TOWN OF ORANGE 2020 TRANSPORTATION PLAN

DEVELOPED BY THE
TRANSPORTATION PLANNING DIVISION

OF THE

VIRGINIA DEPARTMENT OF TRANSPORTATION

IN COOPERATION WITH

THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION

&

THE TOWN OF ORANGE

May 2002

This report does not constitute a standard specification, regulation or provide a funding mechanism for the included transportation recommendations.

INTRODUCTION

The Town of Orange 2020 Transportation Plan was developed as a joint effort between the Virginia Department of Transportation and the Town of Orange. The purpose of the study was to evaluate the transportation system in the Town of Orange area and recommend a set of transportation improvements that could best satisfy existing and future transportation needs. This study identified needs based upon capacity, roadway safety, geometric conditions, and land use.

Transportation system improvements remain vital to the continued economic growth and development of Virginia, as well as the local areas. The provision for the effective, safe and efficient movement of people and goods is a basic goal of the State transportation programs in Virginia. It is with this objective in mind, and with further consideration of environmental issues and local desires, that this transportation plan has been developed.

The Virginia Department of Transportation (VDOT) will use this plan when evaluating requests from the Town of Orange for specific transportation projects and when implementing projects on the VDOT maintained roadway system. This list of urban recommendations will also be coordinated and combined with the rural planning process to successfully measure the statewide transportation needs.

STUDY AREA THOROUGHFARE SYSTEM

The Town of Orange is within Orange County and is located just north of I-64. U.S. Route 15 and State Route 20 meet in the center of Town. A finite urban area within the corporate limits was established for purposes of this transportation study.

Inside the study area, a specific set of highways that have been approved by the Virginia Department of Transportation, the Federal Highway Administration, and the Town of Orange have been selected and designated as the area's urban thoroughfares. The urban thoroughfare system is identified as roads that are functionally classified as collectors or arterials. The subsequent analysis and recommendations were limited to those designated roadways, with the exception of any recommended facility on new location and those improvements that have been requested by representatives of the Town of Orange on the local unclassified street system. In addition, other modes of transportation have been evaluated: bicycle and pedestrian facilities; intercity rail; bus and air travel; transit, paratransit, and taxi; and goods movement. Improvements to the other modes of transportation have been recommended in this study.

DEMOGRAPHIC OVERVIEW

The population in the Town of Orange has increased from 3,579 in 1990 to 4,123 in 2000. Population forecasts show the number of people in the Orange area as increasing into the future. At this time, manufacturing is the largest employment group in the Town of Orange, with Government Offices and Related Services as the second largest group. Tourism is also an essential employment group due to the historic background of the County of Orange and the town itself. Continued commercial and residential development is anticipated within the corporate limits.

The Transportation improvement recommendations illustrated in this plan were grouped into three phases based on the year when a transportation deficiency was identified. While this phasing is provided as guidance, the Town has the flexibility to implement any recommendations included in this plan regardless of the phase in which it is reflected.

PHASE ONE: BASE YEAR ROADWAY RECOMMENDATIONS

Intersection of Main Street (VA 20) and Caroline Street (VA 20)
Improve all truck-turning radii at the intersection and provide a traffic signal. Stop bars will be placed to facilitate wide truck turns and "NO RIGHT ON RED" signs will also be posted to insure safety. The estimated cost of improving this intersection will be $205,000.

Intersections on Main Street (VA 20 BUS)
Synchronize the new signal at the intersection of Main Street and Caroline Street with the existing signal at Main Street and Madison Road as well as the existing signal at the intersection of Caroline Street and South Madison Road. This will improve traffic flow in this area of Main Street. The total estimated cost of this recommendation is $120,000.

Intersection of James Madison Highway/Caroline Street and Old Gordonsville Rd
Relocate the Old Gordonsville Road intersection further south to a more straight and more level section of James Madison Highway to form a perpendicular connection in the vicinity of Orange Roofing Company. This modification will improve the sight distance, safety and traffic operations of the intersection. In addition, the traffic on Old Gordonsville Road, approaching James Madison Highway, can queue up over the CSX Railroad tracks creating a safety hazard. Relocating the intersection will create more queuing distance between the intersection and the railroad crossing. The existing Old Gordonsville Road will be converted to a cul-de-sac just east of the CSX railroad tracks to maintain property access in this area. Between James Madison Highway and the railroad tracks, existing Old Gordonsville Road will be removed. This project will be a joint effort between the Town of Orange and Orange County. The Town of Orange's portion of the estimated cost is $287,500 including $111,000 for construction, $27,500 for right-of-way, and $150,000 for the railroad crossing.

Intersection of Byrd Street (VA 20 BUS) and Berry Hill Road (VA 20)
Reconstruct as a "T" intersection and provide a traffic signal. This recommendation will improve the safety and geometry of the intersection with a total estimated cost of $230,000

Intersections in downtown area
Coordinate signal phasing in the downtown area to coincide with the railroad crossing. This will insure maximum green time for movements not effected by an incoming train. The estimated cost to adjust the signal phasing is $120,000.

Intersection of Berry Hill Road (VA 20) and Monrovia Road
Improve intersection to include appropriate turn lanes on Monrovia Road. This recommendation will add capacity to the intersection and reduce queue lengths. This is in conjunction with the local initiative to provide a traffic signal at this intersection. The cost of adding additional turn lanes is approximately $80,000.

PHASE TWO: INTERIM YEAR (2010) ROADWAY RECOMMENDATIONS

Spicers Mill Road
Reconstruct Spicers Mill Road from the west corporate limits to North Madison Road to a standard two-lane urban roadway with a minimum pavement width of 30 feet, curb, gutter, and sidewalks. This roadway currently exists with a pavement width of 18 feet. This recommendation will address safety, drainage, and pavement width deficiencies. This improvement has a total length of 1.18 miles and the total estimated cost for reconstruction will be $3,097,500 ($2,478,000 for construction and $619,500 for right-of-way).

Byrd Street (VA 20 BUS)
Reconstruct and upgrade Byrd Street from East Main Street to Berry Hill Road from a 22-foot pavement width to a standard two-lane urban roadway with a minimum pavement width of 30 feet, curb, gutter, and sidewalks. Adding curb and gutter will improve drainage issues while the expanded pavement width will improve traffic flow and safety issues. This improvement has a total length of 0.50 miles and the total estimated cost for reconstruction will be $1,575,000 ($1,050,000 for construction and $525,000 for right-of-way).

Extension of Byrd Street
Extend Byrd Street north to intersect with Montebello Road as a parallel facility and alternative to the North Madison Road. Currently North Madison Road is congested during peak traffic hours and a new parallel facility would offer a substitute for north-south travel through the area. The total estimated cost for this recommendation is $3,465,000 ($2,310,000 for construction and $1,155,000 for right-of-way). Montebello Road will also be upgraded to accommodate extra traffic as discussed in the Local Roadway Projects section of this report.

Spicers Mill Road
Spicers Mill Road will be extended east as a standard two-lane urban roadway to connect with the new extension of Byrd Street. This will provide an east-west access point to the major north-south Byrd Street extension. The estimated cost of this recommendation is $472,500 ($315,000 for construction and 157,500 for right-of-way).

PHASE THREE: STUDY YEAR (2020) ROADWAY RECOMMENDATIONS

West Main Street (VA 20)
Reconstruct West Main Street from the west corporate limits to Caroline Street to a standard two-lane urban roadway with a minimum pavement width of 30 feet. This will include curb and gutters to address drainage issues, and the pavement widening will add capacity to the roadway as well as improve safety. This improvement has a total length of 0.42 miles and the total estimated cost for the reconstruction will be $1,323,000 ($882,000 for construction and $441,000 for right-of-way).

Berry Hill Road (VA 20)
Reconstruct Berry Hill Road from Caroline Street to Byrd Street to a standard two-lane urban roadway with a minimum pavement width of 30 feet, curb, gutter, and sidewalks. The current pavement width is 22 feet and includes geometric and safety deficiencies. The widening of the roadway will address the geometric and safety problems, while the new curb and gutter will improve drainage issues. This improvement has a total length of 0.57 miles and the total estimated cost for the reconstruction will be $1,795,500 ($1,197,000 for construction and $325,500 for right-of-way).

Berry Hill Road (VA 20)
Reconstruct Berry Hill Road from Byrd Street to the east corporate limits to a standard four-lane roadway with appropriate turn channelization. The widening from two lanes to four lanes will address the unacceptable level of service this road segment experiences in the 2020 study year. This improvement has a total length of 0.94 miles and the total estimated cost for reconstruction will be $7,219,000 ($4,512,000 for construction and $2,707,000 for right-of-way).

Rapidan Road
Reconstruct Rapidan Road from Selma Road to the east corporate limits to a standard two-lane urban roadway with a minimum pavement width of 30 feet, curb, gutter, and sidewalks. This facility is geometrically deficient with a current pavement width of 20 feet. Providing curb and gutter will improve drainage issues for this segment and widening the roadway will address the deficient pavement width. This improvement has a total length of 0.36 miles and the total estimated cost for reconstruction will be $1,209,600 ($756,000 for construction and $453,600 for right-of-way).

North Madison Road (US 15)
Reconstruct North Madison Road from Montebello Road to the north corporate limits as a four-lane rural divided highway. Widening the roadway will address the capacity deficiency for the 2020 study year. The improvement has a total length of 0.55 miles and the total estimated cost for this recommendation is $2,227,500 ($1,485,000 for construction and $742,500 for right-of-way).

Extension of Berry Hill Road
Extend Berry Hill Road to intersect with West Main Street just west of the corporate limits. A bridge will be needed to cross the ravine south of Main Street. This recommendation is expected to improve traffic flow on Caroline Street and through the intersection of Main Street and Caroline Street. The total estimated cost of the extension will be $2,182,000 ($588,000 for roadway construction, $1,300,000 for bridge construction, and $294,000 for right-of-way).

OTHER MODES OF TRANSPORTATION

Parking

Parking needs in the Town of Orange are met through municipal off-street parking facilities. In the downtown area, along VA 20, parallel on-street parking is provided. There are no recommendations that require the removal or addition of any parking facility.

Bicycle / Pedestrian

There are no recommendations related to bicycle and pedestrian access. However, pedestrian access will be improved as roadway locations are upgraded to an urban cross-section. Sidewalks will be included in the widening at these locations.

Transit, Paratransit, and Taxi

On-demand bus transit service exists for elderly, disabled and other persons. This Town Of Orange Transit (TOOT) service runs Monday thru Friday and is operated by Loudoun Transit. Orange Taxi Service is privately run and includes one vehicle that serves the town. Rappahanock-Rapidan Community Services operates a shuttle for specific disabled and mentally handicapped individuals in the area. Park-and-ride activities

occur in a constrained fashion in various lots within the Town limits. It is recommended that additional park and ride capacity be pursued in the Town of Orange area.

Goods Movement

Freight moves through town by train and heavy truck. Norfolk-Southern and CSX traverse the town with freight traffic but do not have a stop in the Town of Orange. Heavy trucks bring freight through, to and from the town, with American Woodmark being a main attraction. Truck volumes are highest on Madison Road and Main Street, and a turning radius problem exists at the intersection of Main and Caroline Streets. Appropriate transportation improvement recommendations are included in this transportation plan.

Intercity Rail, Bus and Air Travel

Currently, there is no passenger rail service in the Town of Orange. Greyhound Bus Lines do stop in the town. Private air travel is available at the Orange County Airport. Nearby commercial air service is available at the Charlottesville-Albemarle Airport and regional hub service is provided by Dulles, National and Richmond Airports. Amtrak passenger service passes through the town with the nearest stop being in Culpeper. The proposed TransDominion Rail Service from Bristol Virginia to Washington D.C. may have a future stop in the Town of Orange. Feasibility studies conducted by the Virginia Department of Rail and Public Transportation (VDRPT) in 1994 and 1997 investigated initiation of rail passenger service between Bristol, Richmond, and Washington D.C. that included a proposed station in the Town of Orange. It is recommended that the Town of Orange support any plans that may be formalized to establish rail passenger service in the region. VDRPT is working with Norfolk Southern on an ongoing basis to continue studying the cost, financial feasibility, and funding possibilities of the passenger rail corridors. In the Town of Orange, no improvements for intercity rail, bus or air travel are recommended at this time.

LOCAL ROADWAY PROJECTS

Montebello Road
Reconstruct Montebello Road from the newly constructed Byrd Street extension to North Madison Road as a standard two-lane urban roadway. This improvement is in conjunction with the Byrd Street extension and is required to make that improvement operate effectively. The improvement has a total length of 0.15 miles and the estimated cost of this recommendation will be $472,500 ($315,000 for construction and $157,500 for right-of-way).

Intersection of Berry Hill Road (VA 20) and Monrovia Road
It is of local initiative to upgrade this intersection by providing a traffic signal. The estimated cost of this improvement is $180,000.

ENVIRONMENTAL OVERVIEW

An environmental overview has been conducted for the roadway recommendations that include widening (providing additional travel lanes) or the proposed development of new roadway facilities for the Town of Orange. Examples of items investigated in this section include known hazardous material sites, listed historic properties, and Virginia byway locations among others. The results of the environmental overview were included in the analysis of the recommended improvements for the Town of Orange 2020 Transportation Plan Technical Report.

LOCAL COORDINATION & CITIZEN PARTICIPATION

The development of the Town of Orange 2020 Transportation Plan included several coordination meetings with local staff members of the Town and included a public meeting held with VDOT representatives, PDC representatives, Town officials, and residents of the town.

The coordination meetings consisted of a kick-off meeting, a baseline conditions meeting, and a draft recommendations meeting. The kick-off meeting, held on February 23, 2000, enabled the project team to discuss with local staff the purpose and scope of the study, the schedule for data collection and plan preparation, and the coordination process. A baseline conditions meeting was held on May 30, 2001. The baseline conditions meeting allowed the project team to present the results of baseline and horizon year traffic analysis, as well as receive input from the local staff on desired transportation needs. Finally, at the draft recommendations meeting held on August 30, 2001, the project team presented and discussed with Town officials the draft 2020 Transportation recommendations. Input was provided by Town staff and used to prepare the final recommendations.

A public meeting was held March 11, 2002 in the Gordon Building located at 112 West Main Street. The purpose of this meeting was to present the recommendations to Town officials, citizens, and other interested parties, and to receive comments on the plan.

PLAN ADOPTION

The Orange Town Council adopted the Town of Orange 2020 Transportation Plan at the Council meeting on May 13, 2002.

ADDITIONAL INFORMATION

More details on the development of the Town of Orange 2020 Transportation Plan and the study recommendations are available in the Town of Orange 2020 Transportation Plan Technical Report and the Town of Orange 2020 Transportation Plan website, http://www.vdoturbanplans.com/orange.htm

In addition to this 2020 transportation plan for the Town of Orange, the Virginia Transportation Development Plan (VTDP) also addresses transportation needs. The VTDP is a comprehensive listing of transportation projects scheduled for construction or improvement over the next six fiscal years, as well as anticipated funding allocations. Projects included in the Virginia Transportation Development Plan (VTDP) are not part of this recommendations package. The VTDP can be reviewed online at VDOT's website, http://virginiadot.org/. Information on VTDP projects for the Town of Orange can also be found by contacting the VDOT Resident Engineer at the Culpeper Residency Office in Culpeper, Virginia (540-829-7620).

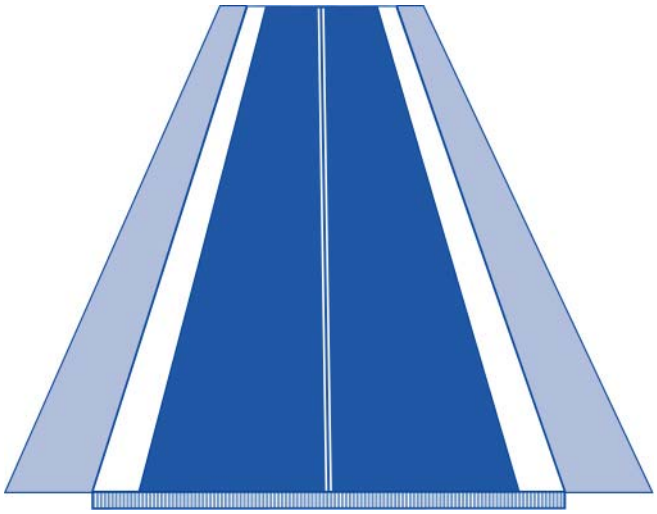
TOWN OF ORANGE TRANSPORTATION RECOMMENDATIONS

Route	Facility Name	From	To	Road Segment Length (miles)	Recommendation	Cost (Year 2000 $)	Existing Typical Section (Width)	Recommended Typical Section (Width)	Year 1999 ADT	Year 2020 ADT
US 15	N Madison Road	Montebello Road	Orange NCL	0.55	Widen to a four-lane divided highway (year 2020)	2,227,500	R2 (24')	R4D (48')	8,300	12,450
VA 20	W Main Street	Orange WCL	Caroline Street	0.42	Widen to a standard two-lane urban roadway (year 2020)	1,323,000	R2 (20')	U2 (30')	5,960	8,340
VA 20	Berry Hill Road (Route 20)	Caroline Street	Byrd Street (Route 20 Bus)	0.57	Reconstruct as a standard two-lane urban roadway (year 2020)	1,795,500	R2 (22')	U2 (30')	10,460	12,550
VA 20	Berry Hill Road (Route 20)	Byrd Street (Route 20 Bus)	Orange ECL	0.94	Reconstruct as a four-lane urban roadway with appropriate turn channelization (year 2020)	7,219,000	R2 (22')	U4 (48')	14,000	19,600
VA 20 BUS	Main Street (Route 20 Bus)	Caroline Street (Route 20)	Madison Road (Route 15)	0.15	Synchronize new signal at intersection of Main St and Caroline with existing signal at Main St and Madison Rd (base year)	120,000	U2 (38')	U2 (38')	6,710	9,390
VA 20 BUS	Byrd Street (Route 20 Bus)	E Main Street	Berry Hill Road (Route 20)	0.50	Widen to a standard two-lane urban roadway (year 2010)	1,575,000	R2 (22')	U2 (30')	6,700	9,380
	Rapidan Road	Selma Road	Orange ECL	0.36	Widen to a standard two-lane urban roadway (year 2020)	1,209,600	R2 (20')	U2 (30')	1,520	2,130
	Spicers Mill Road	Orange WCL	N Madison Road	1.18	Widen to standard two-lane urban roadway (year 2010)	3,097,500	R2 (18')	U2 (30')	880	1,060
	Berry Hill Road Extension	Caroline Street	W Main Street	0.28	Extend Berry Hill Road to connect with Main Street W just west of the corporate limits (year 2020)	2,182,000	NA	U2 (30')	NA	NA
	Byrd Street Extension	Barbour Street	Montebello Road	1.1	Extend Byrd Street north to connect with Montebello Rd (year 2010)	3,465,000	NA	U2 (30')	NA	NA
	Spicers Mill Road Extension	North Madison Road	Byrd Street Extension	0.15	Extend Spicers Mill Road east to connect with the new Byrd Street Extension (year 2010)	472,500	NA	U2 (30')	NA	NA
Local Road/ Local Initiative	Montebello Road	Byrd Street Extension	N Madison Road	0.15	Reconstruct as a standard two-lane urban roadway in conjunction with the Byrd Street Extension (year 2010)	472,500	NA	U2 (30')	NA	NA
	Intersection	Main Street	Caroline Street	NA	Widen truck turning radius and provide traffic signal with stop bar to facilitate wide truck turns and no right on red (base year)	205,000	NA	NA	NA	NA
	Intersection	James Madison Hwy	Old Gordonsville Rd	NA	Relocate the intersection further south to form a perpendicular connection (base year)	287,500	NA	NA	NA	NA
	Intersection	Byrd Street (Route 20 Bus)	Berry Hill Road (Route 20)	NA	Reconstruct as "T" intersection and provide a traffic signal (base year)	230,000	NA	NA	NA	NA
	Intersection	Downtown Area	Downtown Area	NA	Coordinate signals in the downtown area with railroad crossings (base year)	120,000	NA	NA	NA	NA
	Intersection	Berry Hill Road (Route 20)	Monrovia Road	NA	Improve intersection to include appropriate turn lanes (base year)	80,000	NA	NA	NA	NA
Local initiative	Intersection	Berry Hill Road (Route 20)	Monrovia Road	NA	Install a traffic signal (base year)	180,000	NA	NA	NA	NA
					Total:	**$25,609,100**				

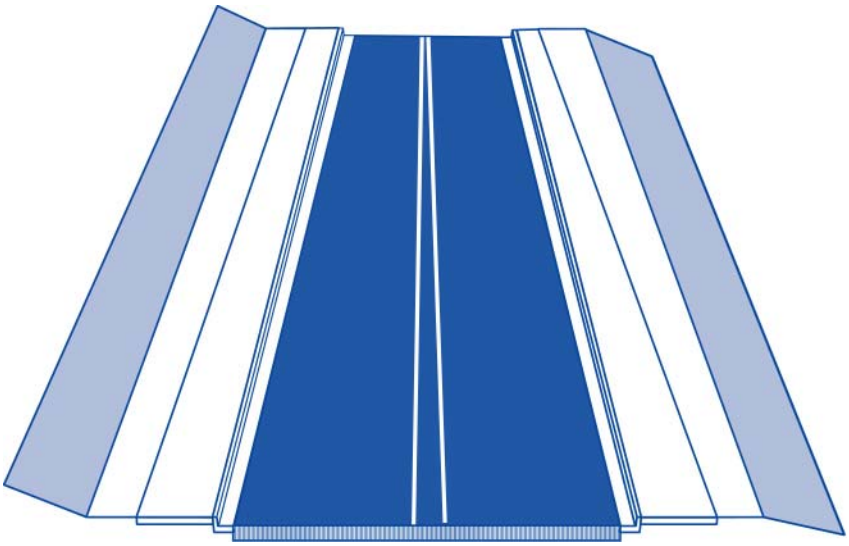
Note: Total does not include the costs from local initiative.

TYPICAL SECTIONS[1]

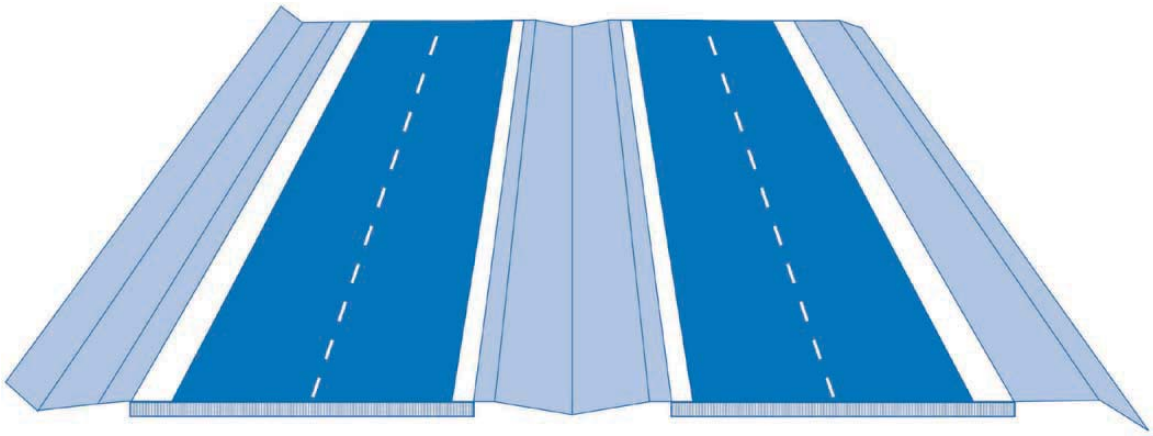
R2
Rural two-lane roadway with standard shoulders and ditches



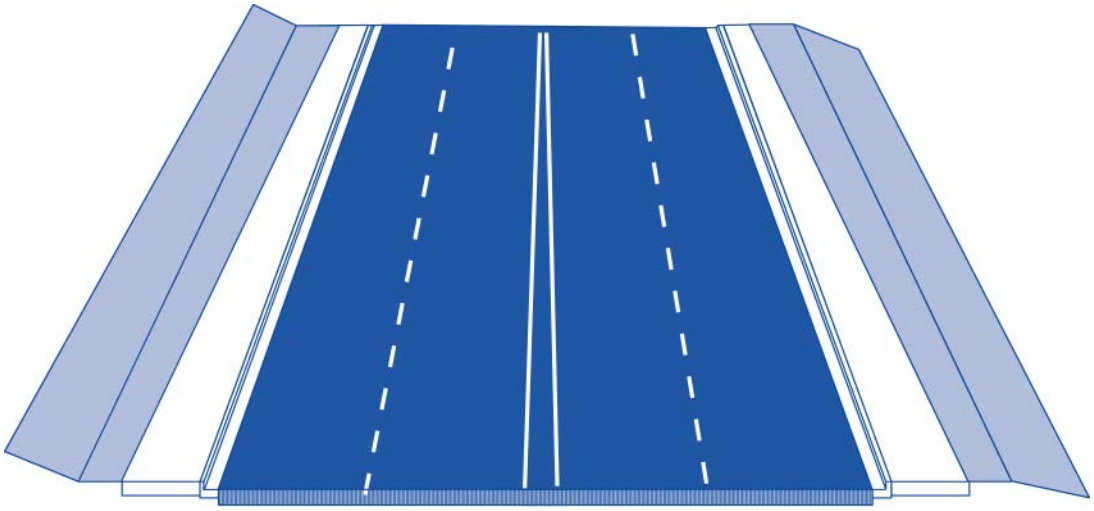
U2
Urban two-lane roadway with curb and gutter



R4D
Rural four-lane divided roadway



U4
Urban four-lane roadway with curb and gutter



[1]Recommended typical sections assume 12’ wide travel lanes.