Fort Lauderdale
Complete Streets

Transportation & Mobility Department

Karen Mendrala, Livability Planner

Multimodal Connectivity Vision

- Streets for all residents to have a full array of transportation choices that are safe and convenient.
  - Complete Streets
  - Livable Streets
  - Green Streets

Fort Lauderdale
our city, our vision

FAST FORWARD
FORT LAUDERDALE

WE ARE CONNECTED IN 2035

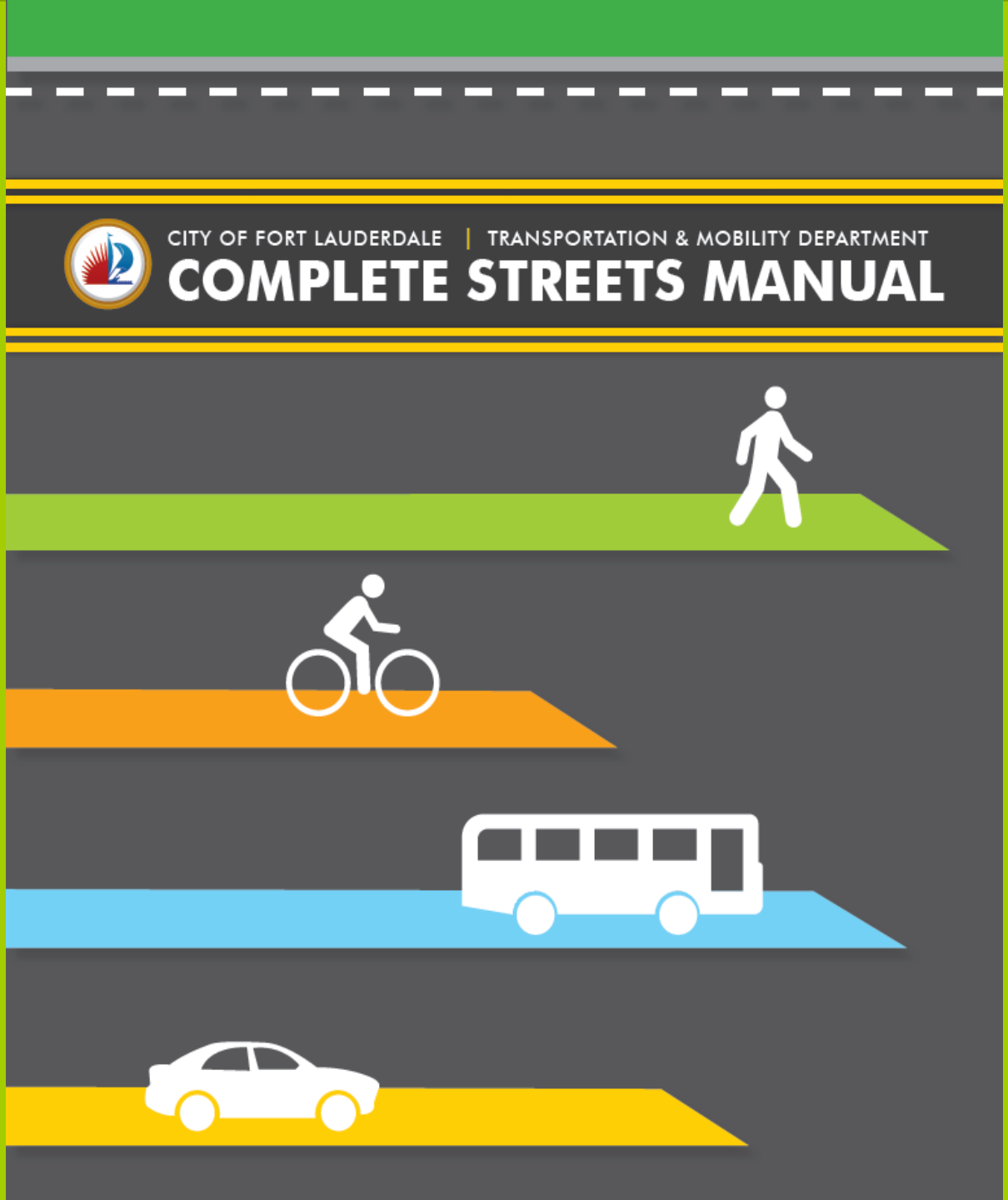
"We move seamlessly and easily through a safe transportation system where the pedestrian is first."

Complete Streets Manual Development

- Broward County Complete Streets Guidelines
- Public Input
- Research of other best practices
  - New Haven Complete Streets Guidebook
  - Philadelphia Complete Streets Design Handbook

Overall Goals

- Include Green Streets
- Context Sensitive Streets
- Manageable size
- Consistent with Vision
- Understandable

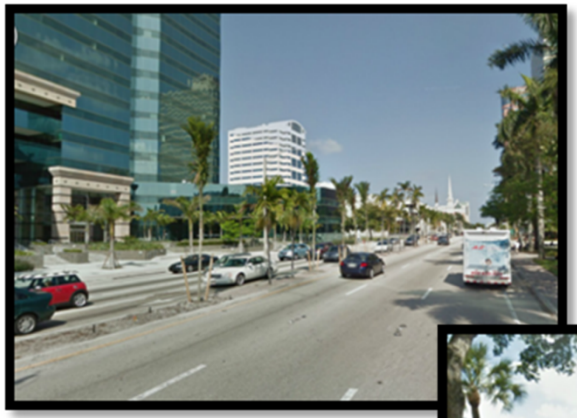

CITY OF FORT LAUDERDALE | TRANSPORTATION & MOBILITY DEPARTMENT
COMPLETE STREETS MANUAL

Chapters

- Who? Fort Lauderdale Context
- What? What are Complete Streets
- Why? Benefits of Complete Streets
- What Now? Street Design Process
- What Else? Engineering Considerations
- How? Creating Complete Streets
- Measurement
- Funding
- Appendix – Street types

Complete Streets Roadway Classifications

- Boulevard
- Avenue
- Street



Center City

Commercial

Residential

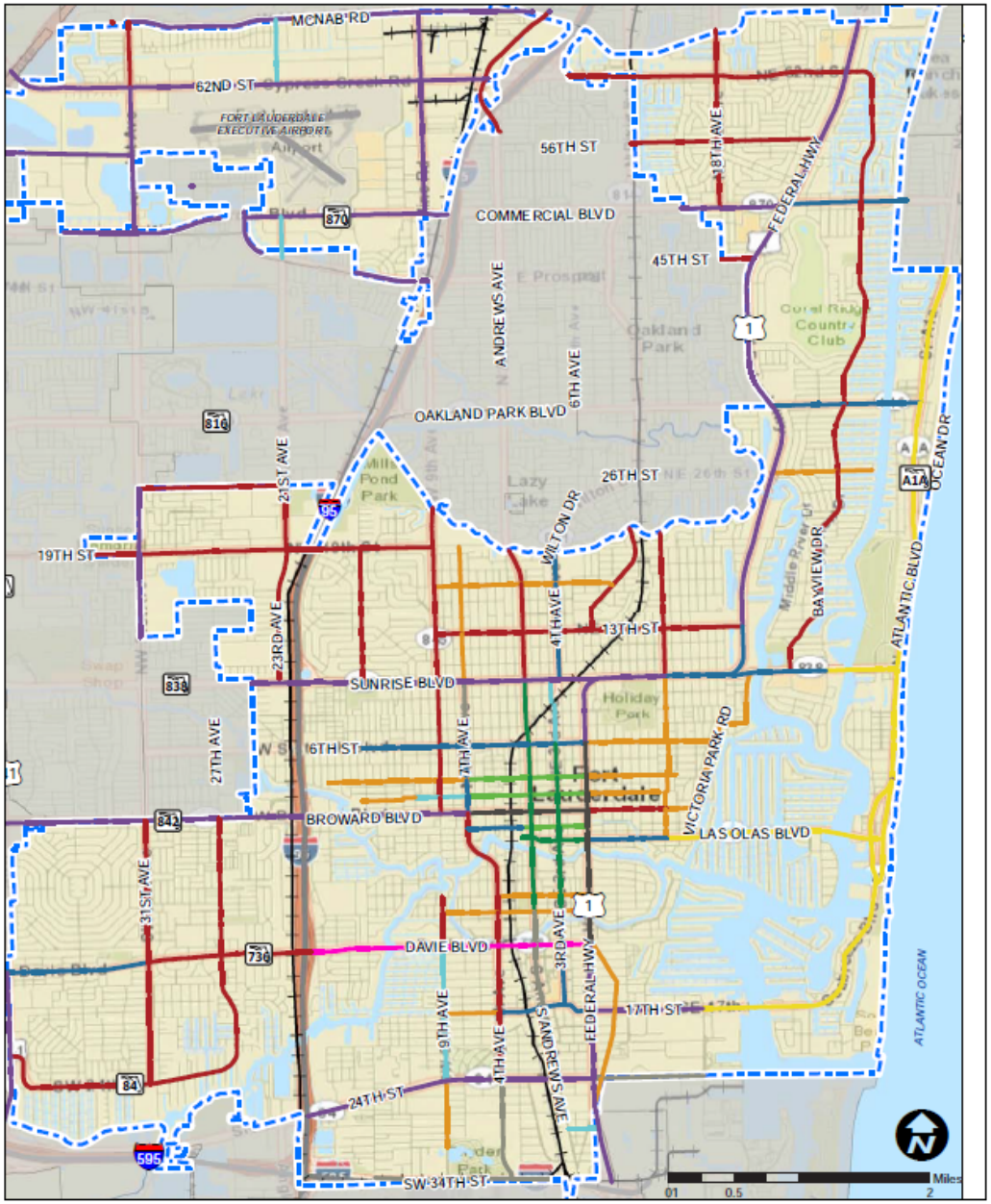


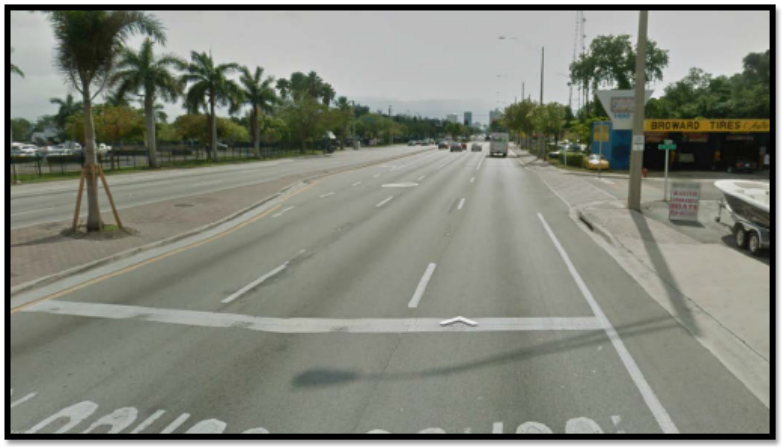
Figure 49: **Complete Streets Typology**

- Center City Boulevard
- Commercial Boulevard
- Residential Boulevard
- Center City Avenue
- Commercial Avenue
- Residential Avenue
- Center City Street
- Commercial Street
- Residential Street
- Beachfront Thoroughfare
- Industrial Thoroughfare
- Neighborhood Street (either residential or commercial)

7. How?

CREATING COMPLETE STREETS

A variety of design treatments can be employed to create Complete Streets, each with varying degrees of community involvement, engineering and education necessary for successful implementation. Following is a list of treatments that are most likely to be applicable to Fort Lauderdale streets. This manual represents them as options in the form of a "toolbox", and it is expected that all roadway projects – whether initiated by the city, state, county or community groups – will employ the toolbox as a starting point. The toolbox does not prescribe which specific tools must be used in a given situation; instead, it offers users guidance in determining which elements are most appropriate and feasible given the context and goals of the particular project. In cases of significant safety concerns along a roadway, all measures necessary to increase safety may be utilized based on best practices even if they are in conflict with these general guidelines.



Pedestrian Components

7.1.7 Vegetated Swales.

Swales are long shallow vegetated depressions with a slight longitudinal slope. As water flows through the swale, it is slowed by the interaction with plants and soil, allowing sediments and pollutants to settle out. Water soaks into the soil and is taken up by plants, and may infiltrate further into the ground if the soil is well drained.

Source: Center for Neighborhood Technology

7.1.8 Stormwater Planters.

Source: Environmental Protection Agency

Stormwater planters are specialized planters installed in the sidewalk area or median, and are designed to manage stormwater runoff by providing storage and infiltration. They are appropriate on all street types and should be located so that they maintain minimum clear walking zone widths and do not create pinch points or tripping hazards. Stormwater planters should be considered in curb extensions and medians and the furnishing zone, and must consider passenger and wheelchair accessibility at transit stops. They are generally designed with 4 concrete "curbed" sides and inlets that allow runoff to flow into the planter. The planter is lined with permeable fabric, gravel, and soil and filled with plants and/or trees.

7.1.9 Stormwater Tree Trenches.

A stormwater tree trench is a system of trees that are connected by an underground infiltration structure. On the surface they look like normal tree grates; however, under the sidewalk there is an engineered system to manage the incoming runoff. This system is composed of a trench dug along the sidewalk, lines with a permeable geotextile fabric, filled with stone or gravel, and topped off with soil and trees. Stormwater runoff flows through a special inlet leading to the stormwater tree trench, is stored which waters the trees and slowly infiltrates through the bottom.

Source: Capital Region Watershed District

INTERSECTION & CROSSING COMPONENT

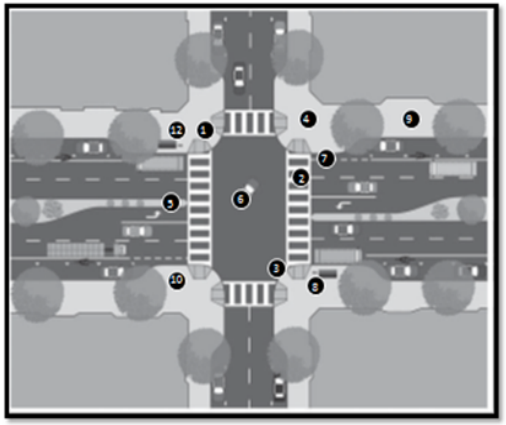
The Intersection & Crossing Component addresses design treatments to facilitate safe movement of all modes at intersections. This component includes treatments that influence the safety, function, and quality of intersections and street crossings for all users, including intersection geometry, pavement markings, and traffic signals.

Fundamentals:

- *Design intersections to reduce conflicts between modes and promote pedestrian and bicycle safety and comfort.*
- *Make intersections and crossings accessible by installing curb ramps and providing adequate time to cross.*
- *Keep pedestrian crossing distances as short as possible to reduce exposure and increase safety.*
- *Providing increased frequency of crossing opportunities.*
- *Reduce vehicle speeds and increase visibility at intersections to decrease the number and severity of crashes.*

THE BASICS OF GOOD COMPLETE STREET INTERSECTION DESIGN:

1. ADA Curb Ramps
2. Marked Crosswalks
3. Tight Curb Radii
4. Curb Extension
5. Pedestrian Refuge Island
6. Signal Timing and Operations
7. Bicycle Intersection Treatments
8. Accessible Transit Stops
9. Street and Pedestrian Lighting
10. Street Trees, Planters, and Stormwater Planters
11. Street Furnishings



Source: Philadelphia Complete Streets Design Handbook

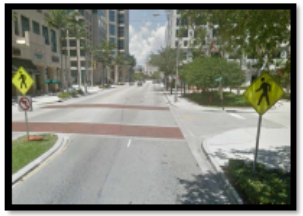
PEDESTRIAN CROSSINGS

7.1.10 Marked Crosswalks at Controlled Intersections

Source: www.redmond.gov

Marked crosswalks delineate the preferred crossing routes for pedestrians and alert other road users where to expect crossing pedestrians. Marked crossings should be utilized at all signalized and stop controlled intersections. Enhanced treatements should be used at high priority intersections where greater visibility is desired such as school crossings, where 2 or more transit routes cross, and within the business districts. Crosswalks must be paired with curb ramps and tactile warning strips per ADA guidelines. Crosswalks should be 15' wide in the Center City and 10' outside the Center City. Wider crosswalks may be provided to accommodate larger volumes of pedestrian traffic.

7.1.11 Uncontrolled Mid-block Crosswalks



Source: Google

Crosswalks should generally be installed at signalized intersections only. Mid-block crosswalks on arterials and collector roads will be considered as needed on long blocks, subject to traffic studies and engineering judgment as well as existing safety concerns. In most cases, mid-block crosswalks should be installed in conjunction with other tools such as bump-outs, pedestrian refuges, flashing beacons, in-pavement lighting, and raised crosswalks.

7.1.12 Curb Ramps

Source: Google

Access for all users is an important part of any Complete Street. Per ADA guidelines, wheelchair ramps with detectable warning strips should be installed wherever a sidewalk crosses a curb, and existing ramps should be upgraded on any project to meet current ADA guidelines. Stormwater bumpouts should be considered. Curb ramps are appropriate on all street types and are required with new development, reconstruction, or alteration of a street.

Guideline Sheets

STREET TYPES

1.1 CENTER CITY BOULEVARDS

Center City Boulevards consist of the portions of Boulevards that run through the highest-density mixed-use centers in the City. High-rise development may be located along or proximate to Center City. Due to its density of mixed uses, and proximity to the center of activity, these streets should contain the highest level of multimodal accommodations including dedicated bike lanes, slow traffic speeds, enhanced pedestrian areas including wide sidewalks, special treatments for crosswalks, transit accommodations, and on-street parking to support street level commercial.

PEDESTRIAN SIGNIFICANCE:
High

VEHICLE SIGNIFICANCE:
High to Medium

FUNCTIONAL CLASSIFICATION:
Arterial

TYPICAL LAND USE & CHARACTERISTICS:
Mixed-use, commercial, higher-density residential within the Center City

CONSIDERATIONS:

- Use green infrastructure to improve pedestrian environment, calm traffic, and manage stormwater.
- High levels of pedestrian activity. Focus on pedestrian environment and public realm.
- Driveways may create frequent conflict points for pedestrians & bicyclists.
- Buildings set at edge of street line and commercial uses create high potential for sidewalk encroachments.

PEDESTRIAN COMPONENT

Required

- Min 8' Sidewalk Widths (7.1.1)
- Min 4' Furnishing Zone (7.1.2)
- Lighting (7.1.3)

High Priority (include if width permits)

- Street Furniture (7.1.2)
- Tree Belt Enhancements (7.1.4)

Priority (consider if width permits)

- Stormwater Planters (7.1.8)
- Stormwater Tree Trenches (7.1.9)

Appropriate in Limited Circumstances

- Sidewalk Surface Treatments (7.1.5)
- Alternative Uses of Parking Lanes/Parklets (7.1.6)

BICYCLE COMPONENT

High Priority (include if width permits)

- Bicycle Parking (7.1.35)
- Buffered Bike Lane (7.1.37)
  - 5' bike lane w/ buffer
- Bike Route Signs (7.1.39)
- Colored Pavement in Bike Lanes (7.1.40)

Priority (consider if width permits)

- Conventional Bike Lane (7.1.34 (2))

Appropriate in Limited Circumstances

- Shared Lane Markings (7.1.36)
- Raised Bike Lane (7.1.38)

VEHICLE COMPONENT

High Priority (include if width permits)

- Refuge Islands (7.1.24)
- Medians (7.1.27)
- Lane Width: 10' – 11' (7.1.30)
- Max Posted Speed 35mph (7.1.33)

Appropriate in Limited Circumstances

- Roundabout (7.1.29)
- On-street Parking (7.1.31)
  - Min 8' parking lane
- Pervious Pavement Parking Areas (7.1.32)

Examples of street typology are:

Broward Boulevard (within Center City)
US1 (within Center City)

INTERSECTION & CROSSINGS

Required

- Marked Crosswalks at Controlled Intersections (7.1.10)
- Curb Ramps (7.1.12)
- Pedestrian Signal Crossings (7.1.17)

High Priority (include if width permits)

- Stormwater Curb Extensions (7.1.13)
- Corner Radii – 25'-30' (7.1.14)
- Bump-outs/Chokers (7.1.15)

Appropriate in Limited Circumstances

- Uncontrolled Mid-block Crosswalks (7.1.11)
- Bike Signal Accommodations (7.1.18)
- Pedestrian Hybrid Beacons (7.1.19)
- Rectangular Rapid Flashing Beacons (7.1.20)
- In-street Pedestrian Crossing Lighting (7.1.21)

TRANSIT COMPONENT

Required

- Transit Stop (7.1.41)
- Transit Stop Signage (7.1.44)

High Priority (include width permits)

- Shelters (7.1.43)
- Bike Racks (7.1.47)

Priority (consider if appropriate)

- Location of stop, Far side of intersection (7.1.42)
- Transit Bulbout (7.1.45)

Appropriate in Limited Circumstances

- Bus Turnouts (7.1.46)
- Signal Prioritization (7.1.50)
- Bus Lanes (7.1.51)

Design Toolbox

Commercial Avenue

Examples of possible design features (if appropriate)

- 6’ Sidewalk
- Pedestrian lighting
- Pedestrian crossings
- Pedestrian refuge islands
- 5’ Green bike lane
- Bicycle Parking
- On-street parking
- Lane widths of 10-11’
- Transit stops
- Max speed 30 mph

FORT LAUDERDALE MULTIMODAL CONNECTIVITY PROGRAM

October 2013

Prepared for:
City of Fort Lauderdale

Prepared by:
Kittelson & Associates, Inc.

Multimodal Connectivity Program

ID	ROADWAY NAME	FROM	TO	FUNCLASS 2010 DESCRIPTION	CITY COMPLETE STREETS CLASSIFICATION	SPEED (posted)	EXISTING SIDEWALK (1 side, 2 side, broken)	SIDEWALK BUFFER (between street and sidewalk, yes/no)	SHADE (yes/no)	SEATING (including cafe seating, yes/no)	PED-SCALE LIGHTING (yes/no)	EXISTING BIKE LANE OR SHOULDER (yes/no)	EXISTING PATH (yes/no)	EXISTING SHARROWS (yes/no)	MEDIAN	ON-STREET PARKING	NOTES	NEEDED PEDESTRIAN IMPROVEMENTS	NEEDED BICYCLE IMPROVEMENTS
95	SW 2 ST	BRICKELL AVE	US 1	U_Major_Collector	Center City Street	30	2 SIDES	NO	YES	YES	YES	NO	NO	NO	NONE	NONE	WID SIDEWALKS SEPARATED FROM TRAFFIC, LANDSCAPING WITH TREES, STREET FURNITURE	Add more seating and buffers (low priority--good area for pedestrians)	Add sharrows
96	SW 31 AVE	RIVERLAND ROAD	BROWARD BLVD	U_Major_Collector	Residential Avenue	35	2 SIDES	YES	NO	NO	NO	NO	NO	NO	NONE	NONE	SIDEWALKS SEPARATED FROM TRAFFIC, SOME BREAKS IN SIDEWALK, RESIDENTIAL AREA	Add pedestrian lighting and shade, connect the one block without sidewalk	Add bike lanes
97	SW 4 AVE	PERIMETER RD	SR 84	U_Major_Collector	Industrial Thoroughfare	35	1 SIDE	NO	NO	NO	NO	NO	NO	NO	TWLTL	NONE	WIDE SIDEWALK, OCCASIONAL 2ND SIDEWALK, SOME MEDIANS BUT PRIMARILY LTL	Create connectivity at at south end where sidewalks are one-side only; add buffers and lighting	Add sharrows or bike lanes
98	SW 4 AVE	SR 84	DAVIE BLVD	U_Minor_Arterial	Residential Avenue	40	2 SIDES	YES	YES	NO	NO	NO	NO	NO	LANDSCAPED/TWLTL	NONE	SIDEWALK CUTS OFF AT SW 5TH ST WHERE MAJOR ARTERIAL TURNS AND	Provide seating and lighting	Add bike lanes; consider buffering against high speed traffic
99	SW 4 AVE	DAVIE BLVD	BROWARD BLVD	U_Minor_Arterial	Residential Avenue	40	1 SIDE, BROKEN	YES	YES	NO	NO	NO	NO	NO	NONE	NONE	MULTIPLE BREAK IN SIDEWALK, ROAD HAS MULTIPLE BREAKS IN	Improve connectivity by connecting sidewalks on both side, improve lighting and	Add bike lanes; consider buffering against high speed traffic
100	SW 9 AVE	SR-84	DAVIE BLVD	U_Minor_Collector	Commercial Street	30	2 SIDES WITH MULTIPLE BREAKS	YES	YES	NO	NO	NO	NO	NO	NONE	NONE	MULTIPLE BREAKS IN 2ND SIDEWALK FOR	Create connectivity by connecting the fragments of the second sidewalk; improve lighting and seating	Add sharrows or bike lanes
101	SW 7TH ST	SW 4 AVE	US-1	U_Minor_Collector	Residential Street	25	2 SIDES WITH BREAKS	YES	YES	NO	NO	NO	NO	NO	NONE	NONE	SIDEWALK SEPARATED FROM TRAFFIC, SOME BREAKS IN SIDEWALK, NO PED CROSSING AT RAILROAD	Create connectivity by connecting sidewalks and creating crossing over railroad tracks; improve lighting and	Add sharrows
102	SW 17TH ST	SW 4TH AVE	US 1/SR 5	U_Minor_Arterial	Commercial Avenue	35	2 SIDES	YES	YES	NO	NO	NO	NO	NO	LANDSCAPED	NONE	POOR PEDESTRAIN CROSSING AT RAILROAD, WEIRD INTERSECTION WITH	Create crossing at railroad track, widen sidewalks, provide seating and lighting	Add sharrows or bike lanes
103	US-1	SR 84	DAVIE BLVD.	U_Principal_Arterial_Other	Commercial Blvd	40	2 SIDES	NO	NO	NO	NO	NO	NO	NO	NONE/LANDSCAPED	NONE	MAJOR N/S PRINCIPAL ARTERIAL, STANDARD SIDEWALKS WITH NARROW SHOULDER USABLE BY	ADD STREET TREES, ADD PEDESTRIAN-ORIENTED LIGHTING, ADD SEATING	5' BICYCLE LANE
104	US-1	DAVIE BLVD.	BROWARD BLVD	U_Principal_Arterial_Other	Center City Blvd	40	2 SIDES (1 SIDE IN TUNNEL)	NO	YES*	NO	NO	NO							
105	US-1	BROWARD BLVD	NE 6 ST	U_Principal_Arterial_Other	Center City Blvd	35	2 SIDES	NO	NO	NO	NO	YES							
106	US-1	NE 6 ST	NE 15 AVE	U_Principal_Arterial_Other	Commercial Blvd	35	2 SIDES	NO	NO	NO	NO	YES							
107	US-1	NE 15 AVE	NE 13 ST	U_Principal_Arterial_Other	Commercial Avenue	35	2 SIDES	YES	NO	NO	NO	YES							
108	SW/SE 17TH STREET	SW 4TH AVE	US 1/SR 5	U_Minor_Arterial	Commercial Avenue	35	2 SIDES	YES	YES	NO	NO	NO							
108	US-1	NE 13 ST	E McNab Rd	U_Principal_Arterial_Other	Commercial Blvd	45	2 SIDES	YES	NO	NO	NO	YES					BICYCLISTS	WHERE US 1 AND SUNRISE	

- **Speed**
- **Sidewalks**
- **Shade**
- **Pedestrian Lighting**
- **Bike Lane**
- **Parking**

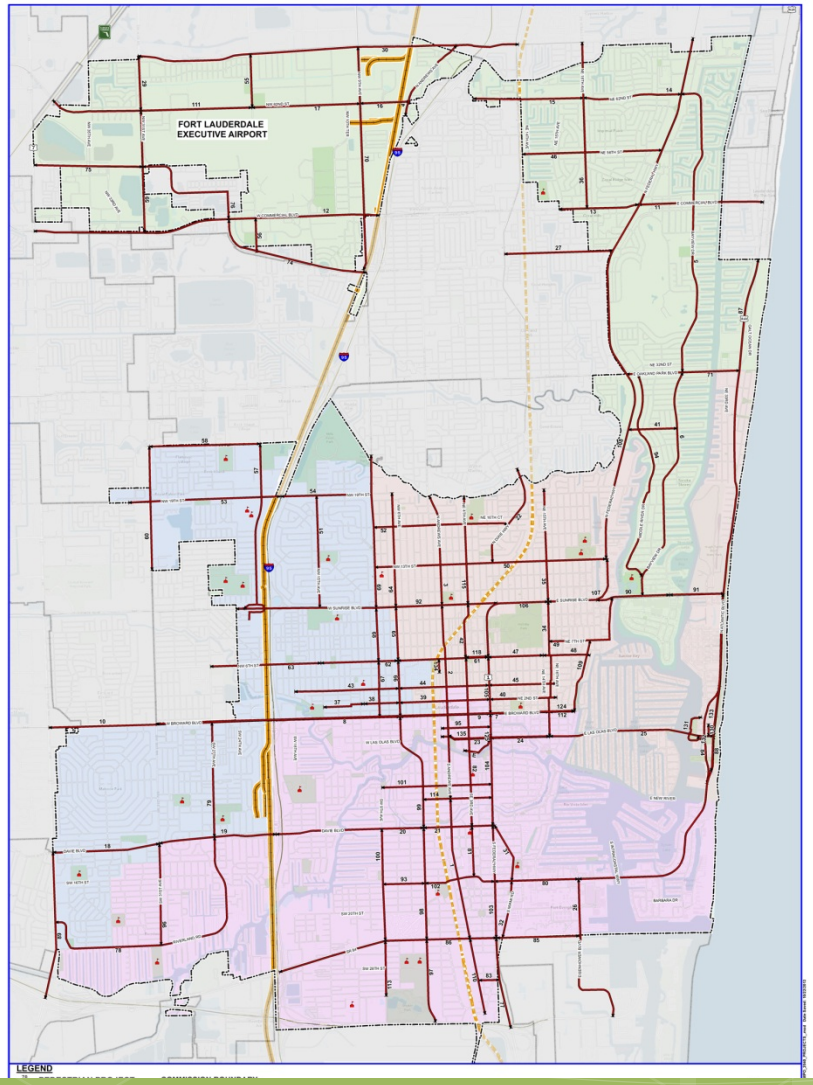
Implementing Complete Streets

- **Enacted Complete Streets Policy:** Oct. 1, 2013
- **Multimodal Connectivity Program:** Dec. 3, 2013
- **Staff training:** Dec.10, 2013
- **Identify Ordinance Changes:** 3 – 6 months
- **Codify Ordinance Changes:** Spring 2014

Implementing Complete Streets

DON'T WAIT

- Fit in Complete Streets in existing project
- Work with Partners



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