Interchange Access Request (IAR) Process

PM Academy Training: 3/31/2021

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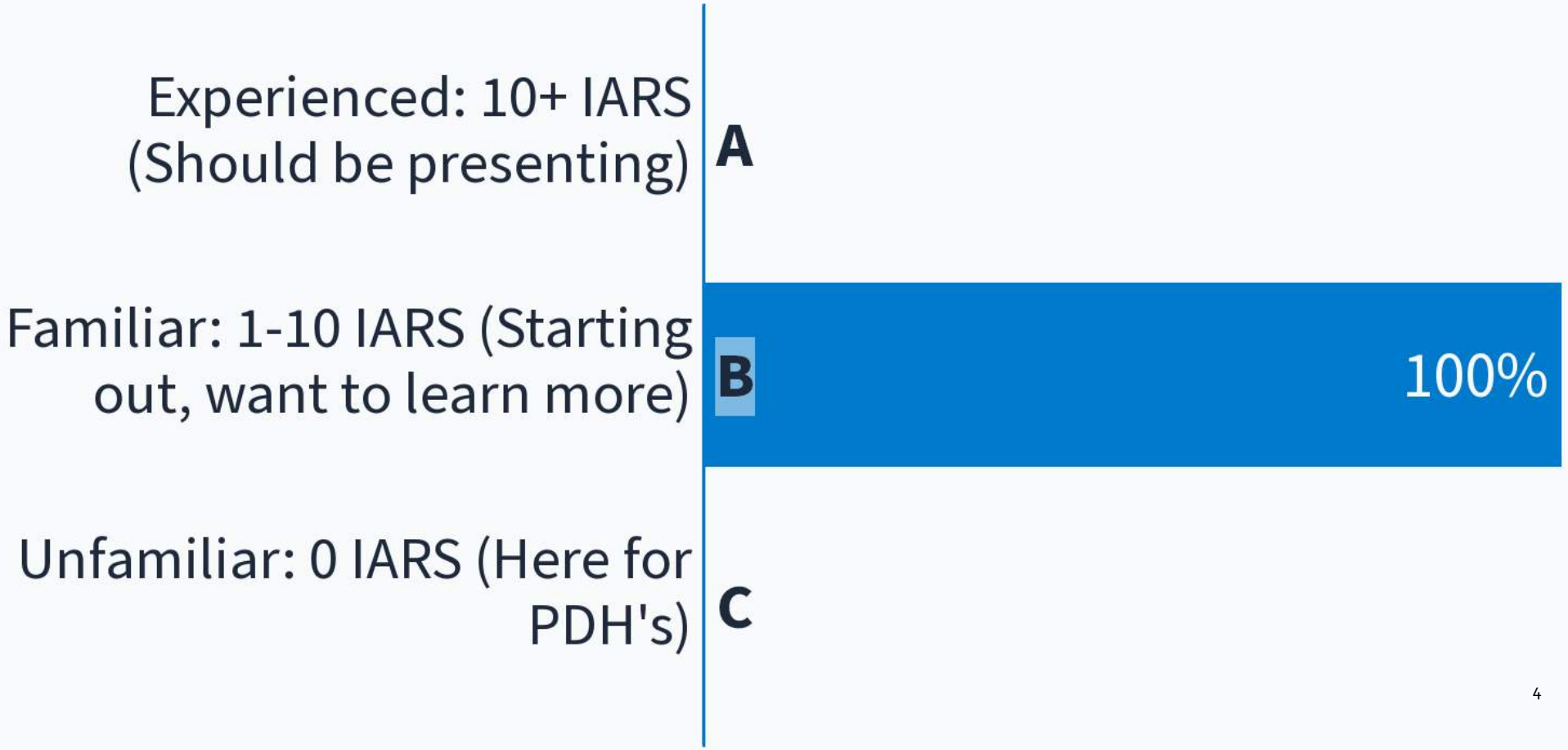
or

Text “FDOTD2” to 22333

What Is Your Experience With Interchange Access Request?



What Is Your Background?

Engineer

Planner

Both

Other

Agenda

- Interchange Access Requests (IAR)
- Florida and Federal Policy
- IAR Coordination and Approval Process
- IAR Methodology and Analysis
- IAR Documentation and Review
- IAR Re-Evaluation

Interchange Access Requests (IAR)

Interchange Access Requests (IAR)

- **Requests for new or modified access to**
  - Florida Interstate Highway System
  - Non-interstate limited access facilities on the State Highway System (SHS)

- **The Requestor of an IAR can be**
  - FDOT
  - Local government
  - Metropolitan Planning Organization (MPO)
  - Transportation Planning Organization (TPO)

Why Prepare IARs

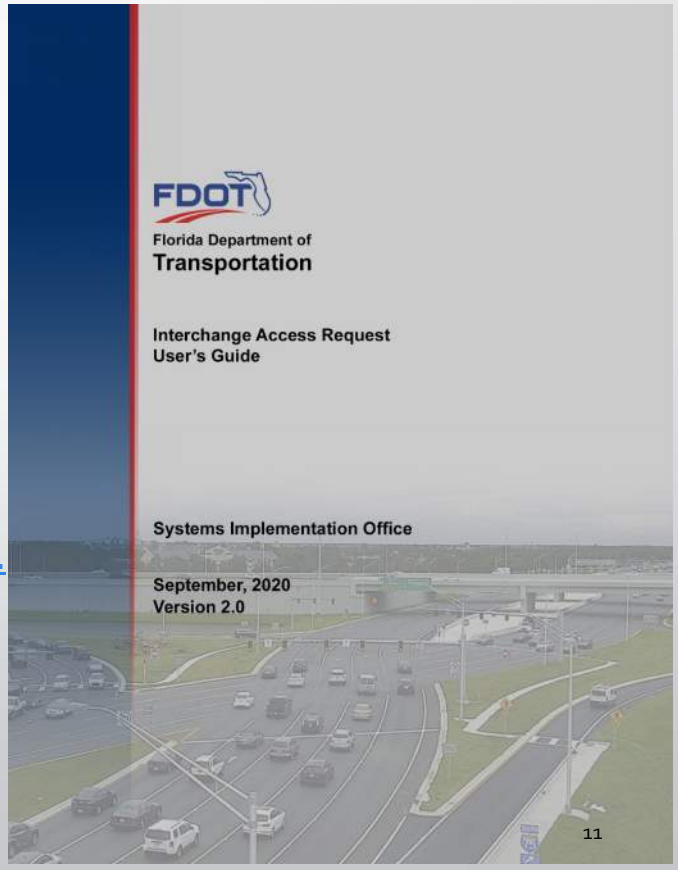
- Purpose of interstates/freeways is to serve long distance, uninterrupted, high speed, high volume, trips.
- Required per Rule Chapter 14-97, F.A.C. and FHWA Policy

Why Prepare IARs

Interchange Access Request User's Guide

- Provides guidance related to process, policies, technical requirements, documentation to satisfy State and Federal requirements

- Available online at
  - https://www.fdot.gov/planning/systems/documents/sm/default.shtm#interchange



Interchange Access Requests (IAR) – Types

- Common IAR Documents
  - Interchange Operational Analysis Report (IOAR)
  - Interchange Modification Report (IMR)
  - Interchange Justification Report (IJR)
  - Systems Interchange Modification Report (SIMR)

IOAR Versus IMR

- **When is an IOAR prepared?**
  - Minor modifications with no change in interchange configuration or travel patterns
  - Typically does not require right-of-way acquisition
  - Short term, lower cost improvements **– about 10 years acceptable performance**

- **When is an IMR prepared?**
  - Modification of interchange configuration or travel patterns
  - Improvements require additional right of way most of the time
  - Long term improvements – **at least 20 years of acceptable performance**

Interchange Operational Analysis Reports (IOARs)

- Shortening of an off-ramp
- Signalization of an off ramp free flow, right turn lane
- Replacement of unsignalized ramp terminal with a signal or a roundabout
- Any changes that result in an increase in the number of lanes at the gore point of an on-ramp outside of the mainline weaving area

IOAR Example

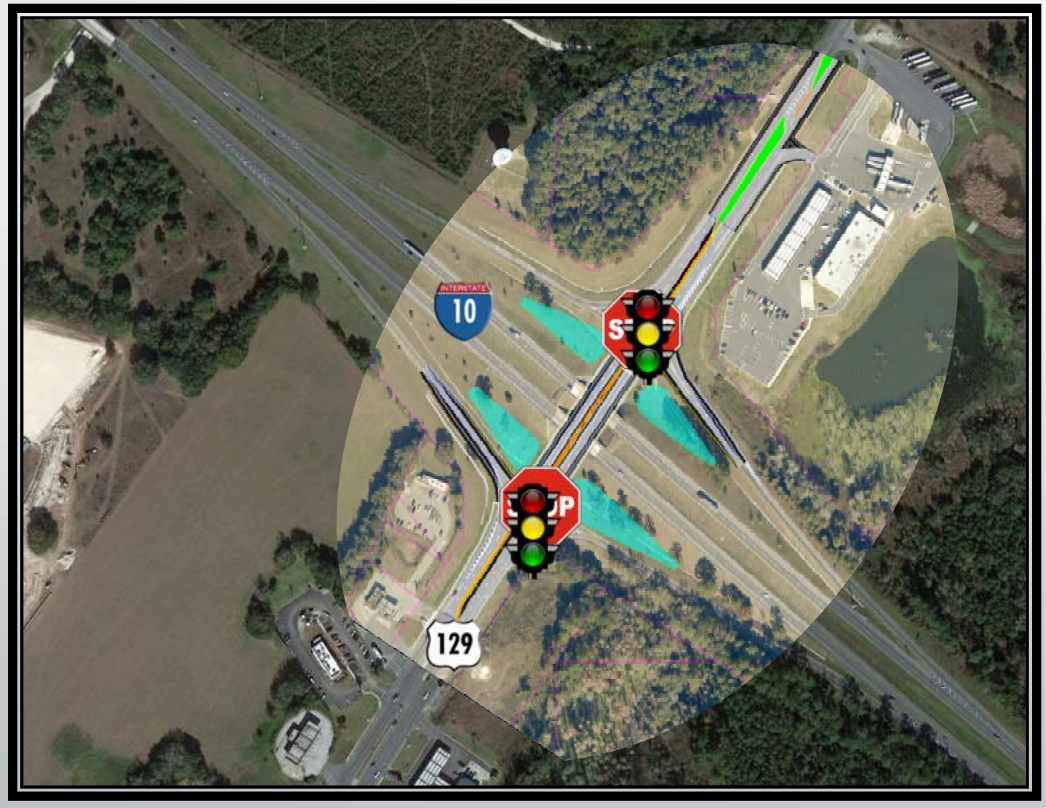
- Shortening of an off ramp and signalization

IOAR Example

- Signalization of an off ramp, free flow, right turn lane

IOAR Example

- Replacement of an unsignalized ramp terminal with a signalized ramp terminal.



IOAR Example

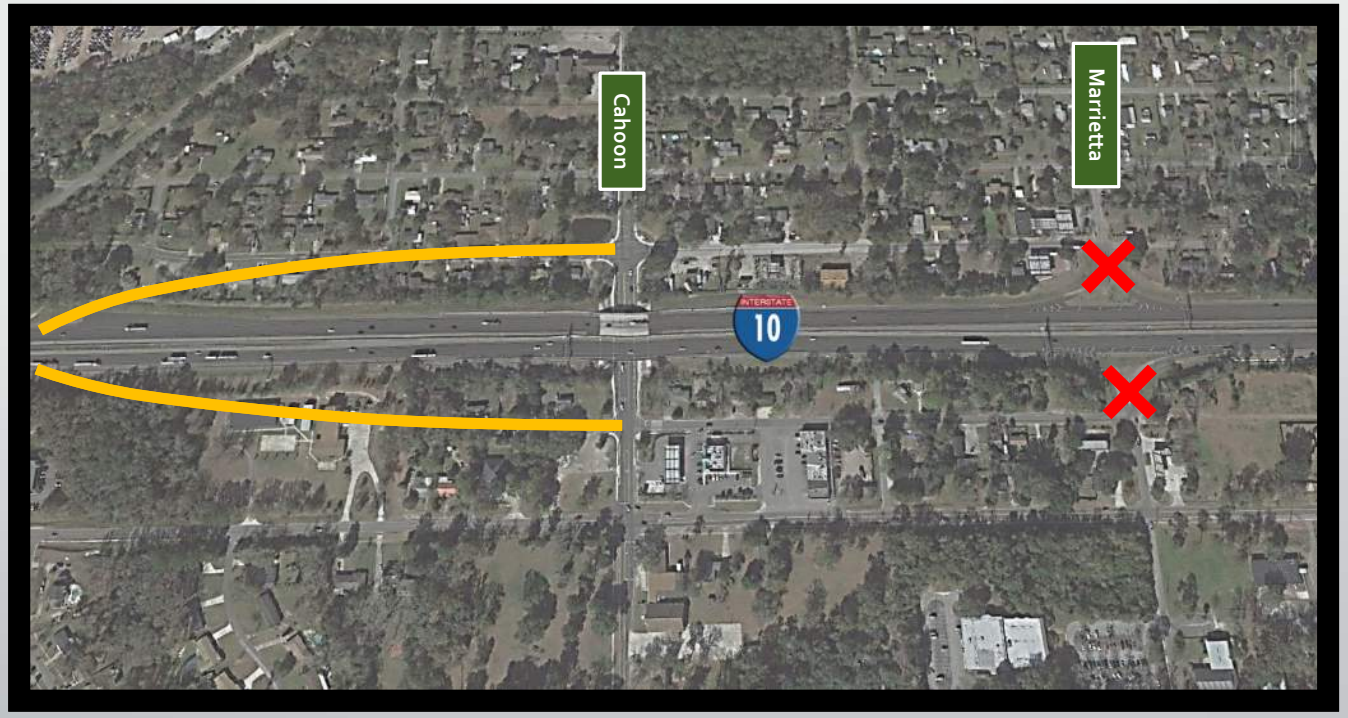
- Adding lanes to entrance ramp outside weaving area

Interchange Modification Reports (IMRs)

- Modification of interchange geometry (abandoning or adding a ramp)
- Completion of basic movement of a partial interchange
- Adding lanes to an entrance ramp within the weaving area of the mainline
- Adding a slip ramp

IMR Example

- Modification to a geometric configuration of an interchange
  - Abandoning/removing a ramp



IMR Example

- Completion of basic movements at an existing partial interchange

IMR Example

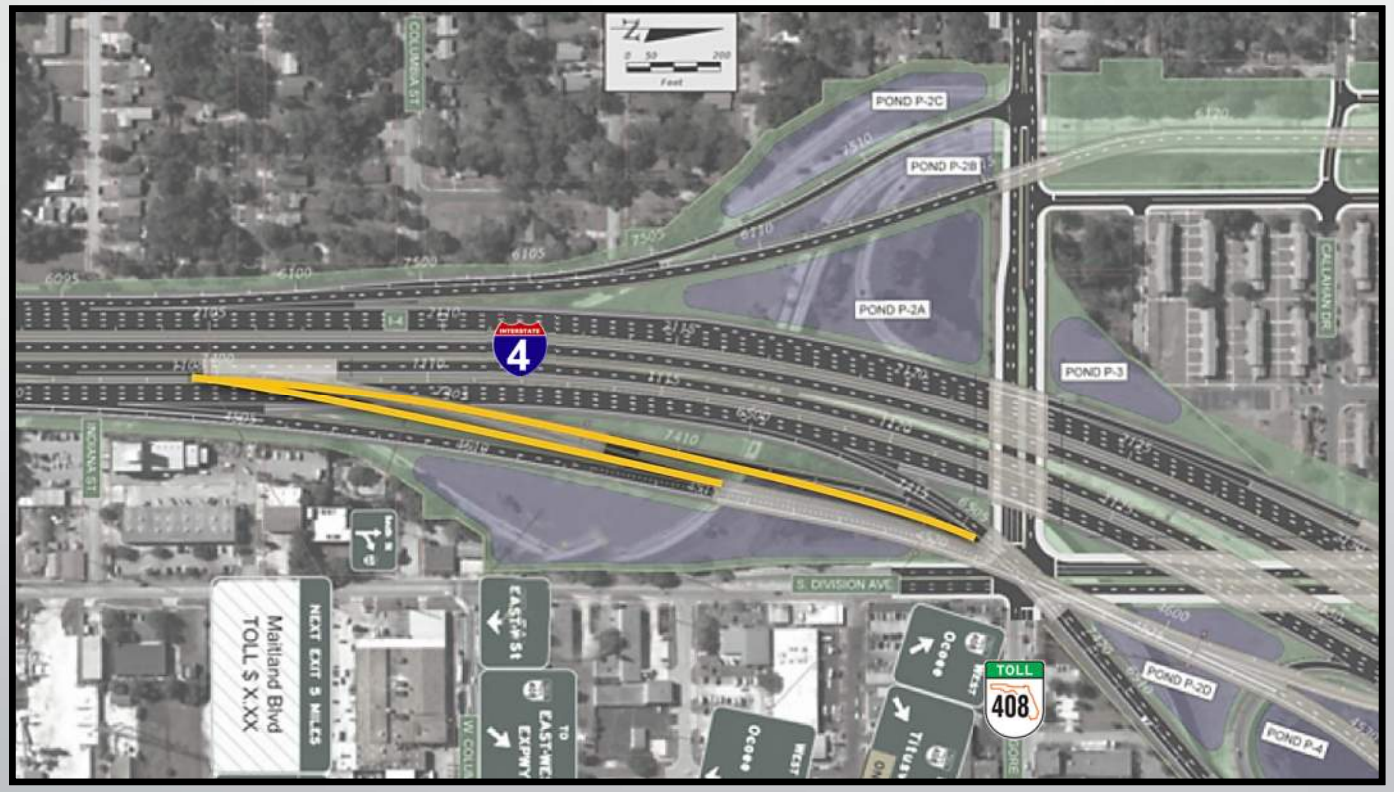
- Adding lanes to the entrance ramp within weaving area

When To Prepare An IMR

- Modification to a geometric configuration of an interchange
  - Adding a slip ramp

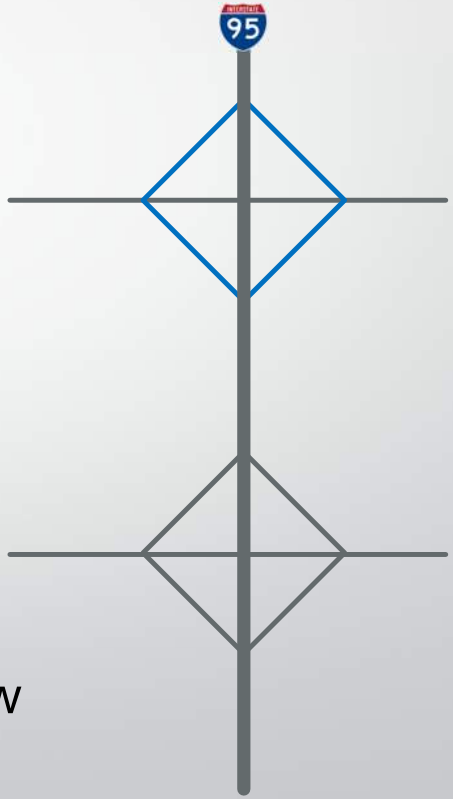
IMR Example

- Managed lane with direct connection to the crossroad



Interchange Justification Report (IJR)

- Required when a new access is proposed on the interstate or limited access facility
  - New System to System Interchange
  - New Service interchange
  - New Partial interchange
- Highest level of analysis and documentation
- Quantifies the magnitude of impacts due to the new access



Systems Interchange Modification Report (SIMR)

- IAR for Interchange Modifications
  - Closely Spaced interchanges, Operationally Interrelated
  - **Supports a Corridor PD&E Study**

Non-Interstate Access Request (Non-IAR)

- Coordination with the FHWA Florida Division Office is required for information purposes
- Responsibility of the District IRC to ensure operational analyses for the non-IAR improvements are conducted and documented
- Traffic and safety analysis may not be required on:
  - Construction of new signing, striping and/or resurfacing of an interstate
  - Installation of roadside guardrail and concrete barriers
  - "In-kind" bridge replacement/modification without changing laneage

Examples of Non-IARs

- Addition of storage lanes at the terminus of existing off-ramps with the crossroad
- Relocation or shifting of the ramp termini along the same roadway, which does not result in a shortening of the off-ramp
- Extension of an acceleration/deceleration lane or recovery lane at the interstate connection point not within the weaving area of an adjacent interchange
- Extension of an on-ramp as an auxiliary lane extending to downstream interchange

FHWA Policy and the Programmatic Agreement

FHWA's Interstate System Access Policy

- Policy statement entitled "Access to the Interstate System"
  - Last modified May 22, 2017

- The Policy focuses on technical feasibility of proposed changes in terms of
  - SO&E Acceptability
- All Interchange Access Requests are required to follow the May 2017 Policy
  - Two (2) FHWA Policy Points

FHWA Policy Point 1

An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes [illegible] lanes, e[illegible], [illegible]w, or modified ramps, ramp inte[illegible]sections with crossroad) or on the local [illegible] projections. The analysis should, particularly in urbanized areas, include at least the first adjacent existing or proposed inte[illegible] on either side of the proposed change in access (23 CFR 625.2(a), [illegible] intersection on either side of the proposed change in access, should be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed [illegible] (23 [illegible] 655.603(d)). [illegible] description and assessment of the impacts and ability of the proposed changes to safely and efficiently coll[illegible] facility, ramps, intersection of [illegible] and 655.603(d)). Each request should also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d)).

"The IAR does not have a significant adverse impact on the operation and safety of the freeway system"

FHWA Policy Point 2

"The proposed access connects to a public road only and will provide for all traffic movements"

Programmatic Agreement

Key Points

- Agreement between FHWA and FDOT
- FDOT has more control on the IAR process
- Streamline and expedite the review and approval of IARs
- IARs reviewed for SO&E acceptability and signed off by FDOT's Chief Engineer
- FHWA provides final approval (affirmative determination) after completion of PD&E

IARs Eligible For Programmatic Agreement

- New service interchanges outside TMAs
- Modifications to service interchanges
- Completion of basic movements at existing partial interchanges
- All IOARs

IAR Coordination and Approval Process

5 Key Elements to a Successful IAR

Stakeholders

- Requestor
- District Interchange Review Coordinator (DIRC)
- State Interchange Review Coordinator (SIRC)
- Systems Management Administrator (SMA)
- Federal Highway Administration (FHWA)

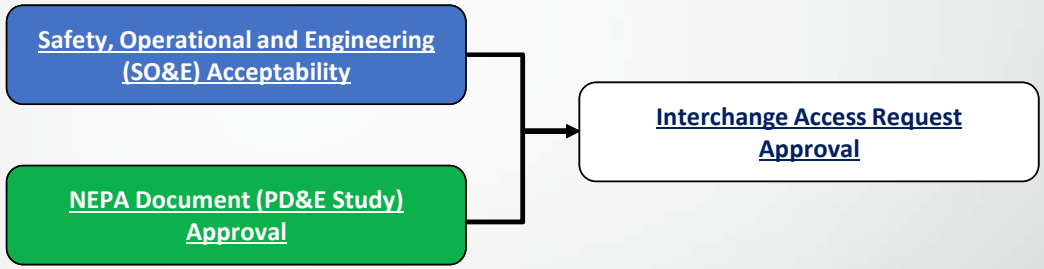
District Coordination

- Interchange coordination meetings must be held for each IAR proposal
- Interdisplinary
  - Environmental Management
  - Design
  - Traffic Operations
  - Structures
  - Safety
  - ROW
  - Maintenance and Program Management

- FHWA and State Interchange Review Coordinator must be invited

Interchange Access Request Approval Process

- **Approval Process Consists Of Two Parts:**

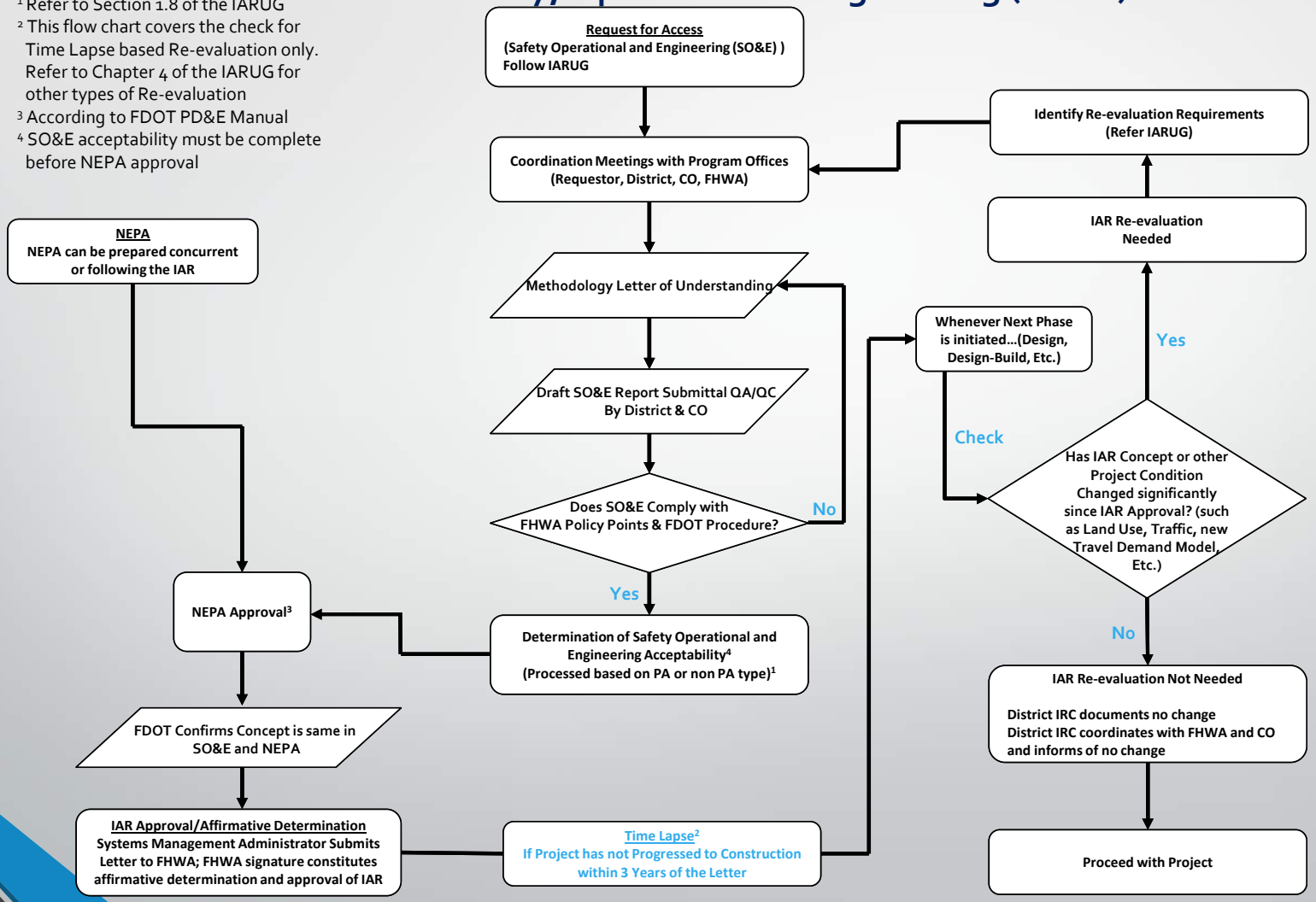


- **SO&E Process**
  - Compliance with FHWA's two policy points and FDOT's Procedure 525-030-160
  - Indicates access proposal is a viable alternative to include in the environmental analysis stage
- **PD&E Process**
  - Can be performed concurrently or following SO&E acceptance
  - However, approval can only occur following SO&E acceptance
  - NEPA documents are prepared per guidelines and requirements outlined in the PD&E Manual

Interchange Access Request (IAR)
Safety, Operational & Engineering (SO&E) Process

Notes

[1] Refer to Section 1.8 of the IARUG
[2] This flow chart covers the check for Time Lapse based Re-evaluation only. Refer to Chapter 4 of the IARUG for other types of Re-evaluation
[3] According to FDOT PD&E Manual
[4] SO&E acceptability must be complete before NEPA approval



IAR Approval Authorities

Approval Authorities – Non-PA Projects

Non-Programmatic Interchange Access Request Approval Authorities

Approval Authority	MLOU		Interchange Access Request	
			Interstate	
	IJR	IMR	IJR	IMR
Requestor	✓	✓	✓	✓
DIRC	✓	✓	✓	✓
Systems Management Administrator	✓	✓	✓	✓
Assistant Secretary Strategic Development			✓	
FHWA	✓	✓	✓	✓

Note: ✓ Review and approve the document

Approval Authorities – PA Projects

Programmatic Interchange Access Request Approval Authorities

Approval Authority		MLOU			IAR		
		IJR	IMR	IOAR[1]	IJR	IMR	IOAR
Requestor		✓	✓	✓	✓	✓	✓
DIRC		✓	✓	✓	✓	✓	✓
Central Office	Systems Management Administrator	✓	✓	✓	✓	✓	✓
	Chief Engineer (or Delegate)				✓	✓	✓
	Assistant Secretary for Strategic Development (or Delegate)				✓		
FHWA					●	●	●

Note:
- ✓ Review and approve the document
- 1 For an IOAR, the DIRC will determine the need for an MLOU in consultation with SIRC
- ● Concurs with FDOT Chief Engineer's determination of safety, operational and engineering acceptability, as agreed upon in the PA and grants Affirmative Determination after completion of the second step. FHWA Transportation Engineers should be involved when developing the MLOU.

Approval Authorities – Non-Interstate Authorities

Non-Interstate Interchange Access Request Approval Authorities

Approval Authority	MLOU			Interchange Access Request		
				Non-Interstate		
	IJR	IMR	IOAR[1]	IJR	IMR	IOAR
Requestor	✓	✓	✓	✓	✓	✓
DIRC	✓	✓	✓	✓	✓	✓
Systems Management Administrator	✓	✓	✓	✓	✓	✓
District Secretary				✓	✓	✓

Note: ✓ Review and approve the document
1 The DIRC will determine the need for an MLOU in consultation with SIRC.

IAR Methodology and Analysis

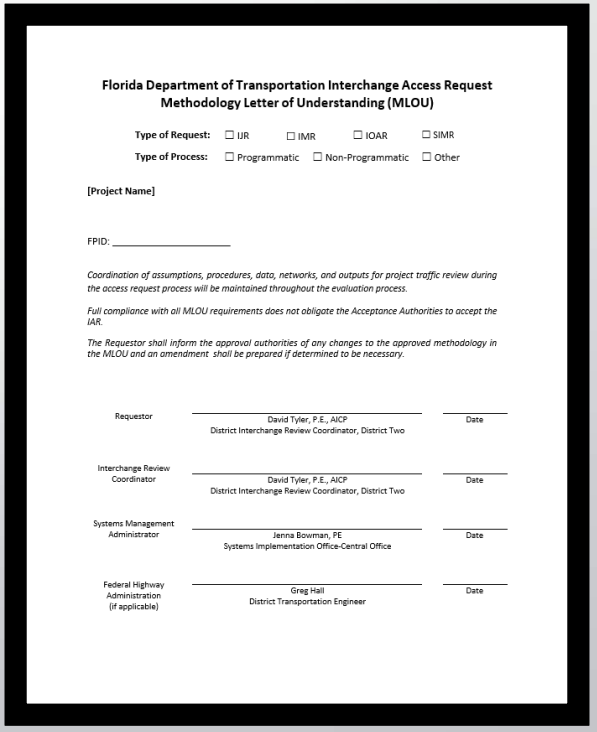
Methodology Letter of Understanding (MLOU)

- Identifies the parameters and primary focuses for IAR
- Documents the procedures to be followed in the IAR development
- The MLOU is used to reach a consensus among all stakeholders
- Required for all IJRs and IMRs
- For IOAR projects, the DIRC and SIRC will determine the need for MLOU

Methodology Letter of Understanding (MLOU)

- Meeting should be conducted to discuss the access proposal and MLOU for the access request
- Any fatal flaws to IAR acceptance should be identified and resolved
- The MLOU does not serve as a scope of work

Any work done prior to approval is at risk



Florida Department of Transportation Interchange Access Request Methodology Letter of Understanding (MLOU)

Type of Request: ☐ IJR ☐ IMR ☐ IOAR ☐ SIMR

Type of Process: ☐ Programmatic ☐ Non-Programmatic ☐ Other

[Project Name]

FPID: _____

Coordination of assumptions, procedures, data, networks, and outputs for project traffic review during the access request process will be maintained throughout the evaluation process.

Full compliance with all MLOU requirements does not obligate the Acceptance Authorities to accept the IAR.

The Requestor shall inform the approval authorities of any changes to the approved methodology in the MLOU and an amendment shall be prepared if determined to be necessary.

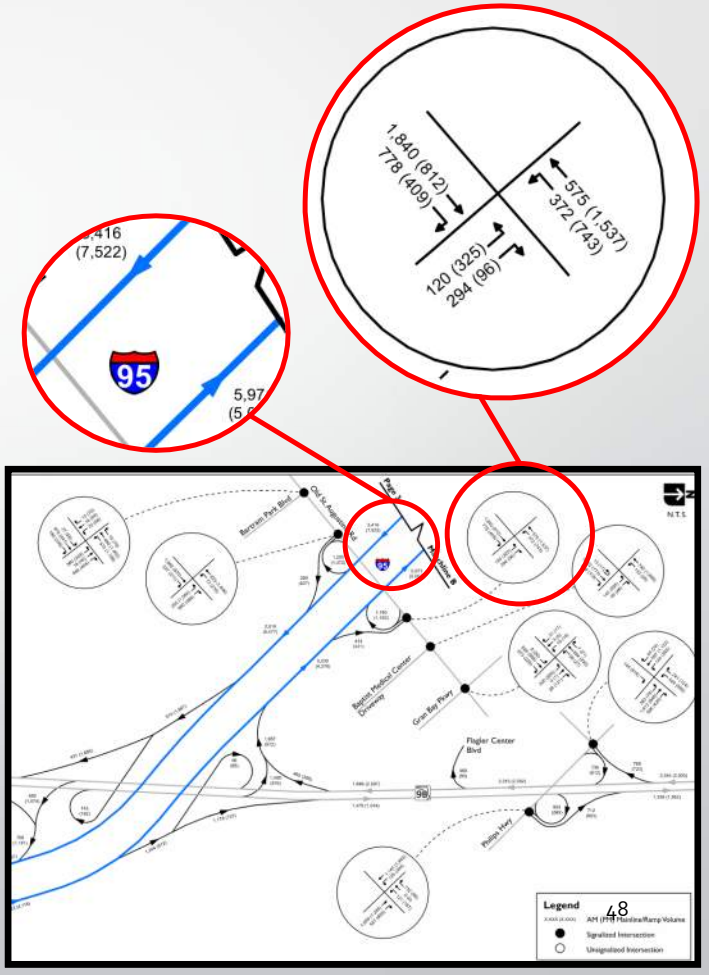
Requestor	David Tyler, P.E., AICP District Interchange Review Coordinator, District Two	Date
Interchange Review Coordinator	David Tyler, P.E., AICP District Interchange Review Coordinator, District Two	Date
Systems Management Administrator	Jenna Bowman, PE Systems Implementation Office-Central Office	Date
Federal Highway Administration (if applicable)	Greg Hall District Transportation Engineer	Date

Review and Acceptance of MLOU

- Stakeholders shall accept and sign the MLOU after they concur with the MLOU requirements and need
- Requestor shall prepare amendments, should they be asked for, and submit them for approval
- All parties must approve the amendment

Project Traffic Development

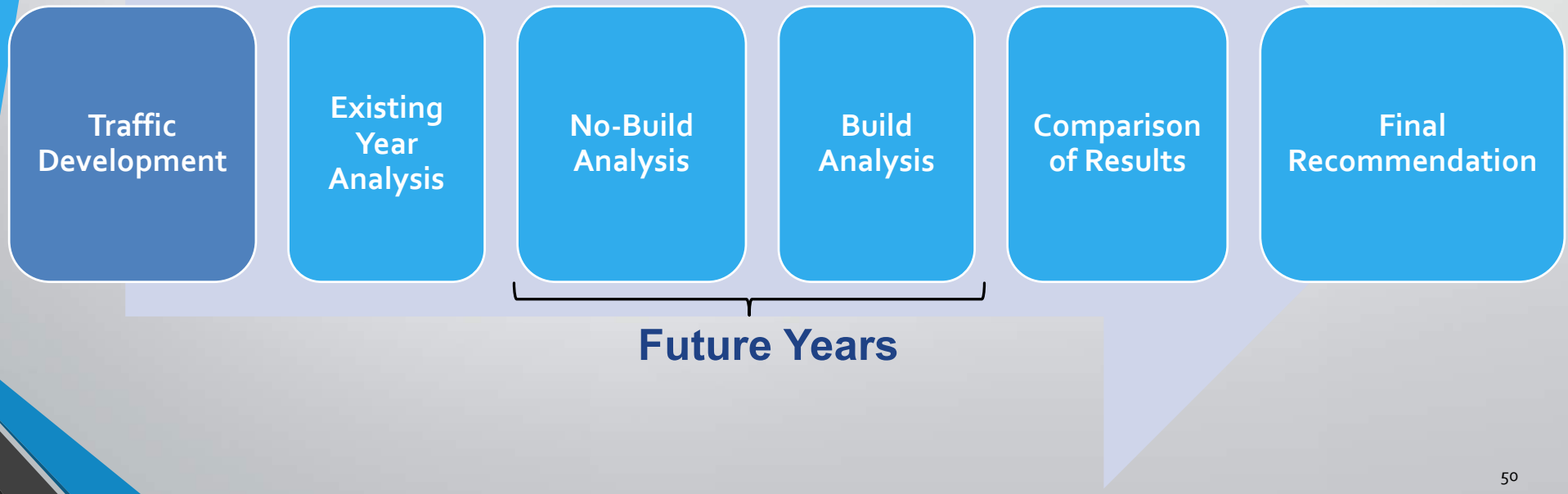
- IARs document the traffic development methodology
- The IAR must develop AADTs and DDHVs for
  - Existing Year
  - Opening Year
  - Interim Year (if needed)
  - Design Year
- The traffic developed must follow the guidelines in the Project Traffic Forecasting Handbook
- Tables and figures should be included showing the developed AADTs and DDHVs



Knowledge & Practice of Proper Traffic Development & Analysis Techniques

- [redacted]pproach to[redacted]ysis
- Traffic analysis practices are constantly being updated as part of this profession
  - Examples
    - Express Lanes/Weaving Analysis Techniques
    - FDOT Project Traffic Analysis Handbook
    - HSM Safety Analysis
    - FDOT Traffic Analysis Handbook
- Project managers must have a knowledge of the most up-to-date practices

Traffic Operational Analysis



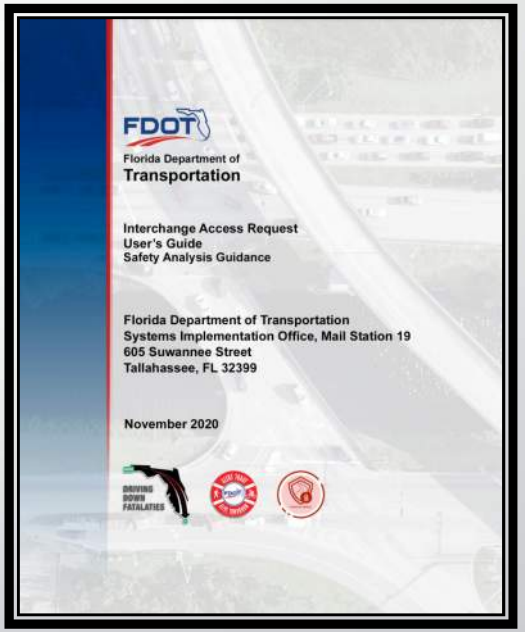
Safety Analysis

- The table below provides a brief summary of the safety analysis tasks required under each methodology and the approximate time required to complete them

Analysis Type	Safety Analysis Process							Time Estimate
Countermeasure CMF Methodology	Calculation of Crash Rates	Crash Diagrams	Description of Existing Crash Trends	Safety Performance Functions	Empirical Bayes Method (if applicable)	Crash Reduction Estimation (CMFs/CRFs)	Documentation	80 – 160 Hours (Including Existing Conditions)
HSM Part C Methodology	Calculation of Crash Rates	Crash Diagrams	Description of Existing Crash Trends	→		Crash Reduction Estimation (CMFs/CRFs)	Documentation	30 – 60 Hours (Including Existing Conditions)
Existing Conditions	Calculation of Crash Rates	Crash Diagrams	Description of Existing Crash Trends	→			Documentation	20 – 40 Hours

Safety Analysis

- **The IARUG Safety Analysis Guidance was released in November 2020**
- **The purpose of this Safety Analysis Guidance is to provide:**
  - Direction for performing existing and future safety analysis in IARs
  - Information to select and appropriately apply the Countermeasure CMF and HSM Part C methodologies
  - Consistent and uniform approach for completing safety analyses for IARs throughout the state
  - Analysis examples demonstrating the application of safety analysis methods for IARs
- **Available online at**
  - https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/systems/programs/sm/intjus/iarug-safety-analysis-guidance_11-2020.pdf?sfvrsn=7bce6553_2



IAR Documentation and Review

Interchange Access Request Document

- Developed as a stand-alone document consistent with the MLOU
- If other reports available, relevant information should be summarized
  - Understandable to the unfamiliar reader
  - Determines the safety, operational and engineering (SO&E) acceptability of the IAR
  - The report must address the FHWA's two policy points

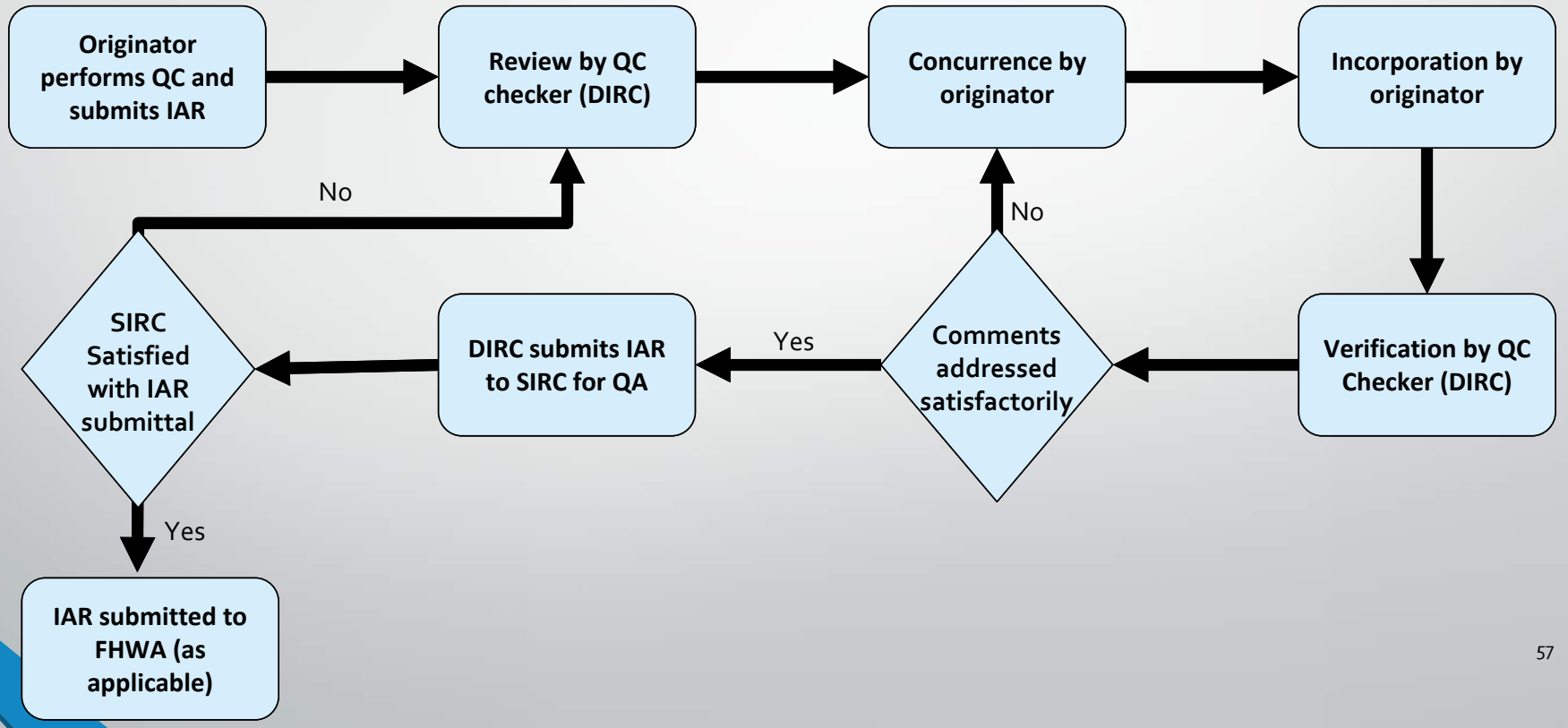
Documentation Requirements

These will be determined by the DIRC during the MLOU development phase.

Interchange Access Requests

- IAR shall consider all fatal flaws
- IAR shall be consistent with adopted statewide and local transportation plans
- Funding plan to be in place prior to approval of IAR proposal

IAR Review Process



Processing for Review and Acceptance

- **The IAR is reviewed to ensure**
  - Compliance with FHWA's policy points
  - The requirements set forth in the MLOU
  - Sufficiency, completeness, correctness, and consistency of the data

- **Determination of SO&E by FDOT Chief Engineer or FHWA**
  - Final approval after completion of NEPA (Step 2)

- **IAR is forwarded to FHWA as per approval authority tables in IARUG**

IAR Documentation and Review

IAR Re-Evaluation

- Re-evaluations are required for one of more of the following conditions:
  1. Change in an approved IAR design concept
  2. Significant change in conditions (traffic characteristics, land use type, environment)
  3. Failure of an IAR to progress to the construction phase within three years of approval (time lapse). The approval of the IAR occurs after SO&E affirmative determination and NEPA parts are complete
- MLOU shall be prepared for all IAR re-evaluations
- Re-evaluations during Design: coordinate with the District Interchange Review Coordinator (FDM 110.2)

IAR Re-Evaluation

- **IAR re-evaluation types and requirements summarized in the following table**

Re-evaluation type	Primary reason for re-evaluation	MLOU required	Traffic update required*	Quantitative Safety Analysis Required	Basis for comparison	Documentation level	Satisfy FHWA policy points
NEPA	Environmental impacts	Yes	*	Yes	No-build	Update relevant sections in the IAR such as alternatives, analysis, environmental, FHWA policy points	Yes
NEPA or design phase	Modified design	Yes	*	Yes	Approved IAR concept	Revised IAR report	Yes
Design-build or P3	Modified design	Yes	*	Yes	RFP	Revised IAR report	Yes
Change in conditions	Change in traffic	Yes	Yes	Yes	No-build	Revised IAR report	Yes
Time lapse	More than three years since IAR approval	Yes	*	Yes	No-build and previously approved IAR concept	Revised or New IAR report	Yes

* To be determined on a case-by-case basis depending on change in conditions, to be discussed during preparation of the MLOU. If significant changes have occurred since approval of the original IAR (for example, an increase or change in traffic resulting in change in approved design concept), then an updated traffic and analyses shall be required.

Traffic Validation

- Traffic validation is required for all IAR re-evaluations
  - Existing and future volumes
- Sources for traffic validation
  - Historic traffic growth
  - Latest adopted TDM

Traffic Validation at _____ Interchange

STA	Location	FDOT Traffic Count *Year*[1] AADT	FDOT Traffic Count *Year*[2] AADT	*IAR Existing Year*[3] AADT	*Year*[2] AADT vs. *Year*[3] AADT	*IAR* Design Year AADT	TDM Horizon Year AADT	TDM vs. *IAR Design Year AADT*
	All Locations							

Notes -

1) FDOT Traffic Count Year [1] AADT - This should be at least 5 years before FDOT Traffic Count Year [2] AADT to understand historic growth
2) FDOT Traffic Count Year [2] AADT - Same year data as the IAR Existing Year [3] AADT
3) IAR Existing Year 3 AADT - This is the existing year AADT of the approved IAR
4) TDM - Current adopted Travel Demand Model
5) IAR Design Year AADT might need to be estimated if it doesn't match the horizon year of the TDM. For example, if approved IAR Design Year is 2035 and TDM horizon year is 2040,

- If original IAR is not valid a new methodology needs to be developed
  - The validation results and proposed traffic forecasting methodology needs to be agreed by the DIRC and SIRC
- A traffic validation template developed by SIRC is included in the IARUG

Final Quiz

1. A proposal aims to modify one (1) or more ramp(s) at an existing interchange to provide access to a new local road. The proposed modification will require a break in limited access right-of-way (ROW). This modification is:

IMR	**A**
IOAR	**B**
NON-IAR	**C**

2. A proposal aims to add a signalized intersection in close proximity of an existing interchange. The proposed modification is not within the limited access right-of-way (ROW) of the cross street. This modification is:

IMR

IOAR

NON-IAR

3. A proposal aims to add left turn and through travel lanes at the terminus of an off ramp at an existing interchange. The proposed modification will result in relocation of the gore point along the mainline closer to the crossroad. This modification is:

IMR

IOAR

NON-IAR

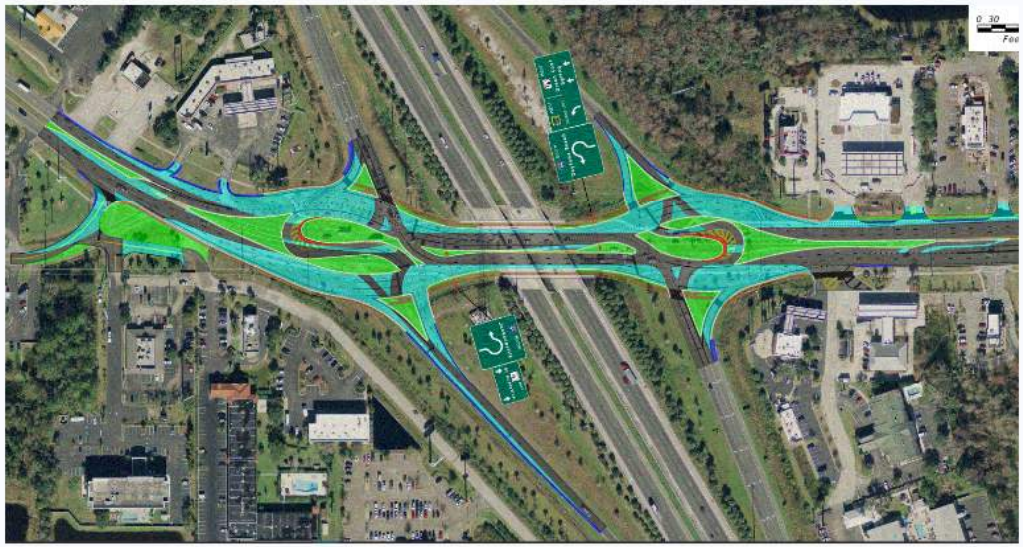
4. A proposal aims to eliminate a loop ramp in one of the interchange quadrants. The loop traffic will now be served with a signalized left turn movement. This will help eliminate the weave. This modification is:

IMR

IOAR

NON-IAR

I-95 at SR 16 Arterial U-Turn



IMR **A**

IOAR **B**

NON-IAR **C**

Call your District Interchange Review Coordinator **D**

6. An existing interchange currently has free flow right turn lanes at the off-ramp terminus. There is a proposal to modify the free flow right turn lanes and bring them under signal control. This modification is:

IMR

IOAR

NON-IAR

An interchange currently has a single lane on ramp. There is a proposal to add a second lane to this on ramp. The new lane will merge with the existing lane so the number of lanes do not change at the gore point with the interstate mainline.

IMR	**A**
IOAR	**B**
NON-IAR	**C**

8. Express lanes are being added to the interstate as part of an improvement project. Direct connect ramps are proposed from the express lanes access point to the crossroad interchange ramp. This modification is:

IMR

IOAR

NON-IAR

9. An existing interchange currently requires additional storage be provided to accommodate the growing queues. There is a proposal to add storage lanes at the terminus of the existing off-ramps to contain the queues. This modification is:

IMR

IOAR

NON-IAR

10. An increase in delay and number of crashes has begun to occur at a study interchange. It is recommended to improve operations and safety at the ramp terminals by converting from unsignalized intersections to signalized intersections. What is required:

FDOT District Two Contact

David Tyler, PE, AICP

Transportation Planning Manager

FDOT District Two

Planning and Environmental Management Office

David.Tyler@dot.state.fl.us

Phone: (386) 961-7842

When To Prepare An IOAR

- Addition of a left-turn lane onto an on-ramp while maintaining existing lane at gore point