

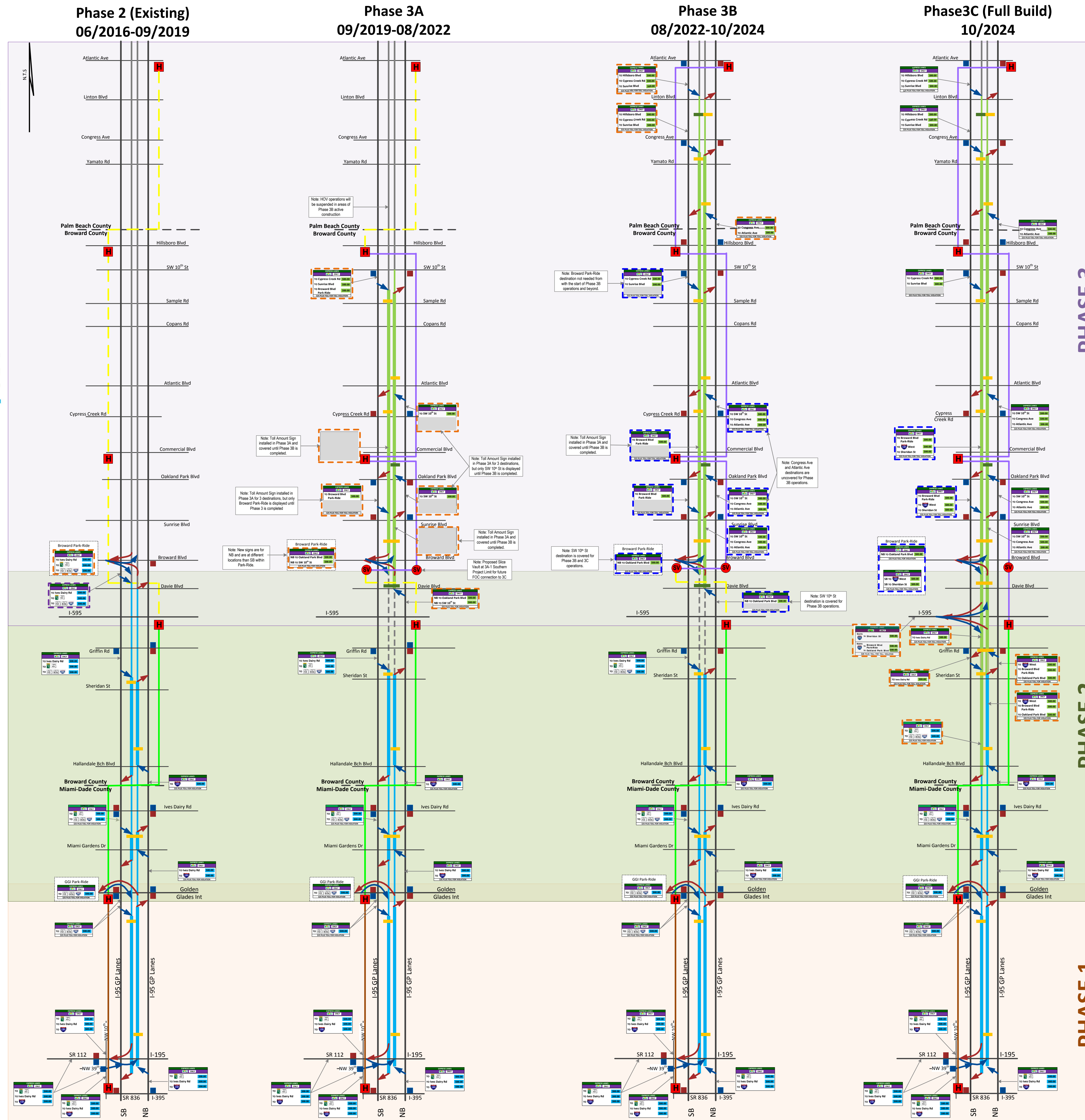
Introduction

Signing Design

Many Managed Lanes (ML) projects involve converting High Occupancy Vehicle (HOV) lanes to High Occupancy Vehicle Toll (HOT) lanes and such projects are usually broken into multiple segments and deployed in multiple phases. This presentation describes the challenges experienced by FDOT District 4 on the I-95 Express Lane Phase 3 project for Interim versus ultimate Tolling, Signing and ITS design aspects and provides lessons learned for such program. The exhibit below corresponds to a 30-mile portion of 95 Express, implemented in three phases (3A, 3B, and 3C)

- Types of Signage for ML – Lane Status, Toll Amount, Vehicle Eligibility and Toll Violation
- Standard Sequence of Signage for ML – Ingress and Egress (see exhibit)
- Segment vs. Corridor wide Signing design to maintain consistency and minimize cost
 - Revised Sequence of Signage (approved by FTE) for temporary ML egress to minimize throwaway
 - Col-locate ML sign with Static Sign on same structure
 - Design Panel and overall structure based on full build-out needs
 - Overlay Sign Panel to meet toll destination need over phases

I-95 EL Phase 3 Segmentation and Phasing



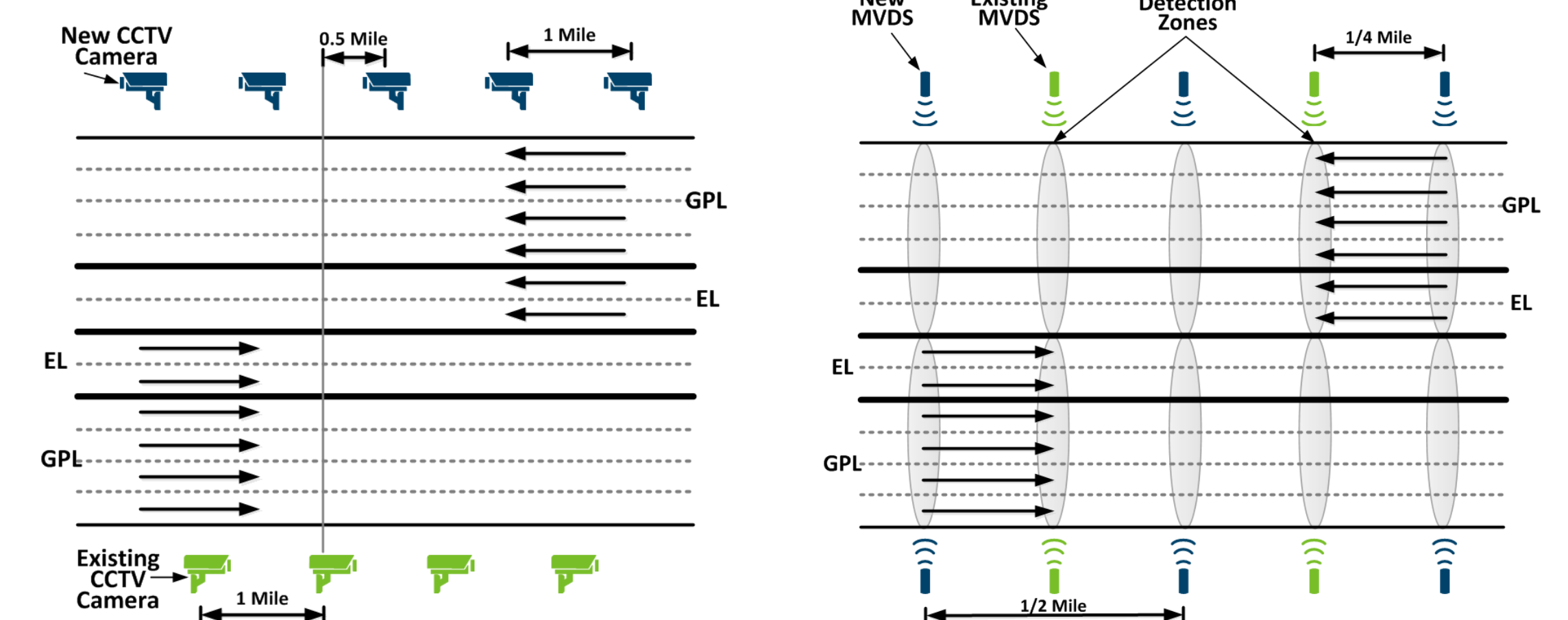
PHASE 3

PHASE 2

PHASE 1

ITS Design

- Segment vs. Corridor wide ITS design to achieve continuation/redundancy and reduce cost introduced by segmentation and phasing
- Convert pull box/splice box as FOC backbone termination point between two adjacent segments
- Staggered arrangement of existing ITS vs. New ITS device to ensure adequate coverage (see exhibits below)
- ITS locations (i.e., Pole, cabinet) are designed considering future condition (i.e., roadway widening, ramp change)
- Capacity of Power and communication are designed for future needs and implemented in phase s to avoid throw-away and re-work



Summary

- Tolling strategy must be coordinated among multiple operation agencies
- Cross-discipline design (Signing, ITS, Roadway, lighting, toll, Drainage, utility, noise, landscaping, etc.) corridor master plan to avoid conflicts
- Partial opening design while adjacent segment is under construction

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