



VITAL FEW



MODIFICATIONS AND CLARIFICATIONS TO THE RRR PROJECT PROCESS TO IMPROVE SAFETY FOR PEDESTRIANS AND BICYCLISTS

INTRODUCTION

To reduce pedestrian and bicyclist serious injuries and fatalities, the RRR Task Team has proposed the following changes to **FDOT Design Manual (FDM)**, Chapter 114. These changes support FHWA's Safe System approach, consistent with the 2021 Florida Strategic Highway Safety Plan and the Vital Few Safety Action Plan. **FDM 114** identifies processes or elements that are different on RRR projects than other project types, as outlined in other chapters of the **FDM**.

IDENTIFIED IMPROVEMENTS TO FDM 114

114.1 (General)

Clarified: *"Unless otherwise specified, FDM new construction criteria must be used on RRR projects, per the requirements within each chapter."*

114.1.1 (Types of Work)

Added: The following to the list of work types that require a Director-level approval if not included on RRR projects:

- Safety needs selected and prioritized from the [Safety Needs Lists](#) dashboard that are overlapping with the proposed RRR project
- Pedestrian or bicycle facilities or upgrades to existing facilities to meet the requirements identified in **FDM 222, 223, 224 and 231**
- Lighting for pedestrians at mid-block crossings

114.2 (Planning and Programming RRR Projects)

Added to the principal objectives of a RRR Project: Safety modifications that support the Safe System approach

Added: Coordinate early with the District Safety Engineer and/or District Safety Administrator to balance available time and resources to accomplish the RRR and safety needs objectives

114.2.1 (Right of Way Acquisition)

Added the following to the conditions that warrant R/W acquisition:

- Providing pedestrian and bicycle facilities
- Speed management countermeasures

114.2.2 (Survey Guidelines)

Added to types of survey work typically included in RRR Projects: Resurfacing with bicycle and pedestrian improvements (Level 2 survey)

114.3 (RRR Design Process)

Clarified: Planning Office is part of the RRR design process team

Added the following required assessments:

- Determination of appropriate Target Speed (**FDM 201**)
- Safety Needs based on [Safety Needs Lists](#) dashboard
- Safety needs in line with Safe System approach
- Gaps in bicycle and pedestrian facilities, and safe crossing opportunities

Clarified: Operational assessment to include opportunities for alternative intersection designs where they may improve bicycle and pedestrian safety

114.3.1.1 (Office Reviews)

Added: Review and identify the project-level Context Classification for any related plans or conditions that could affect the goals of the project

Added to Existing Conditions Assessment:

- Red light running, queue build-up, and split failures
- Review district and local plans, major permits or projects relating to the project area

Added to Safety Assessment:

- Safety needs identified and documented on the [Safety Needs Lists](#) dashboard
- Proactive safety countermeasures supporting the Safe System approach
- Safety and mobility measures such as filling pedestrian facility gaps, providing adequate crossing locations, and bicycle facility deficiencies

Added: Copies of the safety assessment with written recommendation must be submitted to the District Safety Engineer and/or District Safety Administrator.

114.3.1.2 (Field Reviews)

Added the following to geometric and physical observation requirements:

- Pedestrian facility connectivity and identification of pedestrian connectivity gaps
- Pedestrian and bicycle crossing locations
- Nighttime review to observe lighting
- Signalization
- No-passing zone (per **FDM 230**)

Added the following to safety condition observation requirements:

- Evidence of informal pedestrian movement paths or observations of crossing behavior

114.3.1.3 (Identified Improvements)

Added: Requirement to coordinate with the District Safety Engineer and/or District Safety Administrator

Added: Requirement to examine the needs identified through the [Safety Needs Lists](#) dashboard

Added: Requirement to identify proactive measures supporting the Safe System approach.

Added the following items to the list of possible improvements that may be included in RRR projects:

- Provide for new pedestrian crossings (e.g., midblock crossings, bulb-outs)
- Enhance existing pedestrian crossing locations (e.g., bulb-outs, raised crosswalks)
- Adjusting corridor speeds to reflect changing development conditions or safety needs (see **FDM 201.5.1** for Target Speed on RRR projects)

114.3.1.4 (Design Exceptions and Design Variations)

Added: Reference to **FDM 114.1.1** to call more attention to Variations and Exceptions requiring Director-level approval

114.3.2 (Intersections)

Added the following items to consider when determining if a traffic engineering study is needed:

- Need and potential for protected intersection
- History of angle crashes or observed red-light running

114.3.4 (Pedestrian, Bicyclist and Transit)

Clarified: Pedestrian and bicycle features must meet the requirements contained in **FDM 222, 223, and 224**

Added: Coordinate with the District Safety Engineer and/or District Safety Administrator, as needed, when deficiencies in these features are identified during the field review

114.3.6 (Lighting)

Added: Lighting may be installed at roundabouts

OPTIONAL READING - SAFE SYSTEM DEFINITION

Safe System

The Safe System approach aims to eliminate fatalities and serious injuries of all users of the transportation system through a holistic model of multiple elements working together to safeguard against tragic crash outcomes.

Commentary: There are five elements of the Safe System: Safe Road Users, Safe Vehicles, Safe Speeds, Safe Roads, and Post-Crash Care. Each element is inter-related and weaknesses in one element may be compensated with strengths in another.

The criteria within the **FDM** have been developed with the Safe System approach in-mind as related to Safe Speeds and Safe Roads. The term “Safe System” may not be specifically mentioned; however, it is inherent within the criteria and important to keep in mind when making engineering decisions to vary from the criteria.

The Safe System approach begins with a foundational acknowledgement that transportation system users, as humans, will inevitably make mistakes. These mistakes may lead to crashes on our transportation facilities. FDOTs Target Zero goal is to eliminate fatal and serious injuries.

To achieve zero fatalities and serious injuries, crash forces induced on the human body must be kept below the tolerable limits. When designing and operating the transportation system, it is critical to manage crash kinetic energy. Human error is to be expected; therefore, the transportation infrastructure should be designed and operated to eliminate fatalities and serious injuries. This may be achieved by first reducing the risk of error and secondly, when crashes do occur, to maintain collision forces on the human body within tolerable levels by managing speed and crash angles to reduce injury severity.

The following are six foundational principles for understanding and applying the Safe System approach:

- **Fatalities and serious injuries are unacceptable** – While no crashes are desirable, the Safe System approach emphasizes a focus on crashes resulting in fatal and serious injuries. Regardless of road users’ socio-economic backgrounds, their abilities, and the modes of transportation they use, no one should experience fatal or serious injuries when using the transportation system.
- **Humans make mistakes** – Road users will inevitably make mistakes, and those mistakes can lead to crashes. The Safe System approach expects the transportation system be planned, designed, and operated to be forgiving of inevitable human error, so that fatal and serious injury outcomes are unlikely to occur.
- **Humans are vulnerable** – Humans have a limited ability to tolerate the energy involved in crash impacts. Although the exchange of kinetic energy in collisions among vehicles, objects, and road users has multiple determinants, applying the Safe System approach involves managing the kinetic energy of crashes to avoid fatal and serious injury outcomes.
- **Responsibility is shared** – All stakeholders (transportation system users and managers, vehicle manufacturers, emergency responders, etc.) must work collaboratively to ensure that crashes do not lead to fatal or serious injuries.
- **Safety is proactive** – Proactive and data-driven tools should be used to identify and mitigate latent risks in the system, rather than waiting for crashes to occur and reacting afterwards.
- **Redundancy is crucial** – Reducing the risk of severe crash outcomes requires all parts of the system be strengthened so that if one element fails, the others protect transportation system users.