

1102.01	General Overview
1102.02	Land Use Context
1102.03	Transportation Context
1102.04	Documentation
1102.05	References

1102.01 General Overview

Context refers to the environmental, economic, and social features that influence livability and travel characteristics. Context characteristics provide insight into the activities, functions, and performance that can be influenced by the roadway design. Context also informs roadway design, including the selection of design controls, such as target speed and modal priority, and other design decisions.

For the purposes of transportation planning and design, WSDOT divides context into two categories: land use and transportation. Each of these contexts is further defined and categorized in this chapter. Note that context categories, and the information pertinent to deriving them, may have been documented in a planning study.

The concepts and method described in this chapter are adapted from National Cooperative Highway Research Program Report 855: “An Expanded Functional Classification System for Highways and Streets” (see <http://www.trb.org/NCHRP/Blurbs/176004.aspx>).

1102.02 Land Use Context

This section describes the procedure for determining the land use context category on non-freeway facilities. The guidance in this section does not apply for freeways (see [Chapter 1232](#) for the definition of a freeway). For freeways, Section 2 of the Basis of Design is used only to document the urban/rural designation as listed for the route on the State Route Log.

On larger projects, more than one land use category may apply within project limits.

Step 1. Determine an initial land use context category (current state)

Land use context categories are described in detail in [1102.02\(1\)](#). These categories represent distinctive land use environments beyond simply “rural” and “urban” to help determine a more accurate context. These categories influence roadway design, including determining appropriate operating speeds, mobility and access demands, and modal users. The land use categories are:

- Rural
- Suburban
- Urban
- Urban Core

Use the following factors to determine your initial land use context category:

1. Land uses (primarily residential, commercial, industrial, and/or agricultural)
2. Density
3. Setbacks

Quantify these factors through an assessment of the area adjacent to the existing or planned roadway (see [Exhibit 1102-1](#)).

Step 2. Determine an initial land use context category (future state)

Using the same factors and categories, consult with local agency staff, and review state, regional, and local planning documents to consider and document potential or anticipated changes to land use context. Sources of information include the local comprehensive plan, WSDOT Highway System Plan, WSDOT corridor sketches, and WSDOT planning studies in the corridor.

Exhibit 1102-1 Factors for Determining Initial Land Use Context

Factor	Criteria
Land Use	Land uses within ½ mi of roadway
Density	Housing units / acre
Density	Jobs / acre
Density	Intersections per sq. mi.
Density	Typical building height
Setback	Typical building setback
Setback	Parking (on street or off street)

Specific metrics guiding the use of these criteria in determining the initial land use context category (both current and future) are provided on the WSDOT Design Office website.

Step 3. Select final land use context category (current and future state)

Once an initial land use category is determined, additional (primarily qualitative) considerations are used to verify that the selected category is appropriate. Because data used in the initial determination may be incomplete, conflicting, or difficult to interpret, it's expected that professional judgment is used to confirm the context result. Even when the overall assessment is clear, discontinuities or transitions between categories may exist and require further interpretation.

Confirm or make adjustments to the initial context category based on a qualitative analysis. Use information gathered from consultations with local agency staff, as well as the project's community engagement processes, to validate a final determination about current and future context. Information about topography, soil type, land value, population density, average building square footage, visual assessments, aerial photos, zoning, and other local agency land use data and/or maps may also be used in this step.

Document the process used to make this final context determination. Include the data used, interdisciplinary input, and issues encountered and resolved in the process. Conclude with a final land use context determination that confirms, or adjusts, the initial category(s) for the project, and seek the endorsement of this final determination from the project advisory team (see [Chapter 1100](#)).

1102.02(1) Land Use Categories

The land use categories used to inform project design are described below.

1102.02(1)(a) Rural

The rural category ranges from no development (natural environment) to some light development (structures), with sparse residential and other structures mostly associated with farms. The land is primarily used for outdoor recreation, agriculture, farms, and/or resource extraction. Occasionally non-incorporated communities will include a few residential and commercial structures. Rural characteristics also include:

- No or very few pedestrians – except those locations used for outdoor recreation and modal connections, and where socioeconomic factors suggest that walking is likely to serve as an essential form of transportation
- Bicycle use mostly recreational– except for tourist destinations, modal connection locations and between communities where bicycle commuters may be expected or where socioeconomic factors suggest that bicycling is likely to serve as an essential form of transportation.
- Low development density
- Isolated residential or commercial activities
- Commercial uses include general stores, restaurants, and gas stations, normally at crossroads
- Setbacks for structures are usually large, except in the immediate vicinity of small settlements
- Transit service availability is often absent or highly limited, but varies widely depending on the jurisdiction. On-demand service is typically found to provide specialized transportation services

1102.02(1)(b) Suburban

Locations classified as suburban include a diverse range of commercial and residential uses that have a low or often, medium density. Suburban areas are usually (but not always) connected and closely integrated with an urban area. The buildings tend to be multi-story with off-street parking. Sidewalks are usually present and bicycle lanes may exist. These areas include mixed use town centers, commercial corridors, and residential areas. Big box commercial and light industrial uses are also common. The range of uses encompasses health services, light industrial (and sometimes heavy industrial), quick-stop shops, gas stations, restaurants, and schools and libraries. Suburban characteristics also include:

- Heavy reliance on passenger vehicles
- Transit may be present
- Residential areas may consist of single and/or multi-family structures
- Building and structure setbacks from the roadway vary from short to long
- May have well planned and arranged multi-uses that encourage walking and biking

- Planned multi-use clusters may integrate residential and commercial areas along with schools and parks
- Some highways that fit this category may be designated by WSDOT as “Main Street Highways” (see Appendix B: Identification of State Highways as Main Streets, <http://www.wsdot.wa.gov/research/reports/fullreports/733.1.pdf>.)

1102.02(1)(c) Urban

Urban locations are high density, consisting principally of multi-story and low to medium rise structures for residential and commercial use. Areas usually exist for light and sometimes heavy industrial use. Many structures accommodate mixed uses: commercial, residential, and parking. Urban areas usually include prominent destinations with specialized structures for entertainment, athletic and social events as well as conference centers and may serve as a Main Street (see [1102.03\(6\)](#)). Urban characteristics also include:

- Various government and public use structures exist that are accessed regularly
- Building setbacks are both short and long
- Streets normally have on-street parking
- Wide sidewalks and plazas accommodate more intense pedestrian traffic
- Bicycle lanes and transit corridors are frequently present
- Off-street parking includes multi-level structures that may be integrated with commercial or residential uses
- Some highways that fit this category may be designated by WSDOT as “Main Street Highways” (see Appendix B: Identification of State Highways as Main Streets)

Due to the differences in developmental scale among urban areas as well as growth demand urban-urban core, context boundaries change over time with the urban core area expanding in high growth situations and possibly contracting in low or no growth situations.

1102.02(1)(d) Urban Core

Urban core locations include the highest level of density with its mixed residential and commercial uses accommodated in high-rise structures. There is commonly on-street parking, although it is usually time restricted. Most parking is in multi-level structures attached or integrated with other structures. The area is accessible to automobiles, commercial delivery vehicles, biking, walking, and public transit. Urban Core characteristics also include:

- Sidewalks and pedestrian plazas are present
- Bicycle facilities and transit corridors are common
- Typical land uses are mixed commercial, residential, with some government or similar institutions present
- Commercial uses predominate, including financial and legal
- Structures (predominantly high rises) may have multiple uses
- With the highest land value of any category, setbacks from the street are small
- Some highways that fit this category may be designated by WSDOT as “Main Street Highways” (see Appendix B: Identification of State Highways as Main Streets)

1102.03 Transportation Context

This section describes the procedure for determining the current and future transportation context for the roadway. On larger projects, more than one transportation context may apply within project limits. Network connections are also useful in understanding the transportation context.

Each transportation context is to be described in terms of the following categories and considerations:

- Roadway type
- Bicycle route type
- Pedestrian route type
- Freight route type
- Transit use considerations
- Complete streets and Main Street highways

Seek endorsement from the project advisory team (see [Chapter 1100](#)) for determinations of these transportation context types and considerations, including input from local agency (local jurisdictions and transit agencies) and stakeholders. Document determination of each of these transportation contexts for both current and future states in Section 2 of the Basis of Design, and carry these results forward into determination of modal compatibility and modal priority ([Chapter 1103](#)).

Additional information supporting work described in this section is provided on the WSDOT Design Office website.

1102.03(1) Roadway Type

The initial roadway type is defined by the designated functional classification on the WSDOT State Route Log for the route as listed below for non-freeway facilities. A final roadway type determination is based on an assessment of whether a different functional class description (given below) corresponds better to the current and future state of the facility, compared to the designated functional class for the facility. The future state is determined after an assessment of the future modal route types described below. Justify the selection of a final roadway type whether it is the same or different from the designated functional class.

Freeways (including Interstate freeways) are defined in [Chapter 1232](#). These routes typically are limited access facilities. The roadway type for freeways is freeway.

Roadway types for non-freeway facilities are described as follows.

- Principal Arterial – Corridors of regional importance connecting large centers of activity. These routes may be limited access facilities.
- Minor Arterial – Corridors of regional or local importance connecting centers of activity.
- Collector – Roadways of local importance providing connections between arterials and local roads.
- Local – Roads with no regional importance for local circulation and access only

1102.03(2) Bicycle Route Type

Bicycle routes are categorized based on the purpose of the trip and the network connectivity a facility provides. Use quantitative and qualitative information about bicycle connections associated with the project location to determine the current and future bicycle route type using one of these three classifications:

- Citywide Connector (CC) — The route is part of a citywide network, provides a connection to major activity centers, or is a regional bike route stretching over several miles that attracts a high volume of use, serving a primary commute or recreational purpose. These routes are typically associated with arterials and collectors.
- Neighborhood Connector (NC) — The route provides a neighborhood or sub-area connection, making connections to higher order facilities or more local activity centers, such as neighborhood commercial centers. These routes are typically associated with minor arterials and collectors.
- Local Connector (LC) — The route provides local connections of short lengths, providing internal connections within neighborhoods, or linking neighborhoods to higher order facilities. These routes are typically associated with collectors and local roads.

1102.03(3) Pedestrian Route Type

Pedestrian use is described in terms of estimated volumes (current and potential future). The amount of pedestrian traffic impacts several factors, including pedestrian facility capacity, vehicular delays at signalized intersections, and most importantly, the level of risk associated from pedestrians in the travelled way. The four pedestrian route types are based on volume as follows:

- P-1: rare or occasional use
- P-2: low volume – best measured in pedestrians per day
- P-3: medium volume - best measured in pedestrians per hour
- P-4: high volume - best in pedestrians per hour, where sub-hour peak periods are typical

1102.03(4) Freight Route Type

Freight routes may not require significant additional facilities beyond those provided for other motorized vehicles, if mobility and speeds of vehicular routes are consistent with freight movement. Special design consideration is commonly related to the Freight and Goods Transportation System classification. Document the classification for the project area.

Contact Rail, Freight, and Ports Division for help identifying freight classifications, industry needs and truck operations.

Truck route classifications can be found here:

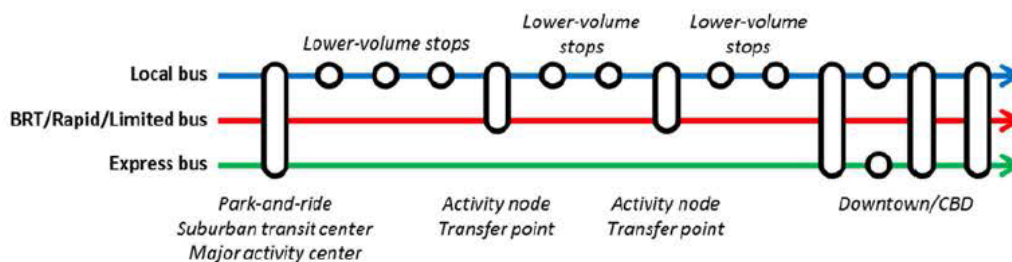
<http://www.wsdot.wa.gov/Freight/EconCorridors.htm>

Additional information: <http://www.wsdot.wa.gov/freight/>

1102.03(5) Transit Use Considerations

Transit can provide service on any roadway type. The purposes of transit trips are similar to those of automobile trips and include commuting, work related business, shopping, personal errands, and social/recreational. The facilities and design considerations for transit uses depend on the type of transit service being provided. Note that special design consideration is required for projects that involve one or more of the following elements:

- Fixed route type: there are three primary types of fixed-route transit service, operating along designated routes at set times (Local, Limited, and Express). If one of these services exists on the project, determine the route type using criteria shown in the illustration below and the following bullets:



Source: TRPC Report 165: Transit Capacity and Quality of Service Manual.

- Local routes serve many stops along a route and emphasize access to transit over speed.
- Limited stop routes (also known as frequent routes, including bus rapid transit) balance transit access with speed. These routes run frequently and serve higher volume stops (e.g. major activity centers and transfer points).
- Express routes emphasize speed over transit access, and are often used for longer distance trips.

Note that in addition to fixed-route service, many agencies provide demand-response paratransit services that provide specialized transportation services in both rural and urban areas.

- Bus rapid transit or light rail
- Transit signal priority installation
- Planned transit facilities and routes
- In lane bus stops and/or potential bus pullouts
- Facilities for people with specialized transportation needs (e.g. hospitals, senior centers, schools, transit-dependent communities, etc.)

When evaluating transit needs and the potential for transit to improve highway performance in the project area, document relevant information or data about current transit capacity and quality of service (as defined in the Transit Capacity and Quality of Service Manual) and current and potential future use and travel markets. Include consideration for people walking and biking to/from transit connections. Contact the Public Transportation Division for help or for more information about identifying and coordinating with transit agencies and local jurisdictions that serve the project area (<http://www.wsdot.wa.gov/PubTran/>).

1102.03(6) Complete Streets and Main Street Highways

Complete street contexts consider all transportation modes and often require differing modal priorities based on the existing land uses or may even consider multiple modes of equal priority. Complete streets may be desirable in various land use contexts including urban core, urban, suburban, small town, and even some rural contexts.

The Main Streets designation for highways is a point of reference and consideration when documenting transportation context, and should be noted on the Basis of Design. Main Street highways serve the aesthetic, social, economic, and environmental values in a larger community setting in addition to transportation. They are set up as specific state route and milepost designations.

See the *Complete Streets and Main Street Highways Program* document listed in Supporting Information at the end of this chapter for more information. For the list of designated highways see *State Highways as Main Streets: A Study of Community Design and Visioning*, Appendix B: Identification of State Highways as Main Streets,

<http://www.wsdot.wa.gov/research/reports/fullreports/733.1.pdf>.

1102.04 Documentation

Document the following in Section 2 of the Basis of Design:

- Land use category
- Roadway type
- Bicycle route type
- Pedestrian route type
- Freight route classification
- Transit use considerations
- Main Streets designation

Describe the process that was followed to reach these designations. If the work involved review and verification of previous work, document that process as well. If characteristics vary within project limits include the milepost ranges to which each of the designations apply.

The Context and Modal Accommodation Report is a template available for use in this documentation process (see <https://www.wsdot.wa.gov/design/support.htm>).

1102.05 References

1102.05(1) *Federal/State Directives, Laws, and Codes*

[23 Code of Federal Regulations \(CFR\) 450, Subpart B](#), Statewide Transportation Planning

[23 CFR 450, Subpart C](#), Metropolitan Transportation Planning and Programming

[23 United States Code \(USC\) 134](#), Metropolitan Planning

[23 USC 135](#), Statewide Planning

[Revised Code of Washington \(RCW\) 35.58.2795](#), Public transportation systems – Six-year transit plans

[RCW 35.77.010\(2\)](#) and [RCW 36.81.121\(2\)](#), Perpetual advanced six-year plans for coordinated transportation program expenditures – Nonmotorized transportation – Railroad right-of-way

[RCW 36.70A](#), Growth management – Planning by selected counties and cities

[RCW 43.21C](#), State environmental policy

[RCW 47.05](#), Priority programming for highway development

[RCW 47.06](#), Statewide transportation planning

[RCW 47.06B](#), Coordinating special needs transportation

[Secretary's Executive Order 1090](#) – Moving Washington Forward: Practical Solutions

[Secretary's Executive Order 1096](#) – WSDOT 2015-17: Agency Emphasis and Expectations

1102.05(2) *Supporting Information*

WSDOT References

Understanding Flexibility in Transportation Design – Washington, WA-RD 638.1, WSDOT, 2005

<http://www.wsdot.wa.gov/research/reports/600/638.1.htm>

Complete Streets and Main Street Highways Program, WSDOT, 2011

<https://www.wsdot.wa.gov/research/reports/fullreports/780.1.pdf>

State Highways as Main Streets: A Study of Community Design and Visioning, WSDOT, 2009

Appendix B: Identification of State Highways as Main Streets

<http://www.wsdot.wa.gov/research/reports/fullreports/733.1.pdf>

WSDOT Functional Classification map application:

<http://www.wsdot.wa.gov/mapsdata/travel/hpms/functionalclass.htm>

Other References

Complete Streets Planning and Design Guidelines, North Carolina Department of Transportation, July 2012. http://www.pedbikeinfo.org/pdf/PlanDesign_SamplePlans_CS_NCDOT2012.pdf

Designing Walkable Thoroughfares: A Context Sensitive Approach, Institute of Transportation Engineers, Washington D.C., 2010

🔗 <http://ecommerce.ite.org/IMIS/ItemDetail?iProductCode=RP-036A-E>

Evaluating Transportation Land Use Impacts, Victoria Transport Policy Institute, 2015

🔗 <http://www.vtpi.org/landuse.pdf>

The Innovative DOT: A Handbook of Policy and Practice, Smart Growth America, Washington D.C., 2015

🔗 <http://www.smartgrowthamerica.org/the-innovative-dot>

Land Use and Regional Planning: Achieving Integration Between Transport and Land Use, European Commission, 2006

🔗 http://www.transport-research.info/Upload/Documents/200608/20060831_102457_87241_Land_use.pdf

Livability in Transportation Guidebook: Planning Approaches that Promote Livability, FHWA, 2010

🔗 http://www.fhwa.dot.gov/livability/case_studies/guidebook/

Measuring Sprawl 2014, Smart Growth America, Washington D.C., 2014

🔗 <http://www.smartgrowthamerica.org/measuring-sprawl>

NCHRP Report 855 – An Expanded Functional Classification System for Highways and Streets 🔗 <http://www.trb.org/NCHRP/Blurbs/176004.aspx>

Small Town and Rural Multimodal Networks (FHWA-HEP-17-024), December 2016.

🔗 https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/small_towns/

Smart Transportation Guidebook, New Jersey Department of Transportation and Pennsylvania Department of Transportation, 2008.

🔗 <http://www.state.nj.us/transportation/community/mobility/pdf/smarttransportationguidebook2008.pdf>

Urban Street Design Guide, National Association of City Transportation Officials, New York, NY, 2013

🔗 <http://nacto.org/>