

EXECUTIVE SUMMARY: STREET PATTERN ASSESSMENT

An Extension of the Development Pattern
Assessment

October, 2024



city of

PUEBLO

colorado

Introduction

What is a Street Pattern Assessment?

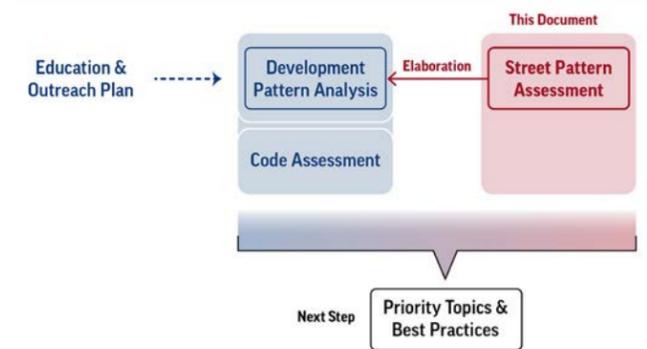
The Street Pattern Assessment is designed to build upon the existing conditions analyzed in the Development Pattern Analysis document. This addition provides a visual and diagrammatic analysis of the street networks, street designs, and streetscape amenities typical in each of the Pattern areas (previously defined in the Development Pattern Analysis). The goal of the study is to explore the existing conditions of Pueblo's existing roadway classifications. Impacts on land use, development patterns, and design outcomes are included.

Updating the Unified Development Code (UDC) and the city's Roadway Classification Standards simultaneously presents an opportunity to align design standards and definitions with the UDC. Street design typologies will be correlated with the city's functional classifications.

This study explores the typical street types, including examples of each existing functional classification, found within the four typical development patterns in Pueblo: Grid, Transition, Suburb, and Edge. For each pattern, the study reviews current street conditions, street design, and streetscape design and amenities. Together with the Code Assessment and the upcoming Priority Topics analyses, the Street Network Pattern Analysis will help the Pueblo community understand their city's current street network and street design patterns, and correlation with streetscape amenities, land use, and development patterns.

How does this study fit into the overall project?

Unified Development Code Update

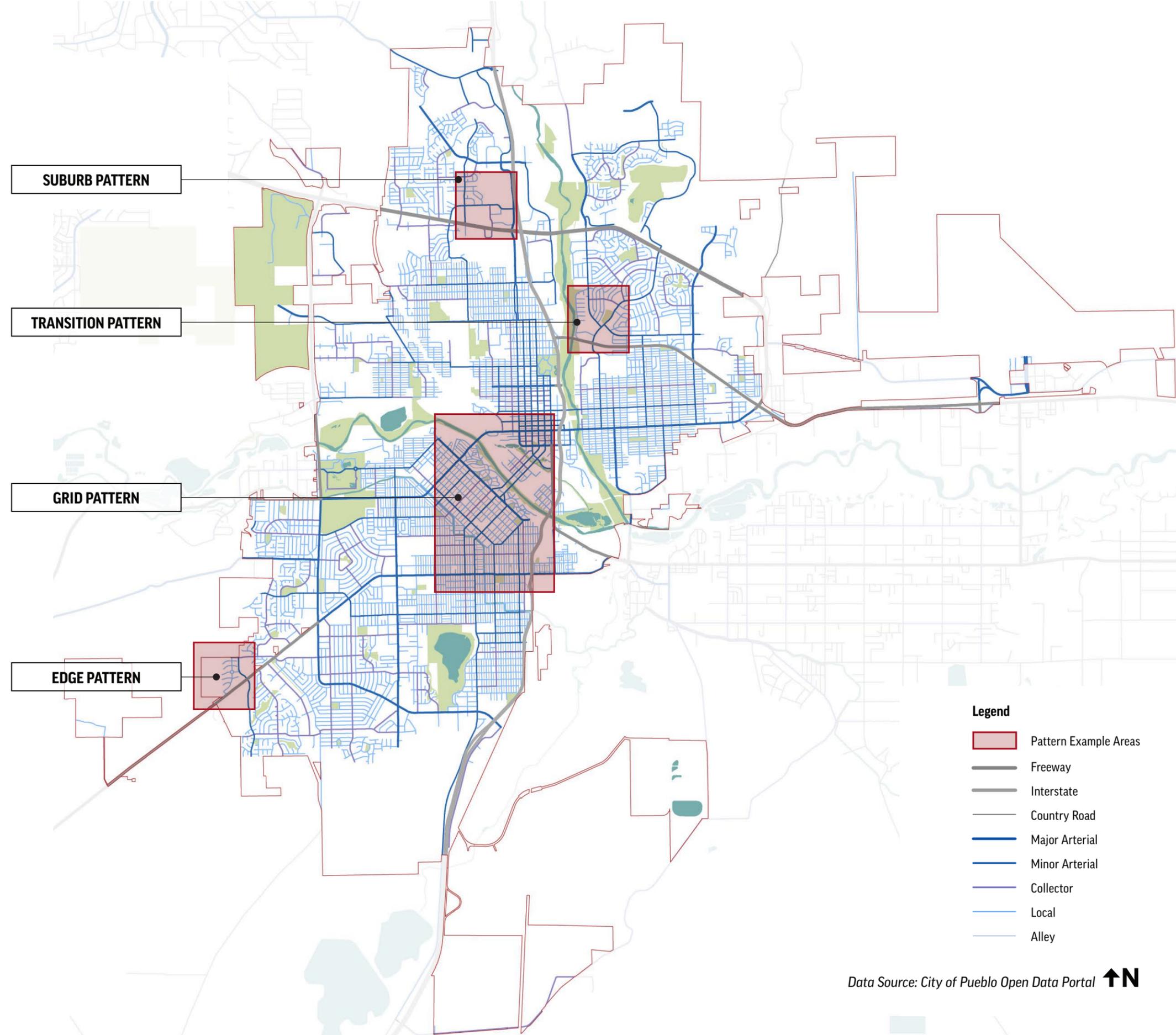


Functional Classifications in Pueblo

A functional classification system is a standard approach to street network planning and street design. The goal of a functional classification system is to plan for sufficient street network capacity, ensuring the efficient operation of the street network for cars. Under this system, streets are given a classification (Arterial, Collector, Local, etc.) that aligns with their capacity.

The downside of this approach is that it typically only considers vehicular traffic issues like speed, vehicular through-put, and traffic volume. In practice, this means that streets are designed primarily for cars, while all other modes of transportation (transit, bicyclists, and pedestrians) are often an afterthought.

The map to the right illustrates the eight existing functional classifications found in Pueblo: Freeway, Interstate, County Road, Major Arterial, Minor Arterial, Collector, Local, and Alleys. The following chapters will take a closer look at typical examples of each functional classification from each pattern example area, examining elements like overall network patterns, street design, and streetscape amenities.



Street Networks: Current Patterns

The street networks in Pueblo are formed by a combination of different functional classifications, street designs, and surrounding block sizes and patterns. In turn, each street network pattern contributes to defining an area's connectivity

and overall development pattern. These patterns are not just abstract networks: they determine how every person in Pueblo moves around their community, accesses their destinations, and chooses a mode of transportation.



Historic / Traditional Mixed-Use District

Typical Functional Classifications:

- ▶ Arterial: Major & Minor
- ▶ Collector
- ▶ Local
- ▶ Alley

Typical Active Transportation Facilities:

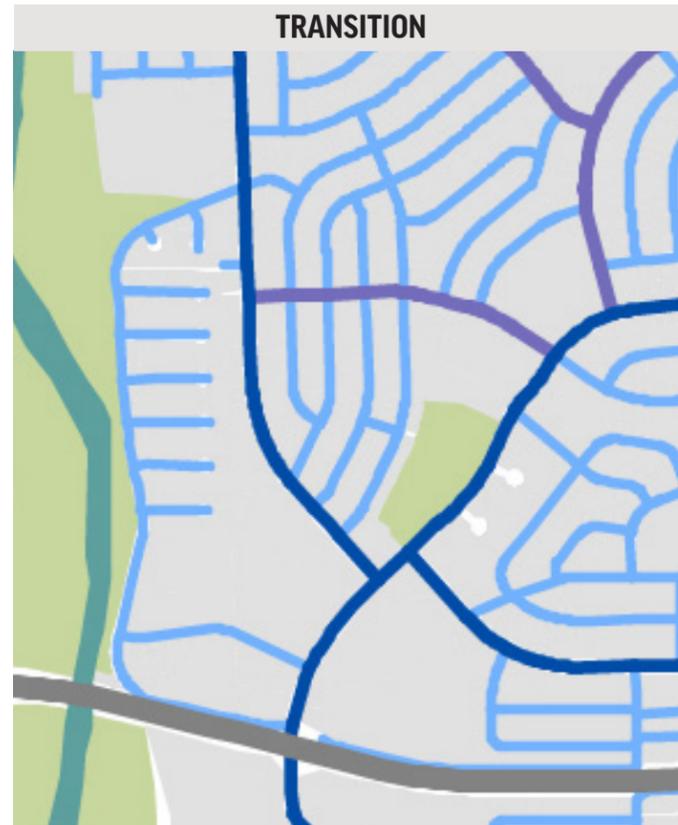
- ▶ Continuous Sidewalks
- ▶ Bike Lanes
- ▶ Buffered Bike Lanes
- ▶ Signed Routes

Typical ROW Width:

- ▶ 60' - 100'

Typical Land Use:

- ▶ Residential
- ▶ Commercial
- ▶ Institutional
- ▶ Mixed-Use
- ▶ Open Space



Mixed Housing Neighborhood & Commercial Center

Typical Functional Classifications:

- ▶ Highway: Freeway
- ▶ Arterial: Minor
- ▶ Collector
- ▶ Local
- ▶ Alley

Typical Active Transportation Facilities:

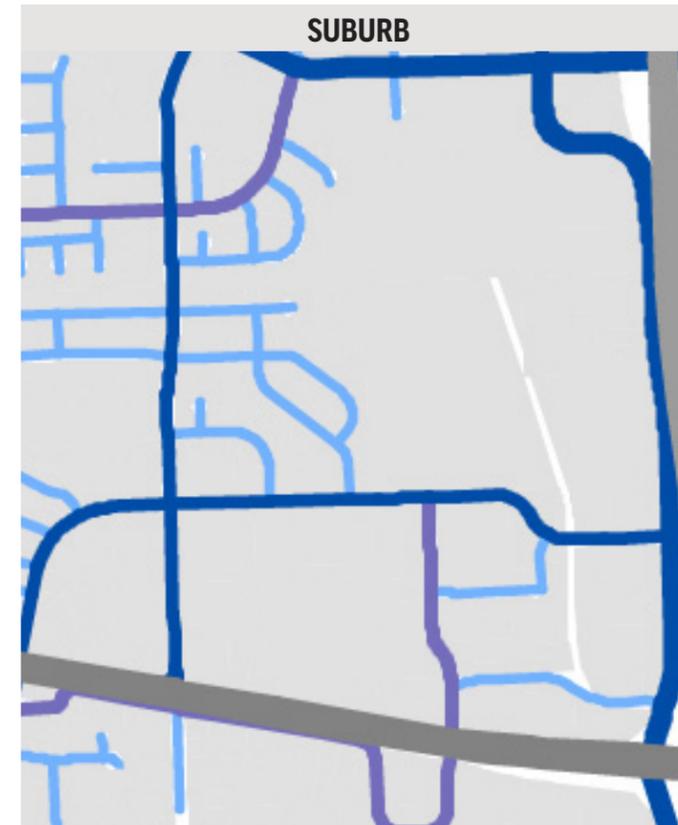
- ▶ Continuous Sidewalks
- ▶ Bike Lanes
- ▶ Sharrows
- ▶ Signed Routes

Typical ROW Width:

- ▶ 60' - 110'

Typical Land Use:

- ▶ Residential
- ▶ Commercial
- ▶ Institutional
- ▶ Office
- ▶ Hospitality
- ▶ Civic
- ▶ Open Space



Mixed Housing Suburb & Commercial District

Typical Functional Classifications:

- ▶ Highway: Interstate & Freeway
- ▶ Arterial: Major & Minor
- ▶ Collector
- ▶ Local

Typical Active Transportation Facilities:

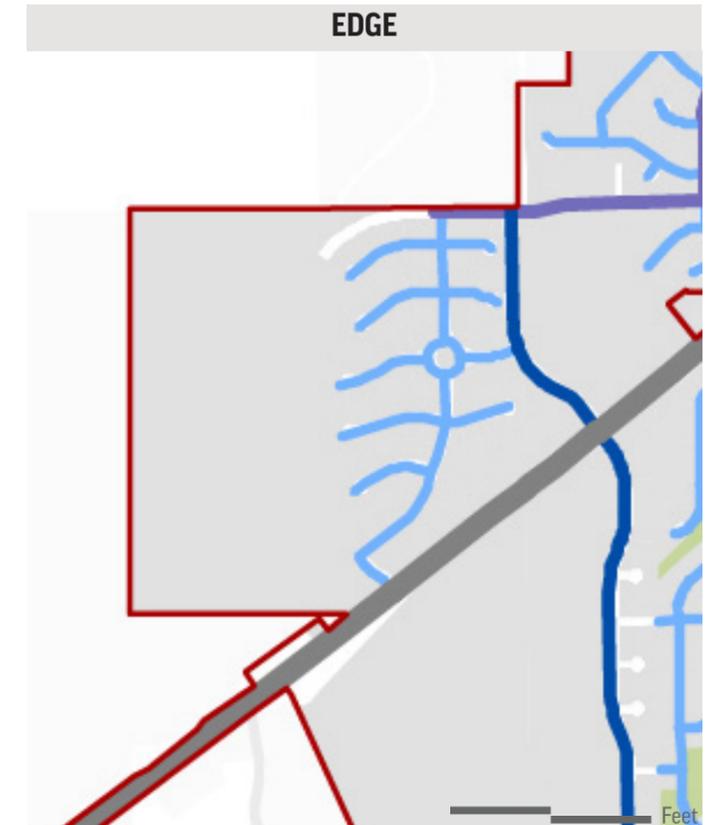
- ▶ Continuous Sidewalks
- ▶ Bike Lanes
- ▶ Buffered Bike Lanes
- ▶ Signed Routes

Typical ROW Width:

- ▶ 60' - 140'

Typical Land Use:

- ▶ Residential
- ▶ Commercial
- ▶ Institutional
- ▶ Office
- ▶ Hospitality
- ▶ Open Space



Edge Neighborhood

Typical Functional Classifications:

- ▶ Highway: Freeway
- ▶ Arterial: Minor
- ▶ Collector
- ▶ Local

Typical Active Transportation Facilities:

- ▶ Sidewalks
- ▶ Signed Routes

Typical ROW Width:

- ▶ 60' - 110'

Typical Land Use:

- ▶ Residential

Street Design

Street Zones

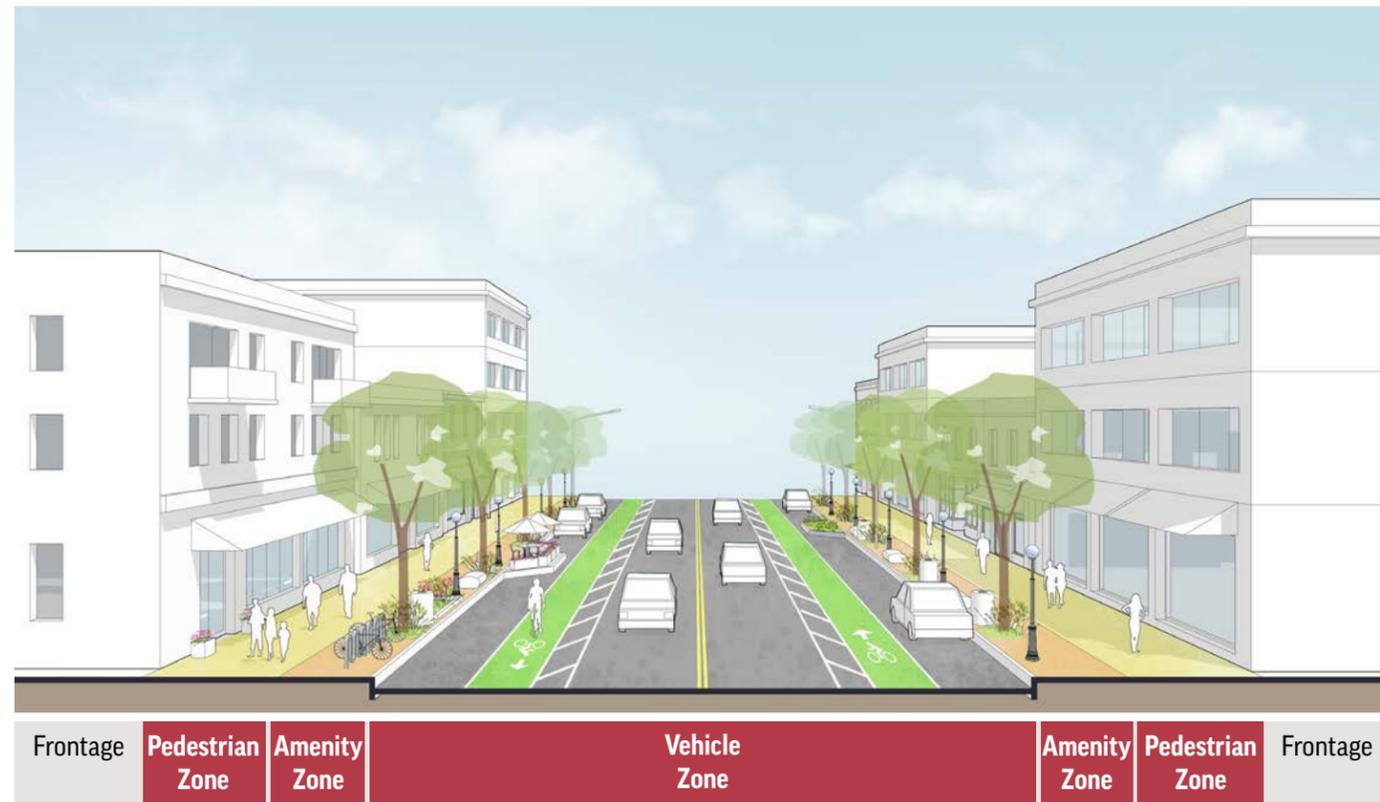
Breaking streets down into different “zones” is a common way to understand how streets are designed. Street zones typically include three zones:

- ▶ **Vehicle Zone:** Space dedicated to cars, transit, and parking.
- ▶ **Pedestrian Zone:** Space dedicated to people walking, using wheelchairs, and using mobility devices.
- ▶ **Amenity Zone:** Space dedicated to a variety of streetscape amenities and street furniture.

While most streets may include all three zones, the amount of space dedicated to each zone can vary according to the transportation needs of the surrounding context. For example,

a highly walkable, mixed-use Downtown area may allocate more space to the Pedestrian Zone and the Amenity Zone and relatively less space to the Vehicle Zone to create a lively pedestrian-oriented district. But a faster, multi-lane, vehicle and transit-oriented traffic-way may allocate more space to the Vehicle Zone while including a wider Amenity Zone to protect people using the Pedestrian Zone from adjacent traffic.

The zones provide distinct spaces where similar users and transportation modes gather and move. This approach also provides a critical framework for evaluating street design in order to understand whether current designs are meeting the needs of the surrounding community.



Conceptual illustration of the street zone approach.

Streetscapes

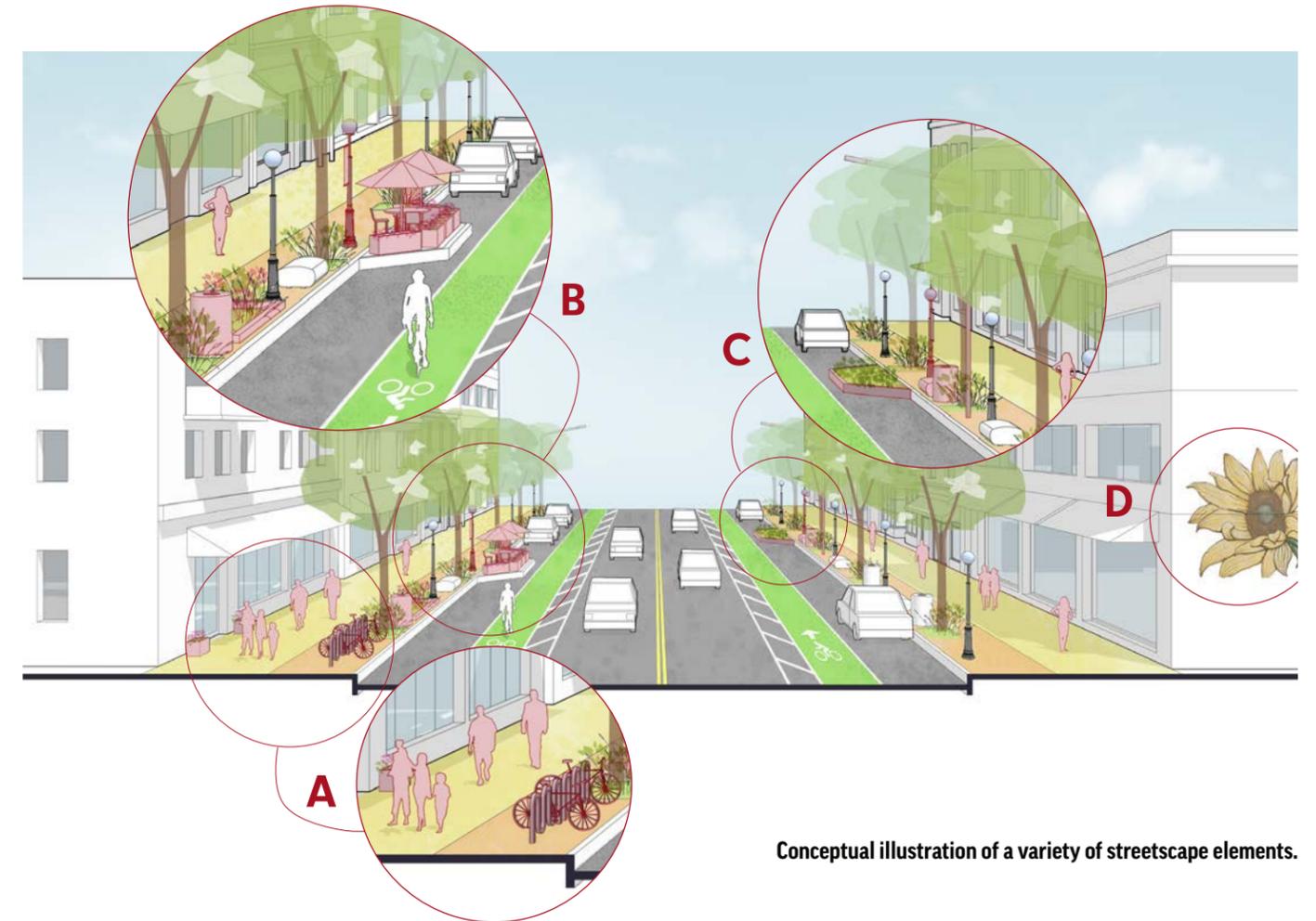
Streetscape Elements

The extent to which street design, and particularly the Amenity Zone, incorporates streetscape design will significantly impact the character of adjacent development, and the safety, comfort, and accessibility of non-vehicular modes of transportation. Streetscape elements like sidewalk location and width, the design of bicycle facilities, on-street parking, landscaping and green infrastructure, all significantly affect the safety and function of the street for pedestrians, bicyclists, as well as drivers.

While this document analyzes street design using the zone approach, streetscape elements are examined separately to focus on the detailed design of features that create a

comfortable, well-functioning streetscape. Typically contained within the Amenity Zone, this can include:

- A. Planters and landscaping, wide sidewalks, distinct pavement, and bike racks.
- B. Street furniture like seating and trash receptacles, pedestrian-scale lighting, street trees, green infrastructure, and curb extensions to calm traffic and increase pedestrian safety.
- C. Street trees, lighting, trash receptacles, and parking-lane planters for additional stormwater management.
- D. Public art like murals or other forms of art.



Conceptual illustration of a variety of streetscape elements.



KEY TAKEAWAYS

Key Takeaways

Current Functional Classification Standards

The following table provides a summary of the City of Pueblo's existing Roadway Classification Design Standards for the key elements of street design examined in this study.

The city's current functional classification standards do not include standards for travel lane width, on-street parking type, bike facility type, or type of landscape amenity.

Additional standards that pertain more to construction specifications or elements of the development code, or may vary more on a contextual basis, are not highlighted in this

document's review. These include: access and intersection distances, off-street parking, posted speed and design speed, driveway configurations, curb type, and centerline radius.

Functional Class	Street Type	Land Use	ROW Width	Street Width	# of Travel Lanes	On-Street Parking	Bicycle Facility	Sidewalk	Sidewalk Type (Attached or Detached)	Landscape Amenity	Median Width	Turn Lane Required?
Major Arterial	General	All Areas	120'	80'	4	None	6'	6'	Detached	10'	20'	Left, Right
	Parkway	-	-	-	-	-	-	-	-	-	-	-
Minor Arterial	None Defined	All Areas	100' - 104'	67'	5	None	6'	6'	Detached	8'	None	Left, Right
	Parkway	-	-	-	-	-	-	-	-	-	None	-
Collector	Business Collector	Urban Business	80'	60'	3 or 5	8'	5' or None	6'	Either	4'	None	Left, Right
	Mixed Use Collector	Mixed Use	80'	44'	3 or 4	None	5' or None	6'	Detached	8'	None	Left, Right
	Neighborhood Collector	Single Family, Multi-Family	60'	36'	2	8'	None	5'	Either	8'	None	Left (possible), Right
	Parkway	-	-	-	-	-	-	-	-	-	-	-
Local	Business Local	Office Park, Low-Density Mixed Use	60'	36'	3	None	None	6'	Either	8'	None	Left, Right
	Residential Local	Single Family, Multi-Family	60'	36'	2	7'	None	5'	Either	8'	None	None
	Residential Local	Single Family, Multi-Family (Low Density)	60'	32'	2	7'	None	5'	Either	7'	None	None
	Residential Local	Single Family, Multi-Family (Low Density)	60'	30'	2	7'	None	5'	Either	8'	None	None
Alley	Commercial Alley	Business	20'	20'	1	None	None	None	None	None	None	None
	Residential Alley	Single Family, Multi-Family	20'	12' - 20'	1	None	None	None	None	None	None	None
Country Residential Lane	None Defined	Single Family (1+ Acre Lots)	50'	24'	2	None	None	Varies	Detached	Varies	None	None

Street Types

- ▶ Several of the defined street types do not have significant differences between the types, and do not result in meaningful differences in street design or streetscape design when implemented.
- ▶ The Parkway type is mentioned as an opportunity for linear parks with a landscaped median, but no additional standards are provided.

Travel Lanes

- ▶ The standards do not define standard widths for travel lanes.

Parking

- ▶ The standards do not define where different formats of on-street parking are applicable or appropriate.
- ▶ The standards do not allow on-street parking in Mixed Use contexts.

Bicycle Facilities

- ▶ The standards do not allow for bicycle facilities on residential streets.
- ▶ The standards do not provide guidance for determining where different types of bicycle facilities are appropriate.

Sidewalks

- ▶ Sidewalk widths do not differ significantly among the different street types, and do not vary in response to different development contexts.

Landscape Amenities

- ▶ The standards do not define the types of streetscape and landscape amenities are appropriate in different street types.
- ▶ The standards do not include street tree requirements, or specific landscaping requirements.

Key Takeaways

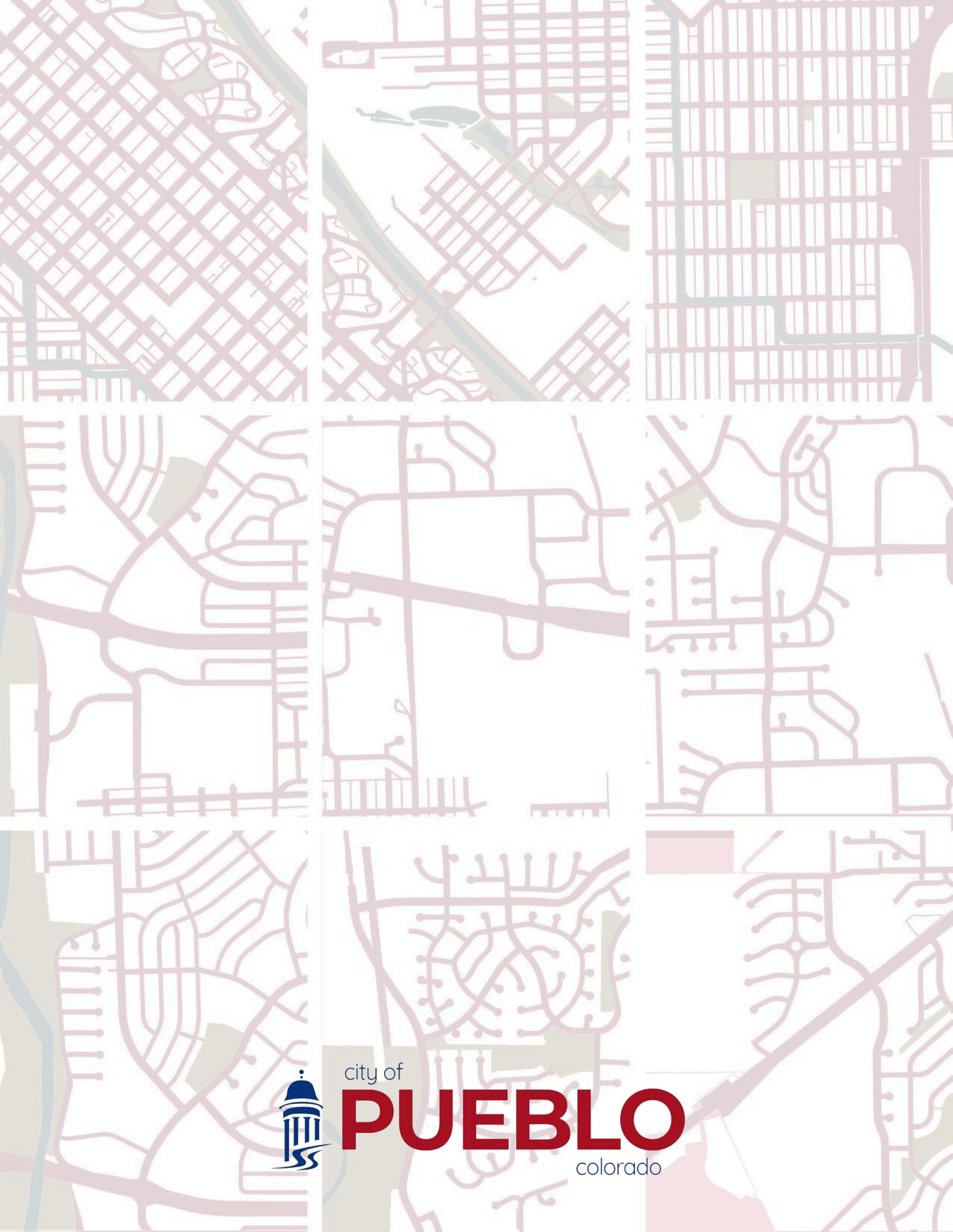
The following table summarizes findings arising from a comparison of Pueblo's current Roadway Classification standards and existing conditions on the ground throughout each Development Pattern. These summaries describe broad trends, but the overall theme is that there is a high degree of variability and deviation from the city's current standards.

Current Standards vs. Existing Conditions: By Development Pattern				
	Grid	Transition	Suburb	Edge
Freeway	▶ N/A	▶ N/A: City of Pueblo does not currently provide standards for Freeways.	▶ N/A: City of Pueblo does not currently provide standards for Freeways.	▶ N/A: City of Pueblo does not currently provide standards for Freeways.
Major Arterial	<ul style="list-style-type: none"> ▶ ROW Width: Varies significantly from current standards. ▶ Street Width: Varies significantly from current standards. ▶ Travel Lanes: Current standards permit up to 4 travel lanes, though more are sometimes present. ▶ Parking: Current standards do not permit on-street parking on major arterials, though it is frequently present in Grid-pattern areas. ▶ Bicycle Facilities: Uncommon, though permitted by current standards. ▶ Sidewalks: Sidewalks are present but may be narrower than the minimum required by current standards. ▶ Landscape Amenity: Current standards specify a 10' width only. May or may not be present. 	▶ N/A	<ul style="list-style-type: none"> ▶ ROW Width: May align with or vary significantly from current standards. ▶ Street Width: Typically aligned with current standards. ▶ Travel Lanes: Fewer than maximum permitted by current standards. ▶ Parking: Aligned with current standards. ▶ Bicycle Facilities: Current standards permit bike facilities, though infrequently present. ▶ Sidewalks: Sidewalks are present, but may not be detached as standards require. ▶ Landscape Amenity: Generally less common, though required by current standards. 	▶ N/A
Minor Arterial	<ul style="list-style-type: none"> ▶ ROW Width: Varies significantly from current standards. Often lower than current standards specify. ▶ Street Width: Varies significantly from current standards, and is often much lower than current standards specify. ▶ Travel Lanes: Aligned with current standards and fewer than maximum permitted. ▶ Parking: Current standards do not permit on-street parking on minor arterials, though it is frequently present in Grid-pattern areas. ▶ Bicycle Facilities: Current standards permit bike facilities. Often present. ▶ Sidewalks: Sidewalks are present but may be narrower than the minimum required. ▶ Landscape Amenity: Current standards specify an 8' width only. Amenity zone or buffer strip is often present. 	<ul style="list-style-type: none"> ▶ ROW Width: May align with or vary significantly from current standards. ▶ Street Width: May align with or vary significantly from current standards. ▶ Travel Lanes: Typically aligned with current standards. ▶ Parking: Current standards do not permit on-street parking on minor arterials, though it may be found in residential areas. ▶ Bicycle Facilities: Current standards permit bike facilities, which may be present. ▶ Sidewalks: Sidewalks are present, but may not be detached as standards require. ▶ Landscape Amenity: Generally less common, though required by current standards. 	<ul style="list-style-type: none"> ▶ ROW Width: May align with or be somewhat lower than current standards specify. ▶ Street Width: Varies significantly from current standards and may be higher or lower. ▶ Travel Lanes: Aligned with current standards and typically fewer than maximum permitted. ▶ Parking: Aligned with current standards. ▶ Bicycle Facilities: Aligned with current standards. ▶ Sidewalks: Typically present, but may not be detached where required and may be narrower than standards require. ▶ Landscape Amenity: Varies from current standards, and may be more typically found along newer streets. 	<ul style="list-style-type: none"> ▶ ROW Width: Aligned with current standards. ▶ Street Width: Aligned with current standards, slightly lower than maximum permitted. ▶ Travel Lanes: Aligned with current standards and fewer than maximum permitted. ▶ Parking: Aligned with current standards. ▶ Bicycle Facilities: Not present. ▶ Sidewalks: Aligned with current standards. ▶ Landscape Amenity: Aligned with current standards.
Collector	<ul style="list-style-type: none"> ▶ ROW Width: May vary from current standards and be higher or lower. ▶ Street Width: Generally more aligned with current standards, with some variation. ▶ Travel Lanes: Typically aligned with current standards. ▶ Parking: Parking is typical, though standards vary by type of Collector. ▶ Bicycle Facilities: Bike facilities may be permitted, but are not typical. ▶ Sidewalks: Sidewalks are present but may be narrower than the minimum required by current standards. ▶ Landscape Amenity: Current standards specify an 4' or 8' width by Collector type. Buffer strip is typical, but may contain amenity zone. 	<ul style="list-style-type: none"> ▶ ROW Width: Typically aligned with current standards. ▶ Street Width: Typically aligned with current standards, with minor variability. ▶ Travel Lanes: Typically aligned with current standards. ▶ Parking: Typically aligned with current standards. ▶ Bicycle Facilities: Permitted by current standards, but not typical. ▶ Sidewalks: Sidewalks are typically present, but may vary from standards. May be narrower, may not be found on both sides, or may be attached where detached is required. ▶ Landscape Amenity: If present, typically a buffer strip. Often not present where required by current standards. 	<ul style="list-style-type: none"> ▶ ROW Width: Varies significantly from current standards and may be higher or lower. ▶ Street Width: May vary significantly from current standards. ▶ Travel Lanes: Aligned with current standards and may be fewer than maximum permitted. ▶ Parking: Typically aligned with current standards. ▶ Bicycle Facilities: Permitted by current standards, but not typical. ▶ Sidewalks: Typically present, but may not be detached where required and may be narrower than standards require. ▶ Landscape Amenity: If present, typically a buffer strip. Often not present where required by current standards. 	<ul style="list-style-type: none"> ▶ ROW Width: Significantly higher than current standards. ▶ Street Width: Significantly higher than current standards. ▶ Travel Lanes: Aligned with current standards and may be fewer than maximum permitted. ▶ Parking: Aligned with current standards. ▶ Bicycle Facilities: Permitted by current standards, but not typical. ▶ Sidewalks: Generally aligned with current standards, but may not be present on both sides of street. ▶ Landscape Amenity: Aligned with current standards.
Local	<ul style="list-style-type: none"> ▶ ROW Width: Typically significantly higher than current standards specify. ▶ Street Width: Typically significantly higher than current standards specify. ▶ Travel Lanes: Typically aligned with current standards. ▶ Parking: Parking is typical, though standards vary. ▶ Bicycle Facilities: Bike facilities are not permitted, and are not typical. ▶ Sidewalks: Sidewalks are present but may be narrower than the minimum required by current standards. ▶ Landscape Amenity: Landscape amenity is typically a buffer strip and generally aligned with current standards. May be informally utilized for parking. 	<ul style="list-style-type: none"> ▶ ROW Width: May align with or vary significantly from current standards. ▶ Street Width: Typically wider than permitted by current standards. ▶ Travel Lanes: Residential streets typically aligned with standards. Commercial streets may exceed current standards significantly. ▶ Parking: Aligned with current standards. ▶ Bicycle Facilities: Aligned with current standards. ▶ Sidewalks: Sidewalks are typically present, but may be narrower than current standards permit. ▶ Landscape Amenity: Typically a buffer strip. Often narrower than required by current standards. 	<ul style="list-style-type: none"> ▶ ROW Width: May align with or be significantly wider than current standards specify. ▶ Street Width: Typically significantly wider than permitted by current standards. ▶ Travel Lanes: Aligned with standards. ▶ Parking: Aligned with current standards. ▶ Bicycle Facilities: Aligned with current standards. ▶ Sidewalks: Sidewalks are typically present. ▶ Landscape Amenity: If present, typically a buffer strip. Often not present where required by current standards. 	<ul style="list-style-type: none"> ▶ ROW Width: Aligned with current standards. ▶ Street Width: Significantly wider than permitted by current standards. ▶ Travel Lanes: Aligned with standards. ▶ Parking: Aligned with current standards. ▶ Bicycle Facilities: Aligned with current standards. ▶ Sidewalks: Aligned with current standards. ▶ Landscape Amenity: Aligned with current standards.

Key Takeaways: Final Summary

	Networks	Street Design	Streetscape Amenities
Grid	<ul style="list-style-type: none"> ▶ The street network is highly connected for all modes of transportation. Residential, non-residential, and mixed-use areas easily transition along many points of connection. The decentralized pattern disperses traffic throughout the network, providing greater capacity. 	<ul style="list-style-type: none"> ▶ Typical street design balances the needs of vehicles, pedestrians, and bicyclists. Many streets provide wide amenity zones. 	<ul style="list-style-type: none"> ▶ Streetscape amenities are numerous and designed to support all transportation modes. Amenities include street furniture, lighting, trees and landscaping, public art, and wayfinding.
Transition	<ul style="list-style-type: none"> ▶ The street network provides moderate connectivity overall, though non-residential and residential areas are typically separated with few connections. This pattern begins to funnel traffic into fewer primary corridors. 	<ul style="list-style-type: none"> ▶ Typical street design favors vehicles over other modes of transportation, although recent improvements have been made to allocate more space to bicyclists on key streets. 	<ul style="list-style-type: none"> ▶ Streetscape amenities are generally limited to wayfinding signage and large-scale street lighting. There is typically not a dedicated amenity zone within most streetscapes.
Suburb	<ul style="list-style-type: none"> ▶ The street network provides limited connectivity, and non-residential and residential areas are typically separated with the connections relying on a few key corridors. This pattern relies on very few high-capacity corridors to carry the majority of the traffic. 	<ul style="list-style-type: none"> ▶ Typical street design strongly favors vehicles over other modes of transportation, although recent improvements have been made to allocate more space to bicyclists and to buffer pedestrians on one key corridor. 	<ul style="list-style-type: none"> ▶ Streetscape amenities are generally limited to wayfinding signage, large-scale street lighting, and benches at bus stops. There is often no dedicated amenity zone.
Edge	<ul style="list-style-type: none"> ▶ The street network provides very limited connectivity between developments, with slightly better connectivity within developments. This pattern relies on one or two high-capacity corridors to provide access to the area. 	<ul style="list-style-type: none"> ▶ Typical street design favors vehicles over other modes of transportation. Bike infrastructure is not provided, although a landscaped amenity zone is often present to buffer pedestrians from vehicular traffic. 	<ul style="list-style-type: none"> ▶ Streetscape amenities are limited to lighting and landscaping, despite an amenity zone being common in this pattern.
Existing Roadway Standards:	<ul style="list-style-type: none"> ▶ Current standards provide a confusing and often conflicting set of standards related to the overall street network, and do not respond to the variety of development contexts adjacent the street network throughout the city. 	<ul style="list-style-type: none"> ▶ Current standards for street design follow a “one-size-fits-all” approach, and do not respond to the variety of different contexts and development patterns within the city. 	<ul style="list-style-type: none"> ▶ Current standards do require a landscape amenity zone for most streets, but do not specify where different types of amenities are required and / or appropriate.





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