

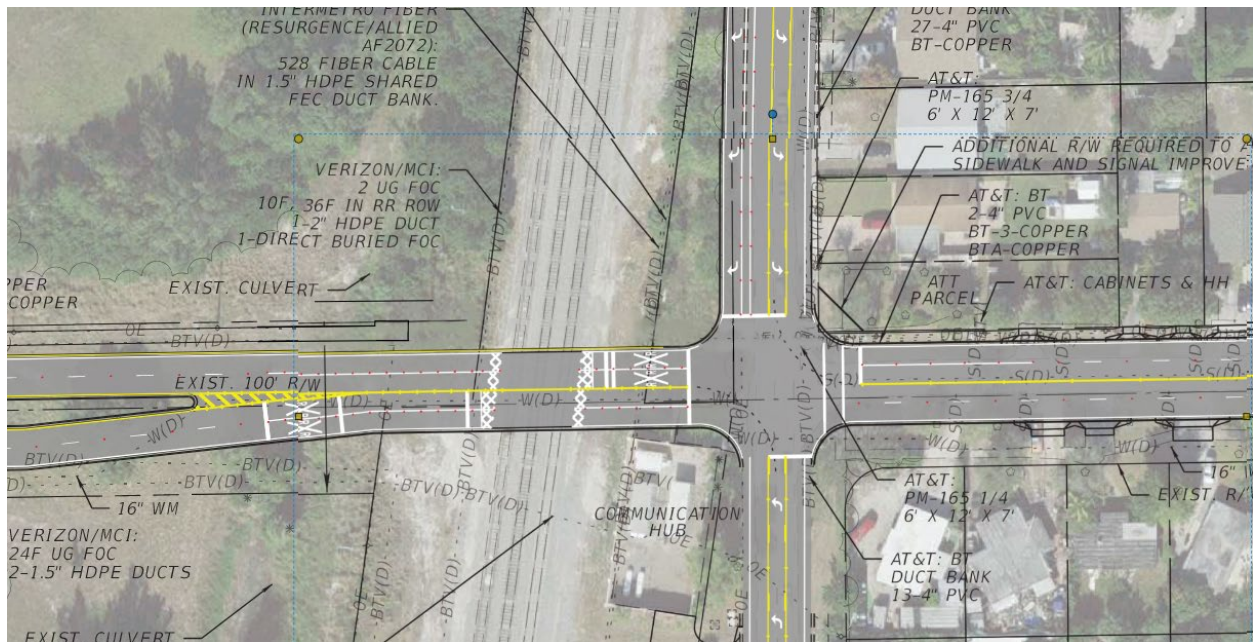


CITY OF Boca Raton

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RFP 2025-027-SS

Jeffery Street Progressive Design-Build Project



Design Criteria Package

Exhibits	
Feasibility Study Report_Jeffery-Street-2023-0413 with Appendix SignSealed	DC Exhibit 1
Stipulation of Parties Agreement	DC Exhibit 2
Jeffery Street - Concept Plan	DC Exhibit 3
NW 28th Street Closure - Conceptual Plan	DC Exhibit 4
Jeffery Street Overlaying North Park Project	DC Exhibit 5

July 11, 2025

Certification of Design Criteria

In accordance with Section 287.055 Florida Statutes, this Design Criteria Package has been prepared and sealed by design criteria professionals employed by the City of Boca Raton.

Zachary Bihr, P.E., City of Boca Raton Public Works and Engineering Department, Department Director is the Engineer of Record for supervising the development of the Design Criteria Package (DCP) for the Jeffery Street Extension and railroad crossing. Clecio DeSa, P.E. is the Project Manager. The stormwater sections of the DCP were developed and written by Zachary Bihr, P.E., City of Boca Raton Public Works and Engineering Department, Stormwater Engineer and the traffic engineering sections were developed and written by Naresh Machavarapu, P.E., City of Boca Raton Public Works and Engineering Department, Traffic Engineer.

Zachary Bihr, P.E. FL PE 80309

1.0 Introduction

1.1 Project Overview

The City of Boca Raton is undertaking the Jeffery Street Extension and Widening Project (RFP-027-SS). This project involves:

- Coordination for the construction of a new four-lane roadway segment (approx. 1,200 feet) from NW 2nd Avenue to Dixie Highway.
- Widening of approximately 1,000 feet of existing roadway from two lanes to four lanes.
- Construction of a new at-grade railroad crossing over the Florida East Coast (FEC) Railway.

This project is vital for completing a critical missing link in the 8.5-mile Clint Moore Road east-west corridor, significantly improving connectivity across Boca Raton.

1.2 Purpose of this Document

This document establishes the minimum design standards and requirements for the Design-Build project, aiming to ensure a high standard of quality. It acts as a guide, not a prescriptive solution, and the City is not responsible for errors in Proposer estimates based on conceptual data or bridging documents. Emerging technologies and products are welcome with City approval.

1.3 Project Goals and Objectives

The primary goals include:

- Enhancing east-west connectivity by completing the Clint Moore Road corridor.
- Improving traffic flow and capacity on Jeffery Street.
- Ensuring safe and efficient passage for vehicular, bicycle, and pedestrian traffic.
- Establishing a new, safe, and compliant at-grade railroad crossing with FEC Railway.
- Integrating new infrastructure seamlessly with existing City and County systems.
- Delivering a high-quality, durable, and aesthetically pleasing, low-maintenance facility.
- Minimizing disruption during construction.

2.0 General Design-Build Requirements

2.1 Compliance with Codes, Standards, and Regulations

All designs and construction must adhere to the latest editions of numerous federal, state, and local codes, standards, and regulations, including:

- Florida Building Code, ADA Accessibility Guidelines, NEC, NFPA codes.
- City of Boca Raton Land Development Code and Engineering Design Standards Manual.
- FDOT Manuals (Florida Green Book, Drainage Manual, Standard Specifications, Design Standards, Plans Preparation Manual).
- AASHTO Geometric Design of Highways and Streets, MUTCD.
- City of Boca Raton Special Provisions and Complete Streets Policy, NACTO design guides.
- In case of conflict, the more restrictive requirement applies, unless a signed and sealed design variance is approved by the City Project Manager.

2.2 Design-Build Team Responsibilities

The Design-Build Team is solely responsible for:

- All design and construction modifications east of the tracks and coordinating all final corridor work from the Jeffery Street and NW 2nd Avenue intersection, including traffic signal infrastructure, to Federal Highway.
- Completing all design drawings and supplemental specifications.
- Any consequences (cost, permitting, schedule) resulting from the design.
- Verifying all existing conditions information.
- Ensuring the final design and construction documents meet operational, permitting, and site logistics requirements.

2.3 Bridging Documents and Conceptual Information

Exhibits and conceptual information are for informational purposes only; the Design-Build Team is responsible for developing the final design.

2.4 Quality Assurance / Quality Control (QA/QC)

A robust internal QA/QC plan, ensuring compliance with all requirements and standards, must be submitted for City approval before design activities commence.

2.5 Project Schedule and Milestones

A comprehensive project schedule, including all major milestones, must be developed, submitted for City approval, and regularly updated.

2.6 Cost Control

The Design-Build Team is responsible for managing costs within the contract amount. Any cost-increasing decisions require City Project Manager approval.

2.7 Safety and Security

A comprehensive safety plan complying with all regulations is required. Security measures, especially around the railroad and communication switch yard, must be integrated.

2.8 Public Outreach and Coordination

The Design-Build Team shall assist the City with public outreach as required. The Design-Build Team shall assist the City coordinating with the Beach and Parks District.

3.0 Existing Conditions and Project Limits

3.1 Existing Conditions Verification

The Design-Build Team must verify all existing conditions (utilities, topography, geotechnical, adjacent properties) and is solely responsible for decisions based on this verified information.

3.2 Project Limits and Right-of-Way

The project extends from NW 2nd Avenue to the west side of Federal Highway within the Jeffery Street right-of-way. No new right-of-way procurement is required, as necessary property is provided by the City, FEC, and Palm Beach County.

3.3 Adjacent Projects and Interfaces

Coordination is required with the City's modifications at Jeffery Street/NW 2nd Avenue and with the Beach and Park District (BPD) contractor for improvements between NW 2nd Avenue and the FEC Railway.

4.0 Scope of Work

4.1 General Scope

- Coordination of approx. 1,200 feet of new four-lane roadway (NW 2nd Ave to Dixie Highway).
- Widening of approx. 1,000 feet of existing Jeffery Street (two to four lanes).
- Design and construction of a new at-grade FEC Railway crossing, meeting all

FEC standards.

- Coordination with FEC and regulatory agencies for crossing approval.
- Compliance with FDOT Standard Specifications.
- All necessary geotechnical, SUE, survey, traffic studies, and permitting services.

4.2 Specific Scope Elements

- Drainage infrastructure (stormwater conveyance and treatment).
- Roadway lighting, traffic signage, and striping.
- Sidewalks, pedestrian, and bicycle facilities.
- Traffic signalization (if required) and ancillary roadway improvements.
- Relocation/modification of the communication switch yard driveway for sight distance, including coordination with the owner and structural modifications.
- Enhanced landscape
- Transportation, mobility, and connectivity features to accommodate all road users

5.0 Design Criteria - Roadway

5.1 Roadway Geometry

- Jeffery Street: Major collector, 35 mph posted speed limit.
- Design speed for work zones: 35 mph (max extent possible).
- Clear zone for work zones: FDOT standards.
- Centerline: Generally follow existing. Through lanes at intersections to align.
- Travel and turn lanes: Minimum 11 feet wide.
- Paved shoulders: Minimum 5 feet wide.
- Geometric design (cross slopes, clear zones, sight distances): FDOT "Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Roadways (Latest Edition)".
- Vertical alignment: Generally follow existing ground, governed by railroad crossing grade. Must account for future underpass (to be design and constructed by the Great Boca Raton Beach and Park District's Contractor).
- Smooth profile with good sight distance and transitions at design speed.

5.2 Pavement Design

- Typical sections: FDOT Plans Preparation Manual.
- Compliance: FDOT "Design Standards", "Standard Specification for Road and Bridge Construction", and "Flexible Pavement Design Manual".
- Design life: 20 years.
- Overlay: Minimum 1.5-inch thick FC 9.5 Superpave asphaltic concrete over

entire road.

- Existing pavement: Crack seal, full-depth patch, and level distressed areas (medium/high severity PCI) before overlay.
- Recycled concrete pavement: Acceptable base material if approved by City Engineer, complying with FDOT Specs.
- Compaction: Subgrade, Type B stabilization, base, and asphaltic concrete layers compacted in static mode only.
- Milling: Contractor responsible for disposal of millings.
- Construction tolerance: ± 0.1 feet maximum deviation from plans (profile and horizontal alignment), using automatic controls.
- Final surface: Compliance with FDOT smoothness specifications; deficiencies to be corrected.

5.3 Driveways

- Design to support traffic loads and turning radii.
- Concrete driveways (residential/commercial): Minimum 6-inch thick fiber reinforced concrete.
- Concrete: Minimum FDOT Class 1, 3000 psi 28-day compressive strength.
- Preference: Curved radius driveways; flared concrete accepted if better option and compliant with City standards.
- Flared turnouts: Wide enough to prevent traffic crossing adjacent sidewalk.
- Joints: Adequate control and expansion joints to prevent cracking.
- Curing: Proper techniques, hot weather placement, keeping concrete wetted.
- Saw-cut joints: As soon as safely cut, no later than 24 hours.
- Workmanship: Clean/oiled forms, vibrated concrete to prevent air voids. No post-placement grouting for poor workmanship.
- Commercial driveway (south of communication switching station): Incorporate features to prevent vehicles backing directly into roadway.
- Existing driveways: Modify for smooth transition, max 12% slope change.

5.4 Sidewalks and Pedestrian Facilities

- Design and construction: ADA Accessibility Guidelines and City of Boca Raton standards.
- Continuity: Safe passage throughout project limits.
- Crossings: Detectable warning surfaces at all intersections and key access points.

5.5 Bicycle Facilities

- Incorporated into roadway design.
- Consider "sharrow" for through lane where appropriate and approved.

6.0 Design Criteria - Traffic Engineering and Signalization

6.1 General Requirements

- Plans: Prepared in accordance with latest design standards, FDOT Standard Specifications, Indexes, and PPM. Accurate, legible, complete, drawn to scale, reproducible.
- Coordination: City of Boca Raton Traffic Engineering Division and FDOT Traffic Operations Office – District Four.
- Compliance: City of Boca Raton Traffic Engineering Standards.

6.2 Traffic Signal Design

- Jeffery Street and Dixie Highway: New traffic signal mast arm required. Proposer to determine if co-located on FEC arms (City preference).
- Includes: New traffic signal controller, managed ethernet-field switch, intersection power backup system, pan/tilt/zoom camera system.
- Changes: All changes to existing vehicle detection and traffic signal heads for new lanes.
- Existing equipment: Turn over to City Traffic Engineering Division upon removal.

6.3 Traffic Separators

- Traffic separators shall be designed to clearly delineate travel lanes, bicycle facilities, or pedestrian areas, enhance safety, and manage traffic flow. The selection of traffic separator type shall consider the specific context, desired level of permanence, and integration with complete streets principles.
- Types: Acceptable types include, but are not limited to, modular pre-fabricated units (such as those made from recycled materials like Zicla products), raised curbs, flexible posts, or other physical barriers.
- Design and Material: Materials shall be durable, highly visible (e.g., yellow, reflective elements), and designed for impact resistance where appropriate. Modular systems should allow for adaptable configurations.
- Application: Design shall align with NACTO design guides for urban streets, promoting safe and efficient separation of modes. Consideration for tactical urbanism approaches may be incorporated for pilot projects or flexible installations, subject to City approval.
- Visibility: All separators shall incorporate highly visible elements, such as reflective sheeting or integrated coloring, to ensure clear delineation for all users, day and night.

6.4 Fiber Optic Systems

- Responsibility: Contractor responsible for adjusting/relocating existing City/FDOT fiber optic system if necessary.
- Technician: All work by Corning Certified Field Technician.
- Downtime: No fiber optic cable inoperable for more than 48 hours.

6.5 Traffic Signal Maintenance and Warranty

- Maintenance: Contractor responsible for duration of project (respond within one hour of trouble calls).
- Warranty: Contractor responsible for maintenance during 90-day operational performance period post-substantial completion, including trouble calls and equipment replacement.

6.6 Coordination with FEC Gate Operations

- Design-Build Team responsible for coordinating signalization with FEC gate operations for testing and startup.

6.7 Traffic Control in Work Zones

- Objective: Maintain maximum traffic flow during construction.
- Road closures: No weekday daylight closures.
- Lane closures: Max one lane at a time. If not possible, limit construction to off-peak times.
- Traffic monitoring: Constructor to monitor traffic; if excessive backup, clear roadway until delays clear.
- Traffic control plans: Engineer of Record to develop project-specific plans.
- Worksite Traffic Supervisor: Qualified per FDOT Specs, actively involved daily, full responsibility for traffic control device setup/maintenance, traffic monitoring, and subcontractor compliance.
- Safety: Plan for law enforcement, appropriate use of flaggers, and follow-me vehicles.

7.0 Design Criteria - Drainage and Stormwater Management

7.1 General Drainage Design Principles

- Adherence: Strict adherence to FDOT specifications (latest FDOT Drainage Manual, Drainage Design Guide), local ordinances, and Boca Raton environmental considerations.
- Integrated Design: Integral component of roadway project, considering functional/context classification, alignments, typical sections, and adjacent land uses.
- Design Life: 50-year service life for major components.

- Maintainability: Prioritize ease of maintenance (adequate access, clear flow paths).

7.2 Stormwater Management Objectives

- Compliance: All plans and designs per FDOT Drainage Manual and this document.
- Water Quality: Runoff from City roadway treated to state water quality standards (SFWMD requirements, FAC 373.413 (6) applies).
- Existing Features: Prioritize utilization of existing drainage features to maximum practical extent.
- Exfiltration Trenches: Preferred stormwater management system where site conditions allow.

7.3 Hydrologic and Hydraulic Design Criteria

- Conveyance Systems (Pipes, Ditches, Swales): Handle runoff from a 25-year, 24-hour critical duration storm event without significant inundation, roadway overtopping, or adjacent property impact.

7.4 Water Quality Treatment Standards

- Enforcement: FDEP and SFWMD.
- 80% TSS Reduction: Minimum statewide standard for average annual post-development stormwater pollutant loading.
- 95% TSS Reduction for OFWs: More stringent standard for discharges into or near Outstanding Florida Waters (OFWs); verify receiving waterbody.
- Best Management Practices (BMPs): Use structural and non-structural BMPs (Retention Ponds, Wet/Dry Detention Ponds, Percolation/Exfiltration Systems, Vegetated Swales, Filter Strips).

7.5 Conveyance System Components and Design

- Roadway Cross Slope: 0.02 ft/ft (2%) for travel lanes.
- Curb and Gutter Systems: Standard in urban environments; collect runoff efficiently to inlets. Spread calculations crucial.
- Inlets and Catch Basins: Strategically placed per FDOT Standard Plans. Spacing depends on grade, cross slope, drainage area, depression storage.
- Storm Drain Pipes:
 - Minimum Diameter: 15 inches for side drains, 18 inches for cross-drains.
 - Minimum Slope: 0.2 percent for self-cleaning velocities.
 - Materials: RCP and HDPE (side drains with proper cover/safety factor); RCP common for cross-drains. Comply with FDOT Standard Specifications.
 - Minimum Cover Height: Per FDOT Roadway and Traffic Design Standards.
- Swales and Ditches:

- Roadside Swales: Side slopes $\leq 4:1$, depths ≤ 24 inches below shoulder edge, drain dry.
- Channel/Ditch Design: Specific requirements for depth, bottom width, side slopes (typically 3:1).

7.6 Resiliency Considerations

- Incorporate resiliency principles: Use updated NOAA Atlas 14 rainfall data, include features for future adaptation or higher protection against extreme events.

8.0 Design Criteria - Landscaping

8.1 General Landscaping Requirements

- All disturbed areas: Sodding and grassing required.
- Grass Type: Primarily Bahia or Bermuda grass. Match existing sod (St. Augustine, Centipede) adjacent to residences/businesses for continuity.
- Compliance: Grassing/sodding plans per latest design standards, FDOT Standard Specifications, and Design Standards (Indexes).

8.2 Enhanced Landscaping Requirements

- Design Philosophy: Lush, sophisticated, mature appearance, integrated with surroundings, enhancing public realm.
- Plant Material Quality: Healthy, vigorous, nursery-grown, disease/pest-free; meet Florida Grade #1 standards or equivalent.
- Plant Material Selection and Diversity: Emphasis on native, Florida-friendly, drought-tolerant species. Diverse palette to promote biodiversity and year-round interest. Avoid monocultures. Consider mature plant size.
- Tree Specifications: Minimum 2-inch caliper (DBH) at planting, properly staked/protected.
- Shrub and Groundcover Specifications: Shrubs for rapid establishment/dense appearance within one year; groundcovers for 100% coverage within six months.
- Soil Preparation: Extensive amendment with organic matter for optimal growing conditions, water retention, and drainage.
- Hardscape Integration: Complement softscape and enhance median aesthetic where applicable.

8.3 Maintenance and Irrigation

- Irrigation Systems: Highly efficient, automated system for all landscaped areas (excluding general sodded areas). Incorporate water-saving technologies (drip, low-volume heads, smart controllers). Comply with local

water conservation ordinances.

- Initial Establishment Period: Comprehensive maintenance plan (min. 90 days post-completion) for watering, fertilization, pest management, pruning.
- Long-Term Maintenance Standards: After the establishment period, and acceptance by the City, the Design Build/Team will complete a field review and conduct a formal handoff to City staff.

9.0 Utility Coordination

9.1 General Utility Considerations

- Extensive coordination with utility owners due to high density of underground infrastructure.
- Avoidance: Manholes, valve boxes, or other utility structures generally not allowed within main roadway travel lanes or critical pedestrian areas.
- Clearance: Minimum vertical and horizontal clearances between proposed drainage pipes and existing/proposed utilities per FDOT Design Standards and Utility Accommodation Manual.
- Relocation: Utilities conflicting with proposed drainage facilities likely require relocation, to be defined and coordinated.
- Pressurized Lines: Route outside pavement footprint where feasible, unless approved by City/FDOT.
- Transcontinental fiber line: Coordinate all activities impacting this utility.
- Utility conflicts are a major project risk.

9.2 Design-Build Team Utility Coordination Responsibilities

- Conduct coordination and design per City standards, policies, procedures, and criteria.
- Identify all existing utilities and coordinate new installations.
- Schedule utility meetings, prepare minutes, follow up on unresolved issues.
- Distribute plans, conflict matrices, and changes to affected utility owners.
- Identify and coordinate completion of City/utility owner agreements for reimbursement/accommodation.
- Assist EOR and Contractor with conflict resolution.
- Review Utility Work Schedules.
- Obtain and maintain Sunshine State One Call Design to Dig Tickets.
- QA Review of construction plans.
- Provide periodic project updates to City Project Manager.
- Maintain records of all utility contacts.

10.0 Permitting and Environmental Compliance

10.1 General Permitting Requirements

- Compliance with local regulations and all necessary permits from relevant agencies.
- Design-Build Team responsible for obtaining all required permits.

10.2 Specific Permits and Local Ordinances

- City of Boca Raton Building Department: All necessary building permits.
- City of Boca Raton Stormwater Ordinance: Meet local comprehensive stormwater management requirements (may be more stringent than statewide minimums), including illicit discharge prevention and maintenance.
- South Florida Water Management District (SFWMD) Permits: Environmental Resource Permit (ERP) required for most stormwater projects (Chapter 62-330, F.A.C.).
- FDEP NPDES Permits: Construction Stormwater Permit (for ≥ 1 acre disturbance) requiring a comprehensive SWPPP.
- Local Comprehensive Plan and Land Development Regulations: Design must align with City's Comprehensive Plan (coastal management, natural resource protection) to prevent adverse impacts on sensitive receiving waters (e.g., Intracoastal Waterway).
- Florida East Coast (FEC) Railway Permits: All necessary permits and approvals for the at-grade crossing.

10.3 Environmental Considerations (Beyond Stormwater)

- Noise and Vibration: Mitigation measures for construction and operational noise/vibration.
- Air Quality: Dust control during construction.
- Cultural and Historical Resources: Identification and protection.
- Protected Species and Habitats: Compliance with state/federal regulations, including surveys and mitigation plans.

11.0 Project Deliverables and Submittals

11.1 Design Submittals

- Conceptual Design Plans
- 30%, 60% (with Geotechnical Report), 90%, 100% Final Design Plans and Reports
- Traffic Control Plans
- Stormwater Pollution Prevention Plan (SWPPP)

- Maintenance of Traffic (MOT) Plans

11.2 Reports and Documentation

- Geotechnical Investigation Report
- Subsurface Utility Engineering (SUE) Report
- Traffic Study Report
- Permit Applications and Approvals
- Utility Coordination Meeting Minutes and Conflict Matrices
- QA/QC Plan and Reports
- Safety Plan

11.3 As-Built Drawings and Closeout Documents

- Certified As-Built Drawings (Digital and Hard Copy)
- Operation and Maintenance Manuals for all new systems
- Warranties for all materials and equipment
- Final Project Report