

Appendix D -- Design Typical Sections

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Need for Street Functional Classification Design Sections

Some enhancements to the existing street classifications and typical design standards are proposed to enhance the operational and multimodal functionality of the street network.

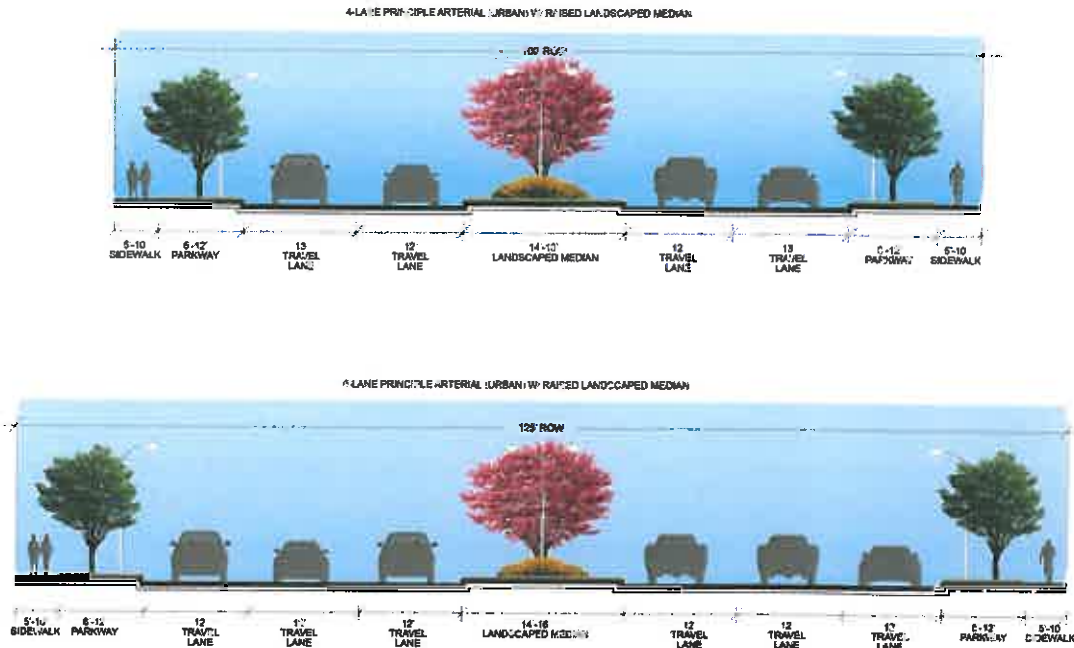
Freeways

The limited access freeway network consists of the interstate, US, and State Highway roadways controlled by ODOT. Limited access roadways are those that control access to the facility at designated locations, typically at other freeways and arterial streets. The freeway is typically uninterrupted with grade separations at intersections and ramped entries and exits to and from the crossroads as on I-35. Freeways typically operate uninterrupted by traffic signals and with grade separations at cross streets, with free flow speeds of 55 MPH or more and have two or more lanes in each travel direction. Freeway directions of travel are typically barrier or median separated, with directional ramps to crossing facilities.

Regional Highways, Rural

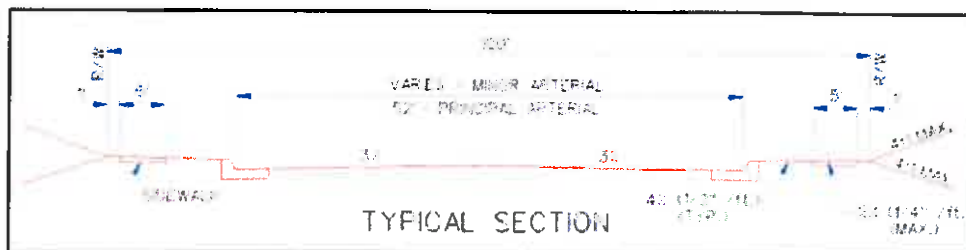
Regional highways consist of US, State, and other regionally significant roadways that extend between communities and across regions, providing for intersections with arterial and collector roadways and, infrequently as needed, allowing for local land access directly to the facility. State Highway 9 is an example of a rural freeway. Intersections with arterial roadways are typically signalized, as warranted, and provisions are often made for left turn lanes and occasionally right turn lanes as well to facilitate the through movements along the freeway. Freeways typically operate at free flow speeds over 55 MPH and have one or more lanes in each travel direction. Access management practices should be employed to minimize the impacts of property access in the rural freeway facility.

Principal Arterials, Urban

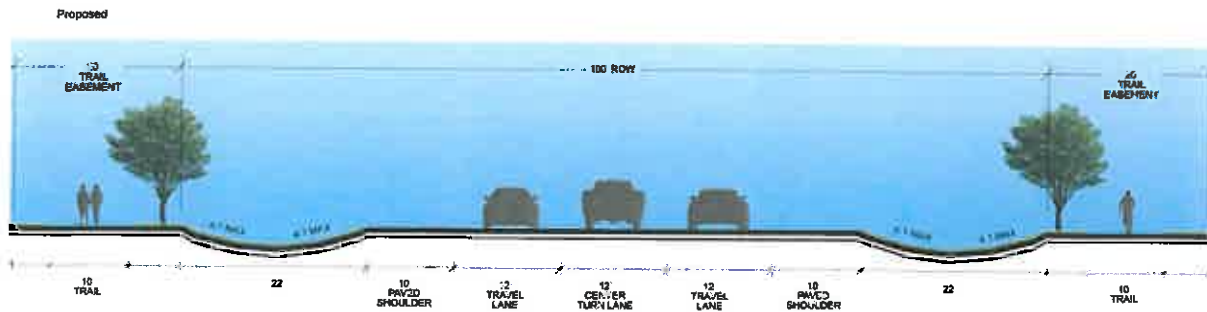


Urban principal arterial roadways provide the predominant passageways through the urbanized portions of the community and connect to the regional freeway network, typically providing for curb and gutter drainage. Intersections are provided at all arterial, collector and local roadways and as needed allowing for local land access directly to the facility. Intersections with arterial roadways are typically signaled and provisions made for left turn lanes and occasionally right turn lanes as well to facilitate the through movements along the arterial. Principal urban arterial roadways are to provide at least two travel lanes in each direction plus a center median area for separations of traffic, provision of left turn lanes, and/or streetscape. Access management practices should be employed to minimize the impacts of property access on the principal arterial facility. Sidewalks, 5-feet to 10-feet in width, should be provided along both sides of the roadway.

Comparison to Current Design Standards: The proposed sections are an enhancement to the current city design standards for an urban principal arterial street (see below) by requiring a median for the ultimate section of the roadway. Significant portions of the current principal urban arterials in Norman (US 77, 12th Street E, and Robinson, Main and Lindsey Streets) already have either a median or a continuous left turn lane. With concurrence by the city's Bicycle Advisory Committee (BAC), principal arterials may also incorporate bike lanes within the roadway pavements to enhance the bicycle transportation network, in which case, sidewalks would be limited to 5 feet in width.

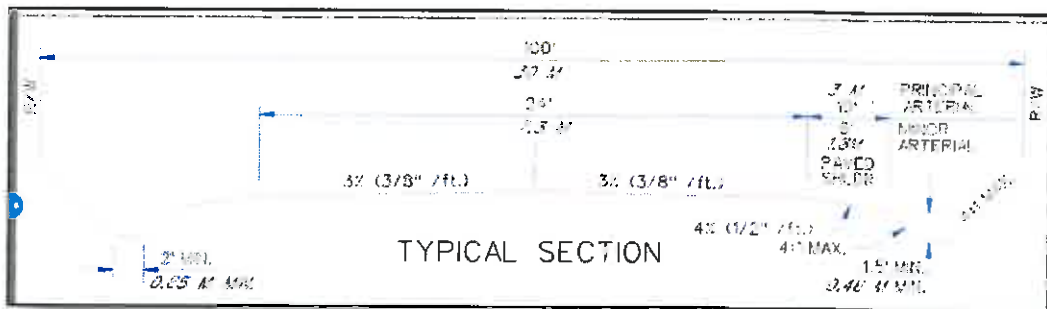


Principal Arterials, Rural

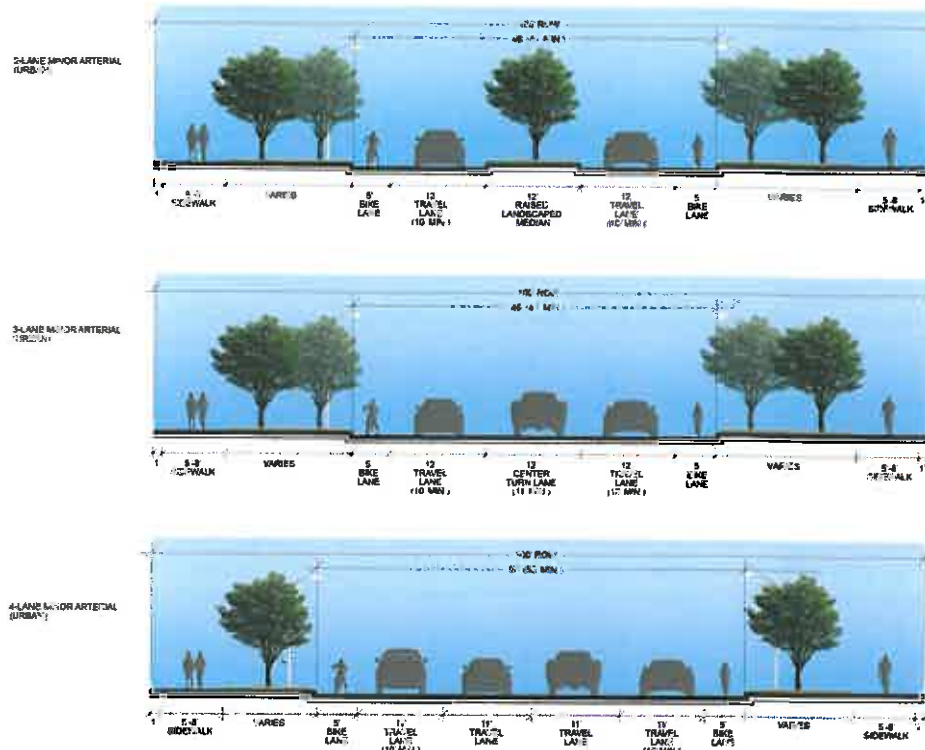


Rural principal arterial roadways provide the predominant passageways through the rural portions of the community and connect to the regional arterial and freeway network, typically providing for open ditch drainage. Intersections are provided at all arterial, collector and local roadways and often allows for local land access directly to the facility. Intersections with arterial roadways may be signalized or stop controlled and provisions should be made for left turn lanes to facilitate the through movements along the arterial. Principal rural arterial roadways are to provide at least one and no more than two travel lanes in each direction plus a center median area for separations of traffic, provision of left turn lanes, and/or streetscape. Access management practices should be employed to minimize the impacts of property access in the rural principal arterial facility. The roadway is to be provided with a 10-foot wide paved shoulder. A 10-foot trail should be provided along one or both sides of the roadway to allow urban trail and side path connections to the rural recreational trails network.

Comparison to Current Design Standards: The proposed sections are an enhancement to the current city design standards for a rural principal arterial street (see below) by requiring a landscaped median with optional center turn lane for the ultimate section of the roadway. In addition, a trail easement would be desirable along one or both sides of the rural arterial roadway.



Minor Arterials, Urban

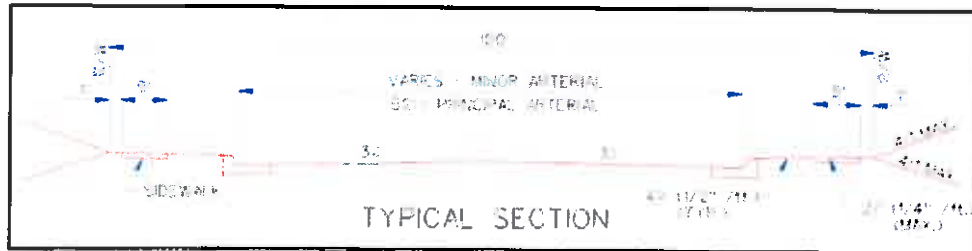


Urban minor arterial roadways provide passageways across segments of the urbanized portions of the community and connect to the regional arterial network, typically providing for curb and gutter drainage. Intersections, signalized as warranted, are provided at all arterial, collector and local roadways and the minor arterial allows for local land access directly to the facility. Intersections with other arterial roadways are typically signalized, as warranted. Minor arterial streets typically have significant local access needs or closely spaced intersecting local streets, and thus three or more optional cross sections may be applied:

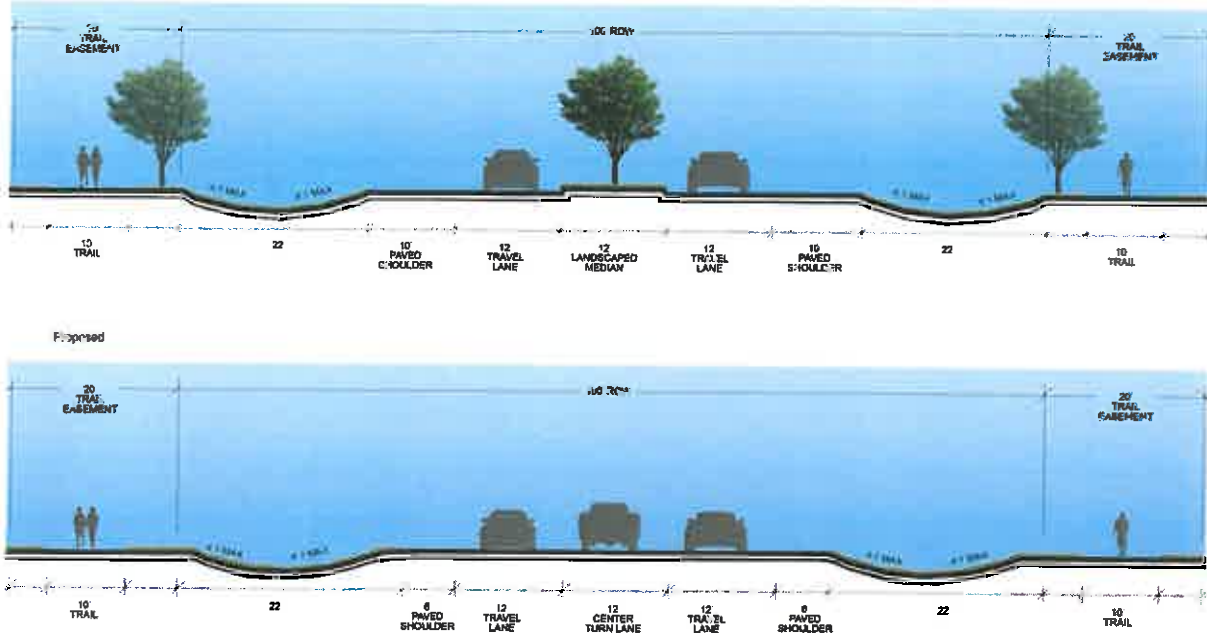
- A four lane section that can accommodate multiple left turns and right turns into adjacent property driveways. At street intersections, the left or right lanes can be dedicated to through lanes or turning lanes as needed for intersection capacity.
- A three-lane section to allow a continuous left turn lane or raised median with left turn lane pockets to facilitate the through movements along the arterial. A special version of this three lane section would have a reversible center lane that can be allocated to the peak direction of travel by special lane markings and overhead signs.
- A two-lane divided section to allow a landscaped median, with channelized left turns as needed at intersections and key driveways. A permutation of this concept would be to create a couplet of two streets with a city block serving as the median.

These are lonely three of a range of permutations that could be considered for application that would be sensitive to the needs of the adjacent development. Bike lanes would typically be provided on any permutation of the minor arterial typical section. Either sidewalks of at least 5-feet in width, or side paths of 8 to 10 feet in width, would be provided along both sides of the roadway.

Comparison to Current Design Standards: The proposed four lane section is consistent with the current city design standards for an urban minor arterial street (see below). The addition of the three-lane optional section for an urban minor arterial gives flexibility to city staff to plan for a less intrusive pavement section, midway between a collector and the current minor arterial that serve an arterial function.

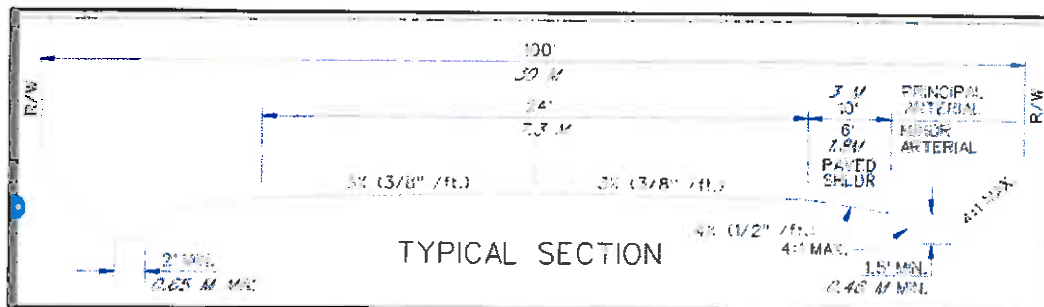


Minor Arterials, Rural



Rural minor arterial roadways provide passageways across segments of the rural portions of the community and connect to the regional arterial network, typically providing for open ditch drainage. Intersections are provided at all arterial, collector and local roadways and the minor arterial allows for local land access directly to the facility. Intersections with arterial roadways may be signalized or stop controlled. Minor rural arterial roadways are to provide one travel lane and a 6-foot wide shoulder in each direction. Intersections with other arterial roadways may be signalized or stop controlled and provisions should be made for left turn lanes to facilitate the through movements along the arterial. Access management practices should be employed to minimize the impacts of property access in the rural minor arterial facility.

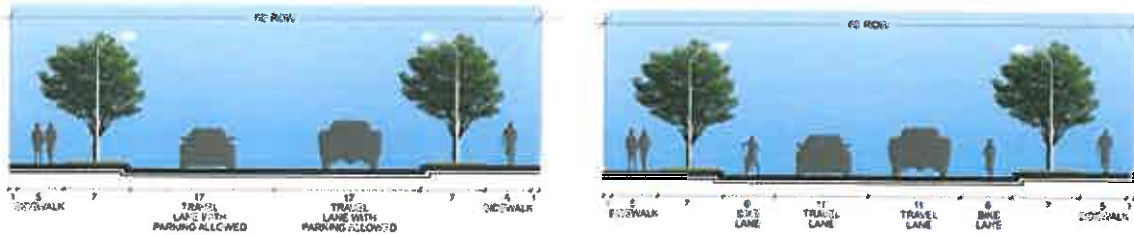
Comparison to Current Design Standards: The proposed sections are consistent with the current city design standards for a rural minor arterial street (see below). The center turn lane shown above would only be at the intersections.



Collector Streets, Urban

Collector streets are an important part of the urban street network. Collector roadways tie neighborhoods together, within the one mile grid of development blocks and across the arterial roadways. The network of collectors provide numerous benefits to the transportation system:

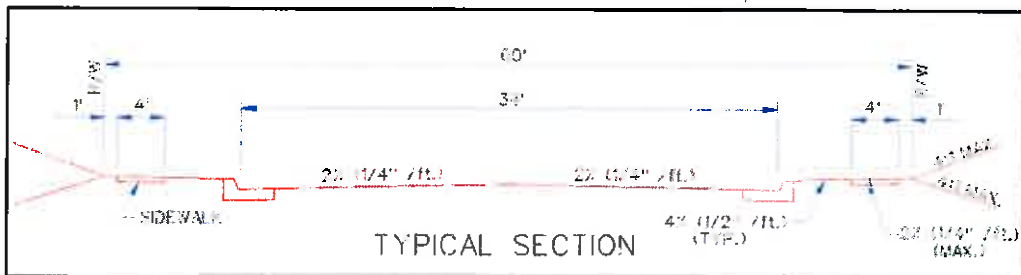
- spread-out the impact of traffic on the arterials;
- allow lower stress roadways for local traffic circulation; and
- provide bicycle friendly connections between the one-mile grid blocks.



Collector streets should be sufficiently wide to allow for one lane of traffic in each direction and either curbside parking or bike lanes (typically not both), suitable to the needs of the neighborhood and the transportation network. At intersections, the corners should be provided with bulb-outs where feasible, and except where bike lanes are provided, to create the appearance of a narrower street as a traffic calming measure.

An alternative section for one-way collector roadways would allow for one lane of traffic and both parking and a bike lane. In industrial and commercial areas, collector streets would have one of the two minor arterial typical sections and a thicker pavement section.

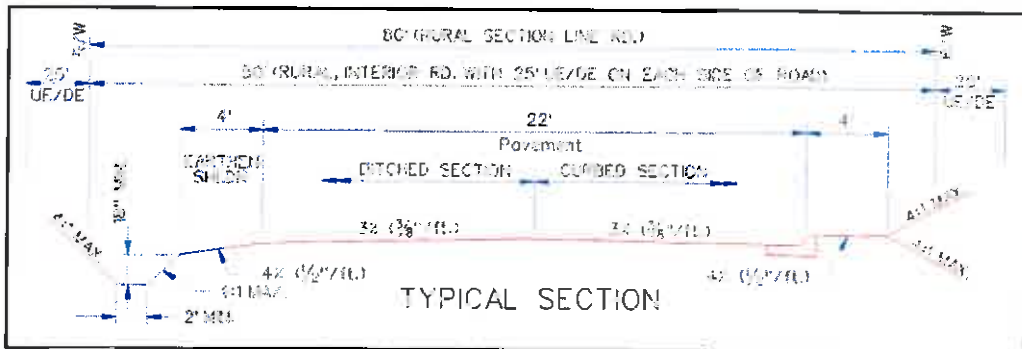
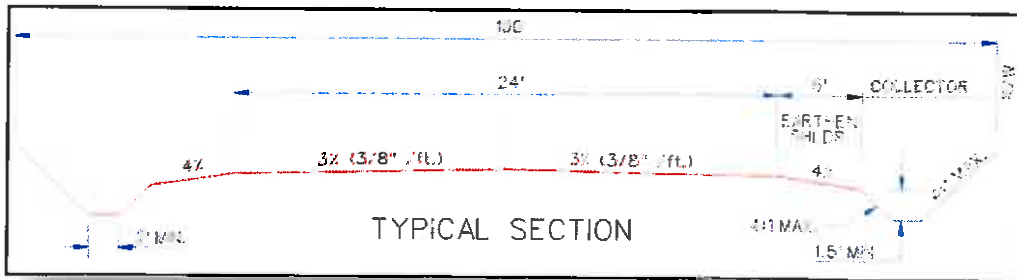
Comparison to Current Design Standards: The proposed sections are consistent with the current city design standards for an urban collector street (see below).



Collector Streets, Rural

Collector streets in the rural areas of Norman can serve as the one-mile grid of streets in the sparsely developed areas near Lake Thunderbird and the Canadian River. Due to the very low traffic volumes, the roadway would consist of the minimal 22-foot width of paved roadway plus a gently graded shoulder area, for safety, that would be unpaved. A 4-foot path, paved or unpaved, should be provided along one or both sides of the roadway. Near the transition between urban and rural development areas, rural collector streets should serve the same function as urban collector streets, to provide connectivity within the one mile grid of development and to tie across arterials between the one-mile grid development blocks.

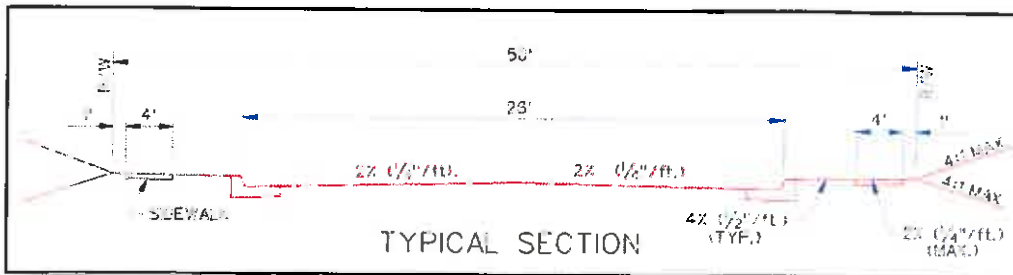
Comparison to Current Design Standards: The proposed sections would retain the current city design standards for a rural collector street (see below)



Local Streets, Urban

The primary function of local streets is to provide access to and from properties. Local streets feed to and from the collector street network, but occasionally may tie directly to arterial streets. The urban local street would be 26 feet in width of pavement with curb and gutter drainage and 4-foot wide sidewalks on each side of the street. The existing city design standard (below) remains applicable.

Comparison to Current Design Standards: The proposed sections would retain the current city design standards for an urban local street (see below)



Local Street, Rural

Local streets in the rural areas of Norman serve access to development in the sparsely developed areas near Lake Thunderbird and the Canadian River. Due to the very low traffic volumes, the roadway would consist of the minimal 22-foot width of paved roadway plus a gently graded shoulder area, for safety, that would be unpaved. In a rural estate setting, the 22 feet of pavement may be framed by curb and gutter. The existing city design standard (below) remains applicable, with the additional requirement for a 4-foot path, paved or unpaved, which should be provided along one or both sides of the roadway.

Comparison to Current Design Standards: The proposed sections are consistent with the current city design standards for a rural local street (see below)

