1150.01 Background and Intent

The Washington State Department of Transportation (WSDOT) considers main street roadways to be more than just a means of moving people and goods efficiently. Main streets can also contribute to the fabric of place, just as buildings and pedestrian furnishings do. Experienced together as a whole, main streets are valued by people as social destinations and centers of economic activity, which promote livable, vibrant, and safe communities. This chapter provides practical design guidance for a subset of main street context environments, and reinforcement for the collaborative partnerships necessary to identify and address all potential stakeholder objectives.

This chapter will be revised in the future as WSDOT expands the context-driven and modally integrated design policy and guidance aimed at best adapting the mature state highway system to modern day contexts. WSDOT’s intent is to provide practical and flexible design guidance based on the natural and built environmental contexts, as well as presenting acceptance of low-cost interim retrofit solutions when funding is constrained. WSDOT’s past research and coordination with local agencies emphasized a need for flexibility to address the multiple trade-off aspects in design, especially on state highway segments that serve as city streets. It is important to understand how the specific land use and transportation contexts contribute to design when accounting for and weighting trade-offs.

This guidance provides an optional approach for both independent local agency projects and local-state partnership projects. It can be applied to both National Highway System (NHS) and non-NHS routes, where appropriate. The decision to use this guidance for main street state highways is arrived at through consultation between local, state, and federal partners. Ideally, the decision to use this guidance will occur no later than the scoping phase. Document this decision on the Project Summary Form, and by initiating the Context and Modally Integrated Design Collaborative Memorandum (see 1150.08).

1150.02 Main Street Context Considerations

This guidance is not intended to apply to all “main street” context segments identified by WSDOT research reports, planning offices, and communities. In general, this guidance will apply to access managed, nonfreeway highway segments in urban areas and rural town centers. Applicable segments demonstrate a need for very low-speed, low-traffic throughput roadway and roadside environments.
The following are general characteristics that typically indicate a “main street” context. These characteristics are listed to help identify locations appropriate for application of this chapter; however, these characteristics are not necessarily conditional aspects of guidance use.

- State highway access class 4 and 5 segments
- State highway access class 3 segments within city limits
- On-street parking
- Wide streetside (and sidewalks)
- Storefronts with no or minimal setbacks
- Small block network
- Minimal number of driveway access points
- Well-developed street network or grid system
- Identified need for bike and/or pedestrian mobility and/or access
- Urban revitalization

### 1150.02(1) When Main Street is a State Highway

Main street state highways are challenged to provide regional mobility needs in addition to serving important local functions. WSDOT typically holds jurisdictional authority on the traveled way, between and including the curbs. The local agency typically holds jurisdictional authority over the streetside, from the curb outward and between curbed median areas. Exhibit 1150-1 shows how responsibilities and jurisdictional authority are typically split between a city and state. Additional discussion of jurisdictional responsibilities and clear zone designation is provided in 1600.03.

This guidance assists WSDOT partners and approvers with context-based flexibility to achieve the local agency main street vision. A proposed transportation project must be planned not only as a facility serving specific transportation objectives, but also must consider how the street contributes to the aesthetic, social, economic, and environmental values, needs, constraints, and opportunities in a larger community setting, per Executive Order 1028. WSDOT is required to consult with local agencies on projects affecting state highways that are also designated as local streets (RCW 47.04.330). WSDOT Local Programs staff are recommended for coordinating department participation in locally led planning/design development, and will also help incorporate the intent of this guidance in state-led planning/design development.

WSDOT and local agencies should seek partnerships necessary to understand how to optimize operation of the existing system, and how to implement demand management strategies and the shared funding needed for project completion. Funding limitations may constrain the ability to construct the ultimate main street as visioned. Partners should discuss and plan for interim phasing solutions to address fiscal constraints, ultimately adapting the vision over time. The resulting partnering funding plans will assist with phasing the ultimate vision, using lower-cost interim design options such as striping new “curb” locations inward (see 1150.07 for interim design options).

State, local agency, and community partners need to develop an understanding of shared responsibilities in providing both the initial interim “curb” and post-construction maintenance obligations (see 1150.06). Document these aspects initially in the Context and Modally Integrated Concurrence Memorandum (see 1150.08), and finalize in the appropriate agreements, outlining the specific roles and responsibilities of each party.
1150.03  Community Design Vision – Process Before Design

The community vision for a street influences the design of that street. Establishing the vision first helps build consensus locally and ultimately provides advantages to project schedules. Where the city street is a state highway, the vision must be established and documented before detailed design proceeds. The vision needs to be described in sufficient enough detail that the design process can reasonably accommodate and not preclude implementation of all or a portion of the vision for the street.

Planners/Designers need to review the comprehensive plans and any subarea or neighborhood plans that may cover the area. Local complete streets policies, if in place, also need to be reviewed and considered. Depending on the route and focus of these plans, the details of the information may vary. There could be specific route visioning or, at a minimum, broader visioning statements for the local agency as a whole. There will always be important information regarding the existing and planned land use plans that will help establish the land use context. These plans are important to understand, since the comprehensive planning process requires public involvement, which reflects specific community objectives and goals that the project design should reflect when considering design trade-offs. Region Planning and Design offices should extract applicable information from the planning documents and list them within the Community and Corridor Vision section of the Context and Modally Integrated Collaborative Memorandum, for simplicity.
If the community’s vision is not established in other planning documents, or it needs additional detail, the vision should be developed before or during the scoping process. State and local agencies should collaborate with the community during the scoping phase to develop the vision. Community design exercises are held during project planning and scoping phases to help all parties understand the objectives, costs, and outcomes that define the vision for the street. Ideally, the results of community design exercises will ultimately inform designs or visualizations developed for the project. The needs of all users are considered by applying modally integrated, context sensitive design solutions consistent with this chapter.

Not all streetside details need to be defined to stage implementation and accomplish visions on the ground in a timely manner. The minimum need may only be the overall streetside width and traveled way width to help facilitate early interim staging opportunities with developer, minor improvement, and other projects. Specific detailed trade-offs within the traveled way and streetside zones can be determined in later community planning groups. If the vision is already established or is being developed for the first time, it is necessary to document initial decisions and principle trade-offs considered in establishing the vision in order to reinforce future decision making. Use the Context and Modally Integrated Collaborative Memorandum to document the collaborative community and corridor visions during project conception and development, as well as for comparing future decisions made throughout the iterative planning/design process. Update the Memorandum frequently and when required by 1150.08.

1150.04 Main Street Segment Cross-Section Zones

Main streets serve multiple functions and travel modes, with emphasis on serving active pedestrian traffic associated with commerce and the social functions typically present. It is important for the community and planning/design process to consider how different cross-sectional zones contribute to this focus. Every community has unique constraints and desires that require evaluation and trade-offs to optimize the use of constrained right of way.

The discussion below, Exhibits 1150-2 through 1150-8, and Exhibit 1150-10 demonstrate how zones can be configured and applied to realize a community’s main street vision.

Exhibit 1150-2  Potential Main Street Cross Section
1150.04(1) Streetside

A robust streetside design supports the main street context and typical focus as a pedestrian thoroughfare and destination place by providing accessibility. The streetside may be the most important component of a community’s main street vision. Several existing guidance documents use a variety of terms to define the zones that comprise a streetside. The following presents guidance for four potential streetside zones: frontage zone, pedestrian zone, furnishing zone, and parking zone. Not all zones may be present in any given streetside design, depending on constraints and the vision for the segment.

1150.04(1)(a) Frontage Zone

The frontage zone serves the retail functions found within the main street contexts. The primary purpose is access to retail space without interfering with the pedestrian thoroughfare. This area may also provide space to display temporary retail products or advertisements, ingress and egress from buildings, and/or outdoor seating for customers. Conduct early discussions with Real Estate Services to understand how these uses and features within the frontage zone can be accommodated, whether additional documentation is necessary within each specific project, and if a lease with applicable rent is required.

1150.04(1)(b) Pedestrian Zone

The pedestrian zone is the access route provided for pedestrian movement, and is the only streetside zone with a required minimum design width. Consider exceeding minimum values for the pedestrian zone, because a generous zone promotes the necessary mobility and access typically anticipated within a main street context. Americans with Disabilities Act (ADA) features are a necessary element of the pedestrian zone. Refer to Chapter 1510 for detailed ADA design guidance for pedestrian access routes.

1150.04(1)(c) Furnishing Zone
The furnishing zone provides areas for multiple potential functions. It is commonly used to promote environmental and aesthetic features that improve people’s experience—like street trees, benches, planter boxes, green street/low-impact development opportunities (see 1150.04(1)(d)(2)) and artwork—while providing for the modal separation that promotes improved travel of the various modes. Traffic signs, parking meters, transit shelters/stops, and bike racks are also generally found within this zone. Other width accommodations within this zone may be necessary for on-street parking may be needed for vehicle overhang or entering/exiting movements.

To ensure well-planned vegetation, involve the local and region Landscape Architect; responsible maintenance jurisdiction(s) and urban forestry experts; and human factors/safety professionals to consider and determine what constitutes optimal vegetation in terms of plant and road maintenance, operations, landscape, roadway, roadside, and potential modal interactions within the furnishing zone. Document early discussions related to evaluating trade-offs in the Context and Modally Integrated Design Collaborative Memorandum. If landscaping is a requirement of the local jurisdiction that issues an occupancy permit to an abutting business, the landscaping in the furnishing zone should not count toward the business’s landscaping requirements. The local jurisdiction may choose to enter into a lease with the abutting business owner, allowing them to mitigate all or part of their landscaping requirement in the furnishing zone with payment of rent.

1150.04(1)(d) Parking Zone

The parking zone allows width for on-street parking typically provided on main street context segments, but is not necessarily required. Refer to municipal codes regarding parking requirements. On-street parking can be either parallel or angled. However, at this time, angled parking on any state route requires approval from WSDOT (see 1140.12). If angled parking is selected, provide width for vehicle overhang within the furnishing zone. If bike lanes are present, consider back-in angled parking to improve conflict management through increased visibility. On-street parking can help to visually narrow the street in places to assist in conveying the surrounding context for the segment.

1150.04(1)(d)(1) Curb Extensions

Curb extensions occupy the same cross-sectional area as the parking zone and they visually reduce the vehicular zone. They can be a desirable choice for main street intersections, midblock crossings, and transit stop locations (see 1510.10(5)).

Curb extensions primarily facilitate pedestrian movement. They can lower pedestrian collisions by reducing pedestrian exposure to vehicles, increasing pedestrian visibility, maintaining lower vehicular turning speeds, and providing loading zones for transit stop locations.
Curb extensions can also be beneficial when designing ADA retrofits by providing additional area to accommodate ADA design features.

In summary, curb extensions are a primary element used to set the pace of the street. By visually reducing the openness, width, and feel of the street, motorists respond by approaching the area more slowly. This in turn has a positive effect on pedestrians. Since the primary function of a curb extension is to increase visibility and reduce exposure for pedestrian traffic, it is important not to obstruct sightlines with other elements such as plantings.

**1150.04(1)(d)(2) Low-Impact Development and Green Street Opportunities**

Curb extensions, the furnishing zone, and interim curb solutions (see 1150.07) also provide an opportunity to incorporate planter strips, rain gardens, or swales. Green street alternatives may be aesthetic in nature and/or address stormwater management needs. If you consider swales and rain gardens, you will need appropriate hydraulic analysis and design to ensure infiltration and overflow drains are designed appropriately. If the shared vision incorporates low-impact development (LID) and/or green street alternatives on a state highway main street, consult the *Roadside Policy Manual, Highway Runoff Manual*, and HQ Hydraulics Office for more information about LID benefits and requirements. Document the LID and green street preferences within the Context and Modally Integrated Design Concurrence Memorandum.

**1150.04(2) Traveled Way**

The traveled way is the roadway area between the curbs, exclusive of parking. It typically provides zones for vehicle thoroughfares, including bicycles. Under main street retrofit projects, it is often advantageous to reduce the traveled way width in order to provide additional width for more vulnerable modes. This bolsters streetside zones, increases distance between modal operations, and encourages lower vehicular speeds.

**1150.04(3) Vehicle Zone**

The vehicle zone is an area within the traveled way intended to facilitate the movement of motorized vehicles. Due to their low-speed nature in the main street context, motor vehicle lanes can be shared with bicycles and are legally allowed to do so on many roadways. Consider bicycles in the vehicle zone where constrained right of way or the community vision cannot accommodate a separate bicycle zone.
1150.04(4) Bicycle Zone

The bicycle zone provides a dedicated lane and potential buffer treatments that provide separation between the modes. The community vision may include accommodations for bicycle travel, including, but not limited to: shared lane, dedicated bicycle lane, or separated shared-use paths. The NACTO Urban Bikeway Design Guide and the AASHTO Guide for Development of Bicycle Facilities are recognized sources for potential designs that may accomplish the community vision. In general, the Manual on Uniform Traffic Control Devices (MUTCD) approved designs presented in these guides may be used on main street state highways.

Consult, as appropriate, the Federal Highway Administration’s (FHWA’s) website for bicycle facilities and the MUTCD for a listing of the current status of bicycle-related designs and treatments: ★ http://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/design_guidance/mutcd_bike.cfm

Exhibit 1150-7 Bike Lane With On-Street Bike Parking, Portland, OR

Exhibit 1150-8 Potential Main Street Cross Section

1150.05 Design Guidance and Considerations for Main Street Contexts

Exhibit 1150-9 provides ranges of values for design zones and elements appropriate for main street context segments. The ranges provide significant design flexibility to help a community realize its main street vision. Use the AASHTO Highway Safety Manual and associated tools to quantify potential alternatives and countermeasures.
### Exhibit 1150-9  Design Data: Main Street Context

<table>
<thead>
<tr>
<th>Roadway Type</th>
<th>Low-Speed Main Street</th>
</tr>
</thead>
<tbody>
<tr>
<td>AADT</td>
<td>Up to 20,000</td>
</tr>
<tr>
<td>Proposed Number of Vehicle Lanes</td>
<td>2–4[^9]</td>
</tr>
<tr>
<td>Target Speed</td>
<td>up to 30 mph[^8]</td>
</tr>
<tr>
<td>Frontage Zone Width</td>
<td>0–8 ft[^1]</td>
</tr>
<tr>
<td>Pedestrian Zone Width</td>
<td>5–8 ft[^2]</td>
</tr>
<tr>
<td>Furnishing Zone Width</td>
<td>0–8 ft[^3]</td>
</tr>
<tr>
<td>Vehicle Parking Zone Width</td>
<td>0 or 8 ft[^4]</td>
</tr>
<tr>
<td>Vehicle Zone – Motorized Lane Width</td>
<td>10–12 ft[^5]</td>
</tr>
<tr>
<td>Vehicle Zone – Bike Lane Width</td>
<td>Shared with motorized lane or 5–8 ft[^4]</td>
</tr>
<tr>
<td>Medians</td>
<td>Optional[^6]</td>
</tr>
<tr>
<td>Cross Slope</td>
<td>1.5 to 2.0% normal crown section[^7]</td>
</tr>
<tr>
<td>Horizontal Alignment</td>
<td>Refer to Chapter 1210</td>
</tr>
<tr>
<td>Vertical Alignment</td>
<td>Refer to Chapter 1220</td>
</tr>
<tr>
<td>Vertical Clearance</td>
<td>Refer to Chapter 720</td>
</tr>
<tr>
<td>Clear Zone</td>
<td>Refer to Chapter 1600</td>
</tr>
</tbody>
</table>

**Notes:**

1. Frontage zone width may not be needed if local zoning and/or the built environment has a setback requirement.
2. Pedestrian zone minimum is 5 ft, per Chapter 1510; however, additional width is recommended to promote the intended use within the main street context.
3. Furnishing zone will typically include a 6-ft tree well as an architectural minimum. If parking zone utilizes angled parking, accommodate anticipated 1.5-ft overhang from parked vehicles.
4. Parking zone width shown is for parallel parking. If parallel parking width is adjacent to a planned bike lane, consider an additional 2-ft-wide striped (or other MUTCD-approved) bike buffer. Angled parking will require additional width; if on a state route, it will require WSDOT approval (see 1140.12).
5. If turning lanes are necessary at intersections, turning lane widths may be reduced to a minimum of 9 ft, with justification documented within the Context and Modally Integrated Design Collaborative Memorandum identifying the selected design vehicle and users for the specific turning movements. (See Chapter 1310 for turn lane geometric design considerations.) If transit or heavy freight uses are anticipated, consider 11-ft lanes as a minimum.
6. Medians within the main street avenue segment will likely be vegetated; the Landscape Architect should consult with responsible maintenance jurisdiction and traffic engineer prior to finalization of plant type selection. Medians may also be used as pedestrian refuges; consult Chapter 1510 for ADA design requirements if this function is provided. The median width will vary depending on function, but should not be less than that required to support plants, curbs, and other features. Median openings shall be carefully located to provide for preplanned, appropriately spaced intersections.
7. Refer to Chapter 1230 if normal crown section cannot be achieved.
8. If measured speeds are higher than the target speed entering the main street segment, refer to 1150.02 and consider traffic calming designs to reduce speeds.
9. Locations planned for four lanes should consider applying a median treatment with use as a pedestrian refuge island.
1150.05(1) Target Design Speed

When designing with a specific context in mind, designs should “target” a specific speed. Deciding on a design speed requires that you consider the greater corridor context and the context of segments adjacent to the main street. It may be necessary to include speed transition segments to responsibily reduce operating speeds to the targeted values. Within the main street segment, select design elements and features, from lane widths to roadside treatments, that help maintain the operating speed at the desired target value to reduce speed differential and support modal integration. Traffic calming speed-reducing treatments are inherent with the main street design, and will likely be sufficient to maintain operating speeds within the main street segment. Many main streets have the advantage of winding through towns on old alignments that may also assist in maintaining targeted vehicle speeds.

1150.05(2) Speed Management

Speed management is necessary within the main street segment to achieve an optimal multimodal transportation environment. Speed management may also be necessary preceding the main street segment to ensure vehicles enter the main street at the desired targeted speed. If existing operations demonstrate a speed management need preceding the main street segment, consider the possible need for speed transition segment(s), and identify the appropriate milepost limits when scoping main street projects.

1150.05(2)(a) Speed Transition Segments

Include a speed transition segment where there is a need to lower speeds preceding the main street segment. You can exclude the speed transition segment when speed studies indicate that existing operating speeds are within 5 mph of the target speed upon entering the main street segment. Carefully plan the location of any speed transition segment. The transition segment may not always directly precede the main street segment. There could be other low-speed context segments (like a residential segment) that would benefit from introducing a speed transition segment earlier.

The speed transition segment may incorporate a variety of traffic calming treatments, which are intended to alert motorists to a changing roadway environment. These treatments may narrow driver focus and have impacts on decisions necessary to operate on that segment. These demands on the driver will influence the transition segment location and length. Driver focus should be on speed reduction, not on other decisions or information.
1150.05(2)(b) Vehicular Speed Reduction and Traffic Calming Treatments

Posting speed reductions, without other treatments, is not considered a reliable method to reduce operating speeds. You may apply a number of traffic calming treatments independently or combine them to either maintain speeds or lower operating speeds. Given that many speed management treatments have demonstrated varied effectiveness in research to date, any project implementing a speed transition segment should contact the HQ Design Office to coordinate monitoring treatments and their effectiveness.

Consider the elements in each treatment before applying it to the design. You must understand the specific transportation context for the corridor and segment needs in order to evaluate the potential trade-offs utilizing any individual or combination of treatments. Consider the following potential traffic calming treatments within the main street design.

1150.05(2)(a)(1) Geometric Treatments

Geometric treatments can include overall changes of the horizontal alignment to introduce both curves that will support maintaining the targeted speed and vertical elements such as raised intersections. Exhibit 1150-10 shows geometric traffic calming treatments and potential considerations when selecting the treatments.

1150.05(2)(a)(2) Roadside and Pavement Treatments

There are a number of treatments that rely on creating an environment that influences human factors and perception. Several of the roadside treatments utilize landscaping benefits to create the desired behavioral effect. Landscaping will generally fall outside WSDOT jurisdictional control; however, it is important to coordinate with project partners and evaluate landscaping features to ensure traveled way operations and sight lines occur as desired. At the very least, you can introduce roadside features like trees, parking, and/or bicycle lanes to alert travelers to a change in conditions. Applying features like vegetated medians or trees can improve the experience of all modes. Carefully plan the trees planted for traffic calming purpose and prepare soil appropriately so that the desired effect occurs when the trees reach maturity. In landscaping discussions, include Traffic Engineers, Maintenance, Urban Forestry, Landscape Architects, and Human Factors/Safety Experts.

Pavement-related treatments can also produce undesirable impacts on other users. For pavement treatments, include Materials Engineers, Maintenance, and ADA Compliance Experts to ensure a sustainable and effective treatment is employed without impacting the needs of other users.

Exhibit 1150-11 lists roadside and pavement-oriented traffic calming treatments and considerations to evaluate when selecting the appropriate treatments.
### Exhibit 1150-11  Geometric Traffic Calming Treatments and Considerations

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Taper for Narrow Lanes</strong></td>
<td>Narrowing the lane width can be achieved by restriping lane lines. A decision to taper in or out may depend on other treatments planned, such as introducing a median or chicanes. Taper rates should be based on the posted speed entering the context or speed transition segment, as appropriate. It is recommended that this be the first treatment employed.</td>
</tr>
<tr>
<td><strong>Chicanes/Lane Shifts</strong></td>
<td>This treatment may be achieved with curbed features, like planter strips, or striping combined with additional fixed delineators. These treatment types are more appropriate when lowering from an initial speed of 45 mph or less and on existing curbed roadway sections. When introducing this treatment with initial speeds higher than 45 mph, the treatment should utilize paint striping, in addition to using other treatments preceding the chicanes/lane shift.</td>
</tr>
<tr>
<td><strong>Pinchpoints</strong></td>
<td>Pinchpoints are not appropriate when transitioning from high speed to main street target speeds unless completed with striping or other pavement markings. This treatment uses striping, roadside features, or curb extensions to narrow the vehicle thoroughfare. This treatment is likely more appropriate within the main street segment than within a speed transition segment.</td>
</tr>
<tr>
<td><strong>Speed Cushion/Humps/Tables</strong></td>
<td>On state highways, this treatment will likely have limited application, but should not be excluded from consideration. Impacts to freight, transit, and emergency service vehicles need to be evaluated prior to selecting these vertical types of treatments. These treatments may only be used within the main street segment, and are not to be used within the speed transition segment.</td>
</tr>
<tr>
<td><strong>Raised Intersections</strong></td>
<td>Raised Intersections, similar to other vertical treatments, will have limited application on state highways. This treatment typically has higher costs to construct due to the pavement needs and impacts to drainage. This treatment may be a good option when a roundabout cannot be accommodated. This treatment can also be considered where there is a need to improve visibility of the intersection and modal conflicts, especially at problematic stop control intersections planned to remain in place.</td>
</tr>
<tr>
<td><strong>Roundabouts</strong></td>
<td>Roundabouts can be a unique feature, providing reduced serious injury collision potential, traffic calming, and gateway functions. (See Chapter 1320 and the Roadside Policy Manual for details on roundabout design.) Roundabouts are effective from a collision reduction and operational perspective, and provide reduced decision making, lower speeds, and limited conflict points. They can assist with access management or when turning movements are limited or restricted on a segment. To determine if a roundabout is appropriate at a specific location, follow the Intersection Control Analysis process described in Chapter 1300.</td>
</tr>
</tbody>
</table>
Exhibit 1150-12  Roadside and Pavement-Oriented Traffic Calming Treatments

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscaping</td>
<td>Landscaping can be used in conjunction with other treatments to reinforce the surrounding context and the driver’s perception of the context. It also can provide width for modal separation. Annual maintenance impacts need to be considered, weighed, and documented prior to selecting types of vegetation to be included.</td>
</tr>
<tr>
<td>Vegetative Medians</td>
<td>Introduction of a raised vegetated median should follow other treatments that prepare the driver for this feature within the roadway.</td>
</tr>
<tr>
<td>Transverse Rumble Strips</td>
<td>These in-lane rumble strips are intended to alert drivers to a condition change. They are likely placed in conjunction with and prior to traffic signing revisions or in advance of other speed-reducing traffic calming treatments.</td>
</tr>
<tr>
<td>Transverse Edge Striping</td>
<td>This treatment is intended to influence a driver’s perception. The treatment consists of transverse paint strips from the fog line to edge of pavement (or curb). The striping intervals sequentially decrease, providing the perception of increasing speed, an indication to drivers to slow their operating speed. Transverse edge striping is ideal for speed transition segments, and is recommended to be applied in conjunction with narrow lanes. It should be understood that this treatment may not be effective at locations where snow may frequently cover the shoulders.</td>
</tr>
<tr>
<td>Gateways</td>
<td>The intent of a gateway feature is to alert travelers to a context change. A gateway feature is typically found on the edge of cities or towns, but can be used to highlight specific segments within cities or towns. The gateway can be anything from a banner/structure spanning the facility, to artistic work, landscaping, and/or a roundabout at the first intersection approaching a defined environment context. The gateway feature should be developed by the community. It may be of interest to design a gateway feature fitting the cultural and historic character of the main street context segment. Consideration for potential fixed object collisions is an important aspect of gateway design. Gateway features that span or are placed within state right of way will need specific approvals, as identified in Chapter 950. Include Region Real Estate Services, as a lease or other future impacts from the gateway feature need to be understood.</td>
</tr>
</tbody>
</table>

1150.05(3)  Design Vehicle

The main street design vehicle selection should represent the majority of modal users characterized by the segment context, which may lead to a complex evaluation. Historically, highways have been designed and built for freight traffic, and these vehicles should not be excluded from planning or design. It is important to understand the needs of large vehicles at both the corridor and segment levels, keeping in mind that design vehicle selection may vary along the segment and at different intersection locations. It is important to determine the local origins and destinations of large vehicles, and strategically plan to accommodate their uses at specific intersection locations and when considering what types of speed-reducing traffic calming treatments are selected in later design. Planners/designers need to work with community and service providers (like school buses and emergency services) to define the threshold for infrequent use. The purpose of providing this flexibility is to avoid overbuilding elements of the main street segment that may create unnecessary trade-offs for other modes.
The main street segment design vehicle will likely be different than the design vehicle needed on adjacent segments of the same corridor. Where a main street intersection supports transit or a school bus route, the CITY-BUS design vehicle may be your logical choice. Some routes may cater to seasonal recreational travel demands that you may need to consider when determining the transportation context for the segment and appropriate design vehicle. Document the design vehicle selection within the Context and Modally Integrated Design Collaborative Memorandum (see 1150.08).

1150.05(4) Intersection Curb Radius

The main street intersection curb return radii without curb extensions should be designed as small as practicable, considering the benefits and impacts to pedestrians, bicycles, and freight, by providing for the common vehicle type. Use turn simulation software (such as AutoTURN®) to lay out how turning movement accommodations will operate, for both the selected design vehicle and infrequent larger vehicles. Work with the community to properly plan intersection locations that provide additional accessibility for large vehicles within the project limits and elsewhere on the local network. Consult Chapter 1300 to determine the appropriate intersection type, and Chapter 300 for intersection design approval documentation processes.

1150.06 Maintenance Elements, Planning, and Considerations

When considering adapting or retrofitting main street areas, it is important to understand how the proposed design will impact maintenance, at both the state and local level. Involve maintenance jurisdiction(s) throughout the planning and design process; they can help you understand their capabilities and the reasonable accommodations necessary for frequent maintenance operations. To understand the likely split between local and state jurisdictions, refer to the Conformed Agreement... for the Construction, Operations and Maintenance Responsibilities...: [www.wsdot.wa.gov/localprograms/lag/construction.htm](http://www.wsdot.wa.gov/localprograms/lag/construction.htm)

Some maintenance and operations agreements between state and local agencies exist for streets that are also state highways, and are important to the success of main street projects. These agreements may need to be created, updated, or replaced due to the nature of the main street project or retrofit. They need to identify the maintenance, operation, and jurisdictional boundaries, roles, and responsibilities of the parties entering into the agreement, including liability, indemnification, and insurance. The Conformed Agreement (above) lists the likely split of jurisdictional responsibilities; however, maintenance jurisdiction(s) may want to create an operational plan or agreement for the infrequent maintenance functions that designs may not be able to accommodate. It is possible that one maintenance jurisdiction will be better equipped to handle certain maintenance elements than another. It will be necessary to document the split of maintenance responsibilities even if responsibilities remain the same as those listed within the Conformed Agreement.

Agreements require a level of detail that will not be known early in project development, so it is important that you document trade-offs, benefits, and impacts with the affected maintenance jurisdictions while early decisions are being made. Use the Context and Modally Integrated Design Collaborative Memorandum to capture these early discussions, potential solutions, and decisions until they can be formalized in an agreement. The following sections list some elements and specific treatments that should be given attention if proposed within the main street design. The final maintenance agreement needs to be part of all main street projects; it should be entered into as early as possible during project development and executed prior to construction completion, preferably prior to beginning of construction.
1150.06(1) Treatment Considerations for Maintenance

Several permanent and interim treatments are likely to change the characteristics of the traveled way and streetside areas. These changes may have an effect on the maintenance methods, frequency, and/or operations needed to support the maintenance activity. It is important to partner early with the maintenance jurisdiction(s) to help you understand the potential capabilities and long-term benefits/impacts related to any individual or series of treatments.

1150.06(1)(a) Curb Extensions and Striping Treatments

In some cases, retrofitted curb extensions are placed in such a manner that the original stormwater drainage path is maintained (see Exhibit 1150-13). Grates are used to provide both drainage and accessibility to the curb extensions. Grates can help filter leaves, and when designed appropriately, they can be easily removed to clean the gutter flow path.

When interim solutions are pursued, there may be situations where a painted curb extension or extended sidewalk is evaluated in the planning/design process. Interim design options allow for painted curb extensions when combined with an MUTCD-approved fixed delineator. These painted treatments may prevent traditional mechanical street sweeping from accessing the curb line, and may require alternate maintenance methods.

Explore the following additional considerations when evaluating these types of retrofit and interim treatments:

- Understand the treatment maintenance frequency, including how any selected landscaping included with the treatment may affect seasonal maintenance needs.
- Discuss the likely method of maintaining these features and the necessary support operations.
- Ensure the catch basins remain easily accessible for cleaning.
- Understand the annual maintenance costs.
- Depending on the duration planned for the interim fix, determine the cost impact of providing the treatment and supporting features. Weigh this trade-off against the benefits of providing the long-term treatment option.
- As applicable, determine which maintenance jurisdiction should be responsible for the maintenance.
1150.06(1)(b) Various Traffic Calming Treatments

Many traffic calming treatments include additional paint for delineation of desired geometrics. As vehicles traverse these paint lines, there are potential needs to increase the maintenance for these painted treatments. Maintenance jurisdictions need to be aware of the potential impacts as these treatments are deployed, in order to maintain the desired targeted speed. Discuss the additional impacts of snow plows on segments that have frequent snowfall and take the impacts into account when selecting the material type and placement method.

Vertical traffic calming and speed-reducing treatments like raised intersections or speed humps can expect advanced pavement degradation at the joints, as additional forces are exerted while traversing off the vertical treatment. Additional maintenance patching will likely be needed to prevent potholing and cracking in these areas. Vertical treatments are likely not appropriate for locations that experience snowfall and have frequent plowing needs.

1150.06(1)(c) Landscaping Treatments

Different types of landscaping may affect other elements (such as stormwater conveyance and sight distance), and will be reflected in the maintenance needs. Landscaping presents potential for both maintenance and operational concerns that may not be apparent until vegetation reaches maturity. At all stages of planning and design, applicable maintenance jurisdictions and traffic engineers need to identify potential concerns and considerations for type and location of landscaping features and work with the Landscape Architect to understand how the landscaping will change over time.

1150.06(1)(d) Snow Plowing Considerations

In locations that regularly receive snow fall that necessitates frequent plowing, it is important to understand the equipment limitations of the maintenance jurisdiction as well as providing planned locations along the segment for snow banking. When curb extensions are present, consider vertical features, such as bollards, to increase visibility for the snow plow operator.

Exhibit 1150-14 Potential Main Street Cross Section
1150.06(1)(e) Signal, Illumination and ITS Considerations

Devices and support systems for signal, illumination, and ITS elements will likely be placed within the furnishing zone or other streetside zone if the furnishing zone is not applied in a given project. Once maintenance responsibility and ownership for these systems is defined, it is important to work with Traffic Engineers and Maintenance to consider providing consistent systems throughout the segment or corridor, as well as equipment that meets the needs of the identified maintenance jurisdiction.

1150.07 Retrofitting Main Street Segments

The majority of main street projects will likely be retrofit projects conducted by local agencies or in partnership with local agencies as part of a WSDOT project. Retrofit projects are often constrained by available cross-sectional right of way, existing built environment, and funding. Implementing a retrofit project will require coordination and may include interim low-cost options such as painted sidewalk widening, planter boxes, and bollards. These interim designs can help a community reach practical design goals and realize its main street vision.

1150.07(1) Interim Design Options

When the target speed and overall widths are determined, lower-cost interim options can be implemented as funding allows. Interim options should be evaluated periodically, and may be kept as permanent treatments if performance is consistent with stated goals, and the community and WSDOT agree.

Implementing interim design options on a state highway requires documentation within the Context and Modally Integrated Design Concurrence Memorandum. In this documentation, include additional discussions related to prioritizing and phasing plans for the ultimate features planned, with considerations for potential funding constraints.

Consider the following low-cost options for temporary or permanent installations.

1150.07(1)(a) Relocate Curbs

Several interim options become viable simply by moving the “curb” to the ultimate streetside width. While installing a new curb may be preferred, there are a number of additional considerations (like stormwater conveyance and treatment) that make it cost-prohibitive. However, there are multiple potential solutions that can provide effective accommodation, including, but not limited to:

- Stripling combined with MUTCD-approved channelizing devices.
- Curbed extensions offset from the original curb. Depending on the use of the new curbed section, designs may include slotted grates tying the original curb and new curb section together for pedestrian needs, while maintaining the original stormwater conveyance system.

Use these interim features to create wider sidewalk areas, curb extensions, bicycle parking areas, parklets, and/or green street alternatives.
1150.07(1)(b) Parklets

In either a permanent planned condition or as an interim filler, parklets reuse existing right of way to provide public space and support commercial activities (see Exhibit 1150-15), which might offer the local jurisdiction a way to collect rental revenue for their road and street fund. Their design will vary depending on local regulations within each main street jurisdiction, but typically includes a raised platform extending into the parking zone from the existing curb. The platforms are free draining and allow stormwater collection using the existing system. Parklets typically include railing and/or planter boxes to provide a separation of uses between people and traffic. Parklet design should not cover catch basins or other features that may require frequent maintenance. Parklets interact with the vehicular modes best when placed on a tangent alignment.

The primary intent of presenting these treatments is not to preclude their potential placement, when appropriate; however, there are many other potential constraints external to the engineering design that need to be identified and resolved first. Consult Real Estate Services to discuss the specific property management-related concerns and any potential lease and economic payment considerations proportionally appropriate for utilization of the highway space in this manner, as further detailed in RCW 47.24.020(15).

Exhibit 1150-15 Parklet on 5th Ave, Olympia, WA
1150.08 **Documentation Support**

The importance of collaboratively documenting decisions during the project conception and development process cannot be overstated. It is vital that all partners understand how and why decisions were made throughout development. Early discussions and decisions enable the project to focus on known decisions rather than assumptions. Context and modally integrated design depends on collaboratively understanding the community and corridor visions and how specific performance targets informed evaluating trade-offs for decision making.

1150.08(1) **Evaluating Trade-offs**

Perform a trade-off evaluation as part of the documentation process for designs that implement the guidance in this chapter. The purpose of this trade-off evaluation is to determine the optimum design approach given the corridor vision; the various physical, social, and environmental constraints; and applicable policies. The decisions necessary to determine the benefits and impacts associated with design options and criteria during the course of a trade-off evaluation are more complex and interrelated on a main street highway segment than on a typical open highway segment. Many trade-offs identified during an evaluation will result in both benefits and potential impacts to specific users or stakeholders. NCHRP *Report 642 – Quantifying the Benefits of Context Sensitive Solutions* and WSDOT’s *Understanding Flexibility in Transportation Design – Washington* are the primary references for understanding the methods for establishing collaborative performance measures and evaluating trade-offs.

Prior to the trade-off evaluation, develop a project purpose and need statement based on an examination of the goals, objectives, and visions established in consultation with the project stakeholders. During this process, also identify specific performance measures that reference documented stakeholder needs. As the design work proceeds, reference these performance measures to evaluate and select project design options and specific features, such as the type of vegetation used for landscaping or the design vehicle required at specific locations along the project.

Begin trade-off evaluations with a preliminary qualitative analysis, comparing the proposed elements against the agreed upon performance measures (see above). The qualitative trade-off evaluation may result in consensus on a preferred design option; however, it may only help narrow the field of options. In case of the latter, perform a more quantitative trade-off evaluation to compare the remaining design options.

Multiple performance measures are expected when evaluating design options using this chapter. Pending conversations with the community and other stakeholders regarding potential performance measures, consider the following list of suggested trade-off categories:

- Maintenance requirements
- Local accessibility
- Pedestrian connectivity and safety
- Network operation
- Segment vehicular capacity
- Freight mobility and large vehicular accommodations
- Bicycle connectivity and safety
- Parking accommodations
• Speed management
• Support of existing and/or planned land use
• Livability and social integration
• Cultural/historic resources
• Environmental/natural resources
• Other categories established by the vision

Once identified, use performance measures to evaluate both the overall design options and the
design features or options as described above. As planning and design progress and details are
understood, it will be necessary to revisit the evaluation at project milestones to confirm the
suitability of the preferred design option, or to trigger reevaluation of design options or features
based on new information or unidentified constraints.

1150.08(2) Context and Modally Integrated Design Collaborative Memorandum

A Context and Modally Integrated Design Collaborative (CMIDC) Memorandum is the
mechanism for documenting both the evaluation of trade-offs and early decision making.
Note that there is no strict format for the CMIDC Memorandum. The general elements for the
memorandum are provided below. It is understood that each project memorandum will have
a varied complexity of project development and partnering needs. The Memorandum should
include the following information:

• **Introduction and CMIDC Memorandum Intent**

  It needs to be understood and clearly communicated with the community and
  stakeholders that consensus reached by this document does not constitute a
  commitment. This is a living document to provide a design framework and shared
  understanding of trade-offs, preliminary agreements, potential benefits, and other
  issues. The document will help guide and facilitate decision making as the project
design progresses. The iterative process of design needs to be discussed, and the
  potential need to revise this Memorandum as opportunities or risks are realized must
  be identified.

• **Community and Corridor Vision**

  Discuss elements and objectives of the shared vision established by the community
  and stakeholders. As discussed in 1150.03, the comprehensive plan and other local
  plans will contain information related to the city or community’s vision. Local
  complete streets policies, if in place, also need to be identified and sited in this
  section of the memo. It is also important to incorporate WSDOT’s vision for the
  corridor as identified by the corridor summary reports and/or the Highway System
  Plan. The objective is to find consistency and balance between potential conflicts in
  the local and regional visions to guide the project development and decision making.
  Consult with the region Planning Office for assistance, particularly regarding local
  planning efforts.
• **Existing Route Geometric Characteristics**

Describe the general route characteristics and the location of the main street segment, as well as any other potential adjacent segment context environments (this may be qualitatively assessed). Both the route and segments within the route should provide tabular data listing milepost, functional class, NHS status, number of lanes, posted speed, operating speed (if known), ADT, and truck percentage. Augment the discussion with photos from each location described.

• **Collision Diagnostics**

Consult with the region Planning or Traffic Office to present collision information and diagnosis. Describe the collision frequency, severity, type, user, impairment, lighting, and roadway conditions. A collision diagram will assist in diagnosing any collision-related issues currently present that may benefit from corrective action or countermeasures on the project. A Safety Analyst can assist with the above diagnostic evaluation (see Chapter 321).

• **Performance Measures**

Discuss the selected performance measures, how they were established, who participated, descriptions of each, and how they contribute to the vision, as well as the corridor and segment level purpose and need.

• **Trade-Off Methodology and Procedures**

Discuss methods used to evaluate trade-offs, such as qualitative and quantitative evaluation matrices, who participated, and descriptions of each design option weighed. Methods identified by NCHRP *Report 642 – Quantifying the Benefits of Context Sensitive Solutions*, or those described in WSDOT’s *Understanding Flexibility in Transportation Design – Washington*, can be used to assist in trade-off evaluations.

• **Discussion of Specific Design Controls and Speed Management Treatments**

Establish the preliminary design speed and vehicles being targeted for the segment or at specific locations. This section will also discuss the need for and location of the speed transition segment. For example, the primary design vehicle for the segment may be an SU-30, but at certain intersections, large-vehicle accommodations are made as the result of discussions or analysis of their needs. Assumptions and a qualitative risk matrix developed with the community are encouraged.

• **Potential Deviations or Documentation Requirements**

This is a preliminary understanding of design elements and how specific elements may require additional documentation as design progresses; for example, the decisions to include a midblock crossing and/or preliminary intersection control types. Information and decisions documented here may assist with early deviation identification and reporting through the Design Variance Inventory System (DVIS) (see Chapter 300).
• **Preliminary Maintenance Decisions and Jurisdictional Understanding**

This will provide a preliminary framework for any potential maintenance agreement(s) that may be necessary. It is important that all maintenance jurisdictions are present during these discussions, so that the alternatives that may adversely impact maintenance can be discussed, and a preliminary understanding of the potential obligations of each respective jurisdiction can be outlined.

• **Discussion of Project Design Options**

Provide a written description of the different project design options considered. If possible, provide visuals that illustrate each option and the various cross-sectional elements.

• **Schedule, Phasing, and Funding**

There is potential that funding partnerships will need to be discussed as early as possible. WSDOT representatives may need to assist in discussing potential funding limitations, potentially available funding sources with the community or local agency, and how to pursue those funding needs and the effect on the schedule.

• **Endorsement**

Given the importance of decisions resulting from this Memorandum, it is necessary that several WSDOT representatives are signatories, such as: Region Traffic Engineer, Project Development Engineer, Program Manager, Planning Manager, Highways and Local Programs Manager, Maintenance Superintendent, Region Landscape Architect and the Assistant State Design Engineer. Local agency partners and the community participants will also endorse this document. The number of signatories is necessary to demonstrate that decisions are made under a collaborative effort, with an interdisciplinary team.

Depending on when the CMIDC Memorandum is first produced, it will require re-engaging the community and stakeholders at various planning and design milestones. The Memorandum will be updated and endorsed preceding completion of the following project milestones:

• Corridor Summary Report Submittal
• Project Summary Complete (required)
• NEPA/SEPA\(^1\) Complete (as applicable)
• Design Approval (required)
• Project Development Approval (required)

\(^1\) National Environmental Policy Act/State Environmental Policy Act
1150.09 References

1150.09(1) Federal/State Laws and Codes

RCW 35.78.040 – City streets – Design standards — Approval of deviations
RCW 46.61.400 – Speed restrictions – Basic rule and maximum limits
RCW 46.61.415 – Speed restrictions – When local authorities may... alter maximum limits
RCW 47.04.330 – Street projects – Consultation with local jurisdictions – Context sensitive design solutions
RCW 47.24.010 – Designation – Construction, maintenance – Return to city or town
RCW 47.24.020 – City streets as part of state highways – Jurisdiction
RCW 47.30.060 – Expenditures deemed to be for highway purposes – Powers and duties of department – Restrictions on use of paths and trails
WAC 468-18-050 – DOT city/county project coordination – Policy on the construction, improvement and maintenance of intersections

1150.09(2) Design Guidance

Local Agency Guidelines (LAG), M 36-63, WSDOT, used for local agency projects

Manual on Uniform Traffic Control Devices for Streets and Highways, USDOT, FHWA; as adopted and modified by Chapter 468-95 WAC “Manual on uniform traffic control devices for streets and highways” (MUTCD)

Plans Preparation Manual, M 22-31, WSDOT
Right of Way Manual, M 26-01, WSDOT
Roadside Policy Manual, M 3110.01, WSDOT
Utilities Manual, M 22-87, WSDOT

1150.09(3) Supporting Information

A Guide to Achieving Flexibility in Highway Design, AASHTO, 2004
A Policy on Geometric Design of Highways and Streets (Green Book), AASHTO, current version
Executive Order 1028, Context Sensitive Solutions, WSDOT

Guide for the Development of Bicycle Facilities, AASHTO, 1999
Main Street...when a highway runs through it: A Handbook for Oregon Communities, ODOT, 1999
NCHRP Report 642 – Quantifying the Benefits of Context Sensitive Solutions, TRB, 2009
State Highways as Main Streets: A Study of Community Design and Visioning, WSDOT, 2009
Understanding Flexibility in Transportation Design – Washington, WSDOT, 2005
Urban Street Design Guide, NACTO
Washington’s Complete Streets & Main Street Highways Program, WSDOT, 2011