To date these plans have not included specific identification of bicycle lane enhancements along SR 410. The City should coordinate with WSDOT to modify and enhance each of the SR 410 improvement plans to include on-street, bicycle lanes to link with existing shoulder lanes.

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\(^1\) City of Bonney Lake Comprehensive Plan, p. 6-15.
Local Design Guide for Pedestrian Facilities

Prepared by:

The Transpo Group
5 - LOCAL DESIGN GUIDE FOR BONNEY LAKE PEDESTRIAN FACILITIES

Each day, nearly everyone in Bonney Lake is a pedestrian for at least some part of every trip. Until recently, a greater emphasis has been placed on the planning and design of streets and highways, with the primary focus on mobility and access for the automobile.

Many American cities have undertaken significant efforts in revising their plans, policies and designs for more walkable communities, seeking greater balance for multi-modal use of the public streetscape. One example is that Bonney Lake has revised its plans for downtown in order to make it more pedestrian-friendly. In addition, the City of Bonney Lake must consider more refinements to its pedestrian design standards to comply with the ADA.

There are many opportunities to improve pedestrian conditions and in doing so, making the Bonney Lake community more livable. The purpose of the Bonney Lake Local Design Guide is to first define walkability and the benefits of a walkable community. The Local Design Guide highlights significant local design features based on the premise that accessible design is the foundation for all pedestrian design.

Not all of the specific details relating to aspects of good pedestrian design are cited here. In addition, the Bonney Lake Local Design Guide directly references Designing Sidewalks and Trails for Access for the full range of pedestrian design elements, rather than developing a fully independent and comprehensive guide. Detailed sidewalk, curb ramp, driveway crossing and trail design elements are provided in Designing Sidewalks and Trails for Access. The Bonney Lake Local Design Guide summarizes only those elements of the pedestrian system crucial to current planning, design and construction of critical pedestrian facilities in Bonney Lake.

The intent of the Local Design Guide is to help make Bonney Lake a walkable community. Defining walkability and the benefits of a walkable community within a local context is important.

DEFINING WALKABILITY IN BONNEY LAKE

What defines “walkability” in Bonney Lake, Washington? Certainly each local community considers their own unique definition of walkability. Local jurisdictions need not “reinvent the wheel” when creating a set of walkability guidelines. There are sources to draw from that can be useful in different ways to different communities. For instance, a project called Campaign to Make America Walkable developed the following statements as a comprehensive vision of what constitutes a walkable community. This vision can be applied to Bonney Lake and may vary within jurisdictional boundaries:

People of all ages and abilities have easy access to their community “on foot”; an automobile is not needed for every trip.

People walk more and the community and neighborhoods are safer, healthier, and friendlier places.

Parents feel comfortable about their children being outside in their neighborhoods; they don’t worry about the threat of motor vehicles.
Children spend more time outside with other children and are more active, physically fit, and healthy.

Streets and highways are designed or reconstructed to provide safe and comfortable facilities for pedestrians, and are safe and easy to cross for people of all ages and abilities.

Pedestrians are given priority in neighborhood, work, school, and shopping areas. Motor vehicle speeds are reduced (and, in some places, motor vehicles have been eliminated entirely) to ensure compatibility with pedestrian traffic.

Motor vehicle operating speeds are carefully controlled to ensure compatibility with adjacent land uses and the routine presence of pedestrians.

Drivers of motor vehicles operate them in a prudent, responsible fashion, knowing that they will be held strictly accountable for any threat, injury, or death caused by their lack of due care or violation of the vehicle code.

CHARACTERISTICS OF A WALKABLE COMMUNITY

The importance of walkability and what defines walkability at the local level will be important to the future success of the Bonney Lake Comprehensive Plan and its vision for the future. The Bonney Lake Local Design Guide can draw from the following characteristics to define a walkable community:

- **Coherence.** A clear, understandable and organized sidewalk, street and land-use system consistent with the scale and function of the surrounding urban context. The sidewalk and street system should link points of interest and activity, provide clean lines of sight and travel, and include simple instructive signage.
- **Continuity.** A pattern of design and usage that unifies the pedestrian system.
- **Equilibrium.** A balance among transportation modes that will accommodate and encourage pedestrian participation.
- **Safety.** Pedestrian protection from automobiles and bicycles. Adequate time to cross intersections without interference. Physical separation from fast moving cars. Signalization protection when crossing intersections.
- **Comfort.** Secure and negotiable paving materials for sidewalks and crosswalks. Unobstructed passage on the sidewalk and at corners. Signals timed to enable safe and quick crossings.
- **Sociability.** A sense of hospitality and suitability for individual and community interactions. Sidewalks should provide for a variety of uses and activities characteristic of the diverse urban scene.
- **Accessibility.** The opportunity for all individuals to utilize the pedestrian environment as fully as possible.
- **Efficiency.** Simplicity and cost-effectiveness in design and function. Minimum delay along a walking route.
- **Attractiveness.** Clean, efficient and well-maintained surroundings, with adjacent storefronts and activities that provide sidewalk interest.
WHAT ARE THE BENEFITS OF WALKABLE COMMUNITIES?

Some city residents can already attest to the many benefits of walkable neighborhoods in portions of new Bonney Lake and the downtown area.

Multi-Modal Choices
More people are indicating that they believe transportation is about more than roads, and that public transportation funds should be spent on improvements that benefit the broader spectrum of travelers, not just commuters.

People- and Family- Oriented Community Development
As is the trend nation-wide, more new home buyers in Bonney Lake are looking for neighborhoods that are family-friendly. These neighborhoods include sidewalks with streetscape amenities that help calm traffic. Residents are more often considering walkability as a critical component in their land use decisions. Parents often consider “good” schools as an important factor when buying a new home. How their children get to and from school is part of the qualification. Also, a growing number of retirees are looking for more walkable places and spaces in which to live, and more options for travel.

Independent Mobility for Children
Many parents and others are looking for opportunities that allow children to lead more active and independent lives, but the current transportation infrastructure has left a series of barriers and obstacles that can make independent mobility for children a challenge to achieve. Parents want their children to be safe in and around their neighborhoods, schools and recreation areas. But most suburban neighborhoods built over the past 50 years are today overrun with fast motor vehicle traffic, and some periods of development have lacked sidewalk installation in residential neighborhoods and along arterial routes.

Accessibility for All Users
As noted earlier, the ADA seeks to assure that all Americans—including those with disabilities—will have full access to public facilities and services. Good accommodations for pedestrians, including disabled pedestrians (i.e., people using wheelchairs and other mobility aids, people with low vision, and the blind), is critical to meeting the requirements of ADA.

Further, national statistics indicate that people in lower-income households are nearly twice as likely to walk as people in other income groups. Why? Many lower-income households own only one car, or sometimes none at all. With more multi-worker households this means that a greater portion of individuals in lower-income households must rely on walking and transit for many of their trips. For these travelers, safe and convenient walking routes, including routes to transit hubs and stops, are a critical element of the transportation system.

Elderly pedestrians generally require more time to cross streets and are less able to travel steeper terrain. Appropriate design considerations for the mobility-impaired also provide direct benefit to elderly pedestrians.
More Active and Healthier People
It is generally acknowledged by most that Americans are not getting enough exercise. Both the U.S. Surgeon General and American Heart Association agree that: (1) Americans are not getting enough exercise, and (2) our physical inactivity (especially for adults) is one of the top (fourth) major risk factors associated with chronic disease. America’s youth is also in trouble: almost half of all children do not get enough exercise and nearly one-fourth engage in no form of real physical activity. And the trends are growing worse. As a whole, public health officials are working to encourage Americans to become more active, with a focused effort at promoting walking. Walking is inexpensive, it can be done by almost everyone, and—if conditions are right—it can be done almost everywhere.

The Bonney Lake area applauds itself for its access to a variety of outdoor recreational facilities. Opportunities for bicycling and walking are numerous and have been well-developed (or will soon be, in the case of the Fennel Creek Trail). Within and between neighborhoods in the urban areas, however, there are many challenges ahead.

THE CHALLENGES TO MAKING THE BONNEY LAKE COMMUNITY MORE WALKABLE

Like the national trends, a growing number of Bonney Lake residents are seeking more walkable environments. Until recently, the planning and design for pedestrian-focused features has been more secondary to streets and highways. Certainly since the 1940s, older street and sidewalk design standards have not fully emphasized pedestrian mobility and access, due in large part to Bonney Lake’s original rural character. Federal, state and local policies and standards de-emphasized the pedestrian to a great degree between the 1940’s and 1980’s, particularly prior to Bonney Lake’s incorporation. During that time, but also while meeting the prevailing federal design standards, the City and others have developed transportation facilities that created obstacles to the full range of pedestrian travel, including:

- Lack of sidewalks, particularly within older residential neighborhoods
- Narrow walkway widths
- Difficult street crossings, particularly along SR-410 (e.g., too wide, too fast)
- Inadequate bridge design (e.g., no other place to walk except travel lane)
- Physical features (e.g., terrain, creeks/streams, major arterial streets lacking pedestrian crossings)
- Inadequate facilities for access to transit services
- Higher-speed and traffic volume adjacent to schools, parks, shopping, and residential areas

Bonney Lake’s efforts to address these issues, and with it the issues of greater mobility and access for all pedestrians, is an opportunity for self-correction to better meet current design trends and community expectations. Other parts of the NMTP include recommendations to address several of these issues, like building new sidewalks and curb ramps. The remainder of this section is focused on revising local design and land use standards for new facilities to meet the ADA requirements and enhance Bonney Lake’s walkability.
**BONNEY LAKE LOCAL DESIGN GUIDE**

As part of the NMTP effort an examination of Bonney Lake’s current street, sidewalk and curb ramp design standards was conducted, including a comparison of the City’s standards to the Americans With Disabilities Act Accessible Guidelinesvi (ADAAG).

In further discussions with the City and as part of the Community Involvement effort, some critical design issues were highlighted. Inadequate sidewalk widths, discontinuous sidewalks, driveway crossing design, neighborhood/local street design to retrofit with new sidewalk facilities are just a few design issues addressed.

Many of Bonney Lake’s roads were constructed prior to the City’s incorporation and adoption of urban street standards, and hence lack sidewalk facilities. Until the last 5-8 years, some of the sidewalks constructed along collector and arterial streets in the city have been limited to one side of the street.

The Bonney Lake Local Design Guide focuses on these issues with separate sections for Sidewalk Corridors, Grade and Cross Slope, Driveway Crossings, Curb Ramps, Pedestrian Crossings and Other Design Features. Finally, a special section is devoted to recent assessment of sidewalk design options to retrofit existing local streets within established Bonney Lake Neighborhoods.

For each element of the Bonney Lake Local Design Guide a summary is provided, including:
- Americans with Disabilities Act Accessible Guidelines (ADAAG) regulations
- FHWA Designing Sidewalks and Trails for Access – Best Practices Design Guide (where applicable)
- ADAAG Draft Rule (regulations that may be added or amended in the near future)
- Current City of Bonney Lake Design Standards
- Recommended refinements to City of Bonney Lake Design Standards

**SIDEWALK CORRIDOR**

The Sidewalk Corridor is defined as that portion of the pedestrian system from the edge of the roadway (back of curb) to the edge of the right-of-way, generally along the sides of streets, between street corners. For the purpose of the City of Bonney Lake Design Guide, the width of the sidewalk corridor extends to the edge of the street or roadway, even if part of that area is not paved. Sidewalk corridors that promote access include the following characteristics:
- Wide pathways;
- Clearly defined pedestrian, furniture, and frontage zones;
- Minimal obstacles;
- Minimal protruding objects;
- Minimal walking distance;
- Moderate grades and cross slopes;
- Rest areas outside of the pedestrian zone;
- Minimal changes in level;
- Firm, stable, and slip resistant surfaces; and
- Good lighting
The City is not the sole public body responsible for the development and maintenance of these sidewalk corridor characteristics. The County and WSDOT also share in some jurisdictional responsibilities with the City of Bonney Lake.

Highlighted elements of the sidewalk corridor included in the Local Design Guide are sidewalk widths, grades and slopes. The City can directly reference *Designing Sidewalks and Trails for Access* as a design guide for other sidewalk corridor elements.

**Width**

The width of the sidewalk corridor is one of the most significant factors in determining the type of pedestrian experience that the sidewalk provides. The current problem is how to provide new pedestrian facilities along City streets that are seeing much higher traffic volume. City streets with sidewalks along one side are accommodating two-way pedestrian and bicycle travel.

**ADAAG Regulations:**

*Clearances* (Section 403.5) - *Clear Width* of walking surfaces shall be a minimum of 3 feet (36 inches), except as provided at turns and passing spaces.

*Passing spaces* - “An accessible route with a clear width less than 5 feet (60 inches) shall provide passing spaces at intervals of 200 feet maximum. Passing spaces shall be either: (a) a space 5 feet (60 inches) minimum by 5 feet (60 inches) minimum; or, (b) an intersection of two walking surfaces providing a t-shaped space where the base and arms of the t-shaped space extend 4 feet (48 inches) minimum beyond the intersection.

**FHWA Designing Sidewalks and Trails for Access:**

*Width* - The pedestrian “zone” (sidewalk) should be at least 5 feet (60 inches) wide for two pedestrians to travel side by side without passing other pedestrians, or for two people going in opposite directions to pass one another.

The pedestrian zone should never be less than 3 feet (36 inches). This minimum width is only acceptable when: (1) A wider width is impossible; (2) The narrow width continues for as short a distance as possible; and, (3) Passing spaces are provided at intervals of no more than 200 feet.

**ADAAG Draft Rule:**

*Clear Width* - The minimum clear width of a pedestrian access route shall be 4 feet (48 inches), exclusive of the width of the curb.

**Current City of Bonney Lake Standard:**

All sidewalks must be constructed to provide for accessibility in accordance with the current standards of applicable state law and the ADA. Current standards require the following:

- Major Arterial – 6 feet
- All Other Street Classes – 6 feet in commercial areas and 5 feet in residential areas.
Recommended Changes to the City Standard:
No changes suggested but review and ensure clear width minimum of 4 feet under most prevailing conditions.

**Sidewalk Corridor**
As part of the Community Involvement effort several participants noted the absence of buffering between the sidewalk and major arterials. The city might consider re-working its street and sidewalk standards to include definitions of the sidewalk corridor. The *Sidewalk Corridor* is defined as that portion of the pedestrian system from the edge of the roadway (back of curb) to the edge of the right-of-way, generally along the sides of streets, between street corners. For the purpose of the Bonney Lake Local Design Guide, the width of the sidewalk corridor extends to the edge of the street or roadway, even if part of that area is not paved. Sidewalk corridors that promote access include the following characteristics:

- Wide pathways;
- Clearly defined pedestrian, furniture, and frontage zones;
- Minimal obstacles/protruding objects;
- Minimal walking distance;
- Moderate grades and cross slopes;
- Rest areas outside of pedestrian zone;
- Firm, stable, slip resistant surfaces; and
- Good lighting

The city is also not the sole public agency responsible for the development and maintenance of these sidewalk corridor characteristics. The Washington State Department of Transportation shares in some jurisdictional responsibilities. Highlighted elements of the sidewalk corridor included in the Local Design Guide are sidewalk widths, grades and slopes. The city can directly reference *Designing Sidewalks and Trails for Access* as a design guide for other sidewalk corridor elements.
The Sidewalk Corridor Zone System
This section defines the sidewalk zone system which includes the design of sidewalks and the buffers between sidewalks, moving traffic and on-street vehicle parking. The definitions of the sidewalk corridor elements are taken directly from *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities*. The sidewalk corridor consists of the following four distinct functional zones:

**Edge Zone**—area between the face of curb and the furnishing zone, an area of required clearance between parked vehicles or traveled way and appurtenances or landscaping.

**Furnishings Zone**—area of the sidewalk corridor that provides a buffer between pedestrians and vehicles, which contains landscaping, public street furniture, transit stops, public signage, utilities, etc.

**Throughway Zone**—walking zone that must remain clear, both horizontally and vertically, for the movement of pedestrians (Note: ADA requires a minimum of 48 inches of clear width.)

**Frontage Zone**—distance between the throughway and the building front or private property line that is used to buffer pedestrians from window shoppers, appurtenances and doorways. It contains private street furniture, private signage, merchandise displays, etc. and can also be used for street cafes. AASHTO eighth refers to this as the “shy” zone.

The zone system is used to determine the width of the sidewalk corridor and help ensure that obstacles, such as utility poles and other street furniture, will not limit pedestrian access and mobility. Figure 5.1 illustrates the four zones using the example of a sidewalk corridor in the downtown core area. The remaining portion of this section provides design guidance for each of these zones with the width varying in relation to street type and function, and the context zone with specific land use characteristics.
Context Zones
Pedestrian activity and the appropriate pedestrian facility designs differ depending on the adjacent land use. The pedestrian corridor is best defined, by street class and character, when using the following general land use context zones:

**Downtown Core Area**
The placement of pedestrian corridor facilities should be focused in urban center or urban core context zones with predominantly retail- and entertainment-related ground floor uses with a main street level of pedestrian activity. The need for and benefits from facilities such as kiosks, restrooms, or small-scale retail stands is typically highest in the downtown core area.

**Commercial and Industrial Zones**
Facilities in the general urban and suburban context zones should be limited to nodes of increased intensity of retail and entertainment uses on the ground floor that produce high levels of pedestrian activity.

**Residential Zones**
Within residential zones sidewalks should be located along both sides of city streets. The need for buffering within the residential diminishes based on the street vehicular volume and speed and the presence of on-street parking.

The provision of facilities at public transit stops and transfer centers is an important consideration within all land use context zones.
Possible City Design Standard Refinement
The width of the sidewalk corridor is one of the most significant factors in determining the type of pedestrian experience that the sidewalk provides. Additional space is often needed to accommodate items such as pedestrian crossings, on-street parking, street cafes, and high pedestrian volumes. Table 5-1 contains suggestions for the minimum widths of each sidewalk corridor zone, by city street functional classification and the three major land use contexts.

Table 5-1: Redefining the Sidewalk Corridor
Recommended Dimensions (feet)

<table>
<thead>
<tr>
<th>Street Class</th>
<th>Sidewalk Corridor Zone</th>
<th>Downtown Core</th>
<th>Commercial</th>
<th>Residential &amp; Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Arterial</td>
<td>Curb</td>
<td>1.5</td>
<td>2.5 ft at diagonal parking</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Furnishing</td>
<td>4</td>
<td>trees in wells</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Pedestrian</td>
<td>8</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Frontage</td>
<td>3</td>
<td>2.5</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Total Width</td>
<td>16.5</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Minor Arterial</td>
<td>Curb</td>
<td>1.5</td>
<td>2.5 ft at diagonal parking</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Furnishing</td>
<td>4</td>
<td>trees in wells</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Pedestrian</td>
<td>8</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Frontage</td>
<td>3</td>
<td>2.5</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Total Width</td>
<td>16.5</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Collector</td>
<td>Curb</td>
<td>1.5</td>
<td>2.5 ft at diagonal parking</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Furnishing</td>
<td>4</td>
<td>trees in wells</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Pedestrian</td>
<td>6</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Frontage</td>
<td>2.5</td>
<td>2.5</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Total Width</td>
<td>14</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Local Street</td>
<td>Curb</td>
<td></td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Furnishing</td>
<td></td>
<td>4</td>
<td>landscape strip w/ trees</td>
</tr>
<tr>
<td></td>
<td>Pedestrian</td>
<td></td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Frontage</td>
<td></td>
<td>2.5</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Total Width</td>
<td></td>
<td>12</td>
<td>7</td>
</tr>
</tbody>
</table>

To better guide development, modifications to the city’s current standards to include frontage and pedestrian zone dimensions will provide needed buffering and maneuverability space for pedestrians along busy arterial or industrial streets, but will require greater rights-of-way. The city has several options to achieve a wider pedestrian corridor through administration of revised standards:

- Acquire additional rights-of-way
- Placing a portion of the pedestrian corridor on private lands (through easements)
- Reducing street widths (reducing number of lanes or reducing lane widths).
Sidewalk Grade and Cross Slopes
Grades and cross slopes are very difficult for some people with mobility impairments to negotiate because it is harder to travel across sloped surfaces than horizontal surfaces. People with mobility impairments who are ambulatory or use manual wheelchairs must exert significantly more energy than other pedestrians to traverse sloped surfaces. Powered wheelchairs are affected by the additional work required on steep grades because more battery power is used. This reduces the travel range of a powered chair. Both powered and manual wheelchairs can become unstable and/or difficult to control on sloped surfaces. Whenever possible, slopes should not be artificially created and should be minimized to improve access for people with mobility impairments.

In 1999 the U.S. Access Board drafted rules to guide design of sidewalk running slope, rules which may be adopted in the near future. The draft rule language includes:

> On a new site, a knowledgeable designer can often manipulate cut and fill, entrance location, and approach direction and length to limit walkway running slope to 1:20 (5%), adding where necessary, ramped segments with handrails and landings at or below the 1:12 (8.33%) slope specified in accessibility standards for ramps. These slopes will not be consistently possible to achieve along public sidewalks and shared-use paths, where running slope is tied to roadway gradient and underlying terrain. Nevertheless, running slope should be kept to the minimum feasible consistent with these factors. Artificial slopes should not be added as landscaping features, nor should meandering walkways that add significantly to the travel distance be permitted on a primary circulation route.

<table>
<thead>
<tr>
<th>ADAAG Regulations:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Slope</strong> - The running slope of walking surfaces shall not be steeper than 1:20 (5%).</td>
</tr>
<tr>
<td>The cross slope of walking surfaces shall not be steeper than 1:48 (roughly 2%).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ADAAG Draft Rule:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cross Slope</strong> - The cross slope of the pedestrian access route shall be 1:48 maximum.</td>
</tr>
<tr>
<td><strong>Grade</strong> - The grade of the pedestrian access route within a sidewalk shall not exceed the grade established for the adjacent roadway. (EXCEPTION: The running slope of a pedestrian access route shall be permitted to be steeper than the grade of the adjacent roadway, provided that the pedestrian access route is less than 1:20)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current City of Bonney Lake Standard:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standards are absent of any language regarding specific running slope (grade) requirements, but include 2% cross-slope requirements.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommended Changes to the City of Bonney Lake Standard:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The City’s standards should be modified to specify consistent grade as noted in ADAAG.</td>
</tr>
</tbody>
</table>
DRIVEWAY CROSSINGS

Driveway crossings permit cars to cross the sidewalk and enter the street. They serve the same basic purpose for cars as curb ramps serve for pedestrians. Therefore, they consist of many of the same components found in curb ramps. It is the driver's responsibility to yield to the pedestrian at the driveway-sidewalk interface. Unfortunately, this does not always happen, and pedestrians are put at risk. Minimizing the number of driveway crossings in a sidewalk significantly improves pedestrian safety.

Driveway crossings should be designed so that both the pedestrians and the drivers are able to use them effectively. However, a driveway crossing must provide a way for cars to negotiate the elevation change between the street and the sidewalk. This is generally achieved by ramping all or a portion of the driveway crossing. When the ramp for the motorist crosses the pedestrian's path of travel, significant cross slopes and changes in cross slope must be negotiated by the pedestrian.

Change in Cross Slope
A change in cross slope is an abrupt difference between the cross slope of two adjacent surfaces. ADAAG does not permit cross slope to exceed 2 percent (changes in cross slope are allowed between 0-2 percent only). Changes in cross slope are commonly found at driveway crossings without level crossings. When considering the needs of pedestrians, change in cross slope is evaluated over a 2-foot interval, which represents the approximate length of a single walking pace and the base of support of assistive devices, such as wheelchairs or walkers. The design recommendations for change of cross slope specify the relationship between two adjacent surfaces, not the actual cross slope of either surface.

<table>
<thead>
<tr>
<th>ADAAG Regulations:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Slope</strong> - The running slope of walking surfaces shall not be steeper than 1:20 (5%).</td>
<td></td>
</tr>
<tr>
<td>The cross slope of walking surfaces shall not be steeper than 1:48 (roughly 2%).</td>
<td></td>
</tr>
</tbody>
</table>

| Current City of Bonney Lake Standard: |  |
| Standards are generally consistent with ADAAG as noted here: |  |
CURB RAMPS

For pedestrians of all types, the curb ramp is the immediate junction between the sidewalk and street crosswalk. It is no surprise, then, that a great deal of attention is paid to the planning and design of curb ramps. In general, curb ramps are most commonly found at intersections, but they may also be located at bus stops and mid-block (street) crossings. The implementing regulations under Title II of the ADA specifically identify curb ramps as requirements for existing facilities, as well as all new construction. Curb ramps for existing facilities must be included in the NMTP.

Curb ramp design issues vary from city to city. This section provides some background information on curb ramps, user needs, and what can be done to meet ADA conformity by revisions to current curb ramp designs.
Mobility-Impaired Users
As noted by FHWA, curb ramps are designed to provide access to people who use wheeled forms of mobility. Without curb ramps, people who use wheelchairs would not be able to independently access the sidewalk and street.

Not all wheelchairs are similar in design and function, nor are all mobility-impaired pedestrians equally mobile. In fact, not all mobility-impaired pedestrians require a curb ramp. Therefore, “a one-size fits all” curb ramp design is difficult to develop.

Vision-Impaired Users
For vision-impaired pedestrians, the curb is the most reliable cue to identify the transition between the sidewalk and the street. Most, if not all, curb ramps remove this cue. The physical ramp itself becomes more of a barrier to some vision-impaired walkers. Curb ramps are more difficult to detect by the range of vision-impaired. The combination of curb ramps and placement of truncated domes can, if done improperly, cause greater confusion to vision-impaired pedestrians seeking direction to cross busy streets.

Ideal Design Characteristics
FHWA’s Designing Sidewalks and Trails for Access identifies a number of curb ramp designs that make the best accessible connection between the sidewalk and the street – for the full range of pedestrian users. To maximize accessibility and safety for all pedestrians, particularly when retrofitting existing curb ramps, curb ramp designs should attempt to meet all of the best practices for curb ramp design shown in Table 5-2. Depending on site constraints, it may not be possible to incorporate all of the best practices within each curb ramp.

Curb Ramp Types
Curb ramps are usually categorized by their structural design and how it is positioned relative to the sidewalk or street. As shown in Figure 5-2, the structure of a curb ramp is determined by how the components, such as ramps and flares, are assembled. The type of curb ramp and the installation site will determine its accessibility and safety for pedestrians with and without disabilities. The following types of curb ramps are most typical:

- Perpendicular Combination
- Diagonal Built-up
- Parallel Depressed corners
### Table 5-2. Best Practices for Curb Ramp Design

<table>
<thead>
<tr>
<th>Best Practice</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide a level maneuvering area or landing at the top of the curb ramp.</td>
<td>Landings are critical to allow wheelchair users space to maneuver on or off of the ramp. Furthermore, people who are continuing along the sidewalk will not have to negotiate a surface with a changing grade or cross slope.</td>
</tr>
<tr>
<td>Clearly identify the boundary between the bottom of the curb ramp and the street with a detectable warning.</td>
<td>Without a detectable warning, people with vision impairments may not be able to identify the boundary between the sidewalk and the street. Assistive devices for mobility are unstable if one side of the device is lower than the other or if the full base of support (e.g., all four wheels on a wheelchair) is not in contact with the surface. This commonly occurs when the bottom of a curb ramp is not perpendicular to the curb.</td>
</tr>
<tr>
<td>Design ramp grades that are perpendicular to the curb.</td>
<td>Pedestrians outside of the marked crosswalk are less likely to be seen by drivers because they are not in an expected location. Severe or sudden grade changes may not provide sufficient clearance for the frame of the wheelchair causing the user to tip forward or backward. Maneuvering on a steep grade can be very hazardous for people with mobility impairments.</td>
</tr>
<tr>
<td>Place the curb ramp within the marked crosswalk area.</td>
<td>Gradual slopes make it difficult for people with vision impairments to detect the presence of a curb ramp.</td>
</tr>
<tr>
<td>Avoid changes of grade that exceed 11 percent over a 610 mm (24 in) interval.</td>
<td>Shallow grades are difficult for people with vision impairments to detect but steep grades are difficult for those using assistive devices for mobility.</td>
</tr>
<tr>
<td>Design the ramp that doesn’t require turning or maneuvering on the ramp surface.</td>
<td>Ramps should have minimal cross slope so users do not have to negotiate a steep grade and cross slope simultaneously. Water, ice, or debris accumulation will decrease the slip resistance of the curb ramp surface. Maneuvering over any vertical rise such as lips and defects can cause wheelchair users to propel forward when wheels hit this barrier.</td>
</tr>
<tr>
<td>Provide a curb ramp grade that can be easily distinguished from surrounding terrain; otherwise, use detectable warnings.</td>
<td>Where curb ramps can be ahead, people using wheelchairs often build up momentum in the crosswalk in order to get up the curb ramp grade (i.e., they “take a run at it”). This alignment may be useful for people with vision impairments. Clearly defined edges assist users with vision impairments to identify the presence of the ramp when it is approached from the side.</td>
</tr>
<tr>
<td>Design the ramp with a grade of 7.1 ± 1.2 percent. [Do not exceed 8.33 percent (1:12).]</td>
<td></td>
</tr>
<tr>
<td>Design the ramp and gutter with a cross slope of 2.0 percent.</td>
<td></td>
</tr>
<tr>
<td>Provide adequate drainage to prevent the accumulation of water or debris on or at the bottom of the ramp.</td>
<td></td>
</tr>
<tr>
<td>Transitions from ramps to gutter and streets should be flush and free of level changes.</td>
<td></td>
</tr>
<tr>
<td>Align the curb ramp with the crosswalk, so there is a straight path of travel from the top of the ramp to the center of the roadway to the curb ramp on the other side.</td>
<td></td>
</tr>
<tr>
<td>Provide clearly defined and easily identified edges or transitions on both sides of the ramp to contrast with sidewalk.</td>
<td></td>
</tr>
</tbody>
</table>
ADAAG has specifically addressed minimum standards for curb ramp components. In some cases FHWA has provided greater detail on recommended curb ramp designs. Where there are differences between ADAAG and FHWA’s *Designing Sidewalks and Trails for Access*, it is recommended that the City follow the FHWA guidelines for ADA compliance.

For most all of the various curb ramp types, the City should revise its curb ramp standards consistent with FHWA’s *Designing Sidewalks and Trails for Access* to address each of the following components:

**Curb Ramp Grade** – ADAAG permits curb ramp slope of 8.33% for new construction. FHWA recommends 7.1% to allow for construction tolerances. For retrofits where 8.3% ramp slopes cannot be attained, FHWA specifies the following ADAAG (1991) exceptions (not to be used for new construction):

- A slope between 8.33% and 10% is permitted for a maximum rise of 6 inches.
- A slope between 10% and 12.5% is permitted for a maximum rise of 3 inches.
- A slope steeper than 12.5% should be avoided regardless of length of ramp.

**Ramp Cross Slope** – Ramp cross slopes should not exceed 2.0%.

**Ramp Length** – See FHWA *Designing Sidewalks and Trails for Access*, Table 7-3.

**Ramp Width** – Recommended width is 4 feet (48 inches), but should never be less than 3 feet (36 inches).
**Gutter Slope** – Drainage slope should not exceed 2%. On most curb ramps, to avoid rapidly changing grades, the cross slope of the street and gutter approach should not exceed 5%.

**Change of Grade** – Transition areas should have a minimum grade change (less than 11%) for a gradual transition for wheelchair users.

**Sidewalk Approach Width** – Sidewalk approach should have a minimum, 3-foot (36-inch) clear space, free of obstacles.

**Landing Dimension and Slope** – Slope of a landing should not exceed 2%. Landings should extend at least 4 feet (48 inches) beyond the top of the curb ramp for maneuverability. If the space is limited and a 4-foot (48 inches) landing absolutely cannot be provided, an absolute minimum, 3-foot (36-inch) landing is acceptable, coupled with a minimum ramp width of 4 feet (48 inches) and ramp flare slopes not to exceed 8.3%.

The following summarizes the federal policies regarding diagonal curb ramps.

**ADAAG Regulations:**

Diagonal or corner type curb ramps with returned curbs or other well-defined edges shall have the edges parallel to the direction of pedestrian flow. The bottom of diagonal curb ramps shall have a clear space 4 feet (48 inches) minimum outside active traffic lanes of the roadway. Diagonal curb ramps provided at marked crossings shall provide the 4 foot (48 inches) minimum clear space within the markings. Diagonal curb ramps with flared sides shall have a segment of curb 2 feet (24 inches) long minimum located on each side of the curb ramp and within the marked crossing.
Local Design Guide for Bonney Lake Pedestrian Facilities

City of Bonney Lake Standard:

Standards reference the WSDOT Standards and Specifications as follows:

5. ADA Accessible Curb Ramps: All sidewalks must be constructed to provide for accessibility in accordance with the current standards of applicable state law and the Americans with Disabilities Act.

Ramps shall be constructed in conformance with the Standard Specifications and Standard Plans.


The WSDOT Design Manual general defines sidewalk curb ramp requirements as follows:

Sidewalk curb ramps are required at all intersections, unless pedestrians are prohibited from crossing the roadway and on midblock crossings where sidewalks are present. These ramps provide an easily accessible connection from a raised sidewalk down to the roadway surface. To comply with ADA requirements, these ramps are at least 4 feet wide and have slopes 12H:1V or flatter and a cross slope of not greater than 2%. Curb ramp flares do not exceed 10%. Examples of sidewalk curb ramps are shown in the Standard Plans.

WSDOT curb ramp design standards are attached in Appendix C.

Recommended Changes to City of Bonney Lake Standard:

WSDOT’s curb ramp design standards appear focused on highway street and curb radius design, accommodating wider streets at higher travel speeds than local or residential streets. These standards do not include options for sidewalk buffers and perpendicular curb ramps designs ideally suited for local streets. If the city were to choose local street designs with sidewalk buffer strips, additional curb ramp design standards should be addressed. Example standards are provided by FHWA in Designing Sidewalks and Trails for Access.

PEDESTRIAN CROSSINGS

In Designing Sidewalks and Trails for Access, FHWA fully defines pedestrian crossings as any location where the pedestrian leaves the sidewalk and enters the roadway. At a pedestrian crossing, the
pedestrian’s path of travel crosses the motorist’s path of travel. Pedestrian crossings include (a) mid-block crossings and (b) street intersections. At mid-block crossings, pedestrians generally encounter traffic moving in two directions. At street intersections, particularly those controlled with traffic signals, traffic is usually moving in multiple directions because of turning vehicles.

With great liberty a considerable portion of Designing Sidewalks and Trials for Access is summarized here regarding pedestrian crossings at street intersections, because it gets to the crux of one of Bonney Lake’s emerging issues: how to design arterial street intersections to balance the needs of drivers and pedestrians.

Possible Design Solutions at Wide Intersections
The City can apply a number of techniques, which are optional to improve pedestrian conditions and access at wide intersections where appropriate right-of-way exists, including:

- Install center medians to provide a refuge for slower pedestrians;
- Install accessible pedestrian signals to assist in providing people with vision impairments enough time to cross the street;
- Increase crossing times so that people who walk slowly will have sufficient time to cross before the signal indication changes;
- Increase the crossing times so that people who delay the start of their crossing to confirm the WALK interval will have sufficient time to cross before the signal indication changes;
- Restrict right turns on red;
- Enhance the visibility of the crosswalk markings or consider a raised crosswalk with detectable warnings (truncated domes) at both ends;
- Reduce crossing distances and increase visibility through the construction of curb extensions;
- Reduce traffic speed;
- Clarify the pedestrian crossing area by installing raised crosswalks with detectable warnings (truncated domes) installed at both ends;
- Provide pedestrian lead time and an accessible pedestrian signal so pedestrians, including those with vision impairments, can assert themselves in the crosswalk before motorists start making right and left turns;
- Provide a curb extension to decrease crossing distances and increase pedestrian visibility; and
- Add traffic and pedestrian signal indications if they do not already exist.

Turning Radius
Designing intersections with smaller turning radii slows traffic speeds and allows perpendicular curb ramps to be positioned parallel to the crosswalk path of travel, as well as perpendicular to the curb. In addition, smaller turning radii significantly decrease crossing distances for pedestrians. Smaller radii also enhance detection of the crosswalk and improve crossing conditions for people with vision impairments because there is a greater distinction between the perpendicular and parallel traffic flows.
The City’s current street and sidewalk design standards, which are reflected at many major intersections in the developing portions of Bonney Lake, include larger turning radii at intersections in order to accommodate larger vehicles and more continuous traffic flow. The City has essentially deployed roadway design standards much like other U.S. cities in the past. With respect to turning radii, the City’s designs have been determined by the types of vehicles that travel on the road and the intended speeds for drivers to make right turns. Who benefits from these designs? Larger trucks, buses, and passenger vehicles all benefit.

Pedestrian access, however, is significantly compromised at intersections with larger turning radii, for the following reasons:

- Cars can make right turns at higher speeds;
- Curb ramp designs are often compromised;
- Pedestrian crossing distances are increased (this also results in increased vehicle signal phasing delays and reduced roadway capacity from the delays);
- Less space is available on the corner for pedestrians to collect;
- Less space is available on the corner for utilities;
- It is more difficult for pedestrians, especially those with vision impairments, to claim the right of way when crossing;
- Greater numbers of conflicts arise between pedestrians and motorists; and
- Pedestrians are located outside of a driver's line of vision.

Appropriate driver sight lines at street intersections are important for pedestrian safety. Street design and surrounding land use patterns vary significantly within Bonney Lake and can greatly affect the prevailing sight lines.

**Intersection Design Issues for Further Consideration**

The design speed of arterial streets greatly affects the design requirements of intersection corner radii. The City’s current standards are more oriented to auto and truck mobility. These designs also affect the type of sidewalk approaches and curb ramps to accommodate intersecting pedestrians. By reducing the intersection corner radii for some arterials (arterial design speed), Bonney Lake may better accommodate pedestrians of all types by including sidewalk buffers and approaches at corners, and perpendicular and parallel curb ramps rather than diagonal curb ramps.

Options such as these will likely require more right of way. The decisions to make significant changes to arterial street, intersection, sidewalk, and curb ramp design standards should reflect emerging community values and plans.

**OTHER DESIGN FEATURES**

The City of Bonney Lake should be proactive in partnering with WSDOT in the application of other design features that assist pedestrians. Major design features included in the Local Design Guide are truncated domes as detectable warnings, and audible signals to assist vision-impaired pedestrians at major signalized street intersections, particularly along SR-410.
Detectable Warnings – Truncated Domes

Detectable warnings are an ADA requirement in the current ADAAG for use by the vision-impaired to detect the boundary between the sidewalk and the street. The original requirement in ADAAG was suspended for a time to conduct further research. Research was conducted and the suspension of the requirement was lifted on July 26, 2001. At the time FHWA’s Designing Sidewalks and Trails for Access went to print, the suspension had not been lifted, so its text did not mention that detectable warnings are required.

Detectable warnings are now required when constructing and altering curb ramps. Truncated domes are the only detectable warnings allowed by ADAAG, and are incorporated in WSDOT’s curb ramp design standards, which are mutually adopted by the City of Bonney Lake as follows.

*ADA Accessible Curb Ramps: All sidewalks must be constructed to provide for accessibility in accordance with the current standards of applicable state law and the Americans with Disabilities Act.*

*Ramps shall be constructed in conformance with the Standard Specifications and Standard Plans.*

Audible Signals

Pedestrian signal indications are special types of traffic signals that are used to control pedestrian traffic patterns and movements. They consist of a series of signals to indicate:

- **WALK interval** - the interval designated for pedestrians to cross;
- **Clearance interval** - the interval designated for pedestrians who are already crossing to complete their crossing. Pedestrians at corners should not start a new crossing; and
- **DON’T WALK interval** - the interval when pedestrians are not permitted to cross.

At many signalized intersections, the vision-impaired pedestrian relies on sounds of nearby, parallel traffic to indicate when the traffic signal WALK interval is indicated. At low volume intersections this method can be unreliable. Unreliable auditory cues, proportionately higher turn–volumes and complex pedestrian crossings can, by themselves or all together, cause the vision-impaired pedestrian to misjudge the signal WALK interval, leading to potentially unsafe conditions.

The implementing regulation under Title II of the ADA requires that all facilities constructed or altered after January 26, 1992 be designed and constructed to be accessible to people with disabilities (U.S. Department of Justice, 1991a). Therefore, all newly installed pedestrian signals should have accessible design features. The Transportation Equity Act for the 21st Century (TEA-21) further supports the installation of accessible pedestrian signals by stipulating that the installation of audible signals and signs be included in new transportation plans and projects, where necessary, for safety (TEA-21, 1998). Congress reauthorized TEA-21 in 2005, and the new law reiterates TEA-21’s emphasis on safety. In addition to including accessible pedestrian signals in all new construction, it is also recommended that existing signal devices that are not accessible be prioritized for
replacement. The priorities for determining where existing pedestrian signals should be improved include:

- Complex or irregularly shaped intersections;
- Intersections experiencing high volumes of turning traffic;
- Signalized intersections where traffic sounds are sporadic or masked by ambient noise;
- Intersections that have vehicular actuation of the traffic signals;
- Intersections with complex signal phasing;
- Major corridors leading to areas of fundamental importance such as post offices, courthouses, and hospitals;
- Exclusive pedestrian phase areas, such as motorists stopped in all directions; and
- Locations requested by people with vision impairments.

Other Pedestrian Information Techniques
In addition to truncated domes and audible signals there are several pedestrian information techniques that the City can provide for the mobility- and vision-impaired. These include: vibro-tactile signal devices, intersection (crosswalk) guide strips, wayfinding directional tiles and informational signing.

Bus Stops
Inadequate facilities for transit access can be a major challenge for walkability in Bonney Lake. The City of Bonney Lake should be proactive in partnering with Pierce Transit in the development and installation of accessible bus stop zones for the safe and efficient pedestrian access to transit along major city streets and SR-410. Bus stop improvements should be considered by the City and Pierce Transit as part of all major development review projects. The following bus stop criteria should be included as part of these design reviews for accessible bus stop zones:

- Accessible Bus Stop Zone – 5’ x 8’ level landing area - for customers to safely wait for, board and alight the bus
- An area for a bus to safely serve the bus stop on or off the roadway.
- An easily identifiable Pierce Transit bus stop sign/flag.
- An accessible pathway around the bus stop or shelter of at least 4 feet.
- An accessible pedestrian path from the bus to the waiting area.
- Bus Stop Pad – 10’ x 10’ (dual purpose as interim boarding zone, upgradeable to include future bus shelter installation)

Pierce Transit provides design guidance for bus stops as part of their Bus Stop Manualx. Example design guides for bus stop benches and shelters are included in Appendix E. Also included in Pierce Transit’s Bus Stop Manual is guidance on far-side and near-side bus stops, and whether bus pullouts are needed in certain settings. A summary of each is provided here as they pertain to Bonney Lake.

Far-Side Stops/Zones
A far-side stop/zone is immediately following an intersection. Far-side stops/zones are the preferred location of Pierce Transit bus stops and are specifically recommended when:

a. The intersection is controlled by signals, stop signs or yield signs.
b. Traffic is heavier on the near side than on the far side of the intersection.
c. A large number of left or right turns occur.
d. Heavy traffic movements might cause delays in bus schedule.
e. Pedestrian access and existing landing area are better on the far side than the near side.

**Near-Side Stops/Zones**
A near-side stop zone is one that is located immediately before an intersection.
Near-side stops are less desirable and should be used when:

a. There are no far-side options.
b. The intersection is controlled by signals, stop signs or yield signs, when transit operations are more critical than traffic or parking.
c. Traffic is heavier on the far-side than on the near-side of the intersection.
d. Pedestrian access and existing boarding area are better on the near-side than the far-side.

**OPTIONAL SIDEWALK DESIGNS ON LOCAL STREETS IN ESTABLISHED NEIGHBORHOODS**

As part of the Draft NMTP effort, discussions with City Council and other stakeholders focused on the development of optional sidewalk design application along local streets within established Bonney Lake neighborhoods. Some preliminary requests in the study suggested support for “sidepaths” rather than the city’s current standard. **Appendix C** summarizes background material and study of alternative pedestrian facility design along local streets, including national studies for “sidepaths.” The conclusion is that sidepaths are found to be less safe and not generally supported by professional research. Further evaluation of recent design development and application completed by the City of Seattle provided a more meaningful option for Bonney Lake’s consideration.

**Option #1:** Current Local Street Design Standard: Curb, Gutter & Curbside Sidewalk
The city’s current design standard is a curb, gutter and sidewalk cross-section as shown in Figure 5-3.
Option #2: Seattle’s SEA Street Model
There are alternative sidewalk corridor designs that may apply to Bonney Lake. For example, as shown in Figure 5-4, the City of Seattle redesigned a residential street without curb and gutter and constructed a sidewalk separated from the street edge. By design the pedestrian experience is intended to be more pleasant by plantings that separate the sidewalk from the street, as well as the addition of a drainage system in a swale on the opposite side of the street (rather than a traditional curb and gutter configuration). Seattle had estimated that the alternative design was found to be cheaper, when considering a variety of street improvement elements, including drainage system requirements.

A summary of the pros and cons of Seattle SEA street design was generally made as part of the NMTP effort and is summarized in Table 5-3.
Table 5-3: Pros and Cons of Seattle’s SEA Street Design

<table>
<thead>
<tr>
<th>PROs</th>
<th>CONs</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ May be cheaper than traditional curb/gutter/sidewalk design standard to construct</td>
<td>▪ Requires adoption and application of new residential street design standards</td>
</tr>
<tr>
<td>▪ SEA Cost Estimate per city block:</td>
<td>▪ Cost of design not factored in to SEA estimates</td>
</tr>
<tr>
<td>▪ $325,000 SEA St. Design</td>
<td></td>
</tr>
<tr>
<td>▪ $425,000 Traditional Design</td>
<td></td>
</tr>
<tr>
<td>▪ May be viewed having higher neighborhood aesthetics</td>
<td>▪ Requires seasonal maintenance, either by:</td>
</tr>
<tr>
<td></td>
<td>▪ formal agreement with individual property owners; or</td>
</tr>
<tr>
<td></td>
<td>▪ by additional program, revenue source and budget</td>
</tr>
<tr>
<td>▪ May require less off-site stormwater retention and treatment</td>
<td>▪ Likely requires similar funding enhancements through LIDs</td>
</tr>
</tbody>
</table>

The NMTP study determined that there is merit to testing the application of a similar SEA Street design in Bonney Lake. Such an application is recommended in the NMTP Implementation chapter (see Chapter 6).

SUMMARY

The City of Bonney Lake will need to evaluate and consider a number of their design standards and policies with respect to the full range of pedestrian travel needs. The Bonney Lake Local Design Guide identifies the sidewalk, curb ramp and driveway crossing standards that should be amended to best comply with the ADA. Other policies and standards should be re-evaluated so the City can better provide a balance of transportation facilities to best meet the multi-modal needs and expectations of Bonney Lake residents. Specifically, the City should evaluate the most appropriate locations for a demonstration project of an alternative sidewalk design. The City may, in the end, decide that a traditional design is more appropriate for Bonney Lake pedestrian facilities. Regardless, the design must be safe for pedestrians. FHWA’s Designing Sidewalks and Trails for Access is an excellent, comprehensive resource for the City’s use as it evaluates its broader design standards and policies with respect to pedestrian access.
As part of updating the guidelines, the Access Board is also developing more specific guidelines for public rights-of-way. On June 17, 2002 the Board released a draft of these guidelines for public comment in advance of publishing a proposed rule. Although there are provisions for sidewalks, curb ramps, street crossings and related pedestrian facilities that are not addressed in the newly published ADA/ABA-AG. Both FHWA and the Access Board encourage use of the June 17, 2002 draft's scoping and technical provisions for detectable warnings as an equivalent facilitation to the current requirements in the 1991 (current) ADAAG.

USDOT is an implementing agency for the title II of the Americans with Disabilities Act and for section 504 of the Rehabilitation Act; the FHWA is the USDOT agency responsible for overseeing Title II and 504 compliance for pedestrian access in public rights-of-ways. USDOT is evaluating the ADA/ABA-AG and considering possible changes to USDOT section 504 regulations to reflect current detectable warning requirements until such time as the new public rights-of-way guidelines can be issued. The FHWA MUTCD staff is also pursuing inclusion of detectable warnings in Chapter 3 Markings. NCHRP and FHWA research is also underway to improve truncated dome maintenance and contrast."

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\(^iv\) Ibid.
\(^v\) Ibid.
\(^vii\) Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities. Institute of Transportation Engineers, 2006.

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\(^ix\) See FHWA Memorandum, July 30, 2004. “The US Access Board, the federal agency responsible for developing accessibility guidelines under the Americans with Disabilities Act (ADA), published the ADA/ABA Accessibility Guidelines (ADA/ABA-AG) on July 23, 2004. The Access Board is charged with developing minimum guidelines to assist the Department of Transportation (DOT) and Department of Justice (DOJ) in establishing design standards. Although the publication of these guidelines marks the completion of the Access Board's responsibilities, these guidelines will not become ADA standards until the Departments of Justice and Transportation go through standard notice-and-comment rulemaking to adopt the new guidelines into the standards they maintain under the ADA, a process which is expected to take one to two years. In the interim, agencies must continue to use current ADA standards -- including those for detectable warnings at curb ramps and blended transitions -- when building new and altering pedestrian facilities. Therefore, there have been no changes to the existing requirements (since July 26, 2001) that detectable warnings must be applied to curb ramps in new construction and alterations.

USDOT is an implementing agency for the title II of the Americans with Disabilities Act and for section 504 of the Rehabilitation Act; the FHWA is the USDOT agency responsible for overseeing Title II and 504 compliance for pedestrian access in public rights-of-ways. USDOT is evaluating the ADA/ABA-AG and considering possible changes to USDOT section 504 regulations to reflect current detectable warning requirements until such time as the new public rights-of-way guidelines can be issued. The FHWA MUTCD staff is also pursuing inclusion of detectable warnings in Chapter 3 Markings. NCHRP and FHWA research is also underway to improve truncated dome maintenance and contrast.”

Recommended Measures to Implement the NMTP
6 - RECOMMENDED MEASURES TO IMPLEMENT THE NMTP

The Bonney Lake Non-Motorized Transportation Plan process identified a number of planning issues that will require the city’s attention and in some cases further evaluation. The findings and recommendations of the NMTP will likely require the city to serve in a coordinating role to implement the Local Design Guide as part of inter-jurisdictional and private transportation projects. A fragmented implementation of the NMTP carries the risk of inconsistent application of its findings and recommendations.

LOCAL STREET & SIDEWALK DEMONSTRATION PROJECTS

As noted in Chapter 5 – Design Guide, local street sidewalk improvements may be addressed by two differing design standards: (a) the city’s current street design standard of curb, gutter and sidewalk; or (b) constructing an alternative design similar to Seattle’s SEA street standard. Figure 6-1 compares the two options.

**Figure 6-1: Comparative Local Streets:**

The City of Bonney Lake should conduct more detailed examination of the possible application of SEA Street standards as demonstration projects (2-3 local street applications) within the next 2-3 years. The full range of costs associated with the alternative design should be examined, including planning, design, construction and storm drain (additional system conveyance, if needed). Design issues to be addressed include site terrain, soil conditions and proximity to the city’s storm water system. The city should also consider property owner preferences and responsibilities of the alternative design, and whether additional city resource will be required to adequately maintain the drainage system. Upon completion and examination of the demonstration projects, the city can then decide if the alternative design should be adopted as an alternative policy for future local street application.

FUNDING

There are several ways by which pedestrian and bicycle system improvements are funded in Washington. At present, the city has not defined direct funding sources for pedestrian and
bicycle program projects as these facilities have historically been funded as part of public and private street improvements. Further, new bicycle system improvements will likely be funded and constructed as part of those street projects already listed in the Bonney Lake Transportation Plan.

In addition to listing current funding practice, this section highlights Bonney Lake’s funding need and sources the city might consider to increase funding of pedestrian system improvements. It was generally assumed in the NMTP that the timing of new pedestrian system improvements will rely directly on available funding availability, and so no specific timeframe was determined.

A. Private Pedestrian & Bicycle Systems Development

Within new developments, new sidewalk and curb ramp improvements are often funded privately as required or conditioned by the city’s subdivision policies and street design standards. Typically, these system improvements are located along local, residential streets; less frequently on collector and arterial streets. The city should continue to require that all new, private developments construct necessary pedestrian improvements in accordance with adopted policies and standards. The city should also consider developing an Adopt a Trail program for regular maintenance of shared-use path facilities.

B. Public Pedestrian & Bicycle Systems Development

1. State Highways

In general, WSDOT has jurisdiction over state highways in Bonney Lake. The funding for state highway improvements is coordinated through WSDOT and construction projects are programmed through Statewide Transportation Improvement Program (STIP). Future highway improvements will need to include pedestrian and bicycle system components as noted in the NMTP. The funding source for these improvements are generally a combination of federal and state gas taxes, and vehicle license and registration fees.

However, SR-410 is likely to see an increase in multi-modal use, particularly focused on expanding public transportation needs along the entire corridor within Bonney Lake. There are additional federal assistance grants available to help expand transit facilities, including sidewalk enhancements. As an example, the section of SR-410 across Fennell Creek includes fairly wide shoulder lanes for bicycle travel, but is absent safe pedestrian facilities. Options include (a) slightly shifting centerline, travel lanes and guard rail to the east and constructing a single, wide sidewalk (e.g. 8-10 feet) and retaining bike lanes, or (b) constructing sidewalks along both sides of SR-410.

The City of Bonney Lake, WSDOT and Pierce Transit should coordinate and prepare a more detailed
conceptual design for multi-modal features within the SR-410 corridor, including development of local land use regulations that fully address public transportation facilities and plans, both along SR-410 but also accessing adjacent land use (e.g. transit overlay district). Upon completion of the conceptual design and refined local policies, the City, WSDOT and Pierce Transit should then pursue full federal and state funding support for pedestrian, bicycle and transit enhancements.

The City should adopt a new policy which requires consideration and construction of non-motorized facilities (per the NMTP policy and design guides) along SR-410 as part of either any new roadway construction project or any land development with frontage improvements.

2. Pierce Transit Coordination

The City should coordinate with Pierce Transit in the design and funding of bus stop and sidewalk improvements. There are federal funds available for transit-related improvements to which Pierce Transit can possibly make available within Bonney Lake.

3. City Funding Need

Major pedestrian improvements costs along city streets (noted in Chapter 3) total approximately $30 million. See Table 3-5. Of the $30 million, $2 million is consumed by the proposed Fennell Creek Trail. General funding assumptions in the NMTP are as follows:

- *Arterial and Collector Street* sidewalks - cost about $13.5 million; funded by grants ($2 million) and city general fund when available ($11.5 million)

- *Neighborhood Connector* sidewalks – cost about $5.2 million; funded in part by grants (generally assumed at about 15%, $0.9 million), local improvement district ($2.5 million) and the remaining by city general fund when available ($1.8 million)

- *In-Fill Projects* - along collector and minor arterial streets, at an estimated cost of about $9.2 million; funded in part by grants (as fitting for Critical Walk-To-School routes) but in large by development as the result of new development or re-development along those collector and arterial street routes where streets were historically constructed without sidewalks along one or both sides of the street.

4. Local Funding Options

**Local Improvement Districts**

Many communities administer local improvement districts (LID) to fund sidewalk improvements (new and replacement sidewalks) within specified areas and neighborhoods. Public support for LID funding of sidewalk improvements in other communities has generally been successful on smaller scale programs, along corridor-specific routes where the benefit of improvements are more readily identified by LID participants.

As a policy, the City should, to the degree possible, leverage grant funds and identify specific general transportation revenues to serve as catalyst and encouragement for the formation of
LIDs to fund those critical neighborhood connectors identified in the NMTP. Furthermore, the City should consider developing a LID-assistance policy as incentive to potential LID participants by setting aside general funds as matching dollars to the LID funding.

**General Obligation Bonds (Property Tax Supported)**

Bonds are a funding mechanism for constructing capital improvement projects in the City. Voter-approved bonds could be sold to fund part or all of the sidewalk improvement projects, or be coupled with other street improvement projects. These projects are usually grouped in “bond packages” that go before the public for voter approval. General Obligation Bonds are supported through the City’s property tax base.

**Federal/State Funding Support**

Various federal and state funding programs are sources to the City of Bonney Lake to help fund pedestrian and bicycle improvements. The city is currently completing application through WSDOT for grants to help directly fund pedestrian improvements.

Federal programs with potential funding support including:

- Bike Safety Grant – National Highway Traffic Safety Administration (NHTSA)
- U.S. Department of Housing and Urban Development (HUD) – Discretionary Grant for Sidewalk Improvements
- Safe Routes to School (federal funding through WSDOT program)

Washington State also provides the following funding support, coordinated through WSDOT:

- Pedestrian & Bicycle Safety Grants ($74 million over next 16 years)

Also, Pierce Transit might also serve as a grant funding partner with the City of Bonney Lake for pedestrian improvements, particularly related to new transit facilities within the city.

These programs may be available to Bonney Lake to help fund pedestrian system improvements, either directly or as part of other multi-modal projects.

**General Fund**

It is not likely that state and federal grants will be available to fund all of the city’s sidewalk improvements, particularly those on the arterial and collector streets. Local street sidewalk LIDs may become largely successful and popular with property owners, funding a significant portion of sidewalk system needs along neighborhood connectors and local streets. The city will need to consider identifying and dedicating a portion of general fund transportation revenues on an annual basis to fund important sidewalk improvements. Initially, the level of support funding may be large in order to successfully leverage grant and LID funds.

As noted in Figure 6-2, not all of the city’s streets are identified for sidewalk improvements in the NMTP. There are a number of local streets where projects have not been identified, due to either their short length or relatively low priority and service need.
COMMUNITY PROJECT COORDINATION

The city will need to continue to effectively engage WSDOT, Pierce County, the school and neighborhoods in updating and re-prioritizing neighborhood sidewalk and curb ramp improvements. These efforts will be necessary to develop the annual update of sidewalk and curb ramp improvement projects as input into the Transportation Improvement Program (TIP). Defining short-term projects will involve more detailed planning than simply selecting the high priority projects to construct. Other issues that will affect project priority-setting include:

- Defining “packaged” pedestrian improvements that span or mix priorities, resulting in comprehensive corridor enhancements for construction programming and cost efficiencies
- Complimenting long-range street projects with intersecting sidewalk and curb ramp improvements to complete neighborhood accessibility

**Figure 6-2: Bonney Lake NMTP – Sidewalk Projects by Class**

![Bar chart showing sidewalk projects by class for Bonney Lake NMTP](chart.png)
Some NMTP priorities might be better linked to long-range projects for economies of scale in the ultimate construction of other street and highway improvements.

**WALK-TO-SCHOOL ROUTE PLANNING AND BICYCLE EDUCATION**

Currently, there are no official walk-to-school route plans for schools within Bonney Lake. School districts have busing plans. The city should coordinate with the School District to help ensure considerate planning for student pedestrians. The absence of these plans makes it difficult to include school walking routes as priority corridors in the NMTP methodology.

As part of the sidewalk project prioritization (see Chapter 3), the Bonney Lake City Council provided their weighting criteria which prioritized walk-to-school route safety within the community. As illustrated in Figure 6-3, the City identified the southern three schools (Bonney Lake High School, Mountain View Junior High, and Victor Falls Elementary School) as candidate priorities in the application for sidewalk grant funding.

**Figure 6-3: Critical Walk-To-School Routes: South Bonney Lake**

![Critical Walk-To-School Routes: South Bonney Lake](image)

Walk-to-school route planning may best serve as the mechanism to further refine the NMTP, with neighborhood-specific priorities and comprehensive projects that best match the initial priorities identified in the NMTP. Walk-to-school route planning is also an excellent mechanism to advance pedestrian and bicycle safety education.
Specific sidewalk improvement projects located within the south Bonney Lake area are listed in Table 6-1. Based on the draft NMTP findings, approximately $586,000 of the total $3.5 million in sidewalk projects within the south Bonney Lake area were identified for grant funding support.

Table 6-1: 2007 Walk-To-School Route Funding Request – South Bonney Lake

<table>
<thead>
<tr>
<th>Project Name</th>
<th>from</th>
<th>To</th>
<th>Street Funct. Class</th>
<th>Grant Request</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>192nd Ave</td>
<td>100th St E</td>
<td>SR 410</td>
<td>Min Art</td>
<td>$198,078</td>
<td>$1,320,000</td>
</tr>
<tr>
<td>192nd Ave</td>
<td>Rhodes Lake Rd</td>
<td>108th St E</td>
<td>Min Art</td>
<td>$156,863</td>
<td>$1,056,000</td>
</tr>
<tr>
<td>188th Ave</td>
<td>Rhodes Lake Rd</td>
<td>School Entrance</td>
<td>Min Art</td>
<td>$58,824</td>
<td>$396,000</td>
</tr>
<tr>
<td>190th St E</td>
<td>191st Ave</td>
<td>192nd Ave</td>
<td>Neigh/Local</td>
<td>$39,600</td>
<td>$39,600</td>
</tr>
<tr>
<td>111th St E</td>
<td>191st Ave</td>
<td>192nd Ave</td>
<td>Neigh/Local</td>
<td>$39,600</td>
<td>$39,600</td>
</tr>
<tr>
<td>Angeline Rd</td>
<td>110th St E</td>
<td>104th St E</td>
<td>Collector</td>
<td>$95,040</td>
<td>$633,600</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$586,005</strong></td>
<td><strong>$3,484,800</strong></td>
</tr>
</tbody>
</table>

SIDEWALK and BICYCLE DESIGN STANDARDS

The Local Design Guide (see Chapter 5) and Bicycle Facilities (see Chapter 4) provided insight of several critical design issues relating to pedestrian treatments on sidewalks, driveway crossings, curb ramps and crosswalks and bicycle lanes and shared-use paths. Furthermore, the city’s street design standards are absent of definitive bicycle design considerations. The city needs to consider revisions to their design standards to address current ADA rules and more specific bicycle lane requirements. The city’s design standards are contained within the Development Policies and Public Works Design Standards guide. The city can choose to prepare and adopt needed revisions of its own standards.

Throughout this revision process the city will need to lead discussions and educate local contractors and design firms concerning modifications to its design standards. The city will also need to coordinate with WSDOT regarding the research and application of audible signals to best meet local user needs. Continued research and evaluation of audible signals and truncated dome placement (and curb ramp design) should be conducted by the city in coordination with WSDOT to best meet user needs.

ADA POLICY COORDINATION

The U.S. Access Board is likely to complete more comprehensive design guidelines for pedestrian facilities in the forthcoming update of ADAAG (new Section 14). It will be critical for the City of Bonney Lake to keep current with revised ADA rules and guidelines. Changes and additions to ADAAG may require the city to revise its pedestrian facilities standards and perhaps update the NMTP.
New ADA rules, guidelines and standards should be communicated with the local mobility-impaired community. The city will need to take a proactive and lead role in this coordination, as the revised rules and guidelines will likely affect the standards and practices that the city administers.

SITE PLAN REVIEW

Even if the city does everything right by revising its design standards and ensuring that pedestrian improvements in the public rights-of-way are constructed to meet ADA guidelines, significant obstacles that impeded safe pedestrian travel will continue to be constructed. Within private developments or along state highways there is similar need to administer and guide good pedestrian design, with emphasis on pedestrian circulation and access. The city will need to continue to coordinate with Pierce County, WSDOT, and the transit agencies to administer better site plan review practices regarding pedestrian access and safety.

Again, the City should adopt a new policy which requires consideration and construction of non-motorized facilities (per the NMTP policy and design guides) along SR-410 as part of either any new roadway construction project or any land development with frontage improvements.

SUMMARY

The city serves a critical role in the planning, development and construction of needed pedestrian improvements. The NMTP will certainly elevate the City of Bonney Lake’s public exposure as a designer and provider of street and pedestrian systems. This increased exposure will likely give rise to increased expectations.

The city will need to regularly coordinate with participating jurisdictions and private development to help ensure that all of the NMTP findings and recommendations are sufficiently communicated to the city’s constituents. Finally, it is also vital that the city effectively pursue regional, state, and federal funding opportunities.

Appendix A

The Americans With Disabilities Act (ADA), enacted on July 26, 1990, provides comprehensive civil rights protections to persons with disabilities in the areas of employment, state and local government services, access to public accommodations, transportation, and telecommunications. There are five titles or parts to the ADA; Title II is of most concern to the City. Bonney Lake’s NMTP is intended to address the most recent ADA policies and rules.

Title II of the ADA prohibits state and local governments from discriminating against persons with disabilities by requiring them to make all programs, services, and activities accessible to persons with disabilities. Title II requires that a public entity must evaluate its services, programs, policies, and practices to determine whether they are in compliance with the nondiscrimination requirements of the ADA. The ADA requires that a Transition Plan be prepared, to describe any structural or physical changes required to make programs accessible. The Transition Plan is intended to outline the methods by which physical or structural changes will be made to effect the non-discrimination policies described in Title II.
Local Street and Sidewalk

Demonstration Projects 6-1

Funding 6-1

Private 6-2

Public 6-2

Community Project Coordination 6-6

Walk-To-School Route Planning 6-7

Sidewalk and Bicycle Design

Standards 6-8

ADA Policy Coordination 6-9

Site Plan Review 6-9

Summary 6-9
Figure 6
Roadway Functional Classification
Bonney Lake Transportation Plan

LEGEND
- MAJOR ARTERIAL
- MINOR/SECONDARY ARTERIAL
- FUTURE MINOR/SECONDARY ARTERIAL
- COLLECTOR ARTERIAL
- FUTURE COLLECTOR ARTERIAL
- BONNEY LAKE CITY LIMITS

NEW RHODES LAKE ROAD CORRIDOR
Figure 7
Regional Transportation Improvement Projects
Bonney Lake Transportation Plan

LEGEND
- City Roadway Improvement
- City Intersection Improvement
- Pierce County Roadway Improvement
- Pierce County Intersection Improvement
- WSDOT Improvement
- Circulation Roadways
- Bonney Lake City Limits

NEW RODOS LANE ROAD CORRIDOR
CASCADE INTEGRAL ROADWAYS
CONVERT TO ONE-WAY COUPLETS
COMPLETION OF CRIBS LANE HIGHWAY

SEE FIGURE 8 FOR LOCAL PROJECTS
<table>
<thead>
<tr>
<th>Project Type</th>
<th>MAP ID(1)</th>
<th>Project Name</th>
<th>Project Limits</th>
<th>Project Description</th>
<th>In Existing TIP(2)</th>
<th>Total Cost ($1,000's)(3)</th>
<th>Bonney Lake Cost ($1,000's)(3)</th>
<th>Timing(3)</th>
<th>Relative Priority(3)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>184th Ave E</td>
<td>182nd Ave to Sumner-Buckley Hwy</td>
<td>Extend 184th Ave E north from the Sumner-Buckley Highway and tie into the existing 182nd Ave E corridor. Construct new two-lane roadway to collector arterial standards including curb, gutter, sidewalk, and stormwater facilities.</td>
<td>Y</td>
<td>$1,130</td>
<td>$1,500</td>
<td>Short</td>
<td>Med</td>
<td>Will be completed when property is developed. Needs to be coordinated with improvements at the 184th Ave E / Sumner-Buckley Hwy intersection.</td>
<td></td>
</tr>
<tr>
<td>R2</td>
<td>192nd Ave E</td>
<td>SR 410 to 104th St E</td>
<td>Extend 192nd Ave E south to 104th St E. This will provide a new connection between SR 410 and the residential communities to the south. Improve the intersection with 104th St E. Construct roadway to collector arterial standards including 3 travel lanes, curb, gutter, sidewalk, and stormwater facilities. ROW will be required.</td>
<td>Y</td>
<td>$8,725</td>
<td>$6,200</td>
<td>Short</td>
<td>Med</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R3</td>
<td>198th Ave E</td>
<td>Sumner-Buckley Hwy to SR 410</td>
<td>Reconstruct the roadway to collector arterial standards and realign it with the SR 410 intersection. Provide curb, gutter, sidewalk, and stormwater conveyance system.</td>
<td>Y</td>
<td>$990</td>
<td>$1,760</td>
<td>Long</td>
<td>Low</td>
<td>Coordinate with intersection improvements to SR 410 / 198th Ave E &amp; Sumner-Buckley Hwy / 198th Ave E.</td>
<td></td>
</tr>
<tr>
<td>R4</td>
<td>200th Ave Ct E</td>
<td>South Prairie Rd to 104th St E</td>
<td>Widens the roadway to 5 lanes. Provide curb, gutter, sidewalk and stormwater conveyance facilities.</td>
<td>N</td>
<td>$1,710</td>
<td>$1,710</td>
<td>Long</td>
<td>Med</td>
<td>Partially funded with mitigation agreements for developments outside the City.</td>
<td></td>
</tr>
<tr>
<td>R5</td>
<td>214th Ave E</td>
<td>96th St E to SR 410</td>
<td>Widens the roadway to 3 lanes. Provide curb, gutter, sidewalk and stormwater conveyance facilities.</td>
<td>N</td>
<td>$2,150</td>
<td>$2,150</td>
<td>Long</td>
<td>Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R6</td>
<td>214th Ave E</td>
<td>SR 410 to south city limits</td>
<td>Widens the roadway to 5 lanes. Provide curb, gutter, sidewalk and stormwater conveyance facilities.</td>
<td>N</td>
<td>$4,580</td>
<td>$4,580</td>
<td>Mid</td>
<td>Med</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R7</td>
<td>84th St E</td>
<td>182nd Ave to Locust Ave</td>
<td>Resurface the roadway and add curb, gutter, sidewalks, and stormwater conveyance facilities.</td>
<td>Y</td>
<td>$585</td>
<td>$1,320</td>
<td>Mid</td>
<td>Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R8</td>
<td>96th St E</td>
<td>214th Ave E to 233rd Ave E</td>
<td>Reconstruct the roadway to collector arterial standards. Provide 3 travel lanes, curb, gutter, sidewalk, and stormwater conveyance system.</td>
<td>N</td>
<td>$4,960</td>
<td>$4,960</td>
<td>Long</td>
<td>Low</td>
<td>Needed to serve Eastown development. Outside the existing UGA.</td>
<td></td>
</tr>
<tr>
<td>R9</td>
<td>Angeline Rd</td>
<td>Panorama Boulevard to Rhodes Lake Rd</td>
<td>Widens the roadway to 3-lanes, adding curb, gutter, sidewalks, and a stormwater conveyance system. Includes detention and water quality facilities.</td>
<td>Y</td>
<td>$1,470</td>
<td>$2,140</td>
<td>Mid</td>
<td>Med</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R10</td>
<td>Bonney Lake Blvd (Myers Rd Connection)</td>
<td>Myers Rd to 181st Ave E</td>
<td>Extend Bonney Lake Blvd to connect to Myers Rd. Construct to collector arterial standards with 2-lanes. curb, gutter, and sidewalks. Includes a stormwater conveyance system with detention and water quality facilities.</td>
<td>Y</td>
<td>$1,085</td>
<td>$1,740</td>
<td>Mid</td>
<td>Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R11</td>
<td>Bonney Lake Blvd</td>
<td>181st Ave E to Locust Ave</td>
<td>Resurface the roadway and add curb, gutter, sidewalks, and stormwater conveyance facilities.</td>
<td>Y</td>
<td>$3,440</td>
<td>$3,440</td>
<td>Mid</td>
<td>Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R12</td>
<td>Church Lake Rd</td>
<td>Locust Ave to West Tapps Hwy</td>
<td>Reconstruct and widen the roadway to collector arterial standards, including turn lanes, curb, gutter, sidewalks, bike lanes and a stormwater conveyance system with detention and water quality facilities. Project also includes improvements to the West Tapps Hwy approach.</td>
<td>Y</td>
<td>$5,610</td>
<td>$5,610</td>
<td>Long</td>
<td>Med</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R13</td>
<td>Church Lake Rd</td>
<td>West Tapps Hwy to Kelly Lake Rd</td>
<td>Reconstruct and widen the roadway to collector arterial standards, including 3-lanes, curb, gutter, sidewalks, bike lanes and a stormwater conveyance system with detention and water quality facilities.</td>
<td>Y</td>
<td>$3,080</td>
<td>$3,080</td>
<td>Mid</td>
<td>High</td>
<td>The entire roadway will be in City UGA in 2006</td>
<td></td>
</tr>
<tr>
<td>R14</td>
<td>Kelly Lake Rd</td>
<td>Church Lake Rd to 214th Ave E</td>
<td>Reconstruct and widen the roadway to collector arterial standards, including curb, gutter, sidewalks, bike lanes and a stormwater conveyance system with detention and water quality facilities.</td>
<td>N</td>
<td>$1,670</td>
<td>$1,670</td>
<td>Long</td>
<td>High</td>
<td>The entire roadway will be in City UGA in 2006</td>
<td></td>
</tr>
<tr>
<td>R15</td>
<td>Sky Island Drive Extension</td>
<td>176th Ave E to Rhodes Lake Rd</td>
<td>Extend Sky Island Dr south to Rhodes Lake Rd. This will provide a new connection between Rhodes Lake Rd and the residential communities to the north. Construct roadway to minor arterial standards including 2-lanes, curb, gutter, sidewalks, and a stormwater conveyance system with detention and water quality facilities.</td>
<td>Y</td>
<td>$2,445</td>
<td>$2,445</td>
<td>Short</td>
<td>Med</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R16</td>
<td>South Prairie Rd</td>
<td>SR 410 to 202nd Ave E</td>
<td>Reconstruct and widen roadway to include 5-lanes with curb, gutter, sidewalks, and bike lanes. Includes intersection improvements at SR-410. Includes a stormwater conveyance system with detention and water quality facilities.</td>
<td>Y</td>
<td>$2,240</td>
<td>$2,610</td>
<td>Short</td>
<td>High</td>
<td>Received a TIB grant to complete the project. Coordinate with new traffic signal at 200th Ave Ct E / 104th St E.</td>
<td></td>
</tr>
<tr>
<td>Project Type</td>
<td>MAP ID</td>
<td>Project Name</td>
<td>Project Limits</td>
<td>Project Description</td>
<td>In Existing TIP (a)</td>
<td>Total Cost ($1,000's)</td>
<td>Bonney Lake Cost ($1,000's)</td>
<td>Timing (b)</td>
<td>Relative Priority (c)</td>
<td>Comments</td>
</tr>
<tr>
<td>--------------</td>
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<td>--------------------------------------------------------------------------------------</td>
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<td>------------------------</td>
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<td>-------------</td>
<td>----------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>City Improvements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
<td>$3,265</td>
<td>$3,265</td>
<td>Short</td>
<td>High</td>
<td>Partially funded by Cascadia</td>
</tr>
<tr>
<td>R17</td>
<td></td>
<td>Sunnyside-Buckley Hwy</td>
<td>SRT 410 to 184th Ave E</td>
<td>Widen roadway to include 3-lanes between SRT 410 and 184th Ave E, and 3-lanes between 184th Ave E and Locust Ave. Improvements will include curb, gutter, and sidewalks. Stormwater conveyance, detention and water-quality facilities will be provided. The project also involves eliminating full access at the 182nd Ave E / Sunnyside-Buckley Hwy by providing right-in / right-out.</td>
<td>N</td>
<td>$131</td>
<td>$131</td>
<td>Long</td>
<td>Med</td>
<td></td>
</tr>
<tr>
<td>I1</td>
<td></td>
<td>200th Ave Ct E / 104th St E</td>
<td>Intersection</td>
<td>Install traffic signal when warranted.</td>
<td>Y</td>
<td>$175</td>
<td>$250</td>
<td>Short</td>
<td>High</td>
<td>Mitigation required by Cascadia</td>
</tr>
<tr>
<td>I3</td>
<td></td>
<td>214th Ave E / 96th St E</td>
<td>Intersection</td>
<td>Install traffic signal.</td>
<td>N</td>
<td>$250</td>
<td>$250</td>
<td>Short</td>
<td>High</td>
<td>Project is designed and is being funded by Home Depot.</td>
</tr>
<tr>
<td>I4</td>
<td></td>
<td>214th Ave E / Kelly Lake Rd</td>
<td>Intersection</td>
<td>Intersection operational improvement to include a traffic signal or roundabout.</td>
<td>N</td>
<td>$590</td>
<td>$590</td>
<td>Mid</td>
<td>Med</td>
<td></td>
</tr>
<tr>
<td>I5</td>
<td></td>
<td>Church Lake Rd / West Tapps Hwy</td>
<td>Intersection</td>
<td>Intersection operational improvement to include a traffic signal or roundabout.</td>
<td>Y</td>
<td>$250</td>
<td>$580</td>
<td>Long</td>
<td>Long</td>
<td>Coordinate with improvements to Church Lake Rd</td>
</tr>
<tr>
<td>I6</td>
<td></td>
<td>Rhodes Lake Rd / Angelina Rd</td>
<td>Intersection</td>
<td>Intersection operational improvement to include a traffic signal or roundabout.</td>
<td>Y</td>
<td>$250</td>
<td>$520</td>
<td>Long</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>I7</td>
<td></td>
<td>SRT 410 / 184th Ave E</td>
<td>Intersection</td>
<td>Upgrade signal and provide additional WB, NB, and RB left-turn lanes. Remove split-phase signal timing scheme.</td>
<td>N</td>
<td>$880</td>
<td>$660</td>
<td>Short</td>
<td>High</td>
<td>Existing Deficiency</td>
</tr>
<tr>
<td>I8</td>
<td></td>
<td>SRT 410 / 192nd Ave E</td>
<td>Intersection</td>
<td>Install intersection improvements to include additional NB left-turn lane and right-turn on-street facility.</td>
<td>N</td>
<td>$410</td>
<td>$340</td>
<td>Long</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>I9</td>
<td></td>
<td>SRT 410 / South Prairie Rd</td>
<td>Intersection</td>
<td>Construct intersection improvements to include dual EB right-turn lanes, additional WB left-turn lane, and right-turn on-street facility.</td>
<td>N</td>
<td>$880</td>
<td>$725</td>
<td>Long</td>
<td>Med</td>
<td></td>
</tr>
<tr>
<td>I10</td>
<td></td>
<td>SRT 410 / 214th Ave E</td>
<td>Intersection</td>
<td>Construct intersection improvements to include dual EB &amp; WB left-turn lanes, and a NB right-turn lane with overlap phasing.</td>
<td>N</td>
<td>$750</td>
<td>$602</td>
<td>Long</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>I11</td>
<td></td>
<td>Sunnyside-Buckley Hwy / 188th Ave E</td>
<td>Intersection</td>
<td>Install traffic signal when warranted.</td>
<td>Y</td>
<td>$250</td>
<td>$320</td>
<td>Mid</td>
<td>Med</td>
<td>Coordinate with improvements to 188th Avenue (R3).</td>
</tr>
<tr>
<td>I12</td>
<td></td>
<td>Sunnyside-Buckley Hwy / 184th Ave E</td>
<td>Intersection</td>
<td>Install traffic signal when warranted.</td>
<td>N</td>
<td>$280</td>
<td>$280</td>
<td>Short</td>
<td>Med</td>
<td></td>
</tr>
<tr>
<td>I13</td>
<td></td>
<td>Sunnyside-Buckley Hwy / Angelina Rd</td>
<td>Intersection</td>
<td>Install traffic signal when warranted.</td>
<td>Y</td>
<td>$500</td>
<td>$520</td>
<td>Short</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>P1</td>
<td></td>
<td>112th St E</td>
<td>198th Ave E to 202nd Ave E</td>
<td>Construct new 3-lane collector arterial.</td>
<td>Y</td>
<td>$730</td>
<td>$0</td>
<td>Short</td>
<td></td>
<td>Coordinate with improvements to 188th Ave E corridor.</td>
</tr>
<tr>
<td>P2</td>
<td></td>
<td>198th Ave E - PHASE 1</td>
<td>104th St E to Rhodes Lake Rd</td>
<td>Construct new 3-lane roadway to minor arterial standards including curb, gutter, sidewalk, bike lanes, and stormwater facilities. Includes intersection improvements and turn lanes at 112th St E and Rhodes Lake Rd. Also widens and reconstructs existing roadway south of 104th St E to provide additional lane.</td>
<td>Y</td>
<td>$8,700</td>
<td>$0</td>
<td>Short</td>
<td></td>
<td>Joint project between Pierce County and Cascadia. Coordinate with extension of 112th St E.</td>
</tr>
<tr>
<td>P3</td>
<td></td>
<td>198th Ave E - PHASE 2</td>
<td>104th St E to Rhodes Lake Rd</td>
<td>Widen roadway to 5-lanes.</td>
<td>N</td>
<td>$5,050</td>
<td>$0</td>
<td>Long</td>
<td></td>
<td>Joint project between Pierce County, Cascadia, and the City of Bonney Lake. Timing depends on completion of Cascadia Phase 2 and 3. City is responsible for roadway section within City limits.</td>
</tr>
<tr>
<td>P4</td>
<td></td>
<td>198th Ave E</td>
<td>Rhodes Lake Rd to 120th St E</td>
<td>Widen and reconstruct roadway to 4-lanes including curb, gutter, sidewalk, bike lanes, and stormwater facilities. Includes intersection improvements and turn lanes at 120th St E.</td>
<td>Y</td>
<td>$1,410</td>
<td>$0</td>
<td>Short</td>
<td></td>
<td>Joint project between Pierce County and Cascadia.</td>
</tr>
<tr>
<td>P5</td>
<td></td>
<td>198th Ave E</td>
<td>120th St E to Cascadia (144th St E)</td>
<td>Widen and reconstruct roadway to 4-lanes including curb, gutter, sidewalk, bike lanes, and stormwater facilities. Includes intersection improvements at entrance to Cascadia.</td>
<td>Y</td>
<td>$8,000</td>
<td>$0</td>
<td>Short</td>
<td></td>
<td>Joint project between Pierce County and Cascadia.</td>
</tr>
<tr>
<td>Project Type</td>
<td>MAP ID (a)</td>
<td>Project Name</td>
<td>Project Limits</td>
<td>Project Description</td>
<td>In Existing TIP (b)</td>
<td>Total Cost ($1,000’s) (c)</td>
<td>Bonney Lake Cost ($1,000’s) (d)</td>
<td>Timing</td>
<td>Relative Priority (e)</td>
<td>Comments</td>
</tr>
<tr>
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<tr>
<td>Pierce County Improvements</td>
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</tr>
<tr>
<td>P6</td>
<td>214th Ave E / 112th St E</td>
<td>Intersection</td>
<td>Install traffic signal and construct new turn lanes.</td>
<td>Y</td>
<td>County $350</td>
<td>$350</td>
<td>$0</td>
<td>Short</td>
<td></td>
<td>Pierce County has identified a project to widen the</td>
</tr>
<tr>
<td>P7</td>
<td>214th Ave E</td>
<td>Summer-Buckley Hwy to 96th St E</td>
<td>Reconstruct roadway to mirror arterial standards and improve horizontal and vertical alignment. Project includes the addition of curb, gutter, sidewalk and stormwater conveyance facilities.</td>
<td>Y</td>
<td>County $4,965</td>
<td>$4,965</td>
<td>$0</td>
<td>Mid</td>
<td></td>
<td>Project is included in the 2005-2011 TIP.</td>
</tr>
<tr>
<td>P8</td>
<td>214th Ave E</td>
<td>South City Limits to 120th St E</td>
<td>Widen the roadway to 5 lanes. Provide curb, gutter, sidewalk and stormwater conveyance facilities.</td>
<td>N</td>
<td></td>
<td>$7,350</td>
<td>$0</td>
<td>Mid</td>
<td></td>
<td>Project is included in the 2005-2011 TIP.</td>
</tr>
<tr>
<td>P9</td>
<td>Rhodes Lake Rd / 192nd Ave E</td>
<td>Intersection</td>
<td>Study to determine appropriate intersection improvement and partial implementation of recommendation</td>
<td>Y</td>
<td>County $250</td>
<td>$250</td>
<td>$0</td>
<td>Short</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P10</td>
<td>Rhodes Lake Rd / 192nd Ave E</td>
<td>Intersection</td>
<td>Intersection improvements to include new traffic signal or roundabout.</td>
<td>N</td>
<td></td>
<td>$300</td>
<td>$0</td>
<td>Short</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P11</td>
<td>Rhodes Lake Rd</td>
<td>192nd Ave E to SR 162</td>
<td>Construct new minor arterial south of the existing Rhodes Lake Rd corridor. The roadway will likely connect near McCutcheon Rd in the Payzulip River Valley. It will cross the river at or near 128th St E and connect to SR 162. Exact alignment is still to be determined</td>
<td>N</td>
<td></td>
<td>$35,000</td>
<td>$0</td>
<td>Mid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P12</td>
<td>South Plateau Connection Study</td>
<td>SR 162 to 186th Ave E</td>
<td>Conduct a merit and value assessment of a new connection and bridge between the City of Orting and the Bonney Lake Plateau.</td>
<td>Y</td>
<td></td>
<td>$170</td>
<td>$0</td>
<td>Short</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P13</td>
<td>South Prairie Rd</td>
<td>121st St Cl E to 120th St E</td>
<td>Reconstruct roadway</td>
<td>Y</td>
<td></td>
<td>$1,735</td>
<td>$0</td>
<td>Short</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P14</td>
<td>West Cascadia Access</td>
<td>Cascadia to New Rhodes Lake Rd</td>
<td>Construct new minor arterial to provide direct access to Cascadia. The roadway will likely lie in a new Rhodes Lake Rd (see project above). Exact alignment is still to be determined.</td>
<td>N</td>
<td></td>
<td>$20,000</td>
<td>$0</td>
<td>Long</td>
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<td>WSDOT Improvements</td>
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<tr>
<td>W1</td>
<td>SR 162 (MP 0.0 to 3.2)</td>
<td>SR 410 to Pioneer Way</td>
<td>Widen highway to include 4+2 lanes.</td>
<td>N</td>
<td>WSDOT $15,000</td>
<td>$15,000</td>
<td>$0</td>
<td>Mid</td>
<td></td>
<td>Project is included in the 2005-2011 TIP.</td>
</tr>
<tr>
<td>W2</td>
<td>SR 162 (MP 3.2 to 7.1)</td>
<td>Pioneer Way to 144th St E</td>
<td>Widen highway to include 4+2 lanes.</td>
<td>N</td>
<td>WSDOT $35,000</td>
<td>$35,000</td>
<td>$0</td>
<td>Long</td>
<td></td>
<td>Project is included in the 2005-2011 TIP.</td>
</tr>
<tr>
<td>W3</td>
<td>SR 162 (MP 7.1 to 9.3)</td>
<td>144th St E to Washington Ave</td>
<td>Widen highway to include 4+2 lanes.</td>
<td>N</td>
<td>WSDOT $15,000</td>
<td>$15,000</td>
<td>$0</td>
<td>Long</td>
<td></td>
<td>Project is included in the 2005-2011 TIP.</td>
</tr>
<tr>
<td>W4</td>
<td>SR 410 (MP 15.7 to 17.2)</td>
<td>214th Ave E to 234th Ave E</td>
<td>Widen highway to include an additional lane in each direction with a center median. Three median access breaks will be provided at the 1/3, 1/2, and 2/3 points along the project. Improvements include realigning 233rd Ave E with the intersection of 234th Ave E and installation of a traffic signal. The project will also include stormwater conveyance facilities, illumination at each intersection, and utility relocation. Another traffic signal will also be installed at 229th Ave E to provide safe and efficient access to proposed developments in East Town.</td>
<td>Y</td>
<td>WSDOT $24,575</td>
<td>$24,575</td>
<td>$0</td>
<td>Short</td>
<td></td>
<td>Project is included in the 2005-2011 TIP.</td>
</tr>
<tr>
<td>W5</td>
<td>SR 410 (MP 9.1 to 13.7)</td>
<td>SR 167 to 184th Ave E</td>
<td>Provide additional lane in each direction. Additional lane could either be a general purpose lane or an HOV lane. Includes intersection improvements with Summer-Buckley Hwy and 184th Ave E.</td>
<td>N</td>
<td></td>
<td>$70,000</td>
<td>$0</td>
<td>Long</td>
<td></td>
<td>Project is included in the 2005-2011 TIP.</td>
</tr>
<tr>
<td>W6</td>
<td>SR 410 (MP 13.7 to 14.7)</td>
<td>184th Ave E to South Prairie Rd</td>
<td>Provide additional lane in each direction. Additional lane could either be a general purpose lane or HOV lane. Includes intersection improvements with 192nd Ave E, 195th Ave E, and South Prairie Rd.</td>
<td>N</td>
<td></td>
<td>$16,000</td>
<td>$0</td>
<td>Long</td>
<td></td>
<td>Project is included in the 2005-2011 TIP.</td>
</tr>
</tbody>
</table>
## TABLE 10
### Bonney Lake Transportation Improvement Projects and Programs (2005 to 2025)

<table>
<thead>
<tr>
<th>Project Type</th>
<th>MAP ID(1)</th>
<th>Project Name</th>
<th>Project Limits</th>
<th>Project Description</th>
<th>In Existing TIP(2)</th>
<th>Total Cost ($1,000's)</th>
<th>Bonney Lake Cost ($1,000's)</th>
<th>Timing(3)</th>
<th>Relative Priority(4)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Motorized Transport</td>
<td>SEE CITY’S NON-MOTORIZED TRANSPORTATION PLAN</td>
<td></td>
<td></td>
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<tr>
<td>City Programs</td>
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<tr>
<td>Miscellaneous Street Improvement Program</td>
<td></td>
<td>Annual program to address miscellaneous capital improvements to arterials and collectors.</td>
<td>N</td>
<td>$1,000</td>
<td>$1,000</td>
<td></td>
<td>$50,000/year</td>
<td></td>
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</tr>
<tr>
<td>Street Light Program</td>
<td></td>
<td>Annual program to install street lights along arterial and collector streets.</td>
<td>N</td>
<td>$1,400</td>
<td>$1,400</td>
<td></td>
<td>$70,000/year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sidewalk Improvement Program</td>
<td></td>
<td>Annual program to construct missing sidewalk links, repair existing sidewalks, improve crosswalk signing and markings, and install ADA accessible curb-ramps at intersections.</td>
<td>N</td>
<td>$1,000</td>
<td>$1,000</td>
<td></td>
<td>$50,000/year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Street Overlay, Chip Seal, and Maintenance Program</td>
<td></td>
<td>Annual program to maintain the City’s infrastructure.</td>
<td>N</td>
<td>$12,000</td>
<td>$12,000</td>
<td></td>
<td>$600,000/year</td>
<td></td>
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<tr>
<td>TOTAL</td>
<td>$339,415</td>
<td>$68,647</td>
<td></td>
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</tr>
</tbody>
</table>

**Notes:**
(1) Use the MAP ID to locate the project on Figures 7 & 8
(2) In Existing TIP? - Project is identified in City’s or County’s current Transportation Improvement Program (2005 to 2010) or is funded as part of State’s Transportation Plan.
(3) Planning level project cost estimate in $1,000s of year 2005 dollars. Costs were obtained from the City’s current TIP or estimated based on average linear foot costs from recent projects.
(4) Other Agencies include WSDOT and Pierce County.
(5) Timing
  - Short (2006 - 2011)
  - Mid (2012 - 2018)
  - Long (2019 - 2025)
(6) Appendix D contains information on the evaluation criteria used to determine relative priority