

Presenter Introduction

Homa Fartash, Ph.D. Candidate

- **Research Interests:**

- Intelligent Transportation Systems
- Active Traffic Management
- Traffic Operations and Control
- Traffic Simulation

- **Dissertation Title:**

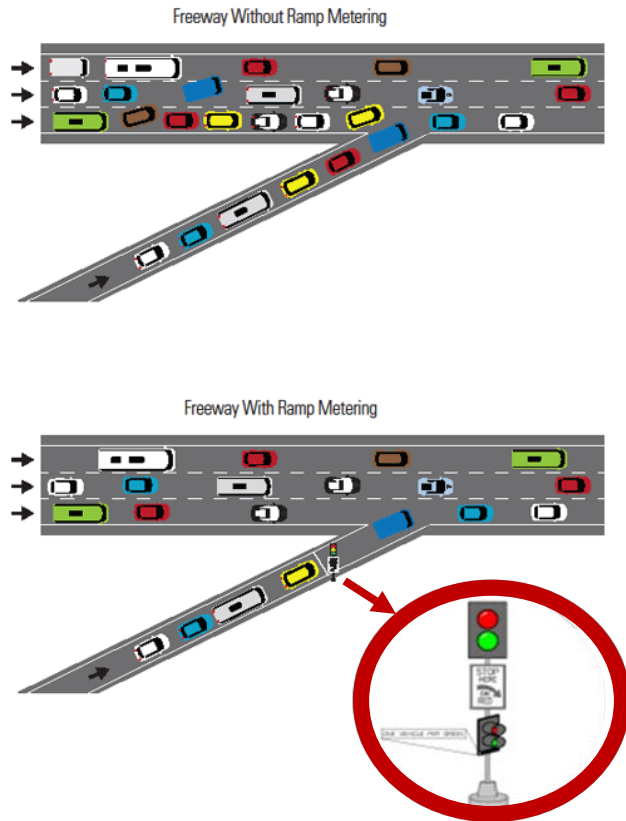
Development of System-based Warrants for Installation and Activation of Ramp Metering

- **Selected Honors / Awards:**

- 2016 GCCITE BOOK Scholarship, 2016
- FSITE Daniel B. Fambro Student Paper Award, 2016
- Anne Brewer Scholarship, ITS Florida, 2015
- Sanchez Grand Prix Scholarship, 2015
- 2nd Position for FSITE Poster Competition, 2015

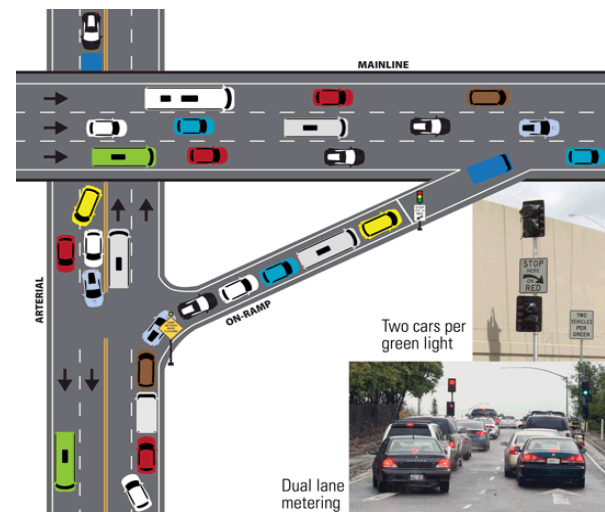


Ramp Metering

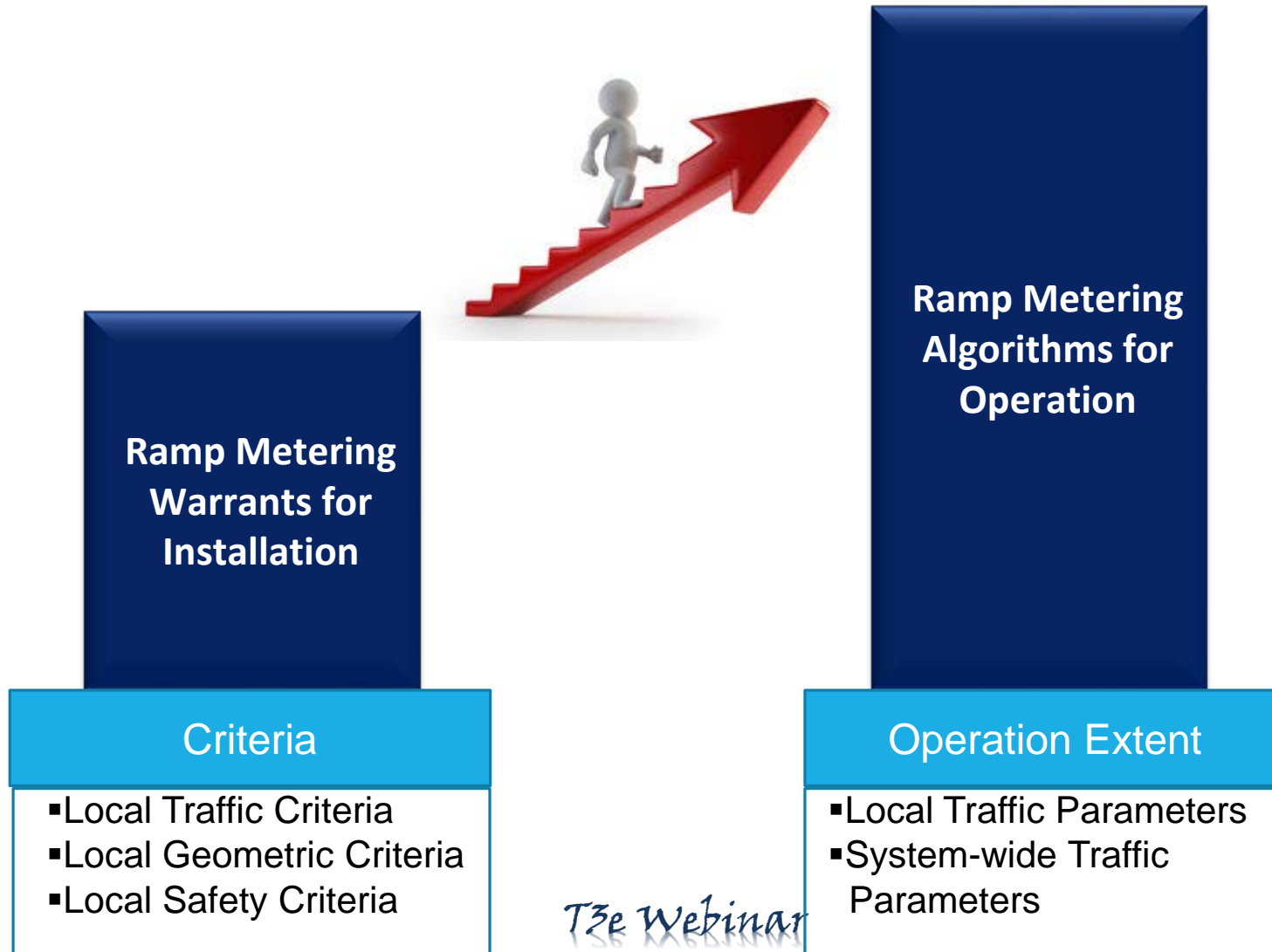


Advantages

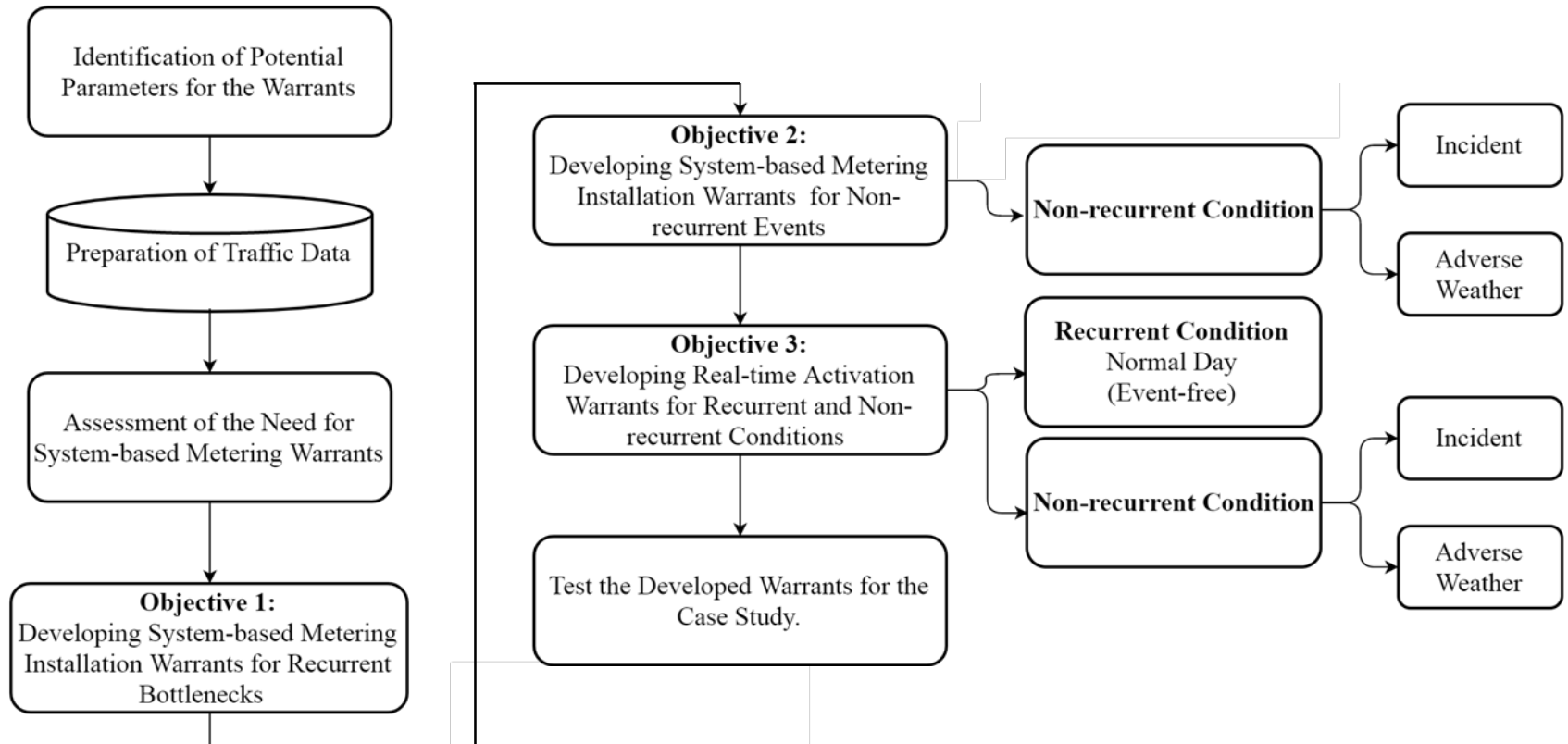
Disadvantages



Problem Statement

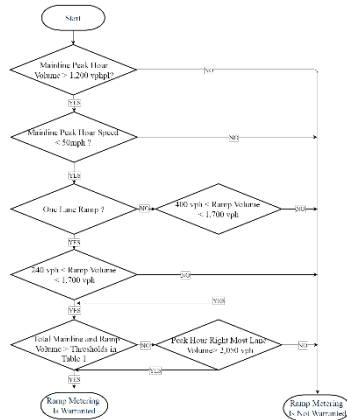


Framework



Assessment of the Need for Developing System-based Warrants

Selecting Locally Justified Ramps



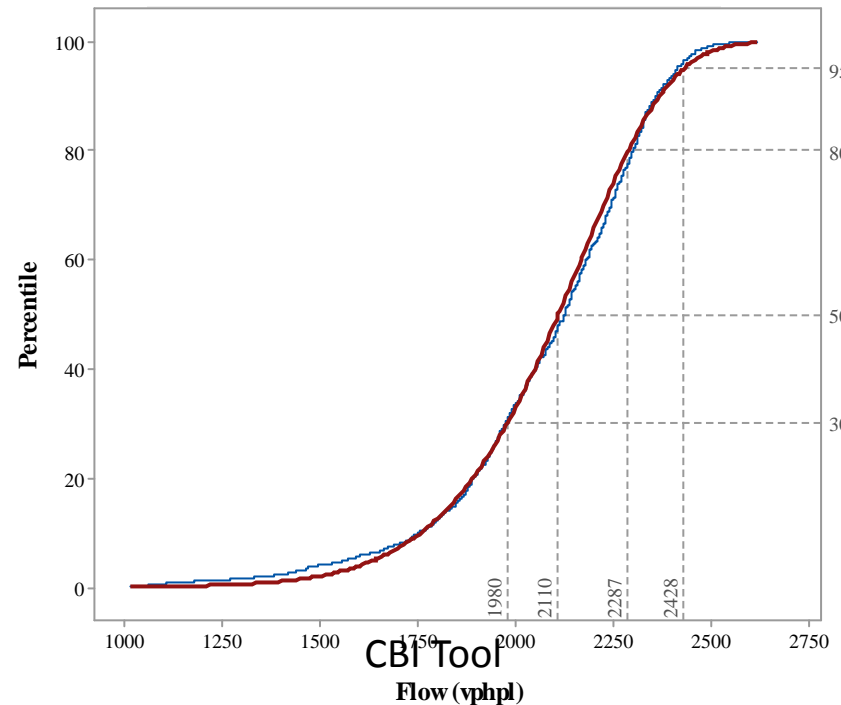
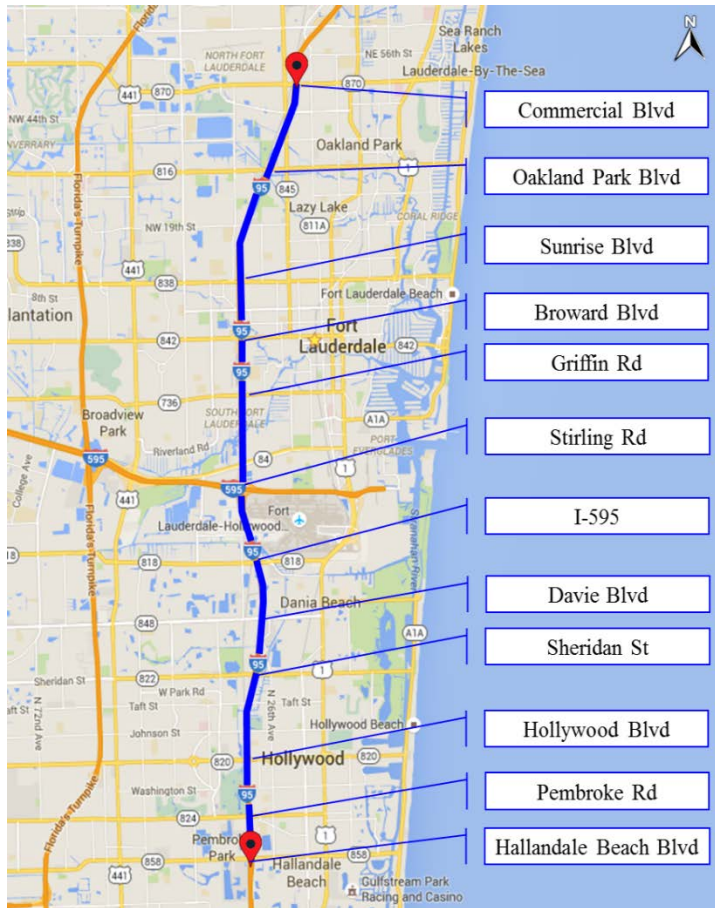
Selecting System-based Justified Ramps

- Bottleneck identification
- Stochastic capacity distribution
- Selecting ramps based on linear programming formulation

Simulation using VISSIM

Comparison

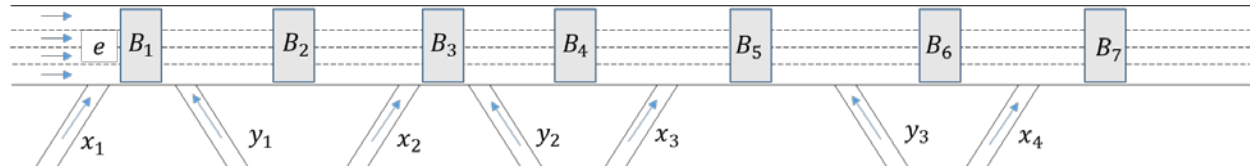
Bottleneck Identification



Stochastic Capacity Distribution at Bottleneck Location

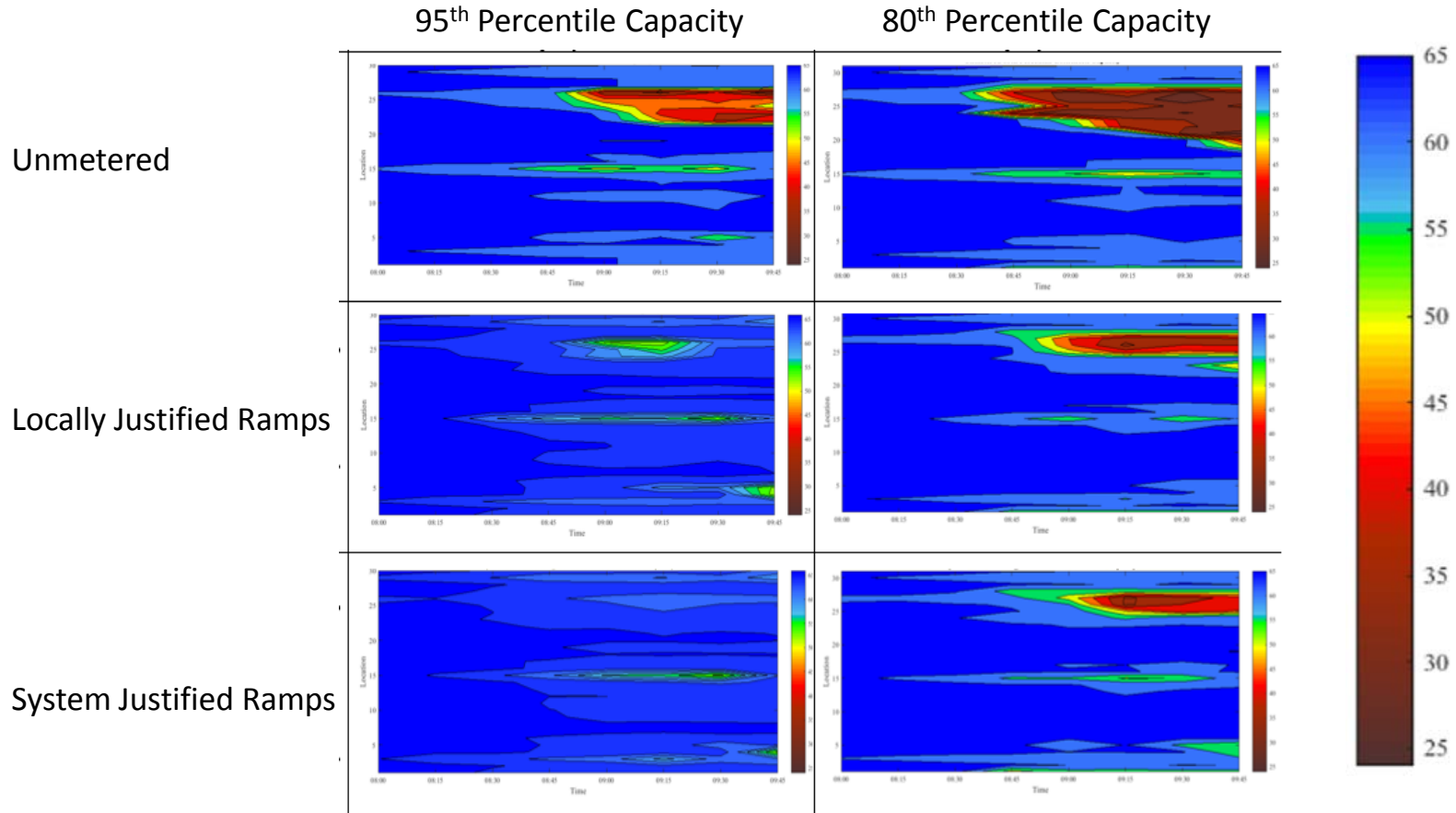
Case Study: Broward County, Florida

Ramp Selection

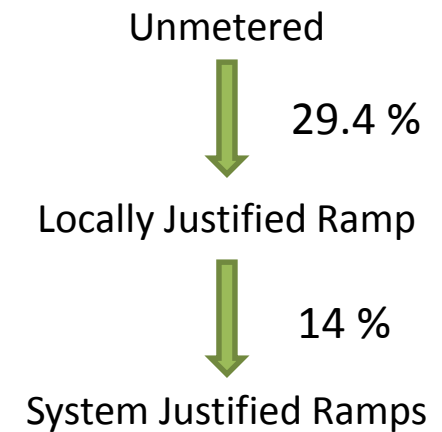
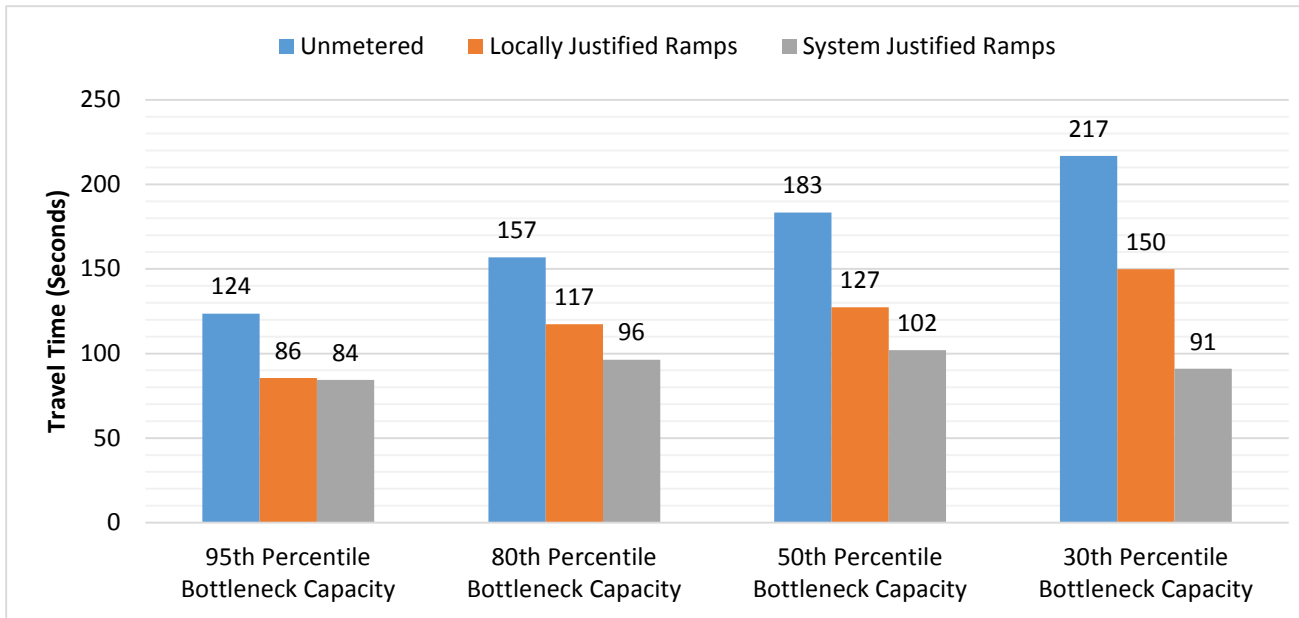


I-95 On-ramp to	Locally Justified Ramps	System Justified Ramps			
		95 th percentile Bottleneck Capacity	80 th percentile Bottleneck Capacity	50 th percentile Bottleneck Capacity	30 th percentile Bottleneck Capacity
Commercial Blvd	✓	✓	✓	✓	✓
Oakland Park Blvd	✗	✓	✓	✓	✓
Sunrise Blvd	✗	✓	✓	✓	✓
Broward Blvd	✗	✗	✗	✓	✓
Griffin Rd	✓	✓	✓	✓	✓
Stirling Rd	✗	✓	✓	✓	✓
I-595	✗	✗	✗	✗	✗
Davie Blvd	✗	✗	✗	✗	✗
Sheridan St	✓	✓	✓	✓	✓
Hollywood Blvd	✗	✓	✓	✓	✓
Pembroke Rd	✗	✓	✓	✓	✓
Hallandale Beach Blvd	✓	✓	✓	✓	✓

Speed Profile

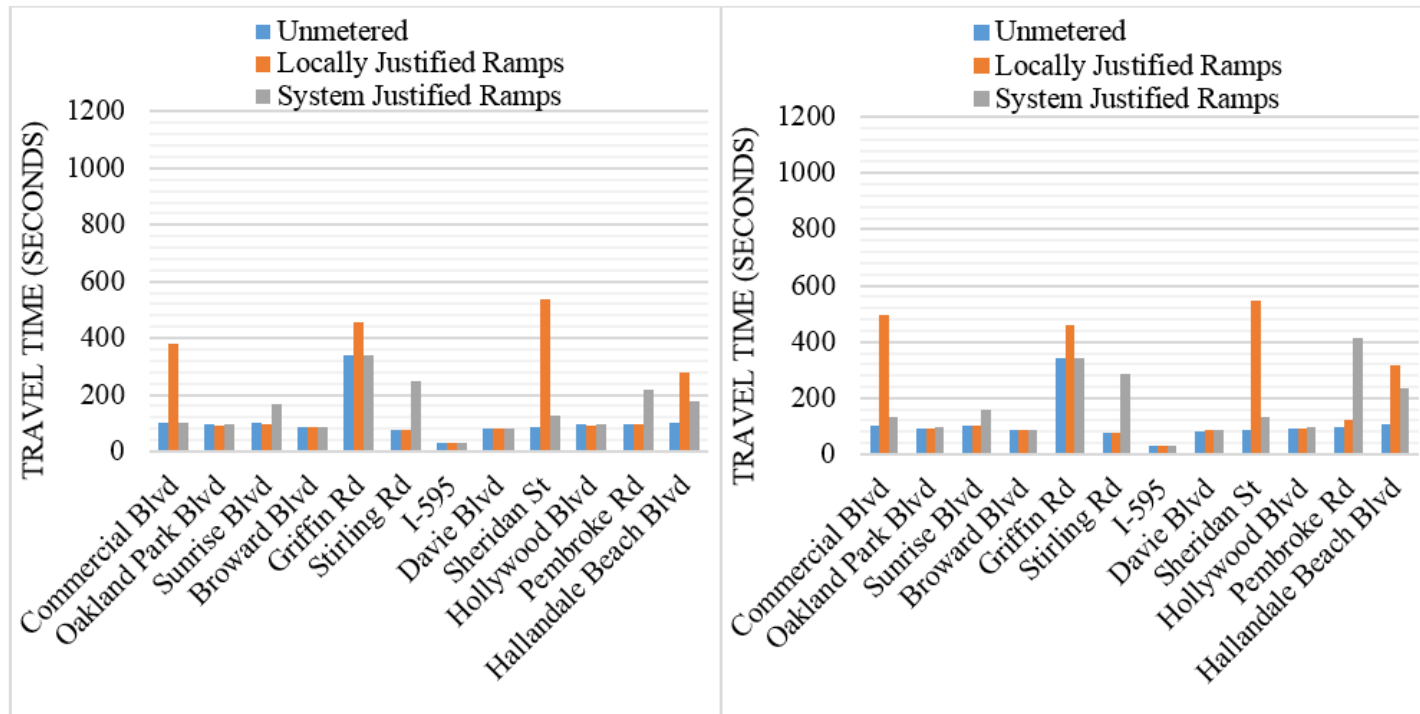


Travel Time



Travel Time on Freeway Mainline

Travel Time



95th Percentile capacity

80th Percentile capacity

Travel Time on the On-ramps