



Express Lanes Approach for Success

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Florida's Turnpike Enterprise (FTE)

Express Lanes?



WHY?

WHERE?

HOW?

WHAT?

WHO?



Florida Department of Transportation



Why Express Lanes?



1. MANAGE TRAFFIC CONGESTION
2. PROVIDE TRAVEL CHOICES
3. PROVIDE RELIABLE TRAVEL TIME
4. SUPPORT INCREASED MOBILITY
5. ENHANCE TRANSIT OPERATIONS

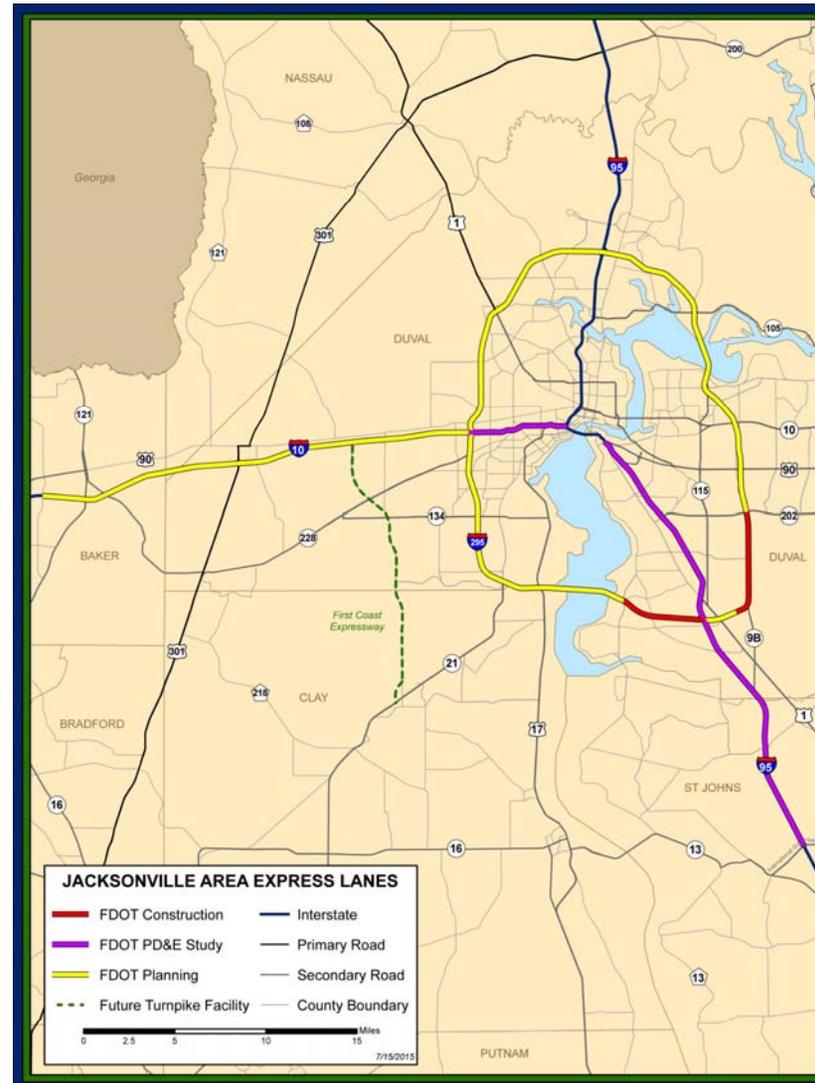


Where are Express Lanes?



DISTRICT 2:

1. I-295 Beltway
2. I-95
3. I-10



Where are Express Lanes?



DISTRICT 4:

1. I-75
2. I-95
3. I-595



Where are Express Lanes?



DISTRICT 5:

1. I-4 Ultimate & Beyond
2. SR 528 Beachline



Where are Express Lanes?



DISTRICT 6:

1. Palmetto Expressway
2. I-95
3. SR 826

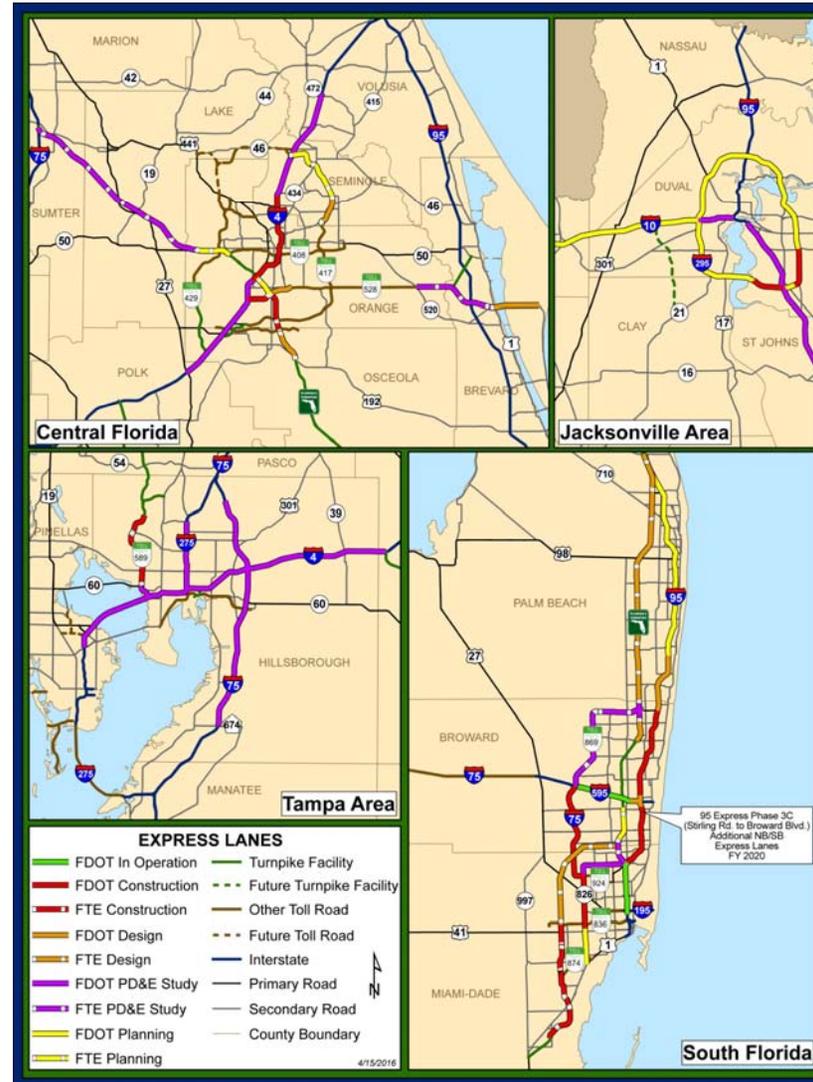


Where are Express Lanes?



Turnpike (FTE):

1. Turnpike Mainline
2. SR 821 HEFT
3. Sawgrass Expressway
4. Veterans Expressway
5. SR 528 Beachline
6. SR 417 Beltway



How to Begin?



EXPRESS LANES ARE A SYSTEM:

- **Express Lanes (EL) are a traffic management tool; How they operate both during and after construction needs to be addressed before roadway design begins.**
- **Tolls and Traffic Operations need to be engaged early and often in the planning and design process.**
- **Consistency, Predictability, and Repeatability (CPR) is essential to Express Lanes:**
 - Customer
 - Software
 - Operations
 - Incident Management
 - Customer Service Center

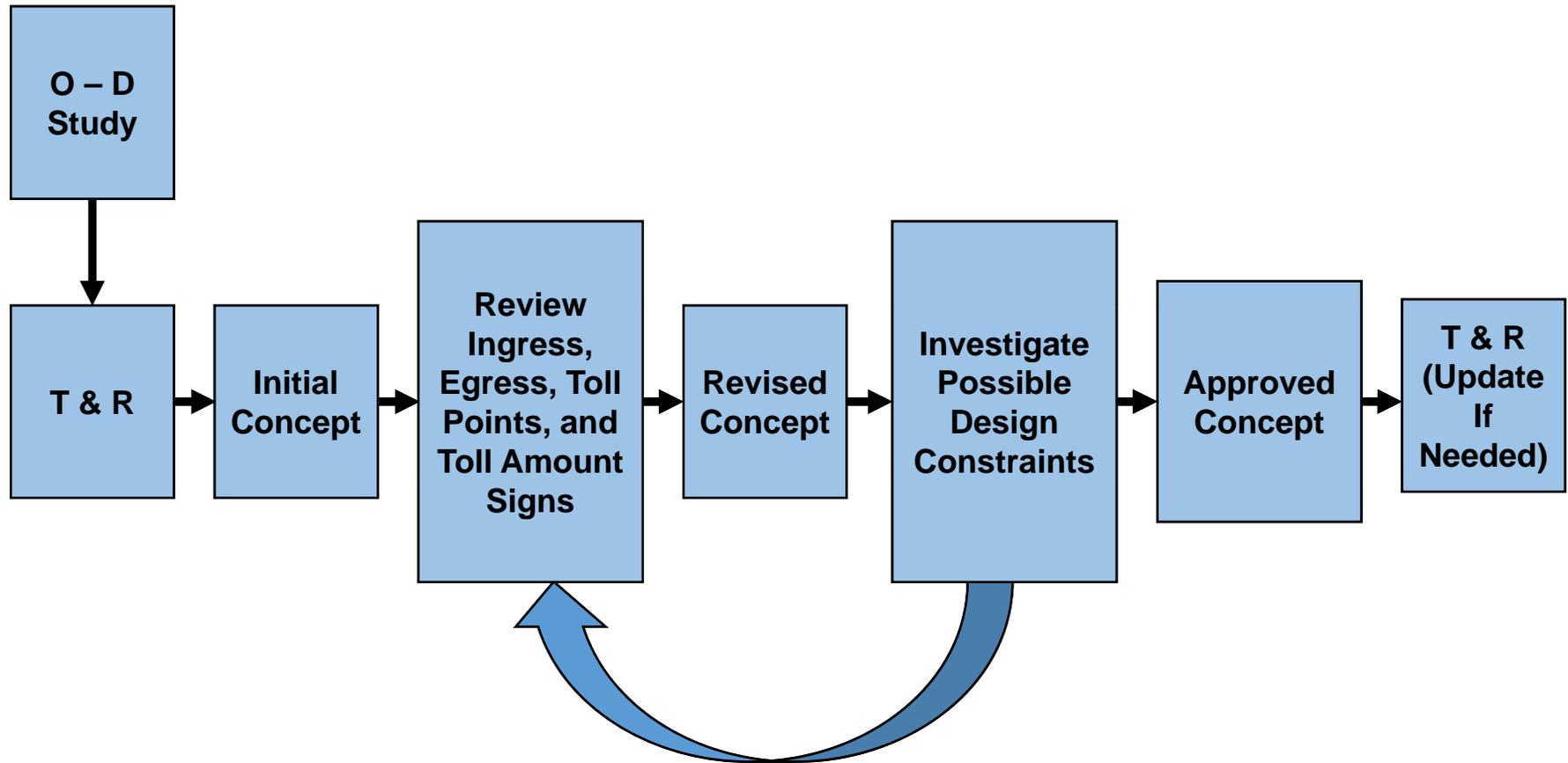


How to Begin?



- **Coordinate with the Turnpike Express Lanes Team:**
 - Planning (Modeling with Traffic & Revenue)
 - Tolls
 - Design
 - Traffic Operations/ITS
 - Construction
- **Develop Responsibility Matrix (Project Level)**
- **Develop Concept of Operations**
 - Conceptual design - Express Lane Diagrams (validates signage, tolling points, number of lanes, direct connects, and functionality)
 - System operations – (interim & ultimate)
 - Incident Management

Iterative Development Process

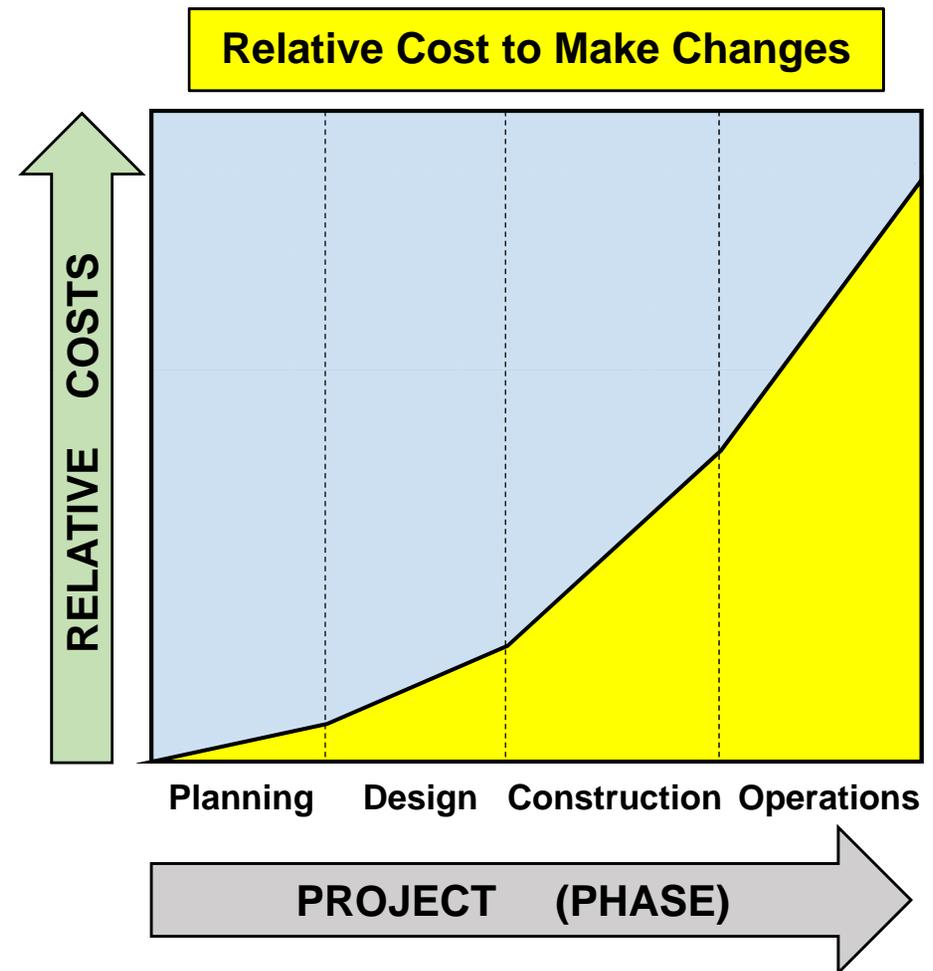


Expect Multiple Iterations

Concept of Operations (ConOps)



- **Regional level (Regional Concept for Transportation Operations – RCTO)**
 - High level regional connectivity
- **Corridor Level**
 - System to system connectivity
 - Phasing of projects
- **Project Level**
 - Operations plan for phasing during construction
 - Incremental implementation
 - Go-Live
 - Incident management plans



Express Lane (EL) ConOps



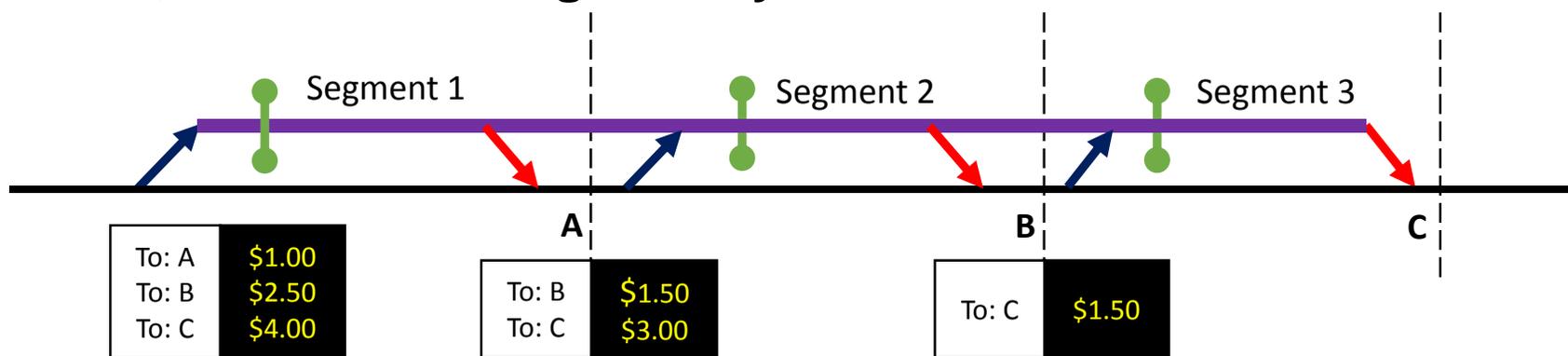
| <u>Regional EL ConOps</u> | <u>Corridor(s) EL ConOps</u> | <u>Project(s) EL ConOps</u> |
|--|--|---|
| <ul style="list-style-type: none">• High level network map• Stakeholders• Roles and responsibilities• Traffic characteristics• Existing EL systems• Future EL systems• Operational scenarios | <ul style="list-style-type: none">• Ingress/Egress points• Toll points• System-System connection and coordination• Toll signing concept• Project phasing (Interim and Ultimate operations)• Telecommunications concept• ITS concept• Responsibility matrix• Gantry cross sections• Lane, shoulder & buffer widths | <ul style="list-style-type: none">• Refines corridor ConOps for specific project(s) as necessary• Implementation plan• Go-Live• Interim operations within projects• Incident Management |



Rules



- **Toll amount Digital Message Sign (DMS)**
 - Display 3 destinations or less
 - All destinations must be signed
- **Place the toll point as close as possible to the ingress (1 mile or less)**
- **Transaction charge is associated with each toll gantry**
 - DO NOT use assumed action logic to charge where a transaction is not created
- **Need to look beyond the project to the corridor and network**
- **Corridors/Networks must be composed of a combination of one, two or three segment systems**

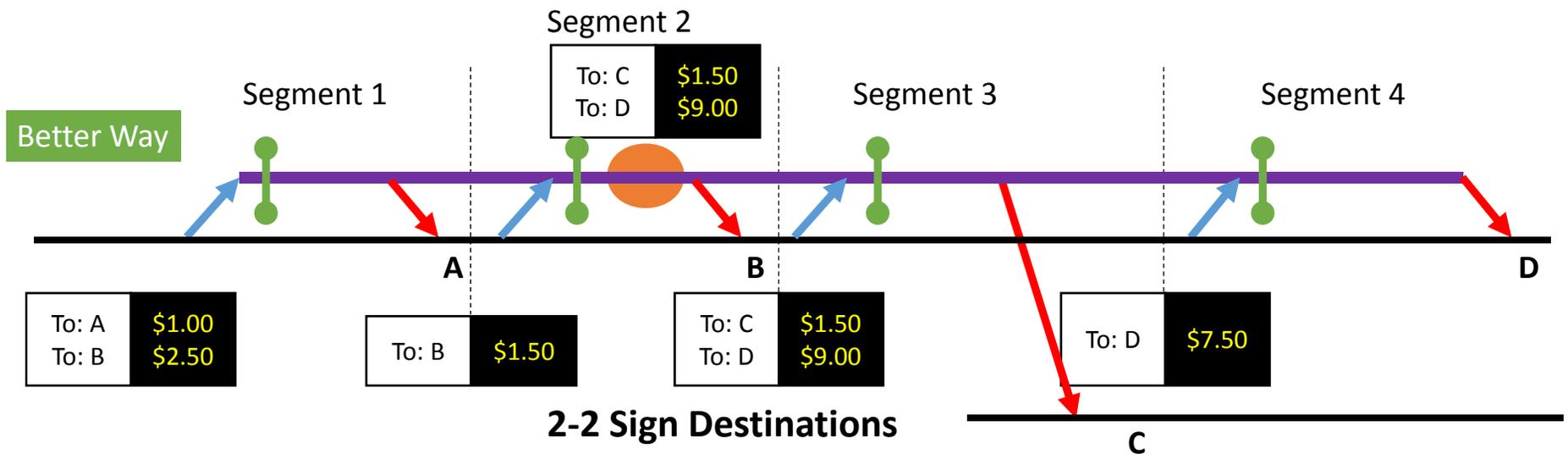
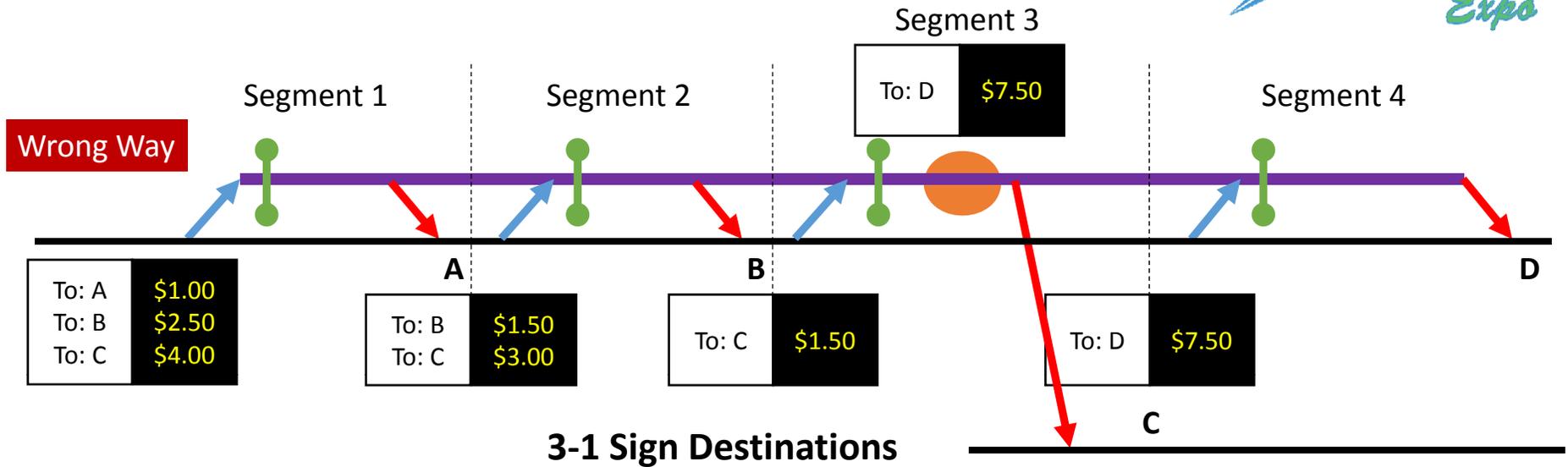


Rules (Cont'd)



- **When systems are connected end to end they cannot have overlapping destination signs and rates**
 - You CANNOT show the customer a toll amount to a destination that already includes an amount to another destination that they have already seen
- **DO NOT create a trap scenario**
 - You CANNOT trap a customer into using a segment without a realistic option to exit and continue on the general purpose lanes (GPL)
 - Occurs with direct connect to arterial or system to system
 - The last destination that is shown must have an exit to the GPL and provide the opportunity for the customer to choose to stay in the express lane

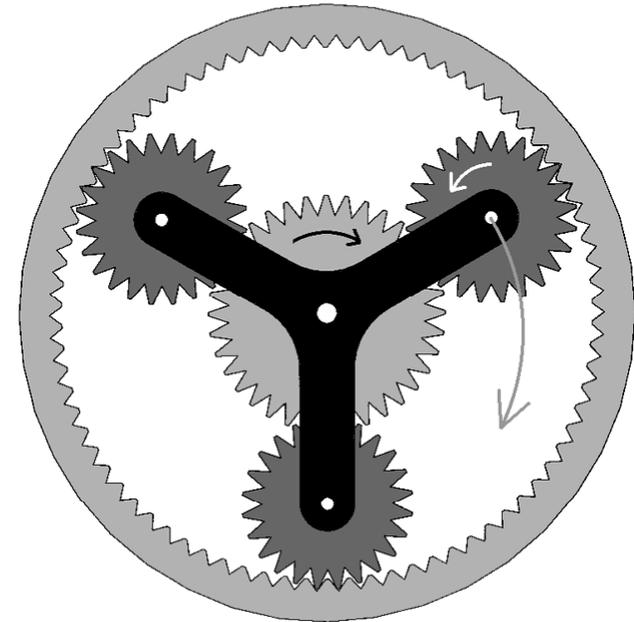
Trap Scenario



Ingress, Egress, Toll Points & Signs



- All components must be planned together to work in harmony
- Ingress/Egress needs are driven by Origin – Destination (O-D) study and traffic modeling
- Review possible Ingress/Egress points with FTE
 - Support longer trips
 - Compare against roadway constraints
- When one tolling location or Ingress/Egress changes the entire EL system, operations, incident management, ITS and signage needs to be reviewed and revised



Ingress, Egress, Toll Points & Signs (Cont'd)



- **Slip ramp is most preferred**
 - If necessary the slip ramps can be separated
- **If slip ramps cannot be provided a weave lane should be investigated**
- **Weave zone is used as last resort**
 - Revisit O-D and modeling to determine if Ingress/Egress is really needed

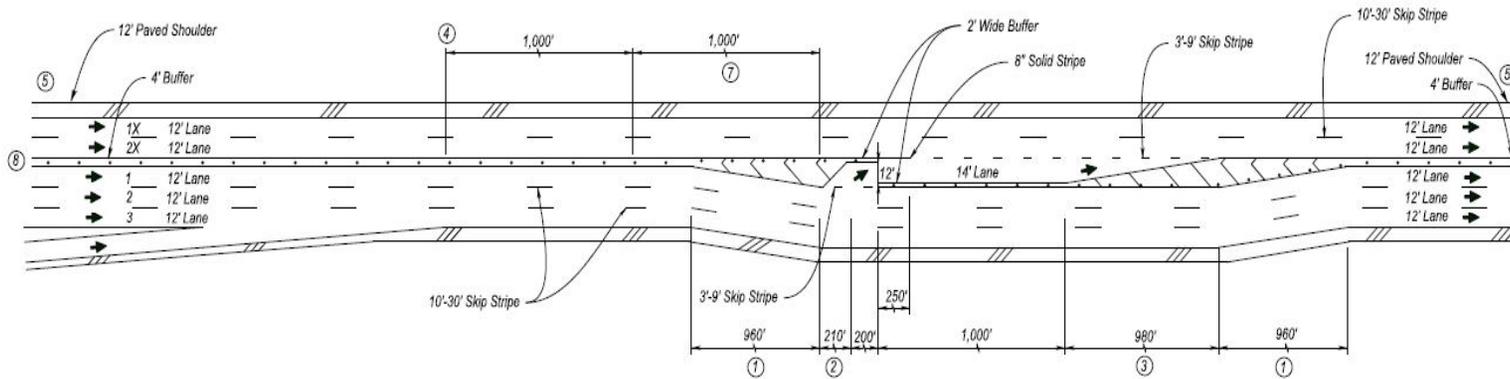


Slip Ramp Example

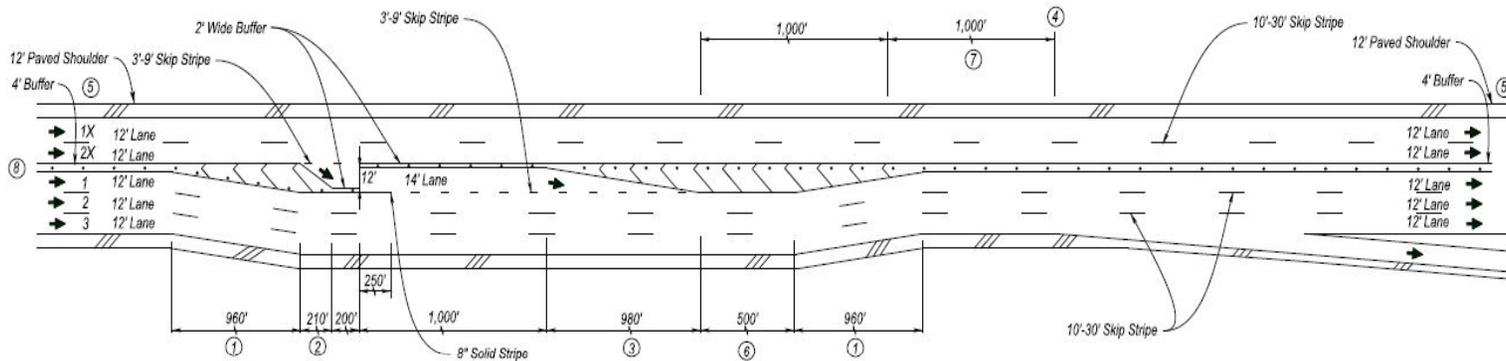


Notes:

- ① Per FDOT PPM, Table 2.8.1a, Maximum Deflections Without Horizontal Curves, 0° 45' or 76.39'1. (Use 60.1).
- ② 15:1 Taper Is To Be Used To Achieve 180' Or 210' Taper Lengths.
- ③ Taper Length Based On L=WS. 70:1 Taper As Shown Assumes 70 MPH Design Speed.
- ④ This Applies To 1 Lane Parallel And Tapered Ramps. For 2 Lane Ramps And Auxiliary Lanes Establish This Point 1,500' After/Before Ramp Gore.
- ⑤ Provide Paved Shoulder Width In Accordance With FTE TPPPH.
- ⑥ Tangent Length Between Lane Deflection.
- ⑦ Provide 1000' For Each Lane Change.
- ⑧ See Sheet 107-1 For Buffer Zone Detail.



Slip Ramp - Typical Ingress Only



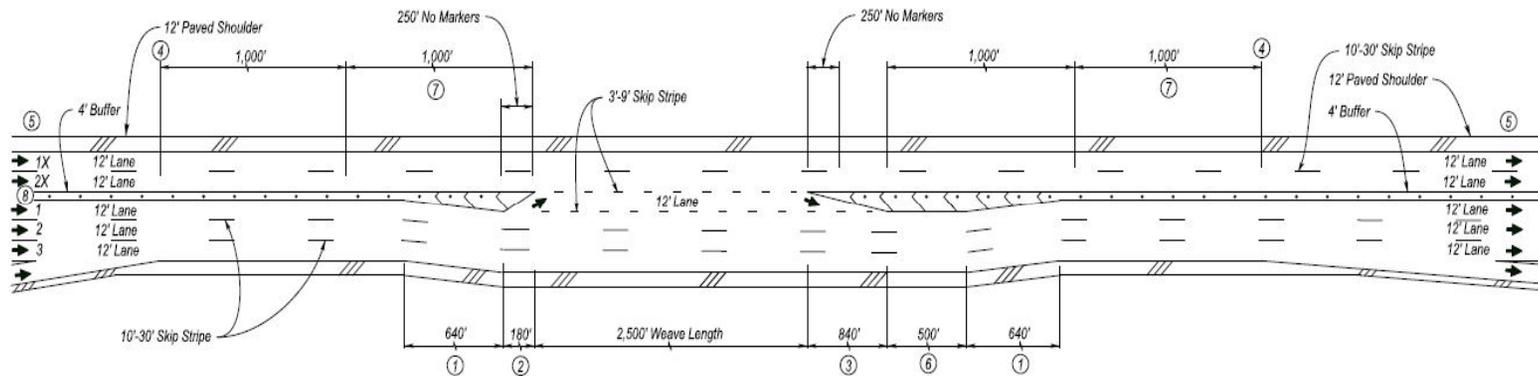
Slip Ramp - Typical Egress Only

Weave Lane & Zone Examples

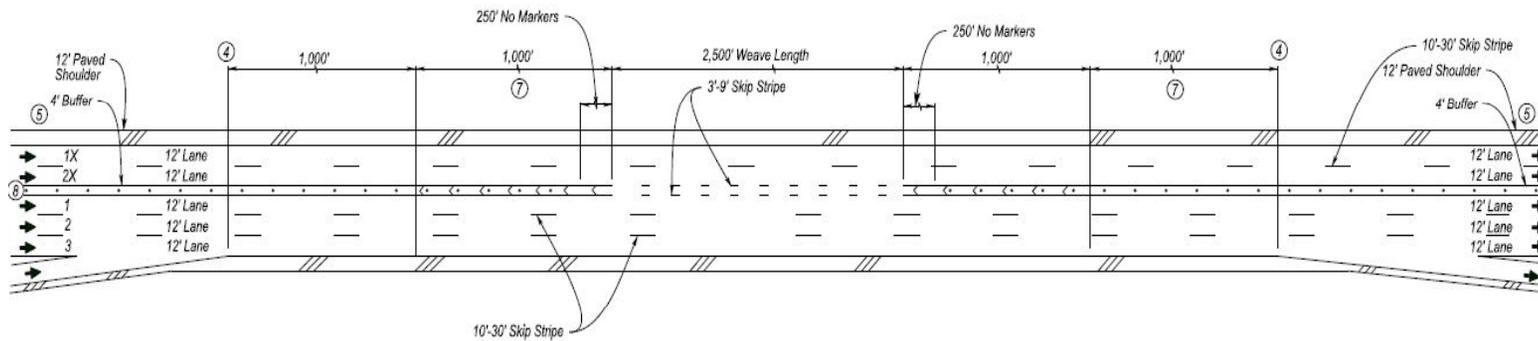


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Weave Lane - Typical Combined Ingress/Egress

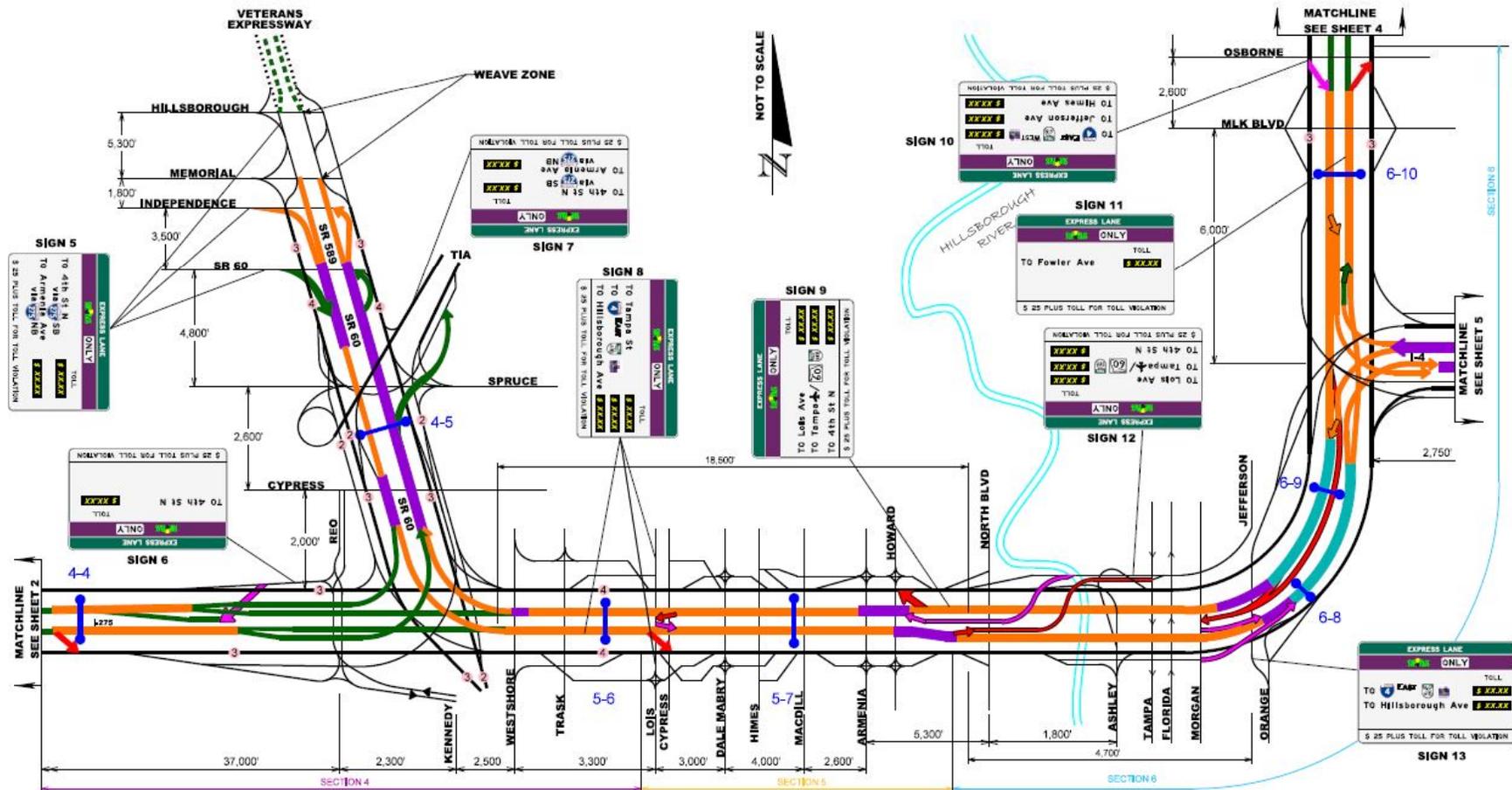


Weave Zone - Typical Combined Ingress/Egress

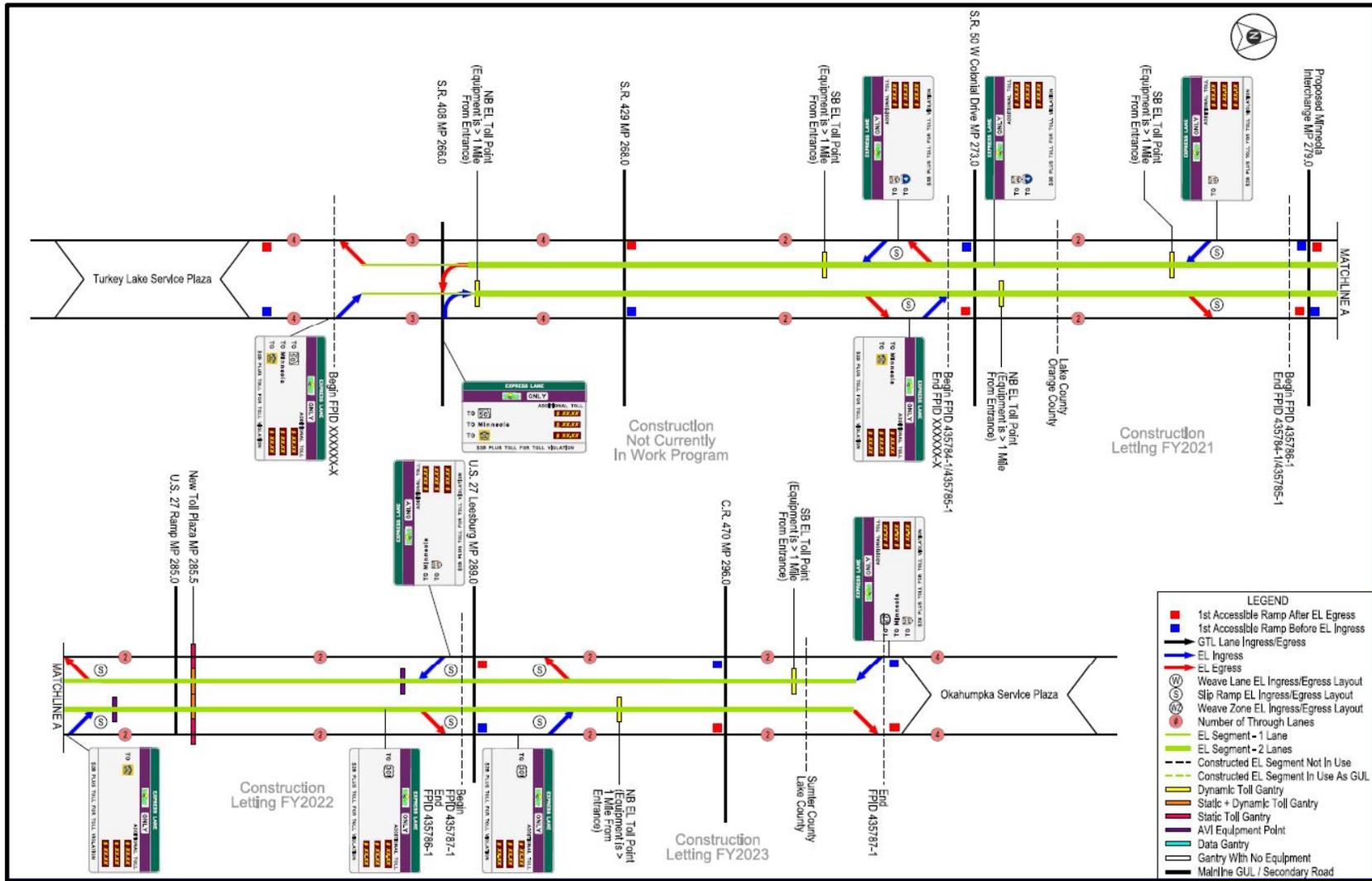
Regional Level Concepts



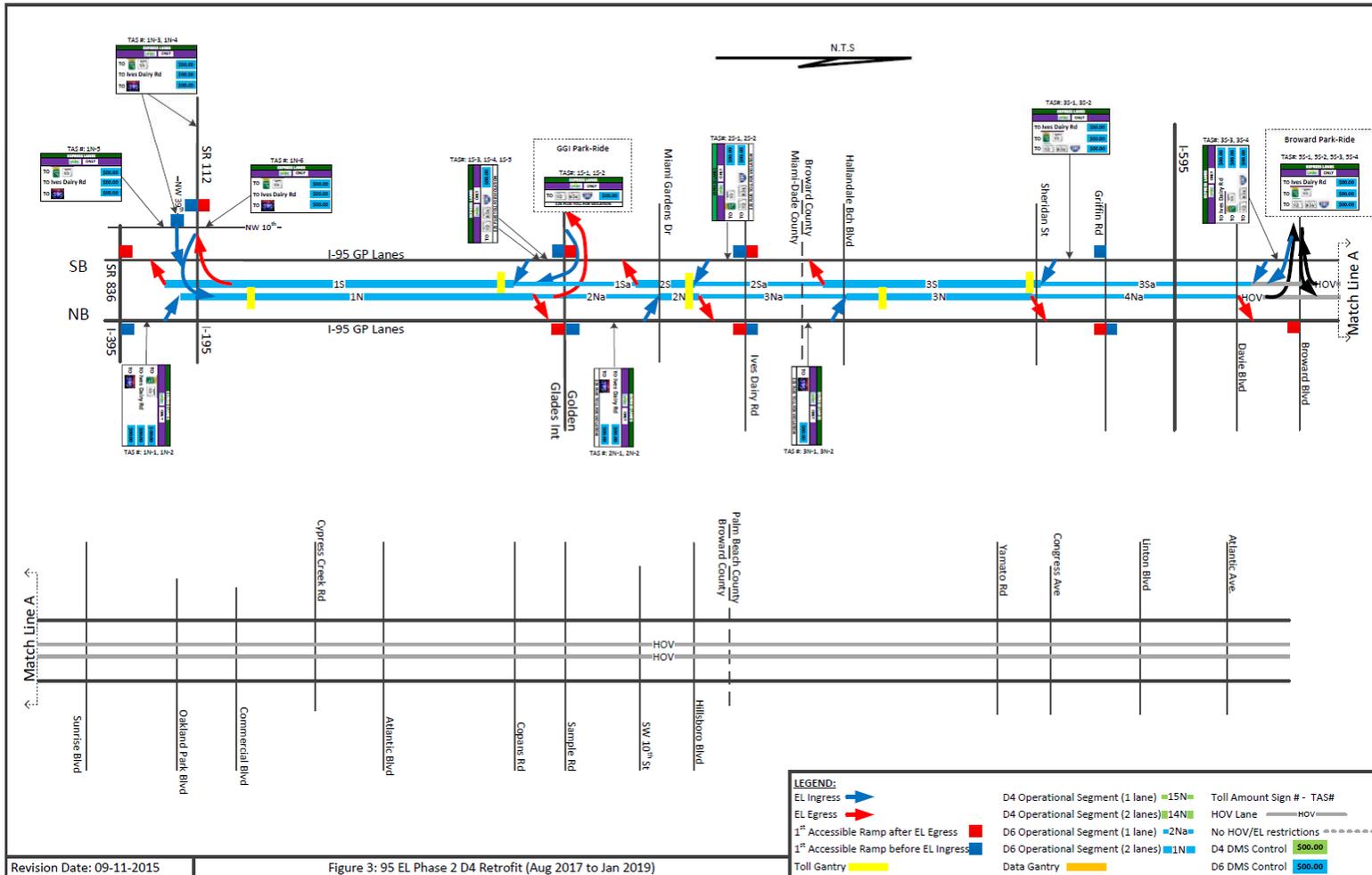
Corridor Level Concept - TBX



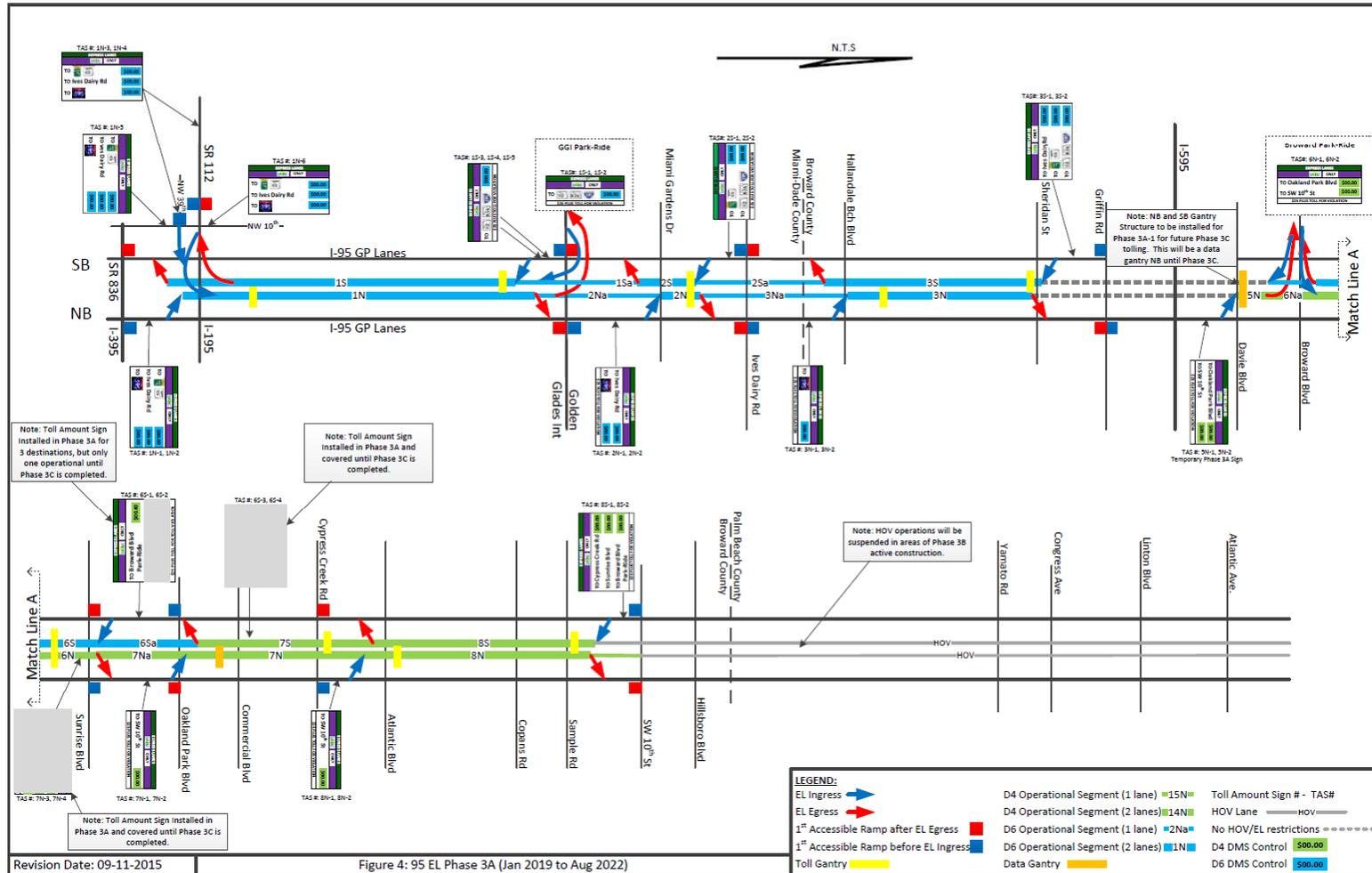
Corridor Level Concept (Turnpike)



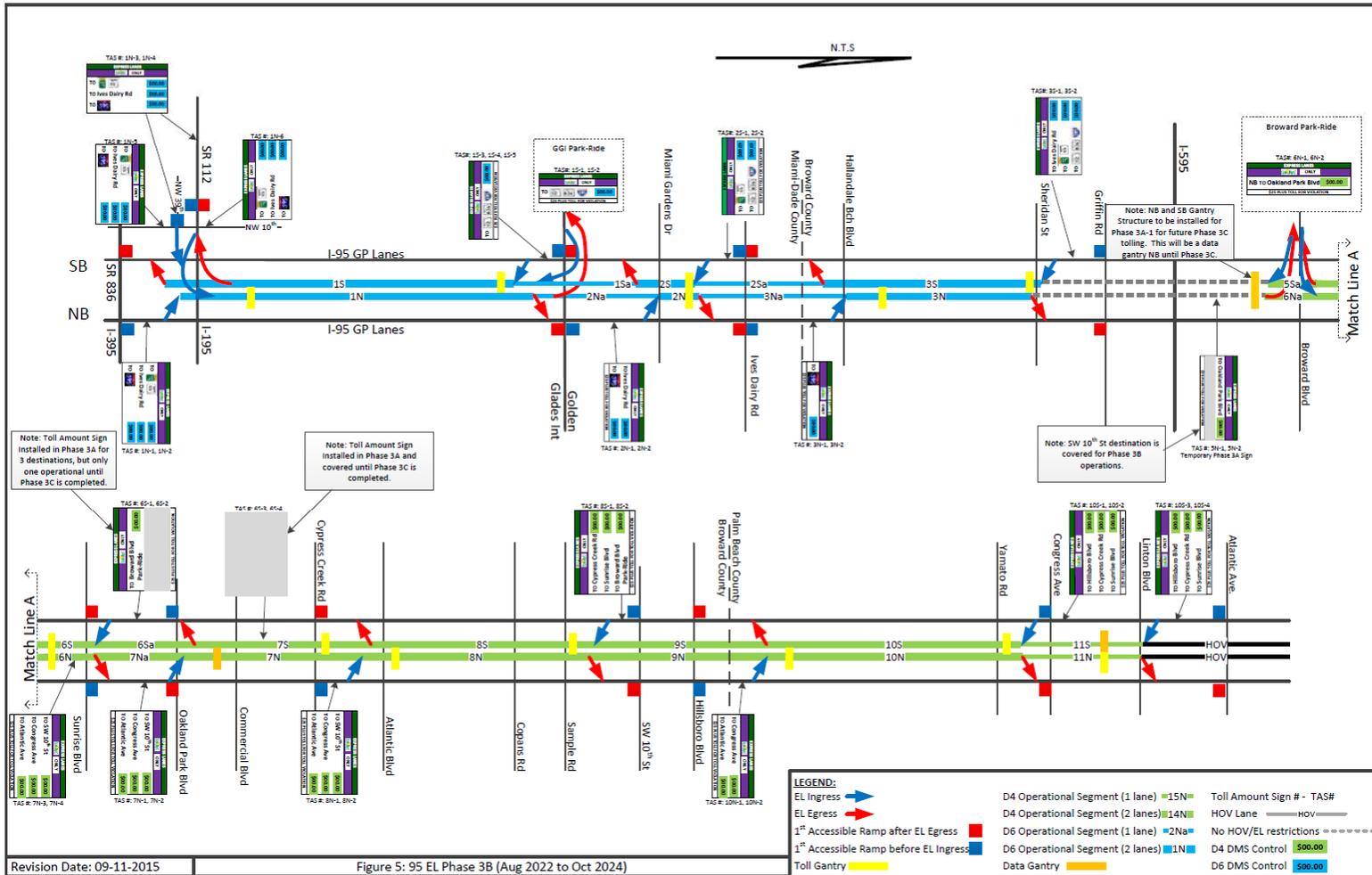
Corridor Level Concept Phasing (I-95)



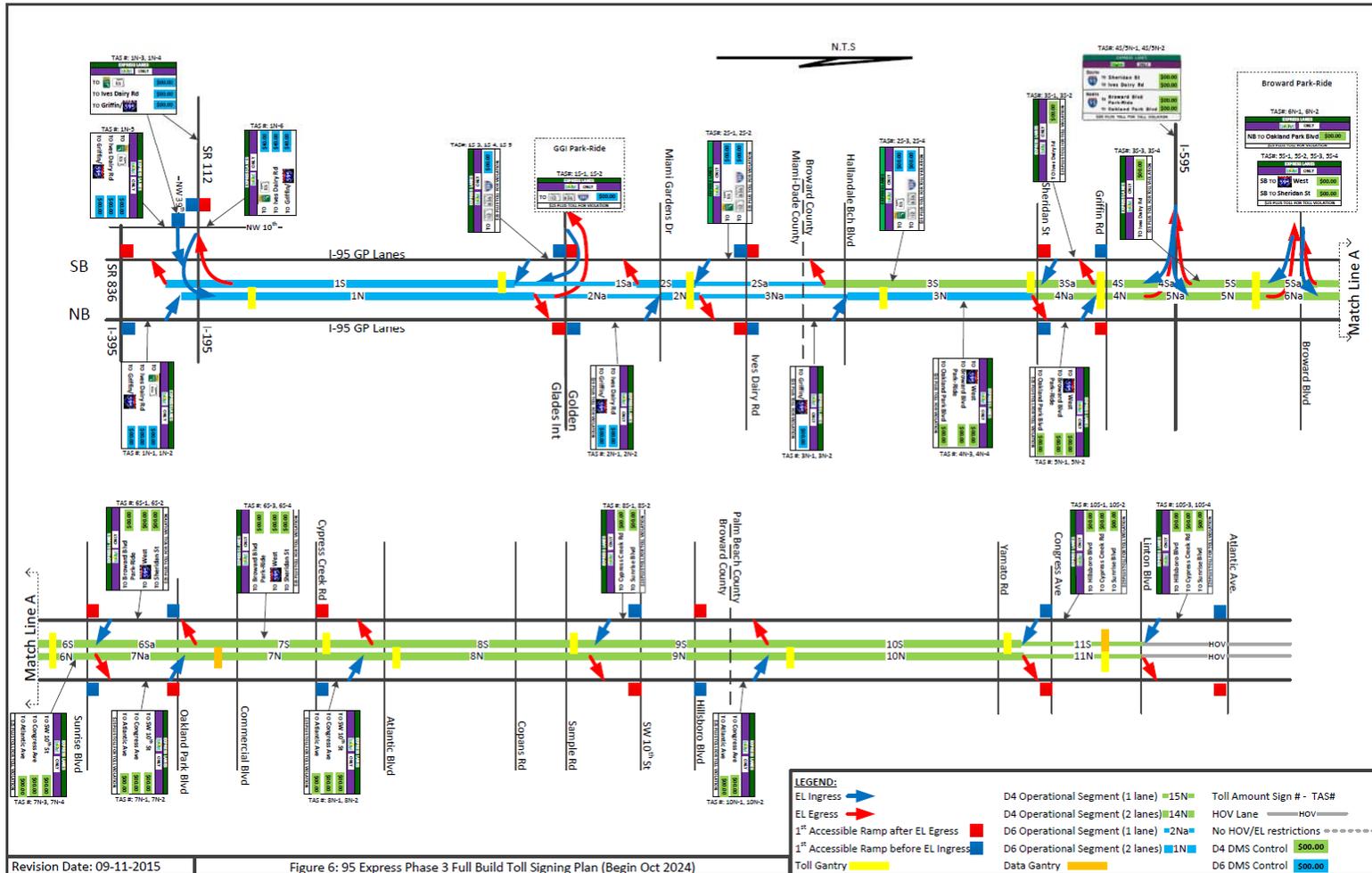
Corridor Level Concept Phasing (I-95)



Corridor Level Concept Phasing (I-95)



Corridor Level Concept Phasing (I-95)



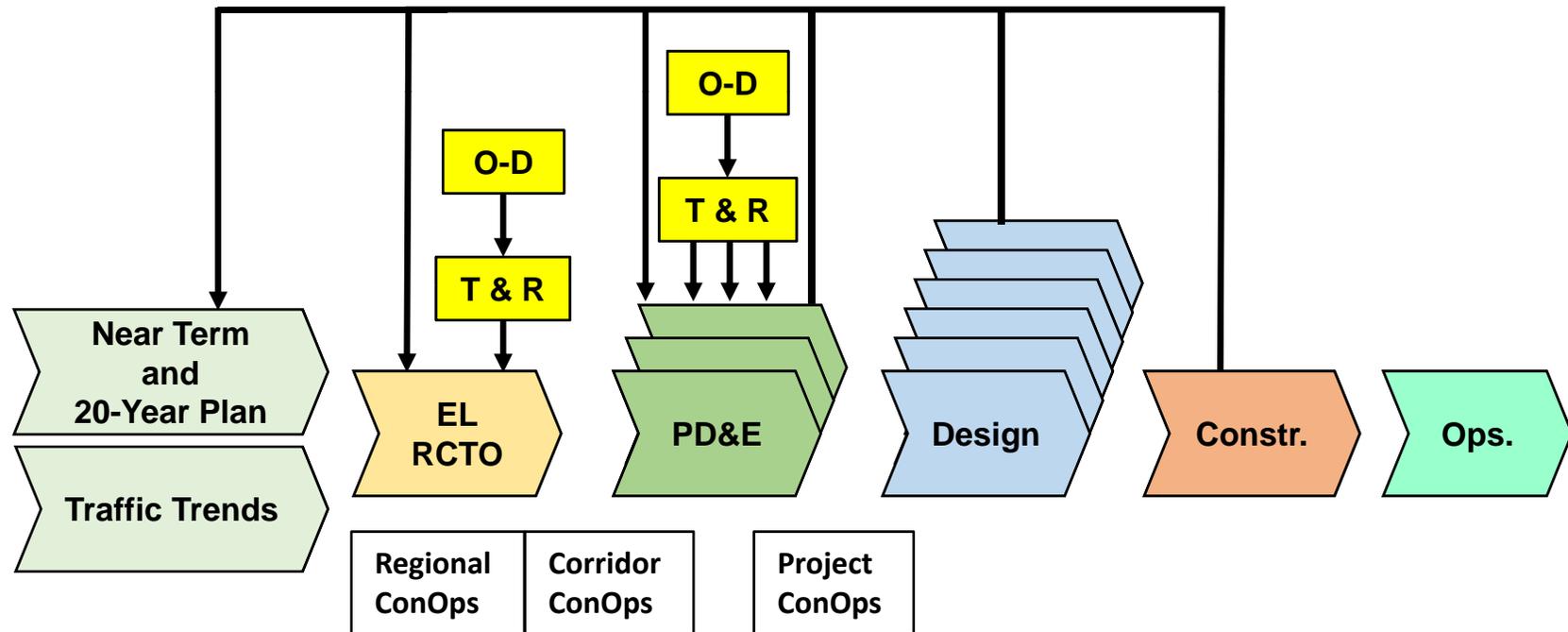
Revision Date: 09-11-2015

Figure 6: 95 Express Phase 3 Full Build Toll Signing Plan (Begin Oct 2024)

What If Criteria Changes?



If **CHANGES** to the concept are made at any time during planning, design, or construction, the overall concept must be revisited to determine where impacts or conflicts occur



Who?



- **Turnpike Express Lanes Team**
 - Tolls – James E Beverly, Jr. (Primary Contact)
 - Planning – Barbara Davis
 - Design – Shannon Pike
 - Operations – Eric Gordin
 - Construction – Joe Chinelly
- **Coordinate with FTE early and often**

Summary



- **Why?**
- **Where?**
- **How?**
 - Coordinate with the Turnpike early and often
 - Iterative planning and design process
- **What?**
 - Follow the rules
 - KISS - Just because you can build it, does not mean you should
 - CPR
 - ConOps
- **Who?**
 - Turnpike Express Lanes Team

Questions?



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