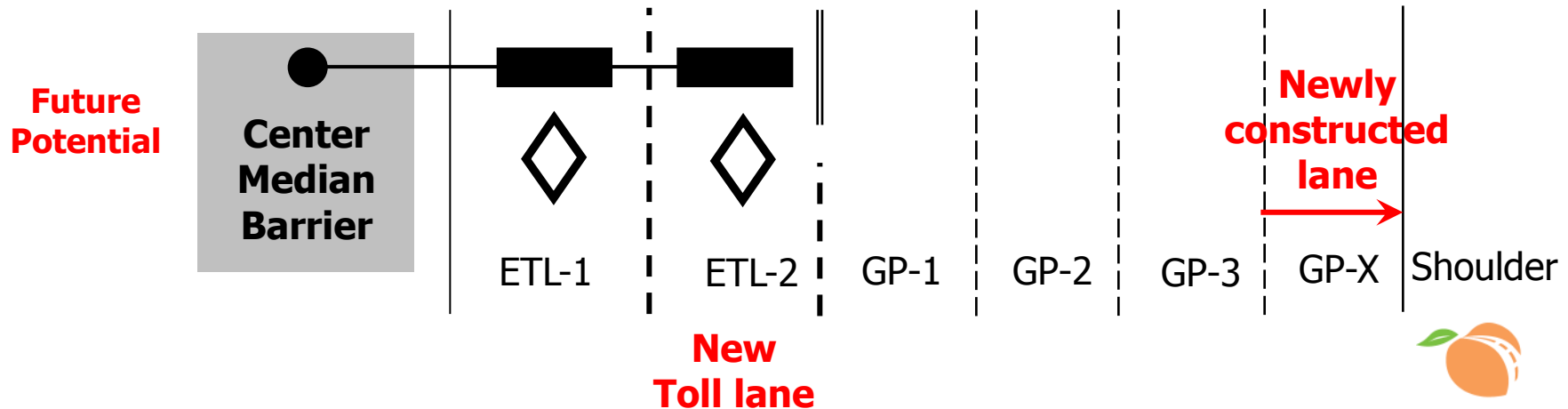


# Potential GCA Uses: Flexibility for Future Growth

- Gantry Controlled Access can provide flexibility for future expansion

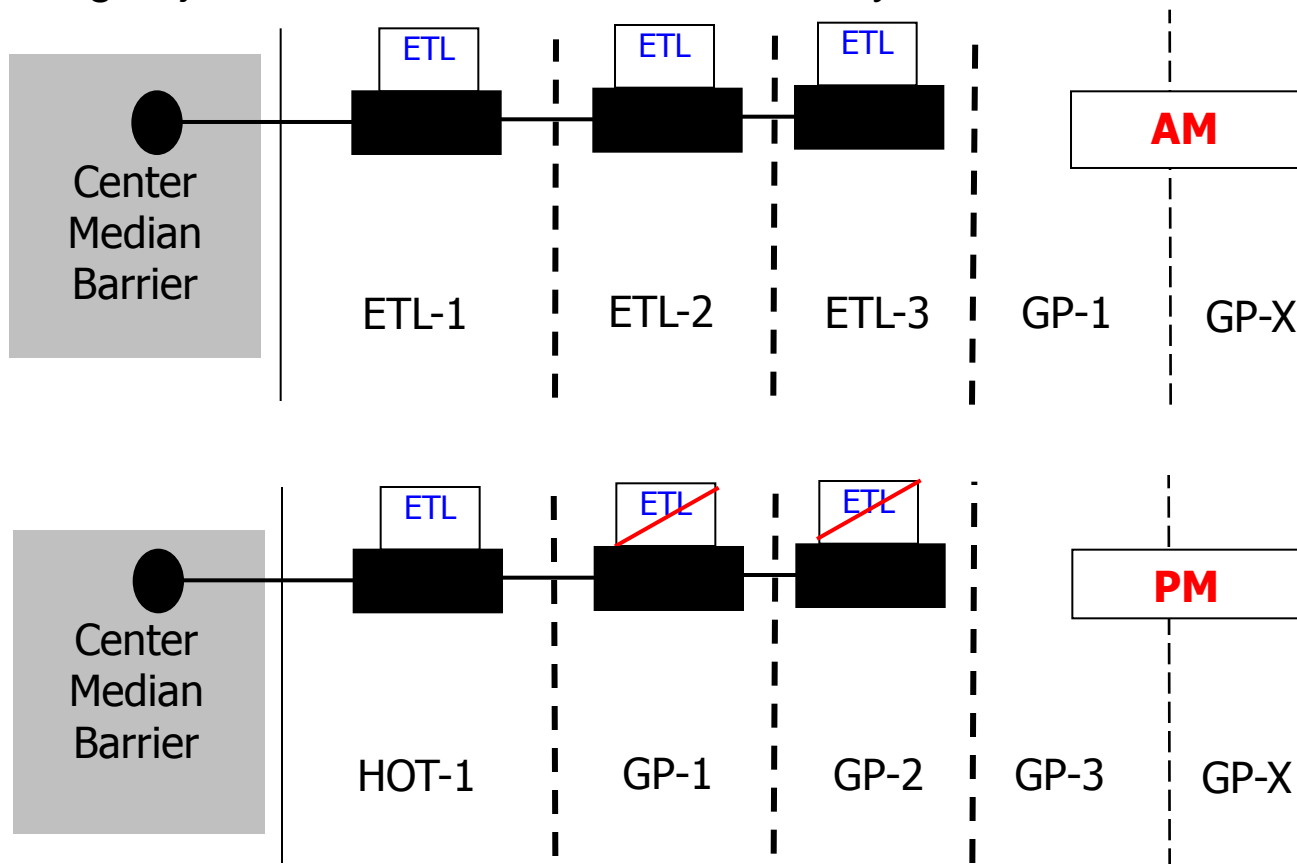


- Build new outside lane and shift General Purpose (GP) lanes to the right to maintain the same number of GP lanes



# Potential GCA Uses: Flex Toll Lane Scalability

- Gantry Controlled Access can potentially be dynamically scalable by converting adjacent lanes based on time of day and traffic conditions



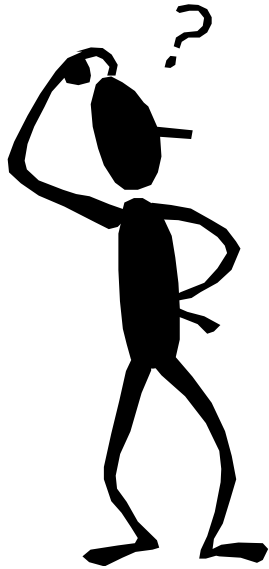
# GCA Benefits

- Toll payment and entry/exit point violators receive violation notice by mail
- 24/7 automated enforcement, allowing police to focus on other violations
- Mailed citations = less need to stop violators, disrupt traffic flow, or risk officer safety
- Less right-of-way required, reducing design, engineering & construction costs, traffic disruption, & environmental impact
- Provides flexible options to create & expand toll facilities in congested, constrained urban corridors





# QUESTIONS?



**Christopher Tomlinson**  
***Deputy Executive Director/General Counsel***  
**Georgia State Road & Tollway Authority**

**(404) 893-6126**

**[ctomlinson@georgiatolls.com](mailto:ctomlinson@georgiatolls.com)**





# Rules of the Road

## Toll Rates:

- Toll rates sign show min and max rate
- Customers locked into toll rates on sign seen when entering Express Lanes

## Violations:

- Crossing the solid, double white line
- Using the Express Lanes without a Peach Pass/Cruise Card transponder
- Occupancy (vehicle does not meet the appropriate number of occupants for toll-free access)

## Penalties:

- SRTA toll violation = \$25 + toll amount
- May also be issued citation by law enforcement



***Express Lanes Toll Rates  
\$0.01 to \$0.90 per mile***

# Occupancy Enforcement and Toll Mode

- 3+ carpoolers self-declare Toll Exempt status by telephone, smart phones, or online account.
- SRTA transmits list of 3+ vehicles to a Mobile License Plate Recognition (ALPR ) system onboard police cars
  - ✓ Full list updated daily
  - ✓ Incremental updates
- ALPR reads license plate of passing vehicles and notify officers to check occupancy of only “Toll Exempt” vehicles
- Officer’s on board computer system will send information back to SRTA

