

Appendix 1: Updates to Major Thoroughfare Plan, Right of Way Requirements and Cross-Sections

The Major Thoroughfare Plan was reviewed as a part of Huntsville's comprehensive plan process. The City of Huntsville has a well-structured roadway classification that helps in the hierarchical movement of traffic from Local Streets to Primary Arterials. A review of the existing and future roadway classifications in conjunction with the Future Land Use Map revealed no major updates required for the thoroughfare map at this point. However, based on the input and discussion with the members of the Comprehensive Plan Advisory Committee, a review was performed to see the rationality of the proposed extension of 20th Street to the I-45 North Freeway Service Road. Based on the examination of existing conditions, feedback received from the CPAC meeting, and the potential for future development along 20th Street, the future extension of 20th Street is proposed to be removed from the Thoroughfare Map.

Further coordination with the City of Huntsville will be required to update the 2019 Major Thoroughfare Plan.

Update to the Right of Way requirements

As part of the review of the thoroughfare plan, an evaluation was performed to update the Right of Way (ROW) requirement for each roadway classification adopted by the City of Huntsville. The following documents were reviewed as part of this review:

- ROW Requirements from the 2010 City of Huntsville Land Development Code
- ROW Requirements from the 2015 City of Huntsville Land Development Code
- ROW Requirements from the 2019 Transportation Master Plan
- Future Land Use Map
- Feedback from CPAC Meeting (May 27, 2021)

Guidelines and recommendations from various sources such as the Federal Highway Administration, AASHTO's Guide for the Development of Bicycle Facilities, and TxDOT's Roadway Design Manual, were reviewed. The TxDOT Roadway Design Manual is a comprehensive document providing guidelines for the design of various roadway elements based on the functional classification of roadways. ROW requirement varies for each roadway depending on the combination of various cross-sectional elements such as number of travel lanes, parking lanes, sidewalk, bike lane, etc. The required ROW is computed once the cross-section of each roadway is determined.

To determine the minimum ROW required for each roadway classification, the existing cross-section standards (**Exhibit 1**) were evaluated from the City of Huntsville's Engineering Design Criteria (**Exhibit 2**). **Exhibit 3** shows the cross-sections of each roadway class based on the guidelines prescribed in City of Huntsville's Engineering Design Criteria. For the draft proposal, the same roadway cross-sections were adopted. The width of the cross-sectional element was determined by the recommendation of minimum requirements by TxDOT. A summary of all the values recommended by TxDOT's Roadway Design Manual is included in **Exhibit 5**. **Exhibit 4** contains the cross-sections contained in the 2019 Transportation Master Plan, for comparative purposes.

Draft Proposed Cross-Sections

The draft proposed cross-sections for each roadway classification are shown in **Exhibit 6**. The proposed minimum pavement width and ROW requirement for each roadway classification is shown in Table 1. It

should be noted that the proposed cross-section standards represent the minimum design requirement as per TxDOT's manual. Further analysis and discussions should be held to determine the required cross-sectional elements for each roadway classification and the desired width of each of these elements to compute the minimum pavement width as well as the minimum Right of Way width.

Table 1: Proposed minimum Pavement Width and Right of Way (draft)

Street Classification	Proposed Travel Lanes	Proposed Parking Lanes	Proposed Minimum Pavement Width (Feet)	Proposed Minimum ROW Width (Feet)
Arterial				
Primary Arterial	5	2	78	108
Secondary Arterial	5	0	58	88
Collector				
Standard Collector	2	2	38	68
Local				
Local - 1	2	1	29	49
Local -2 (Low Volume)	2	0	22	42

Exhibit 1: RIGHT OF WAY REQUIREMENTS - COMPARISON

CITY OF HUNTSVILLE DEVELOPMENT CODE, 2010 (PREVIOUS STANDARDS)

STREET CLASSIFICATION	TRAVEL LANES	PARKING LANES	MINIMUM ROW WIDTH (IN FEET)	MINIMUM PAVEMENT WIDTH (IN FEET)*
ARTERIAL				
Standard with Parking, A-1	5	2	110	85
Standard without Parking, A-2	5	0	80	61
COLLECTOR				
Standard, C-1	2	2	70	41
LOCAL				
Local Commercial, LC-1 ⁽¹⁾	2	2	60	41
High Volume Residential, LR-1	2	2	60	41
Medium Volume Residential, LR-2	2	1	50	32
Low Volume Residential, LR-3 ⁽²⁾	1	2	50	28
Alternative Local Residential 1 ⁽³⁾ , ALR-1	2	0	60	28
Alternative Local Residential 2 ⁽³⁾ , ALR-2	2	0	60	28
PRIVATE				
Private Streets/Emergency Access Easements	2	0	28	28

(1) With Council or Commission approval, a developer may reduce pavement width if the developer furnishes and installs "No Parking" signs. Never shall pavement width be less than 28 feet, and increased driveway and intersection radii may be required for truck turning movements if developer reduces pavement width.

(2) Low Volume provides access to 20 or less dwelling units (d.u.) or equivalent or short connecting streets.

(3) All local residential streets shall be designated as LR-1, LR-2 or LR-3. Alternative construction standards, as established in Section 614.2 and Figures 6-6 and 6-7 may be used where the conditions shown in Section 614 exist.

* Back of curb to back of curb or edge to edge.

CITY OF HUNTSVILLE DEVELOPMENT CODE, 2015 (EXISTING STANDARDS)

STREET CLASSIFICATION	TRAVEL LANES	PARKING LANES	MINIMUM ROW WIDTH (IN FEET)	MINIMUM PAVEMENT WIDTH (IN FEET)*
ARTERIAL				
Standard with Parking, A-1	5	2	120	90
Standard without Parking, A-2	5	0	90	61
COLLECTOR				
Standard, C-1	2	2	70	41
LOCAL				
Local-1	2	1	50	32
Low Volume, L-2 ⁽¹⁾	1	2	50	28
PRIVATE				
Private Streets/Emergency Access Easements	2	0	28	28

(1) Low Volume provides access to 20 or less dwelling units (d.u.) or equivalent or short connecting streets.

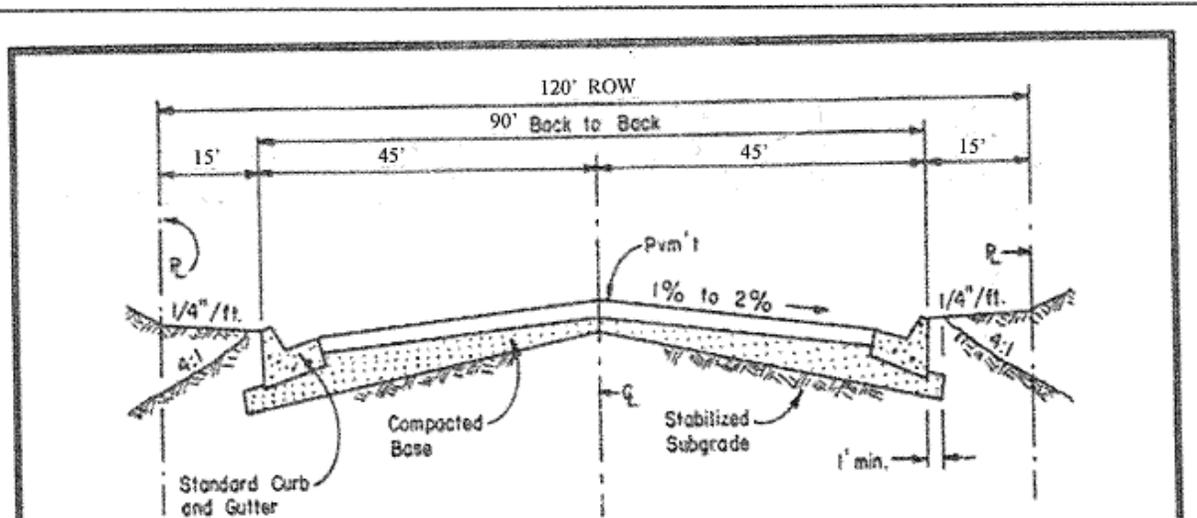
*Back of curb to back of curb or edge to edge.

TRANSPORTATION MASTER PLAN, 2019 (PROPOSED)

STREET CLASSIFICATION	PROPOSED TRAVEL LANES	PROPOSED PARKING LANES	PROPOSED MINIMUM ROW WIDTH (FEET)	PROPOSED MINIMUM PAVEMENT WIDTH (FEET)
ARTERIAL				
Primary Arterial	4	0	100	84
Secondary Arterial	-	-	-	-
COLLECTOR				
Standard Collector	2	2	72	52
LOCAL				
Standard Local	2	0	48	32

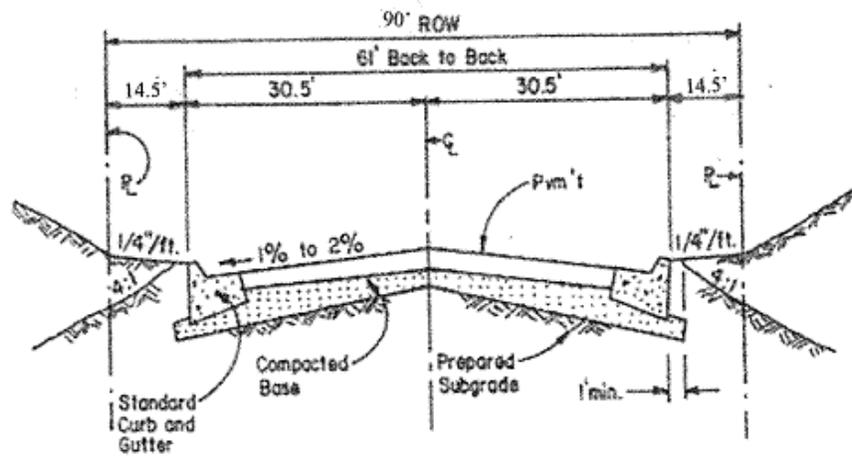
Exhibit 2:
CITY OF HUNTSVILLE
EXISTING STANDARDS FOR
MINIMUM GEOMETRIC
DESIGN CRITERIA FOR PUBLIC
STREETS

SOURCE: CITY OF HUNTSVILLE ENGINEERING DESIGN CRITERIA - 2015



120 Ft. R.O.W.
Five 13 Ft. Travel Lanes
Two 12 Ft. Parking Lanes

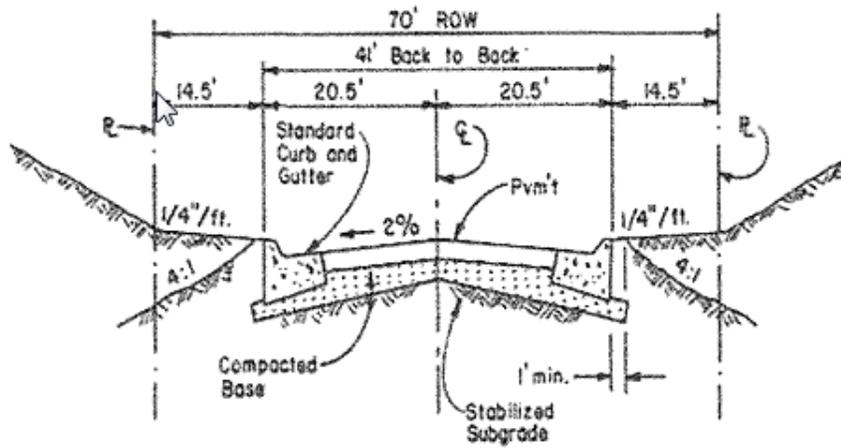
A-1 ARTERIAL STREET (PRIMARY)



Ninety Foot R.O.W.
Five 12 Ft. Travel Lanes

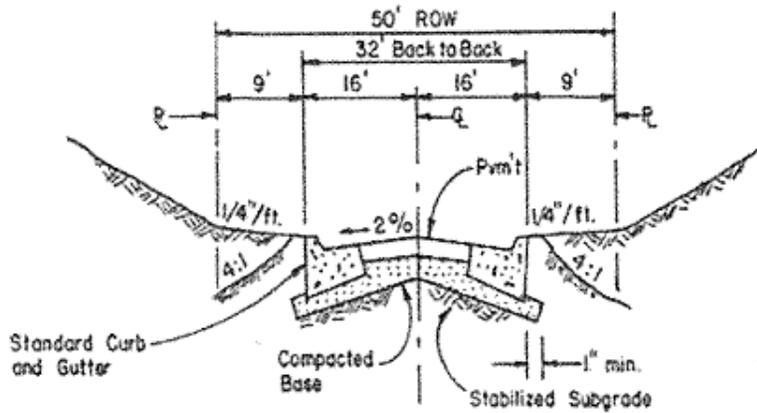
A-2 ARTERIAL STREET (SECONDARY)

<p>Huntsville Design Criteria</p>	<p>ARTERIAL STREET (PRIMARY AND SECONDARY)</p>	<p>Scale: NONE</p>
<p>Revisions</p>		<p>FIGURE 2-1</p>



Seventy Foot R.O.W.
 Two 12 Ft. Travel Lanes (with provision for future turning lane if one parking lane is deleted)
 Two 8 Ft. Parking Lanes

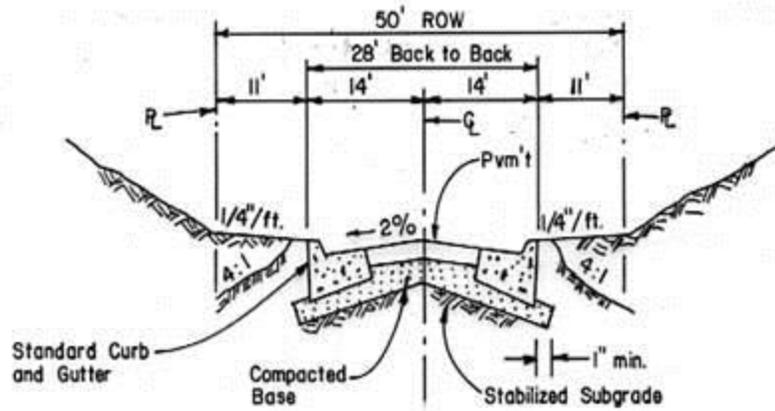
C-1 COLLECTOR STREET



Fifty Foot R.O.W.
 Two 12 Ft. Travel Lanes
 One 7 Ft. Parking Lane

L-1 LOCAL STREET

Huntsville Design Criteria	COLLECTOR STREET LOCAL STREET	Scale: NONE
Revisions		FIGURE 2-2



L-2 LOCAL LOW VOLUME STREET

**Fifty Foot R.O.W.
Two 12 Ft. Travel Lanes**

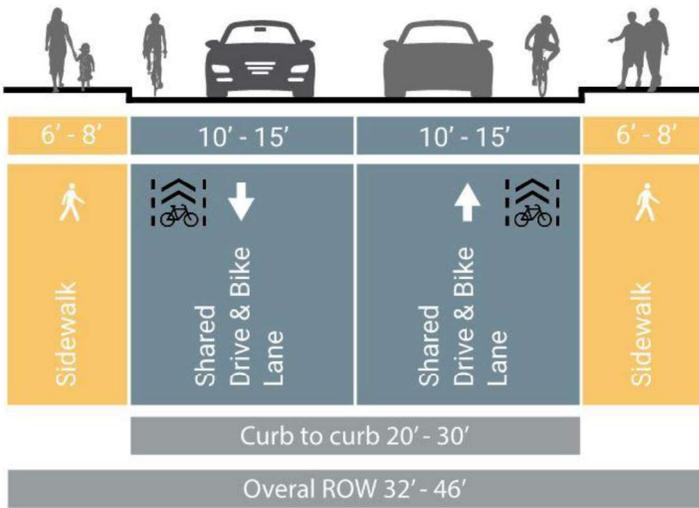
Huntsville Design Criteria	L-2 LOCAL LOW VOLUME STREET	Scale: NONE
Revisions		FIGURE 2-3

Exhibit 3:

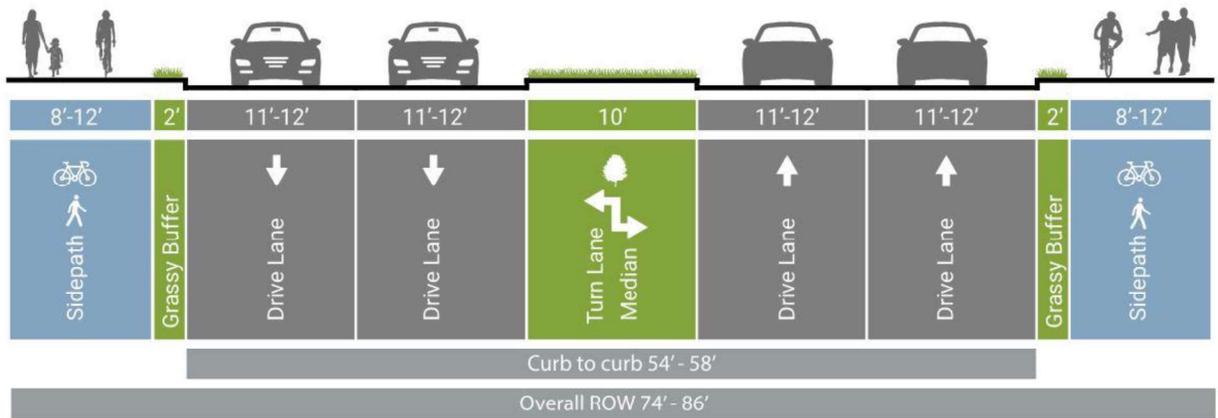
CITY OF HUNTSVILLE

**PROPOSED ROADWAY CROSS
SECTIONS FROM
TRANSPORTATION MASTER
PLAN – 2019**

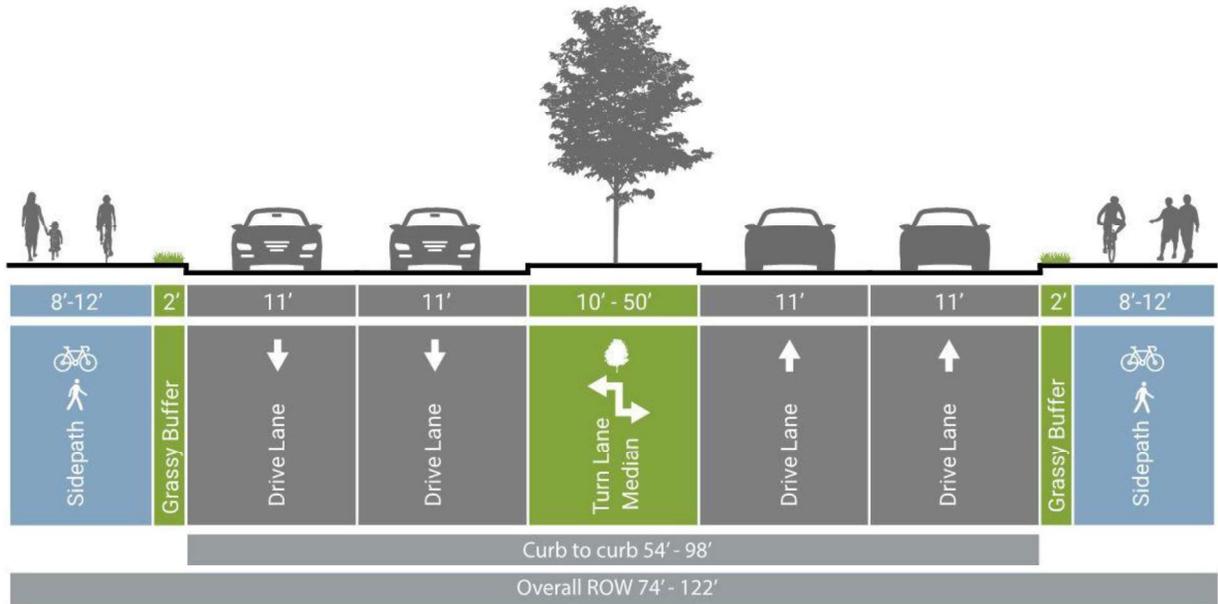
Neighborhood Bikeway



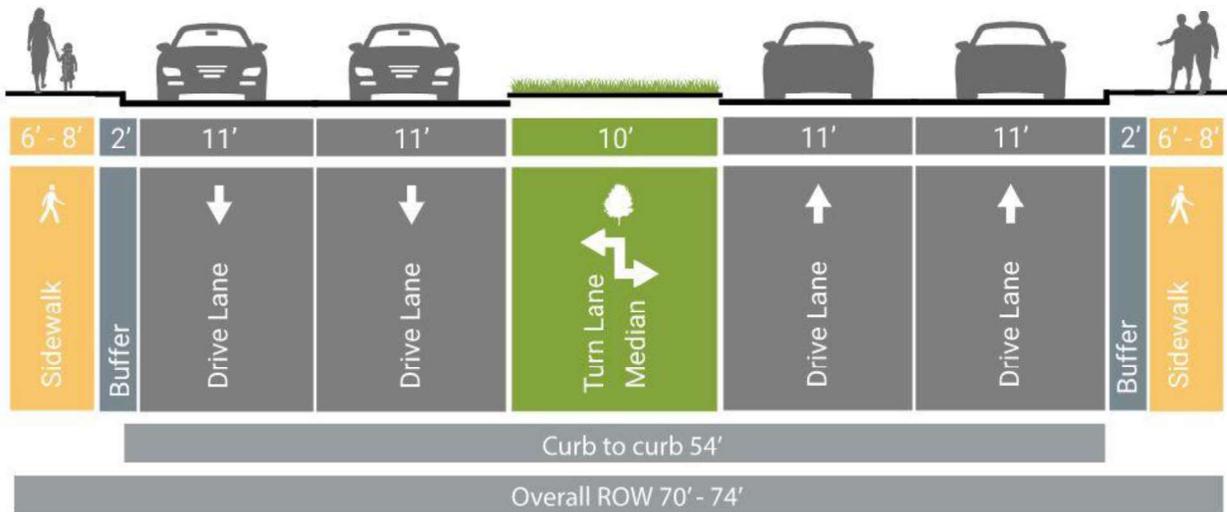
Four Lanes with Narrow Median and Sidepaths



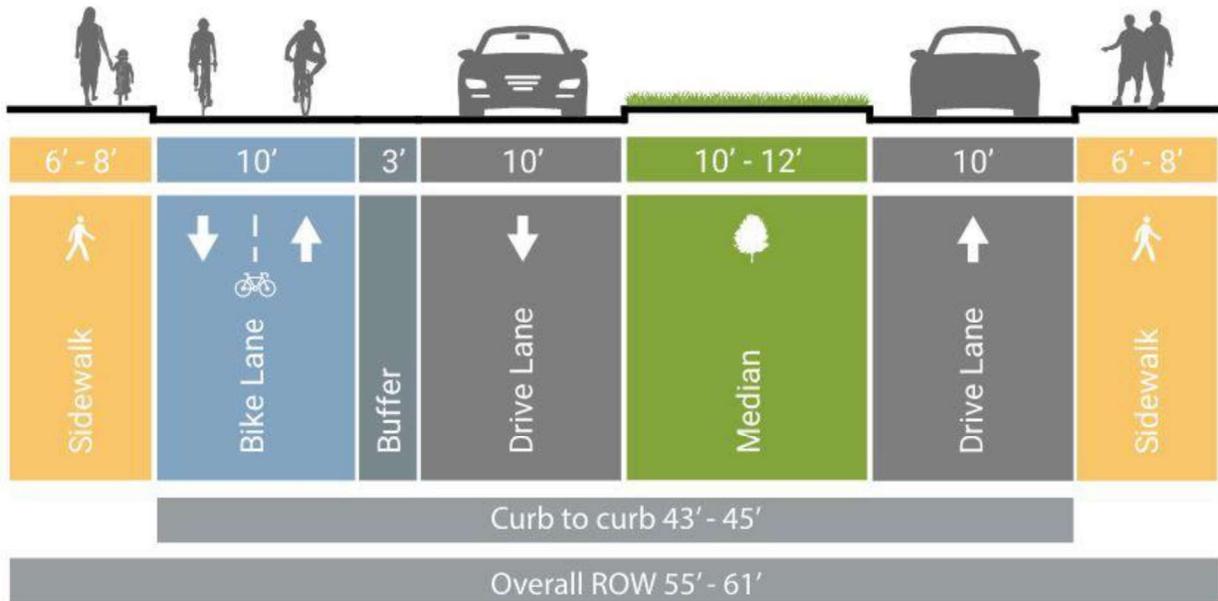
Four Lanes with Wide Median and Sidepaths



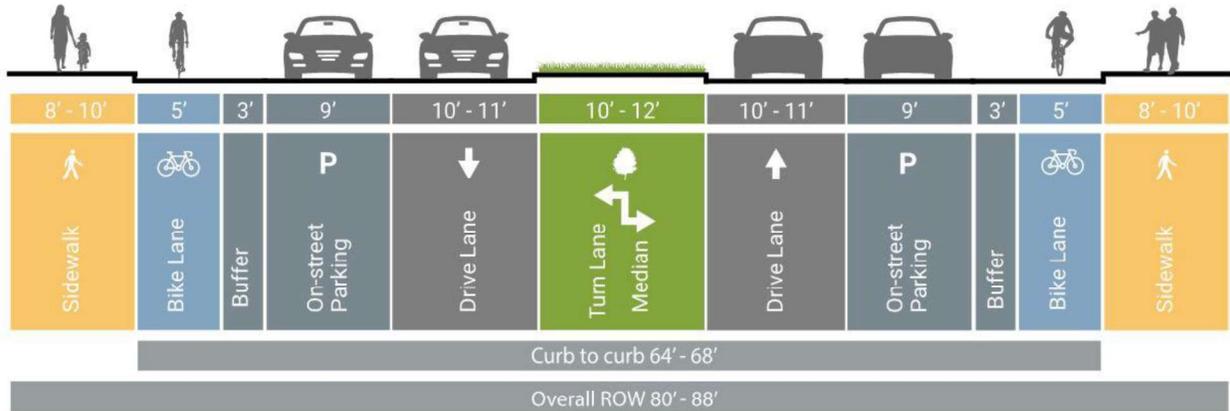
Four Lanes with Sidewalks



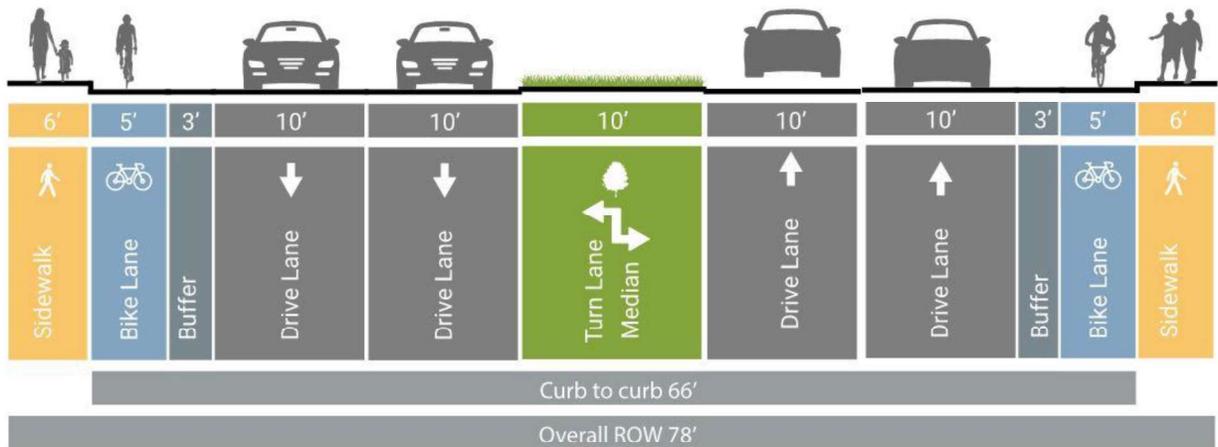
Two Lanes with One Bike Lane and Sidewalks



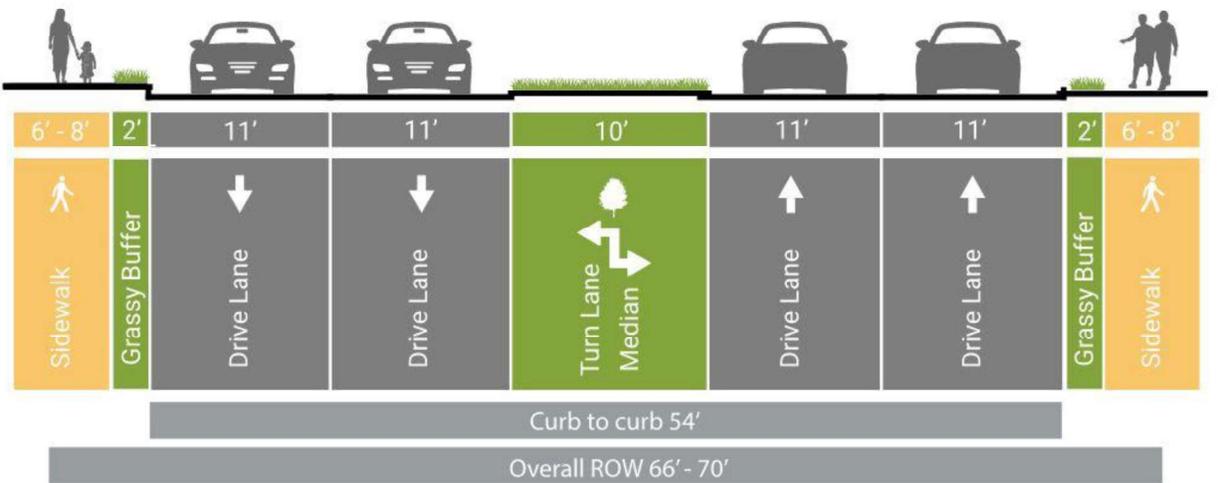
Two Lanes with Street Parking, Bike Lanes, and Sidewalks



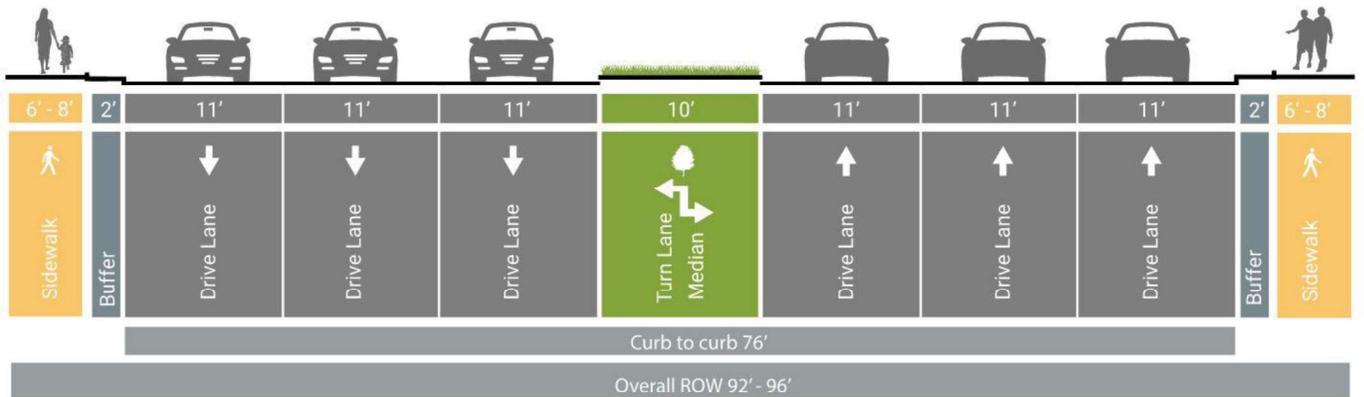
Four Lanes with Bike Lanes and Sidewalks



Four Lanes with Grassy Buffers and Sidewalks



Six Lanes with Sidewalks



Six Lanes with Raised Cycletracks and Sidewalks

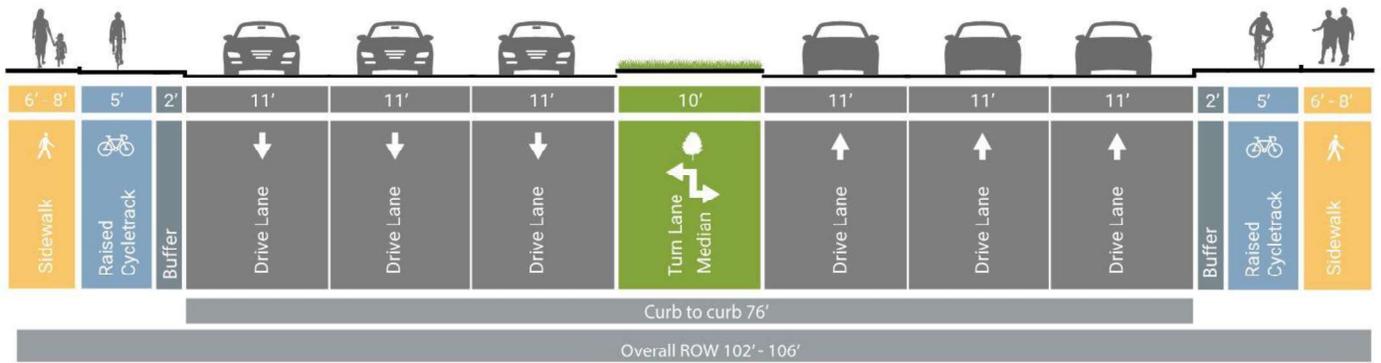


Exhibit 4: CITY OF HUNTSVILLE EXISTING TYPICAL ROADWAY CROSS-SECTION STANDARDS

Note: 1. The standard cross-sections are developed from the guidelines prescribed in the City of Huntsville's Engineering Design Criteria updated in 2015.
2. For cross-sections of Arterials, Collector, and Local Street-1, an additional width of 0.5 feet is shown along with the edge lane pavement width to account for offset from edge of travel lane/parking lane to face of curb.

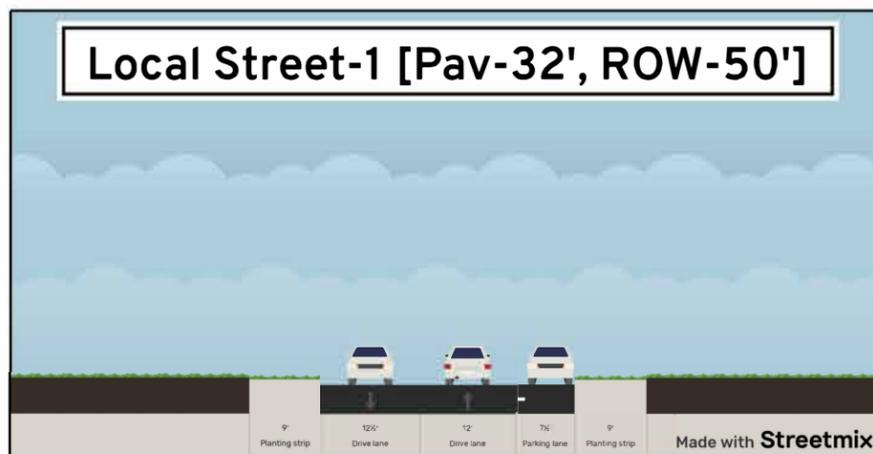
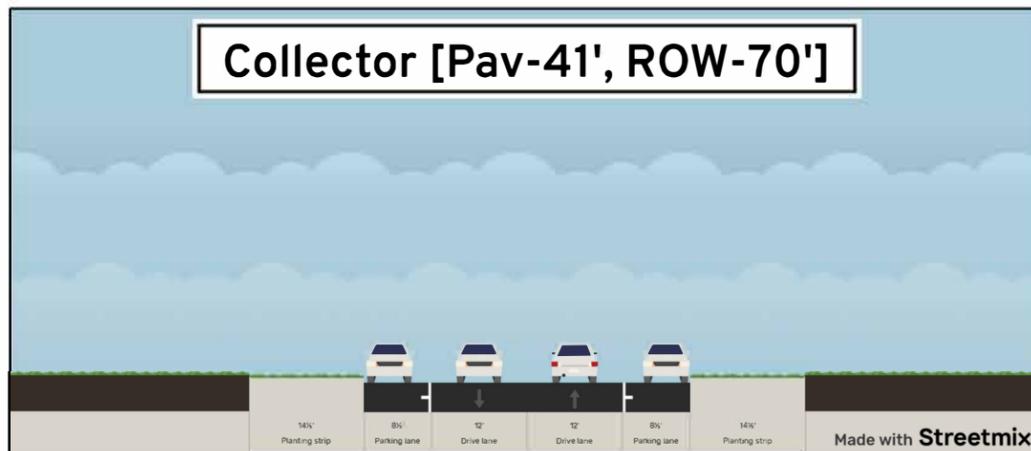
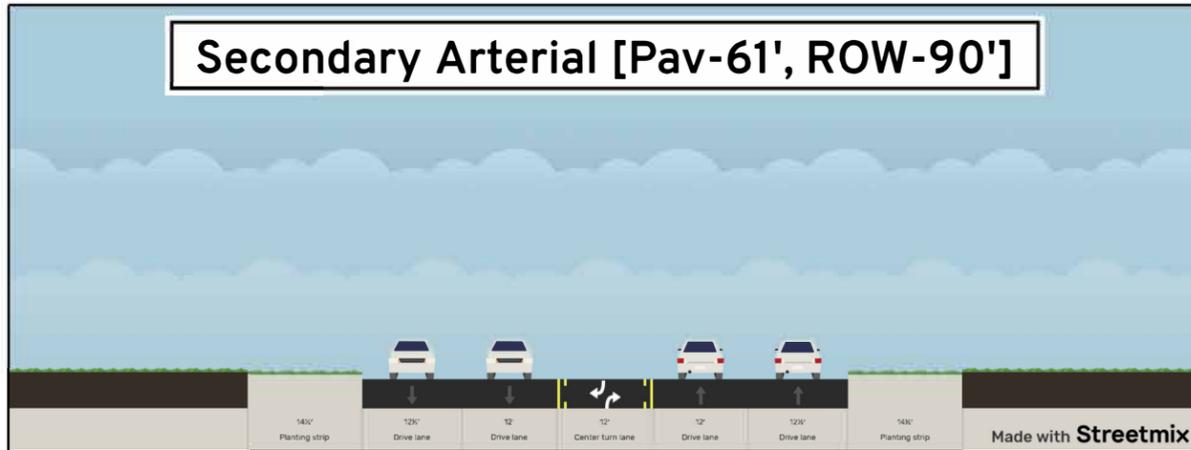
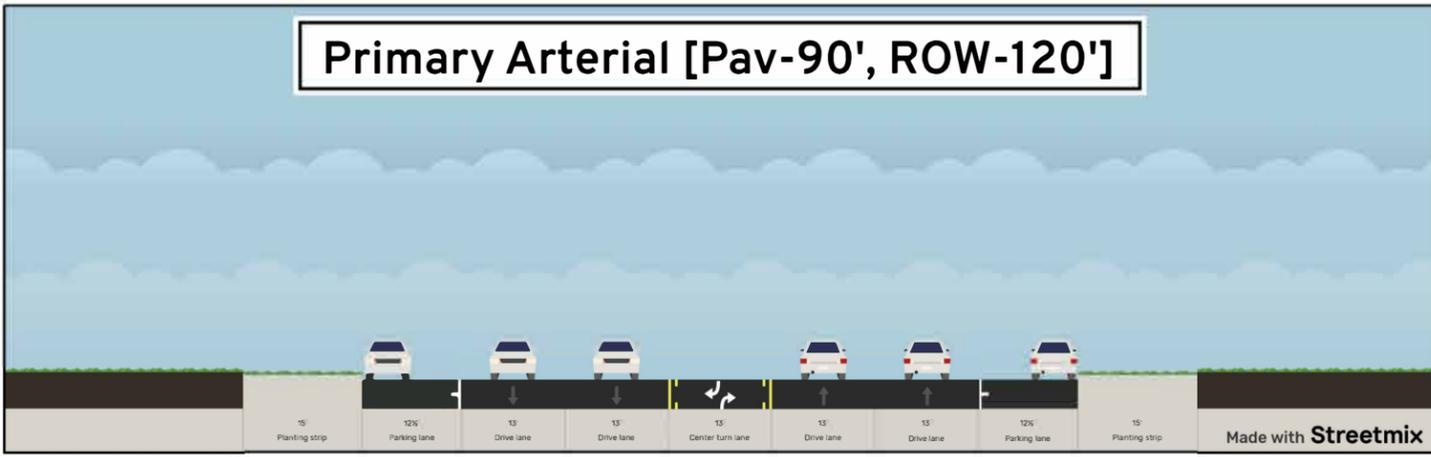


Exhibit 5: Summary of TxDOT Requirements for Roadway Elements

The TxDOT Roadway Design Manual (RDM) provides guidelines in the geometric design of roadway facilities. The RDM provides both the minimum requirement as well as the desirable values for each roadway element to obtain an efficient functioning transportation network. The table below provides the minimum and desired values of each roadway element for different functional classifications. The RDM was last updated in July 2020.

Table: Summary of TxDOT minimum and desirable values for roadway elements

Arterials			
Elements	Minimum	Desirable	Comments
Lane Width	11	12	
Raised median with turn lane	16	18	Accommodating pedestrian refuge
Raised median without turn lane	2	6	Accommodating pedestrian refuge
Two Way Left-Turn Lane	12	14	
Parking lane	10	12	
Shoulder	4	10	
Offset to face of the curb	1	2	Measured from edge of travel/parking lane
Border	15	20	Accommodates sidewalk and other utilities
Collectors			
Elements	Minimum	Desirable	Comments
Lane Width	11	12	A minimum of 10 ft. width is also mentioned but only in non-industrial areas without many heavy vehicles.
Raised median with turn lane	16	18	Accommodating pedestrian refuge
Raised median without turn lane	2	6	Accommodating pedestrian refuge
Two Way Left-Turn Lane	12	14	
Parking lane	7	10	
Shoulder	3	8	
Offset to face of the curb	1	2	Measured from edge of travel/parking lane
Border	15	20	Accommodates sidewalk and other utilities
Local Streets			
Elements	Minimum	Desirable	Comments
Lane Width	10	12	A minimum of 9 ft. width is also mentioned but in residential areas.
Two Way Left-Turn Lane	12	14	
Parking lane	7	9	
Shoulder	2	-	Desirable value is not provided
Offset to face of the curb	1	2	Measured from edge of travel/parking lane
Border	10		Clear zone value is taken instead of border value from table 2-12 of RDM. Desirable value is not provided.

Other Design elements			
Elements	Minimum	Desirable	Comments
Sidewalk	5	6	
Buffer for sidewalk	4	6	
Shared lane	14	-	Desirable is not provided but maximum is 16 ft. - AASHTO guidelines.
Bike lane	4	5	
Shared use path	10	14	

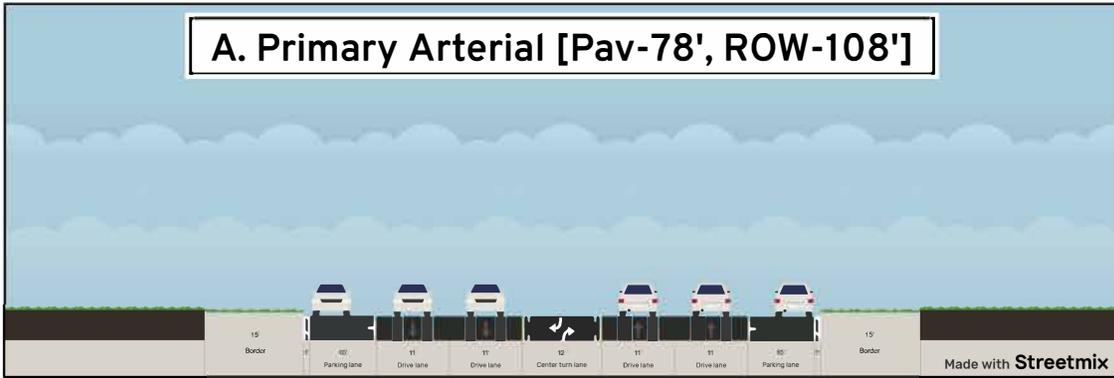
Exhibit 6: CITY OF HUNTSVILLE COMPREHENSIVE PLAN TYPICAL ROADWAY CROSS SECTIONS DRAFT PROPOSAL

Note:

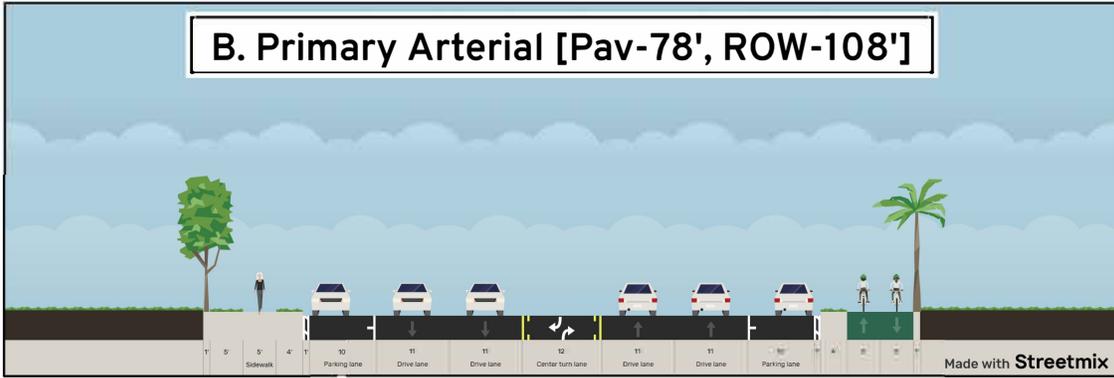
1. The width of each roadway element represent the minimum value prescribed in the TxDOT Roadway Design Manual.
2. The cross-sectional elements in cross sections - A are same as elements in the existing cross-section standards for City of Huntsville.
3. Cross sections - B represent the utilization of the border area (Edge of Pavement to Right of Way) to install elements like sidewalk, shared-use path, etc.

PRIMARY ARTERIAL

A. Primary Arterial [Pav-78', ROW-108']

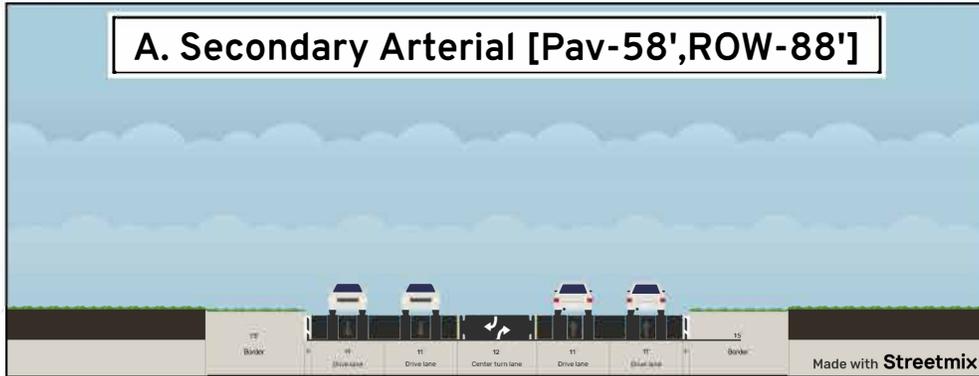


B. Primary Arterial [Pav-78', ROW-108']

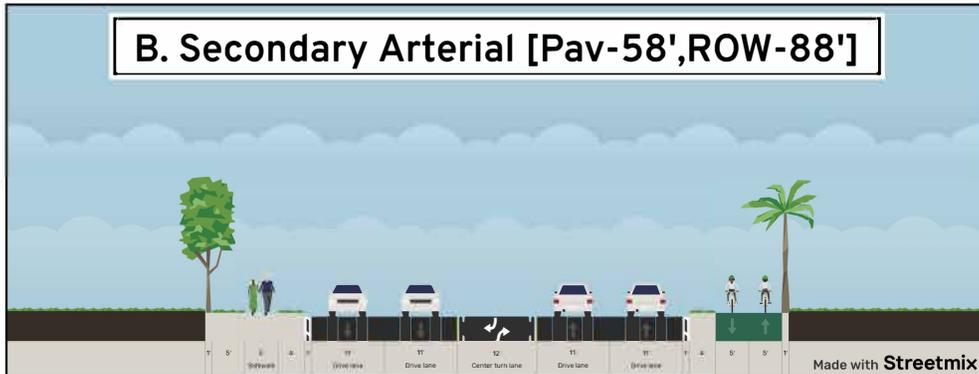


SECONDARY ARTERIAL

A. Secondary Arterial [Pav-58', ROW-88']

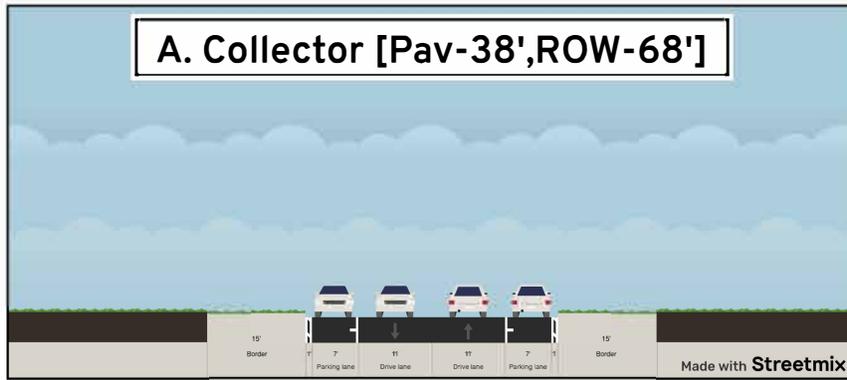


B. Secondary Arterial [Pav-58', ROW-88']

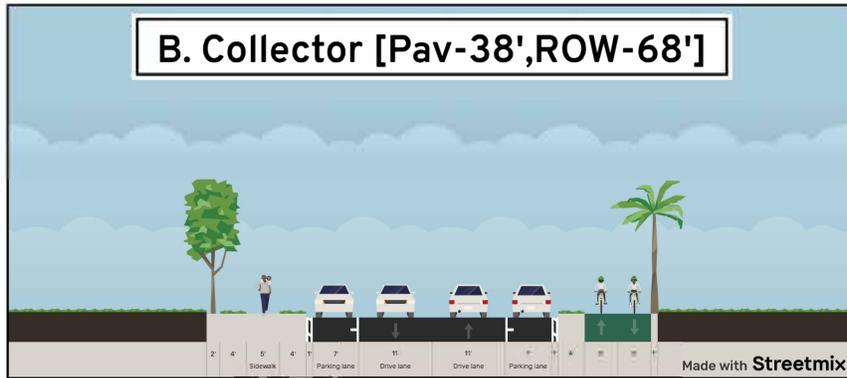


COLLECTOR

A. Collector [Pav-38',ROW-68']



B. Collector [Pav-38',ROW-68']



LOCAL STREET - 1

A. Local Street-1 [Pav-29',ROW-49']



B. Local Street-1 [Pav-29',ROW-49']



LOCAL STREET - 2

A. Local Street-2 [Pav-22',ROW-42']



B. Local Street-2 [Pav-22',ROW-42']

