1 BACKGROUND

Olympia’s programs, plans and policies specifically address pedestrian and bicycle systems separately and as they overlap. While titled “non-motorized,” this report specifies Olympia’s (section 2) policy framework, (section 3) existing and likely future conditions, (section 4) policy options and evaluation, and (section 5) recommended policies - separately for bicycle and pedestrian planning, it also highlights City programs and plan elements of shared, bicycle and pedestrian use.

The report references but succinctly summarizes the evaluation of multi-modal level of service policy options. For those readers interested in the detail, see Attachment Memorandum: *Multimodal Level of Service and Concurrency*.

2 FRAMEWORK

Benchmarks

Olympia’s *transportation plan* element is integrated in the Comprehensive Plan with land use context, and is specifically designed for a shift away from dependence on auto travel with strategies intended for multi-modal balance, all within a consistent framework as defined in the Regional Transportation Plan (RTP). Olympia’s non-motorized plans and programs are a reflection of the Comprehensive Plan, each developed with either policy of technical benchmarks by which they are guided. These planning efforts have summarized Olympia’s current non-motorized system well, and have identified critical gaps, or missing pieces of the City’s system to meet its vision, with priorities established to program bicycle and pedestrian improvements.

A. Bicycle

**Bike Lanes**

The Comprehensive Plan calls for *bike lanes* on all arterials and major collectors and specified neighborhood collectors.

B. Pedestrian

**Sidewalks**

Olympia’s *Sidewalk Program* identified project needs and priorities consistent with the Comprehensive Plan by completing sidewalks on major streets (arterials, major collector and neighborhood collector). Along these major streets are 75 miles of sidewalks, and 81 miles are missing sidewalks. The Sidewalk Program ranking system is based on proximity to pedestrian destinations and street characteristics, including:
• Schools, parks, public buildings, churches/places of worship, shops/malls, and community and senior centers,

• High density corridors, downtown, school walking routes, and transit routes, and

• Street characteristics - street functional classification, presence of bike lane/shoulder (buffer), missing link, consideration when sidewalks are missing on both sides of street.

Pedestrian Crossing Improvement Program

Recently updated in 2008, the City’s Pedestrian Crossing Improvement Program and is used to update the City’s Capital Facilities Plan by identifying pedestrian crossing safety improvements.

C. Shared Non-Motorized Use

Trails

Olympia’s Comprehensive Plan prioritizes trails that provide a direct connection (a) into Downtown, (b) to high-density corridors, and (c) allowing bicyclists to avoid difficult intersections or corridors.

Neighborhood Connections

Neighborhood connections are short-cut paths for cyclists and pedestrians that reduce route distances. Olympia’s Neighborhood Connection Study recommended priorities:

• Connections to trails such as the Chehalis Western Trail, Olympia Woodland Trail or new trails such as the Percival Canyon Trail.

• East-west connections that improve access between Cain Road and Boulevard, this being one of the areas of the City where streets are least connected.

• Connections that allow a bicyclist to avoid major intersections, highway interchanges and arterials without a bicycle facility.

• Connections to schools.

• Connections to transit centers and transit routes.

• Connections to parks.

The Study defined criteria to prioritize connections including: (a) pedestrian/bicycle facilities (quality of connection), (b) ownership (ease of acquisition for connection development), (c) land use (neighborhood design), (d) work required (constructability), and (e) importance (bonus points). The Study did not recommend specific changes, either to the City Code, Comprehensive Plan or design standards (EDDS), or changes or amendments to the Regional Trails Plan.

Neighborhood connections have been mapped. Planning-level cost estimates have not been prepared for the full list of neighborhood connections as costs may vary significantly between projects.
D. Washington State Bicycle Facilities and Pedestrian Walkways Plan

WSDOT has recently completed its Plan (2008) that summarizes a statewide goal with policies and performance measures. The Plan considered the Governor’s Executive Order [07-02] and emerging directives and initiatives addressing climate change and greenhouse gas emissions reduction. The Plan includes a goal to **double the percentage of total trips made primarily by bicycling and walking** in Washington within the next 20 years; and

3 EXISTING & LIKELY FUTURE CONDITIONS

Current System

**Bike Lanes**
In 2008, 56% of Arterials have bike lanes (14 miles) and 42% of Major collectors have bike lanes (18 miles). Currently the draft **Bike Master Plan** intends to move towards expanding this network on major streets. Olympia’s Bicycle Transportation Map is illustrated in Figures D-1a (city-wide) and D-1b (downtown.)

**Sidewalks**
Olympia’s **Sidewalk Program** identified project needs and priorities consistent with the Comprehensive Plan by completing sidewalks on major streets (arterials, major collector and neighborhood collector). These streets make up 42% of Olympia’s network; the remaining 48% are local streets. Along these major streets are 75 miles of sidewalks, and 81 miles are missing sidewalks. Olympia’s Sidewalk Program scoring of missing sidewalks along major streets is illustrated in Figures D-2a (city-wide) and D-2b (downtown.)

Olympia’s **Pedestrian Crossing Program**. Locations of pedestrian crossing projects include the High Density Corridors (see Comprehensive Plan) and other major pedestrian routes with the intention to provide improved street crossings at specific locations. These projects promote walking throughout the City by removing barriers along potential pedestrian routes. Since 2002, 55 locations have been requested for improvement. Using a screening tool that evaluates a crossing based on speed, number of lanes and volume; 34 of the 55 locations were targeted for an improvement, eight of the 34 have been addressed with improvements through this program since 2004.

Also, location criteria have been used to identify intersections Citywide that could be considered for pedestrian crossing improvements. The criteria include high density corridors, major streets and signalization. Over 80 intersections have been identified. This group of intersections was evaluated for need and level of improvement based on the screening tool. Qualified projects are then included in the Capital Facilities Plan (CFP). Based on Olympia’s current transportation funding sources, there is insufficient revenue to fund these improvement costs, and they have become largely dependent on grant funding.

**Table D-1** summarizes Olympia’s non-motorized programs, their planning-level cost estimates for Plan completion, the level of funding (by general source), the level of funding
included in the current (2009-2014) Capital Facilities Plan, projected funding in future CFP updates, and an estimate of Plan funding shortfall, either in the sort-term (2009-2014) or long-term (2015-2028) and beyond.
Bicycle Transportation Map & Trails*

Olympia Transportation Mobility Strategy

Legend
SRID
Freeway/Highway
Park
Olympia City Limits
Olympia UGA Boundary
Other Cities
County Land
Tribal Land

Street Classification
Existing
Arterial
Major Collector
Neighborhood Collector
Local
Future
(Widening)

Bikeway Classification
Existing
Class
Description
1
Shared-Use Path
2
Bike Lane
3
Shared Wide Vehicle Lane
4
Shared Vehicle Lane

Proposed Plan
10-Year
20-Year

TRPC Regional Trails Plan
Planned or Proposed
Shared Use
Recreational

*Note: Trails not adopted in Olympia Comprehensive Plan
Missing Sidewalks - Olympia Sidewalk Program (Downtown)
### Table D-1 Non-Motorized Funding

<table>
<thead>
<tr>
<th>Program</th>
<th>Year</th>
<th>Total Cost</th>
<th>Annual Budget</th>
<th>Source</th>
<th>Funded</th>
<th>Grants</th>
<th>Shortfall</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bicycle Master Plan</strong> ('09 Draft)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bike Lane Projects²</td>
<td>2009-2014</td>
<td>$13 million</td>
<td>$100,000</td>
<td>CIP $6 million</td>
<td></td>
<td></td>
<td>$11.8 million</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grant</td>
<td>$0.6 million</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Subtotal</td>
<td>$1.2 million</td>
<td>$11.8 million</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2015-2018+</td>
<td>similar to 09-14</td>
<td></td>
<td>unknown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sidewalk Program²</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreational Walkways</td>
<td>2009-2013</td>
<td>$6 million</td>
<td></td>
<td>Utility Tax</td>
<td>$6 million</td>
<td></td>
<td>$11.6 million</td>
</tr>
<tr>
<td></td>
<td>2014-2028+</td>
<td>$12 million</td>
<td>$25,000</td>
<td>Utility Tax</td>
<td>$350,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sidewalk Construction</td>
<td>2009-2013</td>
<td>$1.05 million</td>
<td>$46,000</td>
<td>CIP $1.05 million</td>
<td></td>
<td></td>
<td>$0.28 million</td>
</tr>
<tr>
<td></td>
<td>2014-2028+</td>
<td>$.92 million</td>
<td>$46,000</td>
<td>CIP $.64 million</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Subtotal</td>
<td>$11.8 million</td>
<td>$11.88 million</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pedestrian Crossings</td>
<td>2008-2013</td>
<td>$.3 million</td>
<td></td>
<td>CIP $.24 million</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3 projects)</td>
<td></td>
<td></td>
<td>Grant $.06 million</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Subtotal</td>
<td>$.3 million</td>
<td>unknown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2010-2028+</td>
<td>unknown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(103 projects)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighborhood Connections</td>
<td>2008-2009</td>
<td>$.2 million</td>
<td></td>
<td>Local Match</td>
<td>$.02 million</td>
<td></td>
<td>$.18 million</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Subtotal</td>
<td>$.2 million</td>
<td>unknown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2010-2028+</td>
<td>unknown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastside Downtown Streetscape</td>
<td></td>
<td>$4.7 million</td>
<td></td>
<td></td>
<td>$4.7 million</td>
<td></td>
<td>$4.7 million</td>
</tr>
<tr>
<td>Downtown Streetscape</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>unknown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trails</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>unknown</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Planning-level cost estimates determined using varied base years, not all costs are in 2009 dollars.
2. While summarized here as Non-Motorized programs, these projects are essentially Complete Street projects, intended to fix current, substandard streets by equipping them with appropriate bicycle and pedestrian facilities in accordance with Olympia’s sustainable, multi-modal street standards.

In general, Olympia’s current funding through its Capital Improvement Program is insufficient to meet its short-term bicycle facilities ($11.8 million shortfall) or sidewalk construction, pedestrian crossing and neighborhood connections programs. Significant progress is being made in funding recreational walkways based on dedicated revenue through the Utility Tax.
Mode Share
In 2007 (last survey), Olympia’s drive alone rate was 74.4%. Consistent with CTR law the citywide goal for a 10% reduction is a 67% drive alone rate.

Likely Future State

In the long-term, Olympia’s current transportation funding program (including the Utility Tax) will continue to support non-motorized project construction, but not at a level sufficient to complete the City’s significant program needs. As summarized in Table D-1, The long-term bicycle facilities and sidewalk construction programs are expected to be significantly under-funded. No funding source or measure has been identified to address downtown streetscape enhancements or the Neighborhood Connections, Trails or Pedestrian Crossing program needs, aside from wishful targeting of grant monies, which are becoming more competitive statewide.

Desired Future State

Comprehensive Plan Vision and Direction

Olympia’s Comprehensive Plan includes specific goals to (a) reduce dependence on auto use, especially drive-alone during commute hours and (b) establish and measure level of service to support transportation and land use goals; and meet concurrency requirements. As the general policy is to address Motor Vehicle LOS, there is a multi-modal emphasis; specifically a policy to consider setting a LOS standard for pedestrian and bicycle facilities.

As shown in Figures D-1a through D-2b, Olympia has a fairly extensive pedestrian and bicycle system, but several critical gaps yet to fill to reach its desired Plan.

A. Mode-Share Shift

Olympia’s Comprehensive Plan identifies a future target mode share of 60% Drive Alone. CTR law specifies that all jurisdictions now have a goal of a 10% reduction in the drive alone rate by 2011. For Olympia, the 2007 (last survey) drive alone rate is 74.4% so the citywide goal is a 67% drive alone rate.

The City’s Downtown Parking and TDM Plan targets a 10% reduction in downtown drive-alone in Olympia by year 2011. The 2010 CTR targets are:

- drive alone (59%)
- rideshare (17%)
- bike (4%)
- walk (8%)
- telecommute (2%), and
- transit (10%).

The following sections identify research indicators associated with non-motorized transportation and reduced auto trips, current non-motorized travel characteristics in
Washington State, and local standards and tools applied by Olympia to achieve greater pedestrian and bicycle connectivity.

1. Mode-Shift Research Indicators

There is a rich and deep bibliography in the study of urban transportation/land use relationships and their resultant travel mode share in the U.S. In a recent study of the Puget Sound area, Lee and Moudon¹ concluded with four land use and transportation factors associated with walking, and reducing auto trips (measured as VMT per capita):

- **Density**: residential units within 1 kilometer of household
- **Destinations**: grocery stores, restaurant, retail, schools nearby
- **Distance**: to key destinations
- **Route**: smaller blocks, more prevalent sidewalks (measures may include % 4-legged intersections and % sidewalk completion along streets)

The combination of these factors can have as much as 35% reduction in person miles traveled, the majority of which is undertaken by the predominant mode: auto (either as drive-alone or shared-ride).

From a transportation perspective, multi-modal connectivity (emphasis on pedestrian, bicycle and transit modes) is one of the key principles to achieving Olympia’s Comprehensive Plan vision and mode-share targets. Any independent and/or multi-modal assessment of Olympia’s non-motorized system needs or performance, and city-wide planning assessment through GMA/Concurrency, should logically be grounded in the measure of connectivity.

2. Current Washington Statewide Travel Characteristics

In Washington State, more than half of all trips are under three miles, yet 80 percent of these trips are made by car². FHWA reports that increased bicycle and pedestrian safety and mobility improvements in four pilot communities reduced the distance residents traveled by an estimated 156.1 million miles over a year. A reduction in the barriers that make walking and biking either uninviting or very difficult is important to replacing these very short car trips, with walking and bicycle trips.

3. Olympia’s Current Tools

Olympia has adopted small block size as part of their street standards and development code. This is a helpful and essential tool to guide new development towards better connected neighborhoods. This tool can also be applied through redevelopment of lands if opportunity exists to enhance non-motorized transportation access. The crux is code compliance:

---

² 2001 National Household Travel Survey (NHTS). U.S. Department of Transportation, Bureau of Transportation Statistics.
relaxing the code or missing the opportunity to apply it to re-development projects results in lost opportunity to gain important non-motorized connectors.

The City’s Engineering Designs and Development Standards (EDDS) are based on principles of Complete Streets, and serves as an excellent guide for transportation sustainability. Major additions to the City’s EDDS were completed in 2006 that focused on sustainable design standards for arterial, collector and local streets, emphasis on reducing lane widths, speed limits (reducing speed limits on streets from 40 and 45 mph to 35 mph ), curb (intersection) radius for greater attention to transit, bike and pedestrian access and safety, and larger dimensions for pedestrian and bicycle travel.

Olympia’s Sidewalk Program and plan to construct missing sidewalks is very important, especially in older, developed areas (typically lower density, single use) where re-development is not likely, and the street and pedestrian network is poorly connected. Olympia’s Bicycle Master Plan is also important, it identifies critical routes and important connections (some with significant gaps or missing connectors) that are to be gained, either through re-development or as part of other future transportation improvement projects.

B. Multi-Modal LOS

Olympia’s Comprehensive Plan includes the policy recommendation to consider a multi-modal LOS standard. The Attachment Memorandum: Multimodal Level of Service and Concurrency includes the evaluation of multi-modal LOS options.

Supplemental Plans, Programs and Policy

A. Neighborhood Connections

Neighborhood connections are short-cut paths for cyclists and pedestrians that reduce route distances. Olympia’s Neighborhood Connection Study recommended priority connections: (a) to existing and planned trails, (b) to east-west connections that improve access between Cain Road and Boulevard (an area of poor connectivity), (c) that allow bicyclist to avoid major intersections/interchanges and arterials without a bicycle facility, (d) to schools, (e) to transit centers and (f) to parks.

The Study defined criteria to prioritize connections including: (a) pedestrian/bicycle facilities (quality of connection), (b) ownership (ease of acquisition for connection development), (c) land use (neighborhood design), (d) work required (constructability), and (e) importance (bonus points). The Study did not recommend specific changes, either to the City Code, Comprehensive Plan or design standards (EDDS), or changes or amendments to the Regional Trails Plan.

The Neighborhood Connections have not quantified with planning-level cost estimates.
B. Pedestrian Crossing Improvement Program

Olympia’s Pedestrian Crossing Improvement Program was first drafted in 2006 and is used to update the City’s Capital Facilities Plan by identifying pedestrian crossing safety improvements. Citizen requests for improved pedestrian crossings are considered and evaluated based on speed, traffic volume and number of travel lanes that pedestrians cross. Depending on the conditions of a crossing, bulb-outs, crossing islands, or in-pavement crosswalk lighting systems are used to enhance the safety of the crossing. The Program also includes procedures that can be applied for a more comprehensive system-wide ranking system.

Rather than rely solely on the citizen’s request basis, a system-wide evaluation of Olympia’s arterial and collector street system would help identify greater pedestrian connectivity through additional street crossings. In addition to the crossing projects already identified, a more comprehensive set of projects could then evaluated and prioritized for programming in the City’s Capital Facilities Plan. At the current funding level, one crossing approximately every three years is completed. The total program could be mapped in relationship to the Sidewalk Program and Bicycle Master Plan.

Both of these programs help Olympia identify important pedestrian and bicycle system gaps and projects to improve non-motorized connectivity.

4 POLICY OPTIONS AND EVALUATION

Enhanced Street Connectivity
In the attachment memorandum Street and Non-Motorized Connectivity, contemporary research is noted where higher levels of street and non-motorized connectivity are found to yield (a) reduced auto travel per capita and (b) safer travel conditions (lower travel speeds which result in lower accident severity). These characteristics are most pronounced when higher levels of street connectivity and sidewalk system coverage compliments higher density and mixed land uses. The technical memorandum also describes common barriers to achieving connected street and non-motorized networks, and various methods in measuring connectivity quality.

Multi-Modal Level of Service
See Attachment Memorandum: Multimodal Level of Service and Concurrency for the evaluation of options.

Street Typology – Emphasis on the Pedestrian Zone and Linkage to Transit

Olympia’s street functional classification policy and map largely compliments its recently developed and adopted street design standards, which have very well-defined multi-modal components. The combination of these policies and standards may and generally well-suited to provide the appropriate dimensions and best fit for transit, bike and pedestrian facilities to
match most adjacent land use (current and planned) and the planned and emerging transit system in Olympia. A minor enhancement to these policies, in the form of a policy overlay, may be useful to better fit the future Primary Transit Network (see Appendix C) with appropriate pedestrian features.

Similar to the principles embodied within several corridor studies commissioned and completed by Staff in recent years, use of street typologies can be highly beneficial. Street typology helps define more unique street use and design features (e.g. intersections, sidewalks, bus stops) that support adjacent land uses have proven helpful to other cities. This is particularly true in areas where the street system and rights-of-way (ROW) have already been established (and often constrains the City’s ability to ultimately fit all modal features), land is under re-development (or anticipated) with increased density, and the type and frequency of transit is planned and expected to increase.

Development of street typologies requires careful consideration of land use context (type, mix and density) and the trade-off decision-making necessary to accomplish the desired modal within limited and oftentimes highly constrained ROW. Primary and secondary modal prioritization within specific corridors is often required, while simultaneously examining system-wide impacts.

For example, Olympia’s Comprehensive Plan embraces transit; yet its current street design standards and functional classification policy and map (while consistent) do not fully distinguish between arterial streets of a highly important transit function (Primary Transit Street) with similar streets with no transit service of any kind.

The type and width of buffering between the sidewalk and street along Olympia’s arterial street types designate, with latitude, the space to build more pedestrian friendly streetscapes. Similar latitude is not readily definable along existing streets within constrained ROW.

The addition of a street typology overlay to Olympia’s Street Functional Classification policy and design standards can assist the City through better planning for transit and pedestrian facilities along planned Primary Transit Streets. Typology overlays can also guide land and street network redevelopment where current public ROW is limited or constrained, by acknowledging primary and secondary modal emphasis and providing greater space for:

- **Pedestrian access**, particularly along major street corridors where additional pedestrian crossings are desired and planned.
- **Transit service** and access to transit along Primary Transit routes and within major transit station areas.

As example, Olympia’s arterial and arterial boulevard street class and standard can be supplemented with a typology that is generally depicted in Figure D-3.
Figure D-3: Example Street Typology Overlay – Emphasizing Transit and Pedestrian Modes

Not shown: Curb extension separating on-street parking and bus stop

Primary Transit Street Typology better defined with bus stop/pedestrian platform extended to inside edge of bike lane

Street Function Priority

<table>
<thead>
<tr>
<th>PRIMARY</th>
<th>Secondary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transit</td>
<td>Auto/Truck</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>Bicycle</td>
</tr>
</tbody>
</table>
5 FINDINGS and RECOMMENDED POLICY

Findings

The most notable findings in review of Olympia’s Comprehensive Plan, various pedestrian and bicycle plan components, Capital Facility Plan, Concurrency Program and contemporary research relevant to non-motorized travel are listed here.

From a non-motorized planning perspective, and in addition to all its other current planning practices, success will be best achieved when Olympia *emphasizes connectivity*.

- Olympia desires a balanced, multi-modal system to meet its Comprehensive Plan and Vision.

- Olympia’s Comprehensive Plan identifies a future target mode share of 60% Drive Alone, helping it achieve its goals for a sustainable transportation system, with reduced reliance on the automobile for mobility needs, resulting in a reduction in greenhouse gas emissions (per capita). In addition to transportation-efficient land use, developing a *well connected* street and non-motorized system is key to achieving the Olympia’s Comprehensive Plan goals.

- Olympia has recently revised its codes and standards for better, multi-modal system development.

- Olympia has completed important, very high quality and valuable non-motorized planning efforts which are directly based on the Comprehensive Plan vision. Together they define a well-connected plan for pedestrian and bicycle networks within the Olympia urban area. Supplemental policies are needed to ensure critical non-motorized connectors are completed as land development occurs.

- Based on locally defined policy, goals, objectives, and measurement criteria, Olympia’s non-motorized plans have sufficiently identified the majority of system connectivity needs: critical projects that help make important connections, filling gaps for a comprehensive system. Some of the projects are needed to serve growth, others needed to fill gaps within the already built environment. Several of the plans have identified short- and long-range costs estimates; others have more work to complete before a full cost is identified.

- The Comprehensive Plan, originally defined several years ago, prior to the City’s recent pedestrian and bicycle system plans development, included the policy to consider multi-modal LOS. Presumably, the stated need for a multi-modal LOS policy was to assist in defining non-automobile system needs as part of their growth management planning efforts (which have mostly now been completed).
Many national and regional studies have evaluated options and attempted to develop appropriate multi-modal LOS or quality of service (QOS) measures, either to define transportation needs; or in applications of city-wide growth management policy, or both. Each study culminated with findings that no single and comprehensive, multi-modal LOS/QOS measurement tool is easily defined and applied: they often fit for one or two of the four primary modes (auto, transit, bike, pedestrian), but yield inconsistent and contravening results for others.

There may be unintended consequences if Olympia were to develop mode-specific LOS measures, particularly for bicycle and pedestrian, with intended application to revise its transportation impact fee to include non-motorized capacity improvements. The fundamental problem is known and acknowledged: Olympia’s current non-motorized system is incomplete (wasn’t built to existing standards), and the City has limited funding to improve it. As is the case for most impact fee policies and methodologies, the cost to correcting existing deficiencies is not impact fee eligible. The incompleteness of Olympia’s current non-motorized system is more easily argued an existing deficiency, and henceforth not eligible for impact fee funding. With new pedestrian and bicycle LOS measures it will be extremely difficult to define and differentiate existing vs. future deficiencies, and then define and defend a clear nexus between growth impacts and the need to complete important pedestrian and bicycle facilities in existing corridors.

New LOS/QOS measures for bicycle planning and policy application can be useful in multi-modal needs analyses, but they require extensive data collection efforts and may yield results that contradict Olympia’s current program findings (e.g. needed bicycle lane projects as identified in the Bicycle Master Plan). It is important to note, however, that these bicycle LOS/QOS measures apply only to on-street bicycle facilities and not shared-use paths and trails or neighborhood connections, many of which may be crucial gap-fillers in Olympia’s plan).

If there is lingering dispute over Olympia’s Bicycle Master Plan and other bicycle plan findings, mainly defined project “needs” and their costs, perhaps a more robust bicycle LOS/QOS measure and application may be helpful. The results can be used to reaffirm the BMP findings and their role in Olympia’s growth management planning. Otherwise, the additional cost and effort to fully test and document a bicycle LOS/QOS measures will likely exceed its worth.

Cities that have developed and applied multi-modal measures have all concluded that locally-defined measures which account for the quality of the pedestrian environment while scoring systems evaluation (needs analyses) and concurrency yield the best results, consistent with locally-defined Comprehensive Plans.

Non-motorized LOS/QOS measures developed elsewhere are generally helpful in corridor-specific applications, but are insufficient tools in the analysis of bicycle and pedestrian system connectivity.
• Olympia can improve its bicycle and pedestrian system plans for better fit and consistency with its concurrency program by emphasizing the measure of land use and non-motorized network connectivity. Additional but not necessarily extensive GIS mapping and analyses of current land use (land type, density, etc) and transportation system data (street network - % 4-legged intersections; and sidewalk coverage - missing sidewalk data) can yield additional weighting criteria for use in re-prioritization of Olympia’s current, long-range plan projects. The result is an improved growth policy nexus: prioritizing non-motorized connections that help yield reduced auto travel (per capita). This may prove as a helpful tool within Olympia’s concurrency program, linking new development contribution towards completing Olympia’s pedestrian and bicycle network.

• The consensus: there’s no silver-bullet, multi-modal LOS/QOS measure that Olympia can apply in their multi-modal and growth management planning that improves upon their current program.

• Olympia’s non-motorized program is significantly under funded. If it is Olympia’s desire to see fruition of its Comprehensive Plan vision within the next 20-30 years, it will need to secure additional revenue or growth management policy direction.

• For Olympia’s Concurrency Program, the key objective should be the completion of priority bicycle and pedestrian connections that help the City achieve its goals.

Olympia’s non-motorized transportation system plan issues can be distilled to a common theme – the need is for greater pedestrian and bicycle connectivity to help the City reach its transportation vision and goals: (a) mode-share shift away from drive-alone travel and (b) safe and convenient place to walk and bike. The greater non-motorized planning and policy issue at present, is not the lack of system performance measures (LOS or QOS) or benchmarks, but lack of sufficient funding and funding mechanisms to manage growth while programmatically completing its well-prepared, long-range plans.
Recommended Policies

Olympia’s pedestrian and bicycle transportation plans and policies have been very well prepared. Some refinement is needed for Olympia to achieve its goals and vision. This section includes specific recommendations for policy and program refinement in the following four areas: non-motorized network connectivity, multimodal concurrency program, street typology and funding.

1. Street Connectivity

Local policies and statutes are required to help ensure street and non-motorized connectivity measures are implemented. This section summarizes five areas of policy refinements Olympia should pursue and adopt to implement improved non-motorized networks. They include: Complete Streets policy, mapping required non-motorized connections, local street and non-motorized connectivity policies, revisions to development codes, and implementation of non-motorized network connectivity measurement tools for plan evaluation.

A. Adopt Complete Streets Policy

*Complete Streets* are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and transit riders of all ages and abilities must be able to safely move along and across a complete street. Creating *Complete Streets* means transportation agencies must change their orientation toward building primarily for cars. Instituting a *Complete Streets* policy ensures that transportation

---

3 Olympia’s local development code was not reviewed prior to preparing this report. Some of these recommended policies or portions of them may already be embodied in the City’s development code.
agencies routinely design and operate the entire right of way to enable safe access for all users. Places with Complete Streets policies are making sure that their streets and roads work for drivers, transit users, pedestrians, and bicyclists, as well as for older people, children, and people with disabilities.

Much of Olympia’s current policies, standards and plans already reflect the very nature of Complete Streets. New statewide GMA legislation is expected over the next few years that may require locally-adopted Complete Streets as an important evaluation criterion for statewide transportation grants.

If for no other reason than formality, Olympia should consider and adopt a Complete Streets policy in the general form of:

**Guiding Principle:** To design, operate and maintain City’s streets to promote safe and convenient access and travel for all users; pedestrians, bicyclists, transit riders, and disabled users, as well as cars and trucks. This will be accomplished by -

1. Designing, operating and maintaining the transportation network to improve travel conditions for bicyclists, pedestrians, transit and freight, in a manner consistent with and supportive of the surrounding community;

2. Providing where practical an array of facilities and amenities that are recognized as contributing to Complete Streets, including: street and sidewalk lighting; pedestrian and bicycle safety improvements; access improvements for freight; access improvements in accordance with the Americans with Disabilities Act; public transit facilities accommodation, including but not limited to pedestrian access improvement to transit stops and stations; street trees and landscaping; and street amenities; and

3. Implementing policies and procedures with the construction, reconstruction or other changes of transportation facilities on arterial streets to support the creation of Complete Streets including capital improvements, rechannelization projects and major maintenance, recognizing that all streets are different and in each case user needs must be balanced.

**Map Required Local Street and Non-Motorized Connections**

Olympia maps new (future) arterial and collector street connections in the comprehensive Plan as a guide for new development to complete important street connections. For the same reason, mapping important local street and exclusive non-motorized network connections in areas of future development helps ensure important local street and exclusive pedestrian/bicycle connections are built between new development and the existing street and pathway networks. The purpose of the mapping is to identify contiguous areas of vacant and under-developed parcels (area size to be determined locally) of planned or zoned residential or mixed-use development, and prepare a conceptual local street/non-motorized network plan that identifies the most important local street and exclusive non-motorized path connections that will improve local access and preserve the integrity of the street functional classification system and pedestrian and bicycle system plans. This local street plan map is then used in the development review and permitting process to ensure the construction of local street connections to adjacent areas that promote a logical, direct and connected local street system. (see Technical Memorandum Street and Non-Motorized Connectivity for map example).
Olympia should develop the local street/non-motorized network connection map or set of maps and adopt it as part of the Comprehensive Plan and relevant land development regulations. The maps should indicate potential connections and the general direction for the placement of the street and critical non-motorized connections. The policy should note that specific alignments and design will be determined at the development plan review stage. The criteria used to identify these connections are as follows:

- 330-foot grid for pedestrians and bicycles
- 500- or 530-foot grid for automobiles

**Adopt Local Street Connectivity Policies**

Olympia should adopt the following local street connectivity policies:

- **Connectivity to the Street System and Neighborhood Activity Centers** - Applicants submitting preliminary development plans shall provide for local street connections toward existing or planned streets and neighborhood activity centers located within one-half-mile of the development.

- **Connectivity of New Developments to Adjoining Undeveloped Land** - Applicants submitting preliminary development plans shall provide for extension of local streets to adjoining undeveloped properties and eventual connection with the existing street system. Street alignments should be sensitive to natural features, topography, and layout of adjacent development.

- **Sidewalks** - All development shall include sidewalk and walkway construction as required by Development Standards and Codes. All new street construction or reconstruction projects shall include sidewalks as specified in the City’s standards and codes.

- **Block Standards** - The City shall set a maximum block-length standard of 500 feet between street centerlines unless the City determines that adjacent layout or topographical conditions justify greater length.

- **Public Accessways** - The City shall require pedestrian and bicycle accessways to connect to cul-de-sac streets, to pass through long blocks, and to provide for networks of public paths creating non-motorized access to neighborhood activity centers.

- **Street Width (minimize)** - In order to facilitate pedestrian crossing, discourage through traffic, and reduce speeds, local streets shall not be excessive in width. However, public local streets must have sufficient width to allow for emergency access and provide parking on at least one side.

- **Discouraging Cut-through Traffic** - Local streets shall be designed to minimize cut-through traffic. Limiting street length, width, and the installation of traffic calming measures may be used to discourage through traffic from using local streets.

- **Purpose of Cul-de-sac Streets** - The purpose of cul-de-sac streets shall be to increase density by accessing land not otherwise accessible through a connected street pattern due to topography or other constraints. Construction of cul-de-sac streets shall be prohibited otherwise.
• **Cul-de-sac Street Length** - Cul-de-sac streets shall not exceed 200 feet in length.

**Revise Development Code**

Olympia’s development codes should be revised in the following areas.

*Grid-Based Standards:* For residential and mixed-use areas Olympia should require the following grid-based standards (with exceptions for certain barriers to providing connectivity):

- Street grid: 500 feet
- Non-Motorized grid: 330 feet

*Bike and Pedestrian Accessways:* When full street connections are not possible the developer must provide bike and pedestrian accessways on public easements or rights of way in lieu of streets.

*Limiting Dead-Ends and Cul-de-sacs:* Developments must limit the use of closed-end streets (cul-de-sacs) to situation where barriers prevent a connected street network. When built, these streets must be no longer than 200 feet, with no more than 25 residential units.

**Develop Connectivity Metric for Citywide Plan Evaluation, Development Site Plan Review and Evaluation, and Concurrency Program**

Olympia should consider the connectivity measurements summarized in the technical memorandum *Street and Non-Motorized Connectivity* and establish new measurement baselines. This effort will require a moderate level of GIS analysis to determine current baseline street and non-motorized system metrics for both small geographic areas (census block group) and larger concurrency zones. The analysis will help determine the most appropriate connectivity measure for use in Olympia’s planning, and desired connectivity thresholds by distinctive land use characteristics identified in the Land Use element of the Comprehensive Plan. The connectivity measure should then be used to supplement plan findings and prioritization schemes, and will serve to better monitor successful implementation of street and non-motorized path network improvements that meet established criteria. Measuring intersection density (percent four-way intersections) as the primary connectivity index is recommended, as it has been identified as a consistent transportation metric that reflects variation in both (a) mode-share and (b) traffic safety.

Examples metrics might include:

- Percent completion of (a) local street, (b) pedestrian, and (c) bicycle networks meeting planning criteria (e.g., number of improvements, miles of improved local street network and non-motorized network), and
- Improvement in connectivity index (e.g., yes/no, percent change in index for the project’s area – could be a section or other sector).
Enhanced metrics for connectivity will help local plan and policy in a number of ways:

- registration and documentation of important/priority of exclusive, non-motorized connectors, which contribute to overall and improved connectivity,
- quantify the need for pedestrian crossings along major arterials, and in combination with measures of greater land use density and mix, establish quantification measures that demonstrate nexus to vehicle miles traveled per capita, helping address emerging greenhouse gas emissions policy, and
- supplement the City’s Concurrency Program for multi-modal measures (see below).

Upon completing tests and confirming appropriate connectivity metrics for concurrency metrics, Olympia should then supplement these measures with additional mapping and analyses to identify refinements to bicycle and pedestrian system plan needs and priorities. Specific steps include:

**Bicycle Master Plan**

- GIS analysis of land use and street/bike network connectivity as input to revise Bicycle Master Plan project priorities, coordinated with Concurrency policy revisions
- Additional weighted prioritization short- and long-range bike lane and other bicycle improvement projects with direct access to *Primary Transit*
- Further coordination of possible joint, BMP/Sidewalk Program project development
- Consideration of more extensive Bicycle Boulevard treatments and improvements, jointly developed with Sidewalk and Pedestrian Crossing Programs and Parks Program (as possible linear parks)

**Pedestrian System Plan (includes shared-use facilities)**

- GIS analysis of land use and street/pedestrian network connectivity as input to revise Sidewalk Program priorities, coordinated with Concurrency policy revisions
- Revision of Street Functional Classification Policy and Map with Street Typology overlay which emphasizes the full Pedestrian Zone, varied dimensions and range of pedestrian facilities in relation to adjacent land use, new vs. constrained corridors
- Further development of arterial and major collector street spacing guidelines and planning-level cost estimates of the city-wide Pedestrian Crossing Program
- Re-prioritization of joint- of combined projects between the Sidewalk and Pedestrian Crossing Programs and Bicycle Master Plan
- GIS analysis of land use and neighborhood connections and trails network connectivity as input to revise non-motorized system priorities, coordinated with Concurrency policy revisions
- Further development of planning-level costs for Neighborhood Connections Plan, with project prioritization consistent with Bicycle Master Plan and Sidewalk Program, with weighted priority for direct access to *Primary Transit*
- Continued pursuit, with regional partners, additional grant funding for Regional Trails Plan Projects
2. Assimilation Pedestrian System Plan
Olympia’s component pedestrian and bicycle system plans a very well prepared. The Bicycle Master Plan is currently being completed and is an excellent document and reference for long-range bicycle planning. We recommend that Olympia prepare a similar document for the full pedestrian system plan, which assimilates current plan material with the addition:

- Identification of system-wide pedestrian crossings (emphasis on arterial street crossings that match pedestrian connectivity grid spacing, noted above), including planning-level cost estimates.
- Planning-level cost estimates of critical Neighborhood Connectors (at a minimum, priority connectors identified in further evaluation steps recommended above).
- Refinement to pedestrian system prioritization based on connectivity measures noted above.
- Mapping of Sidewalk program priorities – sidewalks, neighborhood connectors, shared-use paths and trails and pedestrian crossings.
- Consistent base-year units costs and 20-year planning-level costs for range of pedestrian and Neighborhood Connector project needs.

3. Concurrency Program Refinement – New Person-Trip Capacity
To address GMA requirements, promote and encourage in-fill and transit-oriented developments, promote and encourage non-motorized and transit travel, help achieve mode-share targets and reduced emissions (per capita), Olympia should reconsider its Concurrency Program. Revisions should include non-motorized planning needs analyses which define and prioritize Concurrency “system” improvement needs (connectivity) rather than “project” needs. TRPC’s current Regional Travel Demand Model and household activity survey should be employed to help quantify mode-share and validate current auto and transit system demand and supply. With relative ease, current system data used in a multi-modal concurrency program includes street volumes (peak hour(s) to be chosen) and capacity, peak hour transit ridership and capacity system, non-motorized “system” priorities (see Non-Motorized Travel report), and (d) person-trip credits for non-motorized facility improvements made by development matching “system” needs for those developments exceeding concurrency thresholds.

Olympia should evaluate and test Bellingham’s new concurrency program. It has several elements that are of significant potential for local adoption:

1. It’s based on person trips rather than auto trips, a policy emphasis more consistent with Olympia’s Comprehensive Plan.
2. Does not require travel demand model development, refinement and annual application; which can require extensive staffing and cost and is likely difficult to track.
3. Offers unique adjustments for transportation-efficient land use plan areas (e.g. density, mixed-use, transit-, bike- and pedestrian-friendly uses).
4. Encourages land development in areas where transit and non-motorized systems are more complete and have available capacity.

5. **Provides additional person-trip capacity for developments that provide concurrency mitigation by direct funding or construction of priority pedestrian and bicycle facilities within specific concurrency service areas.** These concurrency mitigation steps to directly fund non-motorized improvements are separate from the traffic impact fee program.

Bellingham’s new program is a good one to consider as a baseline for further refinement and testing, but is not suited for immediate application in Olympia. Olympia will need to conduct more detailed assessment of key concurrency program elements prior to policy adoption:

- Evaluate need for refinement to original designation and drawing of concurrency service area boundaries – determine whether current four service area boundaries are sufficient, or if further disaggregation is needed to best apply modal preference and mitigation requirements.
- Assess and refine (if needed) current vehicular LOS thresholds to determine appropriate capacity thresholds, considering prevailing land use plan objectives, per service area.
- Refine non-motorized plans to also include additional pedestrian crossing (arterial and collector street crossings) and neighborhood connector projects as potential concurrency mitigation measures, by service area.
- Integration of street and non-motorized system connectivity indices coupled with “percent complete” measures as critical thresholds for non-motorized person-trip credits, by service area.
- Consideration of Transit plan recommendations for Primary Transit Network (additional transit system capacity).
- Consideration of transportation demand management (TDM) and transit system projects (and their costs) suitable for concurrency mitigation (see Transit Master Plan and Modal Report), by service area.
- Consideration of long-term (20-year), land development potential in the form of person-trip generation), with comparison to concurrency person-trip capacity and potential mitigation measures and their costs.

The technical and policy evaluation of a revised concurrency program may take as many as 12-24 months.

Until the evaluation is complete, Olympia should not adjust its current auto LOS standards.

### 4. Street Typology

The City should consider the addition of a street typology overlay to Olympia’s Street Functional Classification policy and design standards to better plan for transit and pedestrian facilities along planned Primary Transit Network (see Appendix C) routes. Typology overlays help emphasize primary (transit and pedestrian) and secondary (auto) modal priority by providing greater space for:
• **Pedestrian access**, particularly along major street corridors where additional pedestrian crossings are desired and planned.

• **Transit service** and **access to transit** along Primary Transit routes and within major transit station areas.

5. **Funding**
The City is maintaining its Concurrency Program, with targeted infrastructure expansion with vehicle capacity (streets and intersection projects) to meet the impact of foreseeable, short-term (6-year plan) growth planning. Other street improvements in the Comprehensive Plan may require an investment level that the City might not attain within the longer-term plan (20-25 years). This is especially true when the costs of the “complete street” projects to improve pedestrian (Sidewalk Program) and Bicycle Master Plan program needs are also considered.

While the City must maintain planning priority to fund its current transportation programs, additional revenue will be needed to complete important non-motorized improvements. This topic is the subject of greater attention in the Transportation Funding report (Appendix E) and Recommended Strategy (strategies for funding).
## Summary: Priority and Timeline of Recommended Policies

<table>
<thead>
<tr>
<th>Recommended Policy</th>
<th>Priority</th>
<th>Timeframe (years)</th>
</tr>
</thead>
</table>
| Adopt Street and Non-Motorized Connectivity Policies  
  *Complete Streets Policy*  
  Map Required Local Street Connections  
  Local Street and Non-motorized Connectivity Policies  
  Revise Development Code (if needed) | High     | 1                 |
| Develop Street and Non-Motorized Connectivity Metrics                             | High     | 1                 |
| Assimilation Pedestrian System Plan                                               | High     | 1                 |
| Evaluate and Adopt Multi-Modal Concurrency Program and Policy                     | High     | 1-3               |
| Enhance Local Funding  
  (pending outcome/performance of revised concurrency program)                   | Moderate | 4-5               |
| Adopt Street Typology Overlay                                                    | Moderate | 4-5               |