ASECAP DAYS
PARIS 2017

45TH ASECAP STUDY & INFORMATION DAYS 2017

The Concession model in the decarbonization era: preparing the infrastructure of the future

Pullman Paris Montparnasse Hotel
29-31 May 2017

www.asecapdays.com

Managed Lanes.
Key operational facts and benefits.

cintra *Cristóbal Martínez. Technical Director.*



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THE PROBLEM

- Increasing traffic congestion, specially in urban areas
- Population grothw is also concentrated in urban environments
- Limited room for new land acquisition and development of additional competing infrastructure

THE GOAL

- To model traffic demand (dynamic pricing)
- To give users what they are expecting (willingness to pay)

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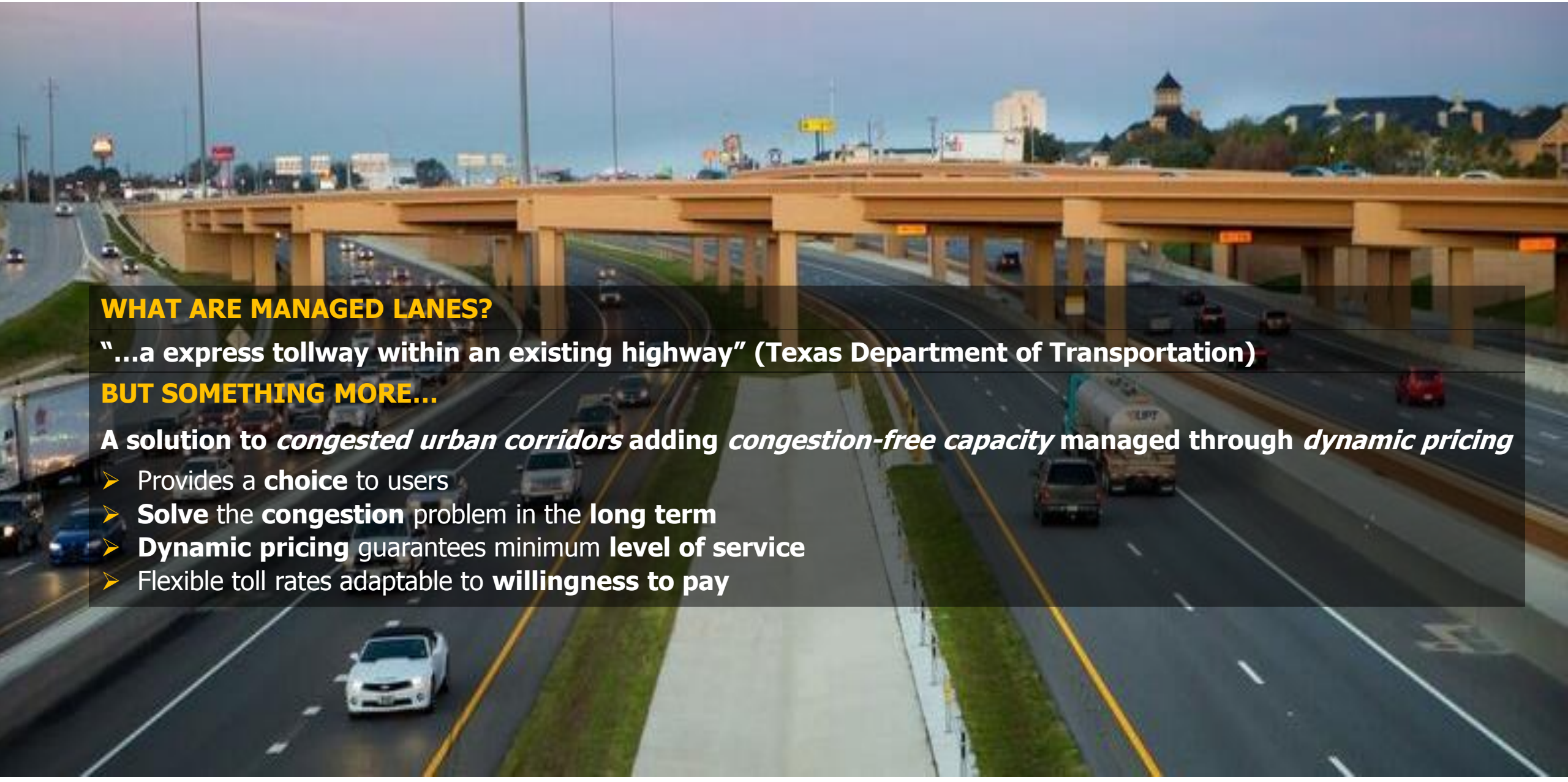

WHAT ARE MANAGED LANES?

"…a express tollway within an existing highway" (Texas Department of Transportation)

BUT SOMETHING MORE…

A solution to *congested urban corridors* adding *congestion-free capacity* managed through *dynamic pricing*

- Provides a **choice** to users
- **Solve** the **congestion** problem in the **long term**
- **Dynamic pricing** guarantees minimum **level of service**
- Flexible toll rates adaptable to **willingness to pay**

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MAIN OBJECTIVES

- Provide users with options.
- Tolls can be modified (every 5 minutes) to ensure minimum speed in the managed lanes.
- Users always have, at a price, the option of a safer, faster and always reliable travel time.

- Reduced political costs.
- Economically efficient solution to urban traffic congestion.

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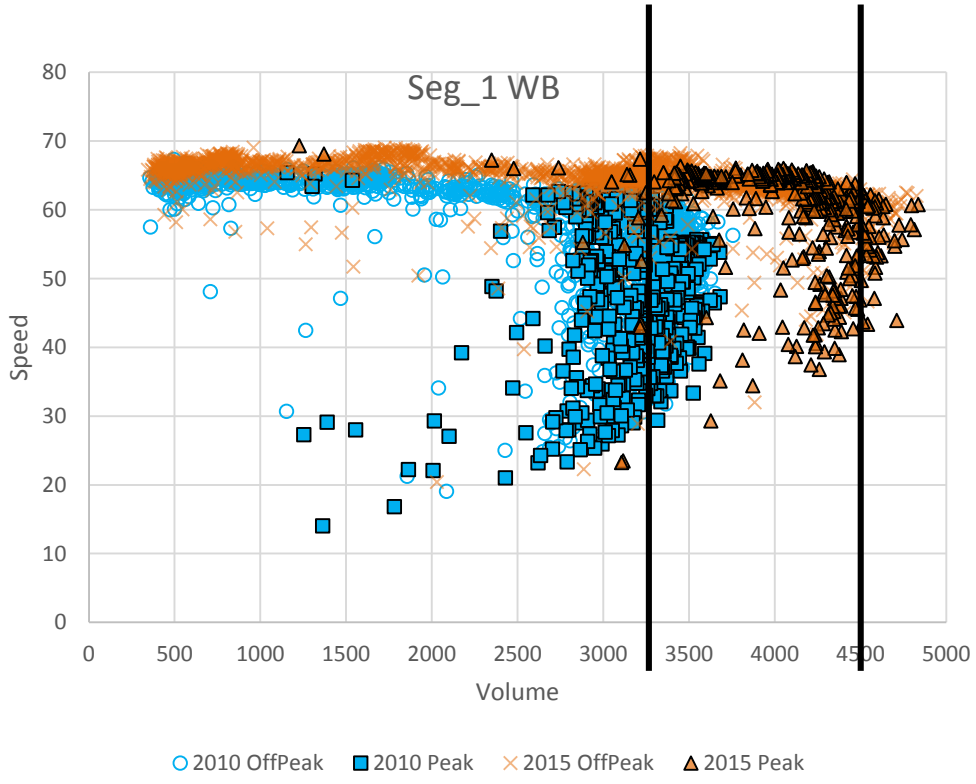
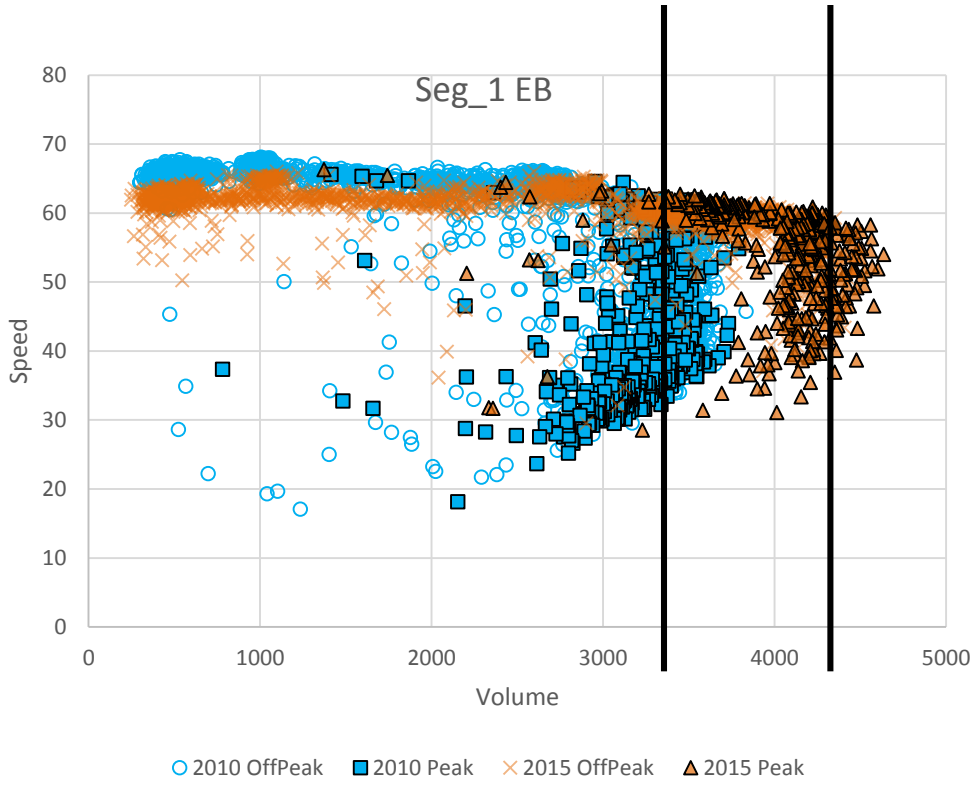
OUR EXPERIENCE: NTE GPLs throughput Improvements





1. No additional lanes (2 lanes by direction)
2. Design standards updated.
3. **Average throughput during peak hours increased by more than 20%**
4. Lane capacities of 2000 veh/hour/lane

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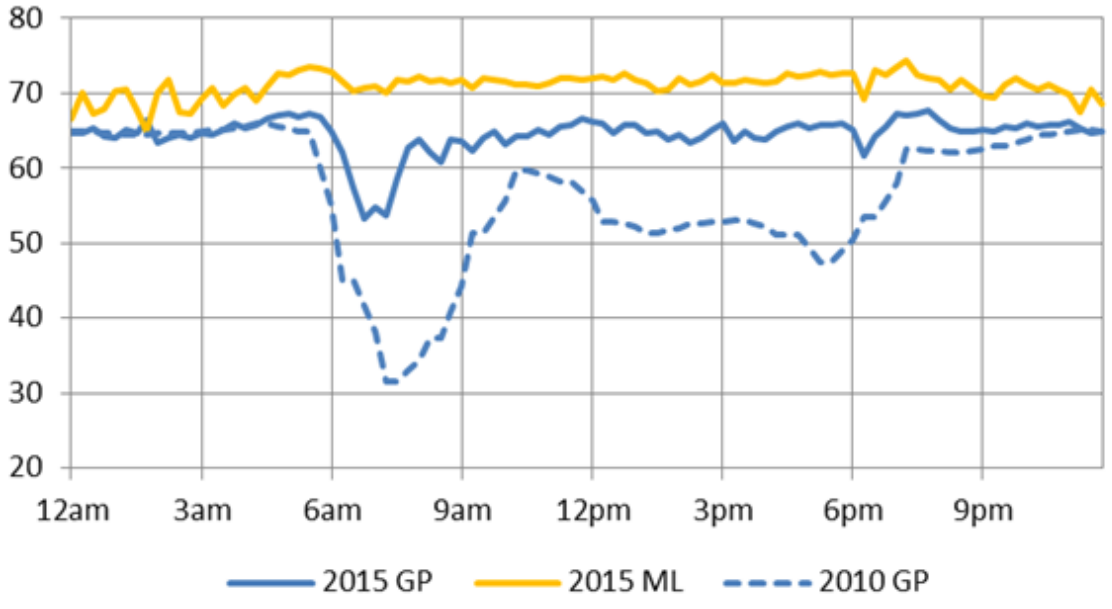
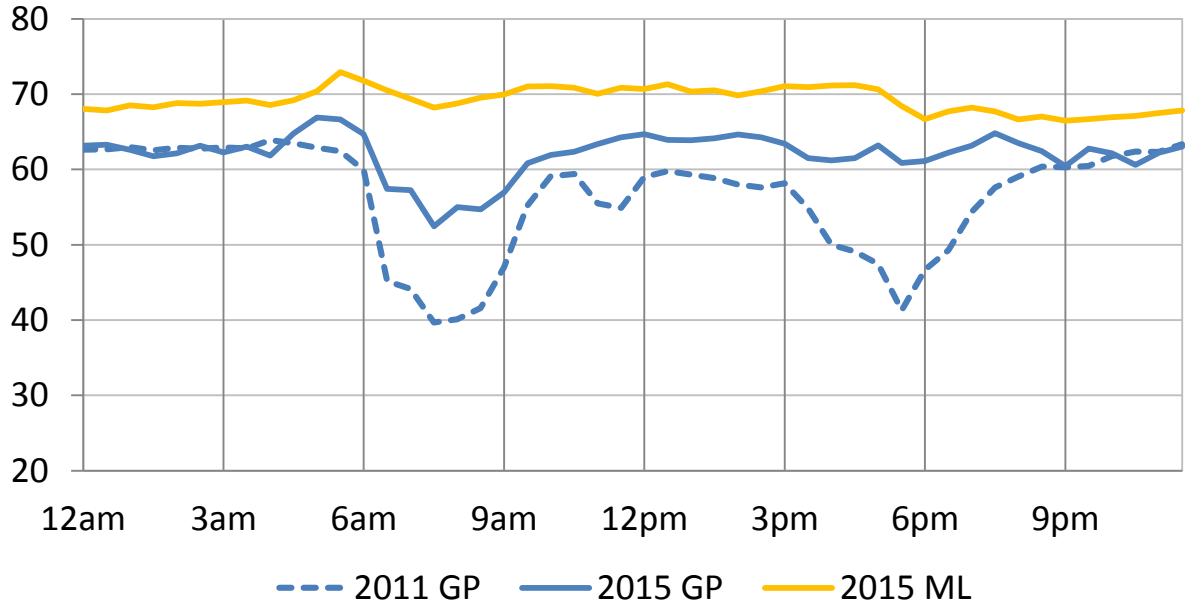
OUR EXPERIENCE: Better traffic conditions for everyone

Segment 2 Eastbound Speed Profile



1. Improved geometry but no additional lanes
2. **General Purpose traffic 7% higher** than before construction
3. Average **speed increased by 15%**
4. **General Purpose congestion time reduced by 73%**
5. Congestion (speed below 50mph) down from 29% to 8%

LBJ Segment 3 Westbound Speed Profile



1. Improved geometry but no additional lanes
2. **General Purpose traffic 7% higher** than before construction
3. Average **speed increased by 10%**
4. **General Purpose congestion time reduced by 60%**
5. Congestion (speed below 50mph) down from 20% to 8%

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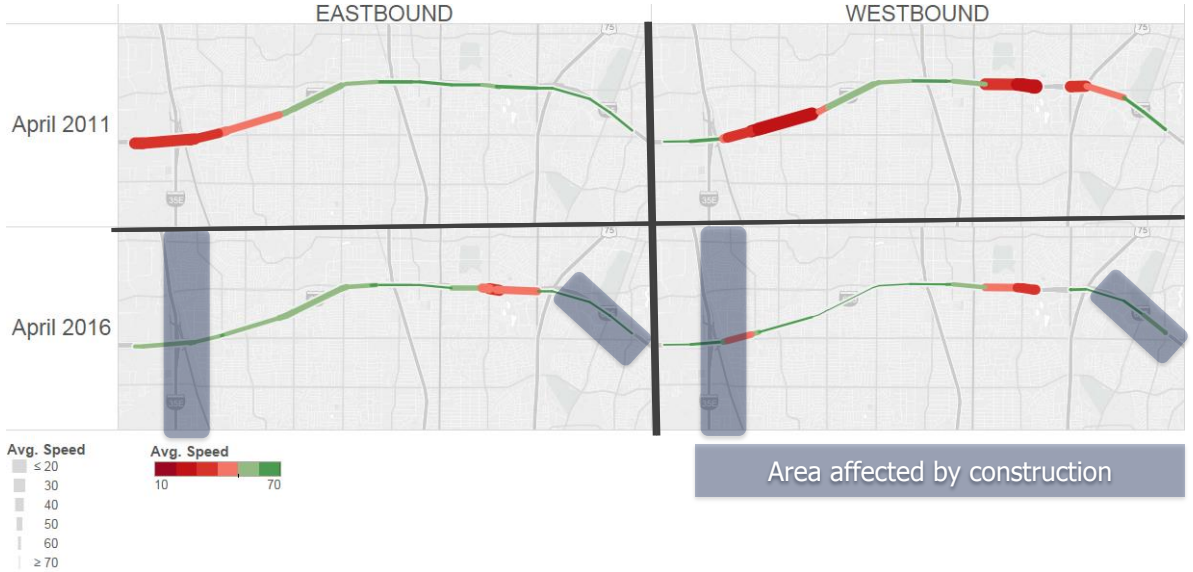
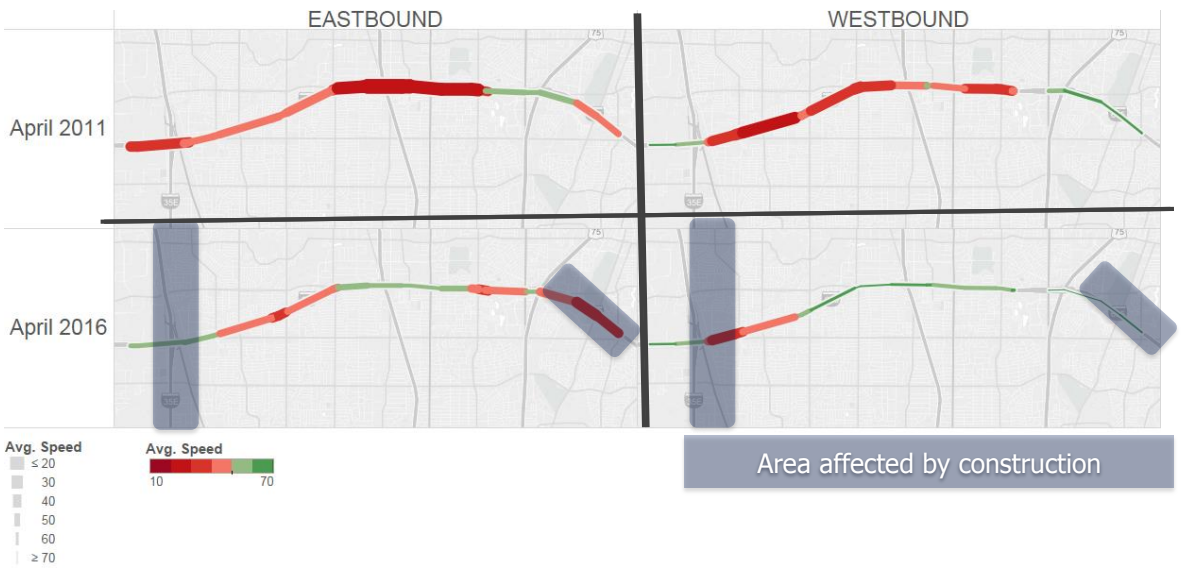
OUR EXPERIENCE LBJ: Significant Congestion Relief

Morning Peak Hour (7:00 AM)



Evening Peak Hour (5:00 PM)



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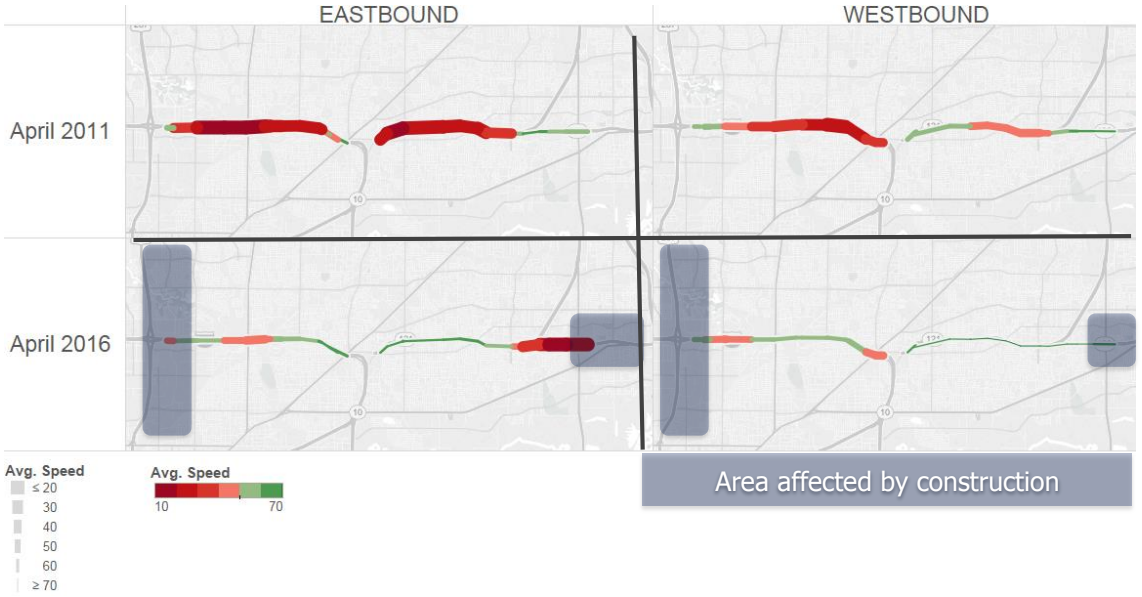
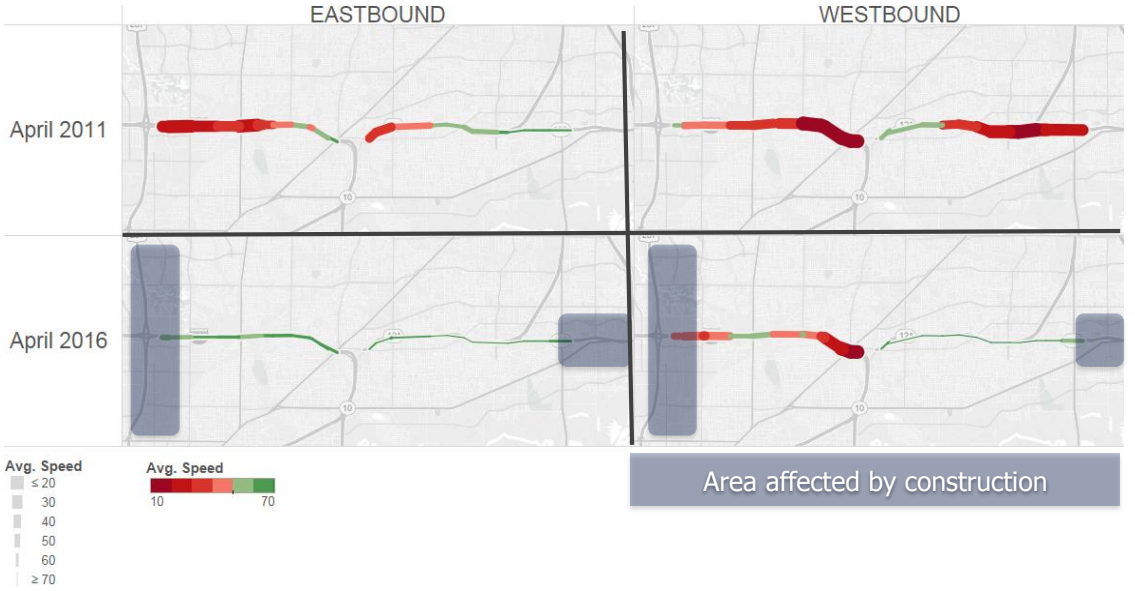
OUR EXPERIENCE NTE: Significant Congestion Relief

Morning Peak Hour (7:00 AM)



Evening Peak Hour (5:00 PM)



NTE Segment 1 was #24 of the most congested roads in TX and is now #69

(according to TTI's list published in October 2015)

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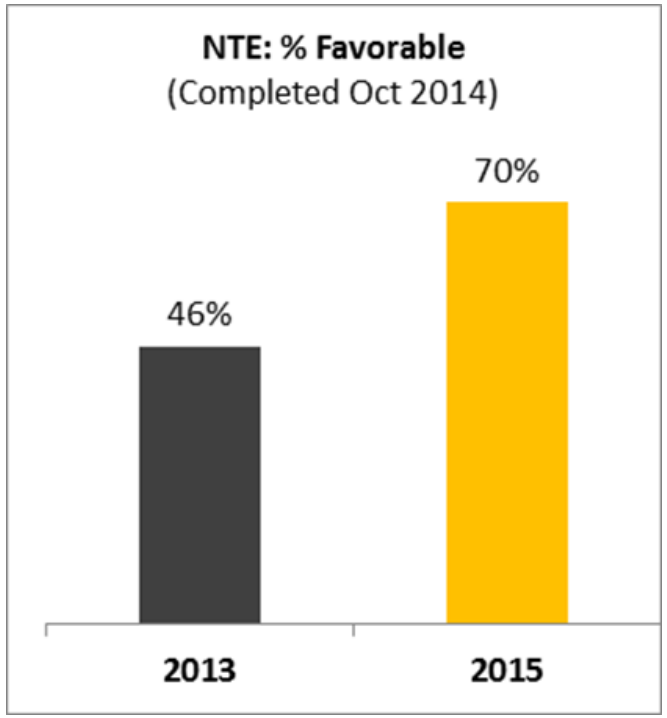
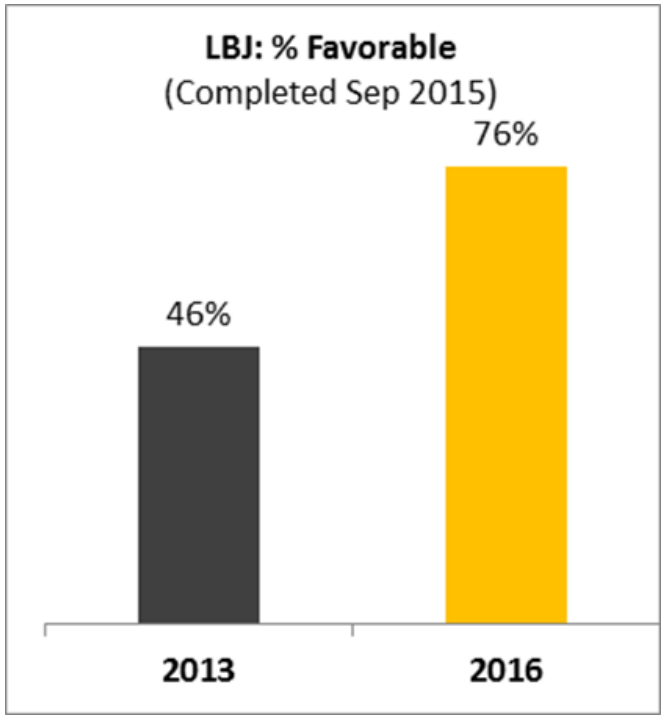
OUR EXPERIENCE NTE: High Level of Customer Satisfaction

Whould you say that your imnpression of the road itself /ML+GPL)is Favourable or Unfavourable?





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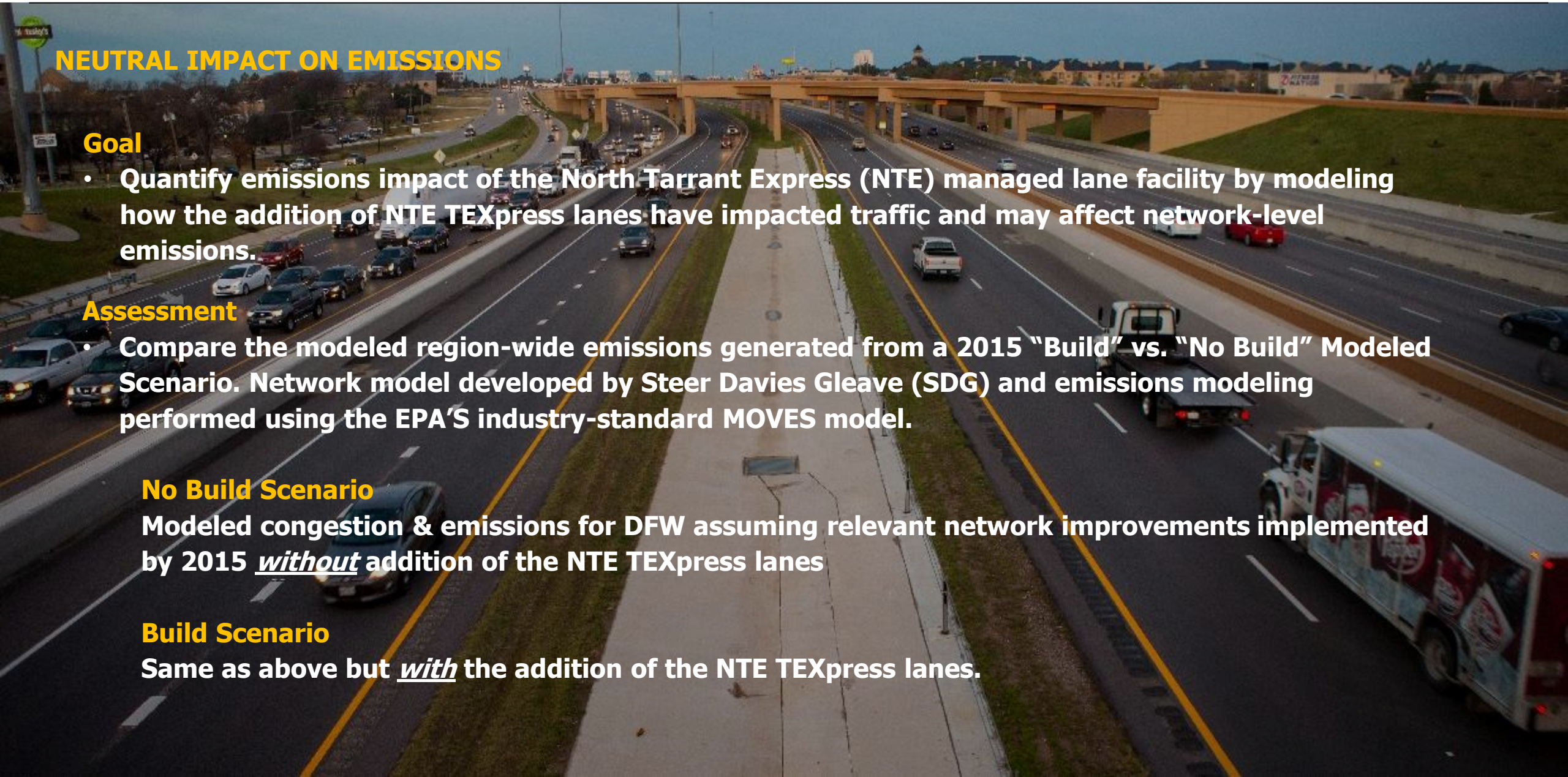

NEUTRAL IMPACT ON EMISSIONS

Goal

- Quantify emissions impact of the North Tarrant Express (NTE) managed lane facility by modeling how the addition of NTE TEXpress lanes have impacted traffic and may affect network-level emissions.

Assessment

- Compare the modeled region-wide emissions generated from a 2015 "Build" vs. "No Build" Modeled Scenario. Network model developed by Steer Davies Gleave (SDG) and emissions modeling performed using the EPA'S industry-standard MOVES model.

No Build Scenario

Modeled congestion & emissions for DFW assuming relevant network improvements implemented by 2015 ***without*** addition of the NTE TEXpress lanes

Build Scenario

Same as above but ***with*** the addition of the NTE TEXpress lanes.

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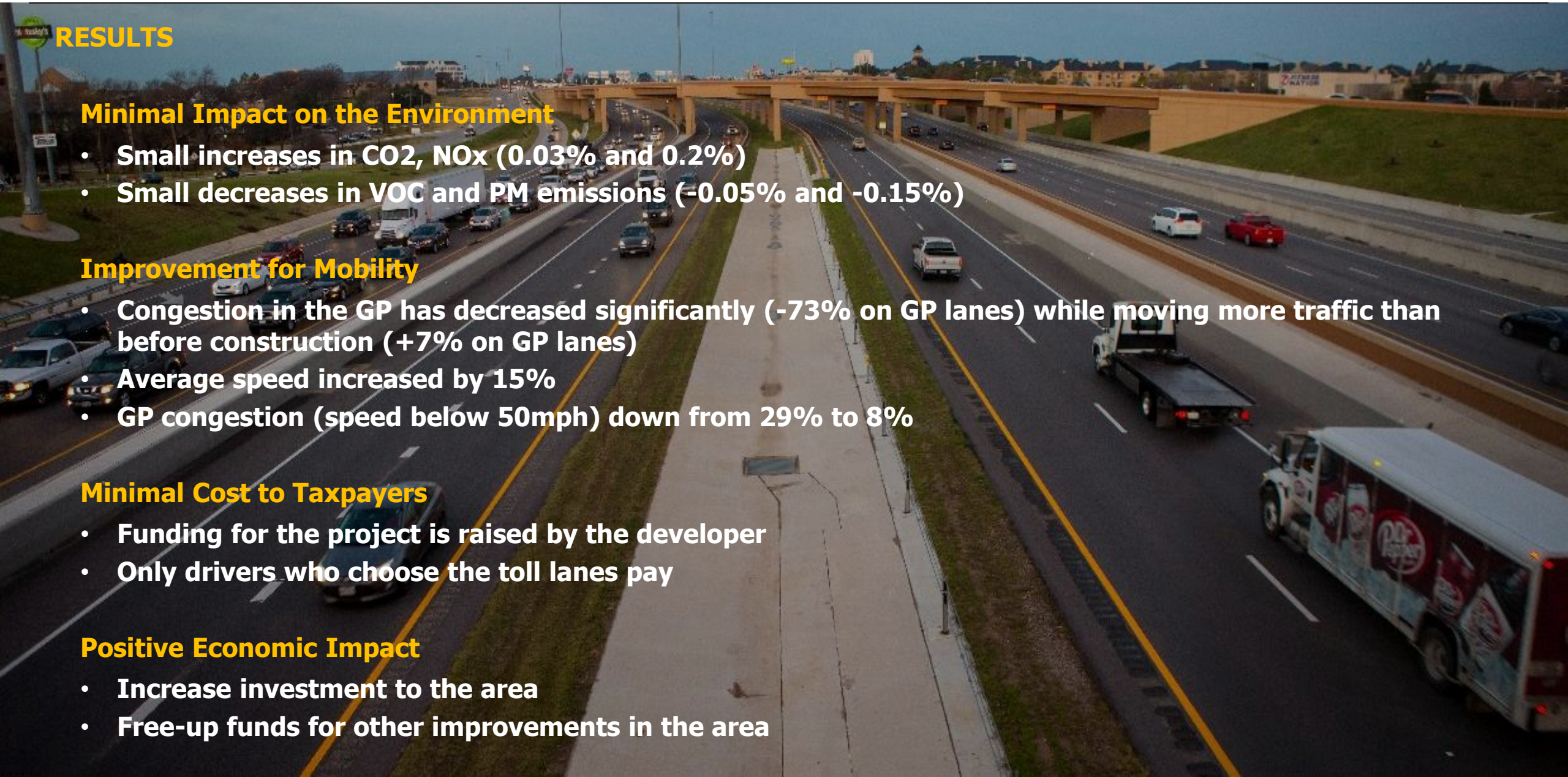

RESULTS

Minimal Impact on the Environment

- Small increases in CO2, NOx (0.03% and 0.2%)
- Small decreases in VOC and PM emissions (-0.05% and -0.15%)

Improvement for Mobility

- Congestion in the GP has decreased significantly (-73% on GP lanes) while moving more traffic than before construction (+7% on GP lanes)
- Average speed increased by 15%
- GP congestion (speed below 50mph) down from 29% to 8%

Minimal Cost to Taxpayers

- Funding for the project is raised by the developer
- Only drivers who choose the toll lanes pay

Positive Economic Impact

- Increase investment to the area
- Free-up funds for other improvements in the area

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