Appendix A: The Transportation Element

Adopted by Lynden City Council on:
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CITY OF LYNDEN
TRANSPORTATION ELEMENT

Prepared for:
City of Lynden

September 2016

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# Table of Contents

Table of Contents ........................................................................................................ iii

Introduction .................................................................................................................. 1

1. Goals and Policies .................................................................................................. 5

2. Existing Transportation Facilities and Conditions .............................................. 10
   2.1. Planning Context .......................................................................................... 10
   2.2. Roadway Network ...................................................................................... 10
   2.3. Transit ......................................................................................................... 27
   2.4. Non-Motorized ........................................................................................... 30
   2.5. Rail Facilities .............................................................................................. 33
   2.6. Air Facilities ............................................................................................... 33

3. Travel Forecasts Evaluation .................................................................................... 34
   3.1. Land Use Forecasts ..................................................................................... 34
   3.2. 2036 Forecast Travel Conditions ............................................................... 41
   3.3. Transit ......................................................................................................... 46
   3.4. Plan Framework ......................................................................................... 47

4. Transportation Systems Plan .................................................................................. 48
   4.1. Vehicle and Non-Motorized Networks .......................................................... 48
   4.2. Transportation Projects & Programs ............................................................. 52
   4.3. Public Transportation and Travel Demand Management Plans .................. 63
   4.4. Freight System ............................................................................................ 64
   4.5. Waterborne, Rail, and Air Transportation ................................................... 64

5. Financing Program .................................................................................................. 66
   5.1. Project and Programs Cost Estimates ............................................................ 66
   5.2. Funding Analysis with Existing Revenue Sources ....................................... 69
   5.3. Forecasted Revenue Shortfall ...................................................................... 72
   5.4. Potential Options to Balance the Plan .......................................................... 74
   5.5. Reassessment Strategy ............................................................................... 75
List of Tables
Table 2-1 Existing Major Roadways ........................................................................................................... 12
Table 2-2 Roadway Functional Classification .............................................................................................. 13
Table 2-3 Intersections with Crash Rates Exceeding the Critical Crash Rate .............................................. 23
Table 2-4 Collision Types for Intersections Exceeding Critical Crash Rate ........................................... 24
Table 2-5 Existing (2015) Fixed Route Ridership Summary ...................................................................... 27
Table 3-1 Change in 2013 Existing and 2036 Forecast Land Use ............................................................... 35
Table 3-2 Forecast Conditions (2036) LOS Summary of Intersections Approaching City LOS Standards ...................................................................................................................... 44
Table 4-1 Project List .................................................................................................................................. 53
Table 5-1 Transportation Project and Program Costs (2016 – 2036) ......................................................... 67
Table 5-2 2016-2036 Transportation Revenues ......................................................................................... 69
Table 5-3 Forecasted Revenues and Costs .................................................................................................. 73

List of Figures
Figure 2-1 Roadway Network ....................................................................................................................... 11
Figure 2-2 Roadway Functional Classification and Intersection Traffic Control ........................................ 16
Figure 2-3 Existing (2015) Traffic Volumes ................................................................................................. 21
Figure 2-4 Existing (2015) Intersection LOS ............................................................................................ 22
Figure 2-5 Freight Routes ............................................................................................................................. 26
Figure 2-6 Existing Transit Service ............................................................................................................. 29
Figure 2-7 Existing Non-Motorized Facilities ............................................................................................ 32
Figure 3-1 2015 and 2036 Household and Employment Growth for the City and UGA ............................ 35
Figure 3-2 Household Annual Growth Rates for 2004 and 2016 Transportation Plans ................................ 36
Figure 3-3 Household Growth by District .................................................................................................. 36
Figure 3-4 2015 and 2036 Employment Sectors in the City and UGA ..................................................... 38
Figure 3-5 Employment Annual Growth Rates for 2004 and 2016 Transportation Plans ........................... 39
Figure 3-6 Employment Growth by District .............................................................................................. 39
Figure 3-7 Traffic Volume Growth (2015 – 2036) ..................................................................................... 40
Figure 3-8 Future (2036) PM Peak Hour Traffic Volumes ........................................................................ 42
Figure 3-9 Future (2036) Forecast Intersection LOS ................................................................................. 45
Figure 4-1 Future Non-Motorized Network ............................................................................................... 51
Figure 4-2 Transportation Improvement Projects ...................................................................................... 55
Figure 4-3 Safety and Capacity Projects .................................................................................................. 59
Figure 4-4 Multimodal Connections and Corridor Upgrade Projects .......................................................... 60
Figure 4-5 Active Transportation Projects ............................................................................................... 61
Figure 4-6 Other Agency Projects ............................................................................................................. 62
Introduction

The City of Lynden is located in rural Whatcom County approximately 11 miles north of the Interstate 5 (I-5)/Guide Meridian (SR 539) interchange near the Bellis Fair Mall in Bellingham, Washington. The north city limits are 3½ miles from United States border with Canada.

Lynden has a population of approximately 13,000. The City is roughly 5 square miles in size and extends from the Nooksack River on the south to Badger Road a state highway (SR 546) to the north. Another state highway, SR 539, runs through the community. Guide Meridian (as SR 539 is called) links Bellingham and I-5 to the Canadian Border.

The City adopted its previous Transportation Plan as part of its Comprehensive Plan in 1995. The 1995 Transportation and Comprehensive Plans were prepared to meet the requirements of the Washington State Growth Management Act (GMA). In 2003, the City identified a need to update the Transportation Plan to address the impacts of growth within the City and its Urban Growth Area (UGA). The update was also needed to address changes in available transportation funding, development standards, and changes in the GMA.

The Transportation Element provides the framework to guide the growth and development of the City’s transportation infrastructure. It also integrates land use and transportation by ensuring existing and future developments are adequately supported by the transportation system. The Transportation Element addresses the development of a balanced, multimodal transportation system by recognizing the regional nature of the transportation system and the need for continuing interagency coordination.

The Transportation Element establishes the City’s goals and policies for developing the transportation system within the City. The Transportation Element update is based on the 2004 Transportation Plan, combined with projections of future growth and transportation needs in 2036. The transportation element is comprised of five sections:

- Goals and Policies
- Existing Condition of Transportation Facilities
- Travel Forecasts Evaluation
- Transportation Systems Plan
- Financing Program

The Transportation Element is intended to serve as a guide for making transportation decisions to address both short and long-term needs. To meet Growth Management Act (GMA) requirements, the Transportation Element must identify existing transportation system characteristics, establish standards for levels of service, and identify existing and future deficiencies based on land use growth projections. The Transportation Element also discusses roadway mobility and accessibility needs, identifies improvements necessary to enhance safety, bicycle and pedestrian travel, and public transit. Consistent with the other elements of the Comprehensive Plan, the Transportation Element establishes a policy framework for making
decisions consistent with the City’s vision, and describes a strategy for accomplishing the City’s vision over the 20-year planning horizon.

**Plan Development**
The development of the Lynden Transportation Element Update was approved by the Lynden City Council to provide an update to the adopted 2004 Lynden Transportation Element. The purpose of the 2016 Transportation Element is to provide an update to the existing Transportation Element by identifying and evaluating the transportation improvement plans for the City through the years 2016 and 2036.

The plan was developed to address future land use growth and identify transportation needs to support the expected growth. The plan is needed to satisfy Growth Management Act (GMA) requirements and to update the County’s transportation improvement projects funding program. The following sections summarize the regulatory setting and regional planning efforts that guided the development of the Transportation Element.

**Growth Management Act Requirements**
Under the Growth Management Act (RCW 36.70A.070), referred to herein as the GMA, the Transportation Element is required to assess the needs of a community and determine how to provide appropriate transportation facilities for current and future residents. The Transportation Element must contain:

- Inventory of existing facilities;
- Assessment of future facility needs to meet current and future demands;
- Multi-year plan for financing proposed transportation improvements;
- Forecasts of traffic for at least 10 years based on adopted land use plan;
- Level of service (LOS) standards for arterials and public transportation, including actions to bring deficient facilities into compliance;
- Transportation Demand Management (TDM) strategies, and;
- Identification of intergovernmental coordination efforts.

Additionally, under GMA’s Concurrency Mandate, development may not occur if the development causes the transportation facility to decline below the City’s adopted level of service standard unless existing infrastructure exists or strategies to accommodate the impacts of the development are made *concurrently* with the development; specifically, the impacts must be mitigated within six years of the development’s completion. This mandate extends to include state highways, which applies to Lynden.

Finally, the Transportation Element must include a reassessment strategy to address how the plan will respond to potential funding shortfalls.

**Countywide Planning Policies**
The GMA also requires that counties adopt Countywide Planning Policies (CWPPs) to guide and coordinate issues of regional significance. Whatcom County County-Wide Planning Policies were adopted in 1993, 2005, and is in the process of being updated as of August 2016.
Transportation issues are discussed throughout the document, while section J specifically addresses transportation facilities and strategies.

**Healthy Communities**
Recognizing the growing need for physical activity among citizens, the Washington State Legislature amended the GMA in 2005 with the Healthy Communities Amendment, ESSB 5186. Comprehensive plans are directed to address the promotion of Healthy Communities through urban planning and transportation approaches. The two amendments to the GMA require that communities:

1. Consider urban planning approaches that promote physical activity in the Land Use Plan; and
2. Include a bicycle and pedestrian component in the Transportation Element.

**Clean Air Conformity Act**
The Transportation Element is also subject to the Washington State Clean Air Conformity Act that implements the directives of the Federal Clean Air Act. Because air quality is a region wide issue, the City must support the efforts of state, regional, and local agencies as guided by WAC 173-420-080.

**Americans with Disabilities Act (ADA)**
The Americans with Disabilities Act (ADA) was enacted on July 26, 1990, and provides comprehensive civil rights protections to persons with disabilities in the areas of employment, state and local government services, and access to public accommodations, transportation, and telecommunications. Of the five titles or parts to the ADA, Title II is most pertinent to travel within the public right-of-way. Part 35, Subpart D – Program Accessibility § 35.150 (d)(3)) of Title II requires local agencies to conduct a Self-Evaluation and Transition Plan that, at a minimum, shall:

(i) Identify physical obstacles in the public entity's facilities that limit the accessibility of its programs or activities to individuals with disabilities;

(ii) Describe in detail the methods that will be used to make the facilities accessible;

(iii) Specify the schedule for taking the steps necessary to achieve compliance with this section and, if the time period of the transition plan is longer than one year, identify steps that will be taken during each year of the transition period; and

(iv) Indicate the official responsible for implementation of the plan.

**Transportation Impact Fees**
A funding program for constructing the transportation projects identified in the Plan and the Capital Facilities Element of the Comprehensive Plan is supplemented by a transportation impact fee (TIF) program to assist in funding projects that will accommodate traffic growth associated with the future land use development of the City and its arterial system. The findings of this Plan update will provide the City with documentation and justification for grant
applications to provide funding for transportation improvement projects, and a guide for prioritizing its transportation needs to maintain adopted level of service standards.
1. Goals and Policies
The City of Lynden Transportation Element consists of several components. In order to effectively implement the Plan, the City has identified overall goals and more specific policies for transportation. The goals and policies provide a framework for decision making related to transportation projects and programs. The transportation goal and policies will be used to implement plan projects and programs, review new land use development applications, and coordinate with other City planning processes.

Vision Statement
To develop a transportation system for the City of Lynden that maintains the livability of the community by encouraging the use of alternative modes of transportation; promoting economic wellbeing; ensuring environmental protection; and the safety of the residents, employees, and visitors of the City.

Goals and Policies

1. Public Participation and Agency Coordination
Encourage public participation and the involvement of other agencies in the city planning process including in the enhancement of the transportation network.

A. Encourage and solicit public participation in transportation-related decisions to help ensure that planning and implementation have public support.

B. Provide programs and forums to help the public and stakeholders understand transportation issues, requirements, planning concepts, and funding programs.

C. Coordinate the preparation of the Lynden Transportation Element and updates with the State Highway Systems Plan, the Whatcom Transportation Plan in coordination with Whatcom Council of Governments (WCOG), Whatcom County, and the Whatcom Transportation Authority (WTA).

D. Coordinate with the Washington State Department of Transportation (WSDOT) when considering improvements to intersections and roadways on SR 546 and SR 539.

E. Coordinate with Whatcom County to preserve options for future collector roads and grid systems in the City’s unincorporated UGA.

F. Coordinate with WSDOT to identify possible locations for future collector roads intersecting with Guide Meridian between East Badger Road and Main Street. The collector roads will provide for access and circulation to help reduce the impact of future development on the state highways.

2. Land Use Planning, Development Review, and Standards
Encourage land use patterns and policies that facilitate the reduction of vehicle miles traveled by enhancing local and regional non-motorized network connectivity.

A. Review land use policies and implementing regulations, standards, and incentives to ensure they support and encourage alternative transportation modes such as bicycling, walking, transit, and transportation demand management programs.
B. Ensure that transportation policies, projects, and programs are coordinated and consistent with land use plans and further the City’s land use and environmental goals.

C. Ensure that public and private projects systematically implement the policy objectives of the Transportation Element through the development review process.

D. Require new development projects to comply with the City’s transportation concurrency program (see Policy 3B).

E. Develop a framework for clean transportation programs to reduce greenhouse gas (GHG) emissions per the City’s adopted GHG Resolution 823.

F. Incorporate environmental factors into the transportation planning process with an emphasis in encouraging health and human safety.

3. Streets and Highways

Maintain levels of service (LOS) that promote mobility for people and goods consistent with adopted standards.

A. Maintain a level of service (LOS) E or better for City street intersections and LOS D or better for state highway intersections. Apply Whatcom County’s LOS D standard for county roads in the unincorporated part of the City’s UGA, if requested by the County.

B. Require transportation improvements to be constructed or funding strategies approved to ensure that the highway, arterial, and collector road system is adequate to serve increased travel demands concurrent with new development. Concurrency shall be defined as having a financial commitment in place to resolve the deficiency within six years. New developments will not be approved by the City unless this concurrency requirement is met. The concurrency requirement will not apply to SR 539 and SR 546 serving Lynden, since both are designated as Highways of Statewide Significance (HSS). Mitigation of impacts where LOS standards are not met along HSS should be coordinated with WSDOT.

C. Require urban street standards on roadways serving urban development within the City. The urban street standards will be defined based on street classification.

D. Classify streets to reflect their desired use.

E. Street standards for arterials, collectors, and access streets will provide guidance on number and width of lanes, intersection spacing, driveway access, right-of-way width, setbacks, lighting, landscaping, and other appurtenances. The street standards should identify design needs for accommodating transit, pedestrians, and bicyclists as appropriate for each roadway classification and consistent with the design policies in adopted sub-area plans.

F. Develop the arterial, collector, and access street system based on the Transportation Systems Plan, subarea plans, expansion of the existing grid system, or other means of assuring adequate connectivity of adjacent developments and minimizing impacts to arterials and state highways.

G. Maintain the existing and future arterial, collector, and access street system and associated facilities (e.g., sidewalks, traffic signs) through a systematic Pavement Management System and operations program.
H. Maximize the efficiency of the arterial street system through use of suitable traffic control, including signs, signals, lane markings, and coordination of signals, as appropriate.

I. Provide adequate system-wide capacity on arterial streets to avoid diversion of excess traffic from congested arterials to local streets and through neighborhoods.

J. Limit and provide access to the street network in a manner consistent with the function and purpose of each road. The street standards should define driveway spacing standards and encourage use of shared driveways, where practical.

K. Begin to develop level of service standards that promote the movement of people across multiple transportation modes.

L. Consider multiple transportation modes in concurrency standards and encourage development that can be supported by transit.

M. New access points to Guide Meridian or East Badger Road will be discouraged. Potential new collector roads connecting to Guide Meridian between East Badger Road and Main Street, as identified in the Transportation Element, will be coordinated with WSDOT and Whatcom County. All new accesses to the state highways in the City planning area must be approved by WSDOT.

N. Establish truck routes to encourage through trucks to use the most appropriate routes.

P. As appropriate, the City will consider traffic calming measures to discourage through traffic in residential areas, while maintaining the street grid for access and circulation.

Q. Ensure City roadways are designed to encourage safe and efficient travel for emergency response vehicles.

4. Pedestrians and Bicyclists

Encourage the enhancement of the non-motorized network by implementing programs and policies that enforce the development of facilities for all users.

A. All new streets shall require installation of sidewalks, in accordance with City standards.

B. Maintain an annual program to construct missing sidewalk links, repair existing sidewalks, improve crosswalk markings, and install curb ramps at intersections to improve safety and connectivity. Arterial streets and highways should be a high priority.

C. Encourage pedestrian and bicycle connections between adjacent developments even when topographic or other constraints prevent connections for motorized vehicles. Where cul-de-sacs are allowed, they should be designed to encourage or support pedestrian connectivity.

D. Develop both street-oriented and separate pedestrian and bicyclist connections to encourage non-automobile access from residential areas to schools, sports facilities, and commercial areas.

E. Ensure that new sidewalks meet ADA requirements and that existing ones are upgraded (e.g., ramps at intersections).
5. Parking

*Encourage parking management strategies and policies in downtown and in new developments.*

- F. Design and construct arterials to support safe use by bicyclists.
- G. Require an appropriate amount of bicycle parking at commercial and institutional facilities along with automobile parking.
- H. Encourage the safe mobility of pedestrians and bicyclists through outreach and education programs.

6. Public Transit and Transportation Demand Management

*Encourage transit as viable regional transportation mode through programs and policies.*

- A. Encourage shared use of parking lots in the downtown area and other areas of high use.
- B. Minimize curb cuts, including limiting the number of driveways permitted for each parcel, and encourage shared driveways to maximize the amount of curb space that could be used for parking, if roadway width and volumes allow on-street parking.
- C. Evaluate establishing minimum and maximum parking requirements based on zoning, land use plans, and location within the City.
- D. Develop additional downtown public parking facilities.

7. Implementation and Financing

*Establish a stable, long term financial foundation for continuously improving the quality, effectiveness, and efficiency of the transportation system.*

- A. Prioritize City transportation improvement projects, programs, and participation with other agencies to reflect the City’s Transportation Vision and Comprehensive Plan goals. As a minimum, the City will consider the following objectives:
- Transportation safety of all modes
- Maintenance and preservation of the existing transportation system
- Upgrade or expand the transportation system to support growth within the City and maintain concurrence
- Expand facilities and services to improve connectivity of the transportation system

B. Fund and implement the Transportation Element based on the relative benefits to various user groups. Funding of transportation improvements and programs will include state and federal grants and loans, City transportation portion of the general fund, the Transportation Benefit District (TBD), developer improvements, developer mitigation, and other traditional or non-traditional funding programs.

C. Continue to partner with WSDOT, Whatcom County, the Whatcom Council of Governments (WCOG), and WTA to fund improvement projects and programs that serve the City.

D. Work with the state to fund safety and operational improvements along East Badger Road.

E. Ensure that new growth pays a proportionate share of the transportation improvements needed to support growth and adequately mitigate its impacts to the transportation system.

F. Require that new developments be financially responsible for street improvements adjacent to and internal to the development.

G. Develop an annual Six-Year Transportation Improvement Program so it is financially feasible, leverages available City funds, and is consistent with the overall priorities of the Comprehensive Plan and Transportation Element.

H. If probable funding falls short of meeting the needs identified in the Transportation Element, the City will review and reassess the improvement needs, priorities, and LOS standards in the Plan, as needed. As a final measure, the City will reassess land use plans to ensure that new development will be supported by adequate infrastructure.
2. Existing Transportation Facilities and Conditions
This chapter summarizes key elements of the existing transportation system serving the City of Lynden that represent the transportation system in its current condition. The inventory of transportation facilities is presented through maps, figures, and descriptions that provide a foundation for identifying and prioritizing the City’s transportation improvement projects and programs presented later in the Plan. The passenger transportation system within the City of Lynden consists of streets and highways, pedestrian and bicycle facilities, and transit service. Following a description of the planning area, subsequent sections describe the existing multimodal transportation system within the current City Limits and Urban Growth Area (UGA) for the travel modes within the City’s transportation network.

2.1. Planning Context
An inventory of the existing transportation system was conducted in 1994, with an update completed as part of the 2004 Transportation Plan. This 2016 Plan provides additional updates to the 2004 Plan. The transportation system inventory and analysis helped identify key transportation issues to be addressed in this update of the Transportation Plan. The existing inventory covers the arterial and collector street system, intersection traffic control, roadway volumes, transportation operations and safety, transit service, and non-motorized facilities.

Long-range transportation elements build on existing transportation facilities available for residents to travel to home, work, and other destinations. Regional travel is an important component of the City’s transportation network, as the City is a major gateway to traffic traveling to and from B.C and other points north. Lynden residents also travel to and from Bellingham, the largest trip generator in Whatcom County, on business and leisure trips.

Most travel within the City of Lynden occurs on streets and highways, which provide public space for vehicles, transit, bicycles, and pedestrians. Roadways are classified by their intended function and desired mobility to provide a hierarchy of roadways. The City recognizes two functional classification systems that are maintained at the City and State levels as described in the sections that follow.

2.2. Roadway Network
The roadway network provides mobility and access for a range of travel modes and users. This section provides an overview of the existing roadway network and includes descriptions of functional classification systems for roadways, concurrency management, level-of-service standards (LOS), and State Environmental Policy Act (SEPA) requirements. Figure 2-1 shows the existing roadway network serving the City of Lynden.
Figure 2-1 Roadway Network
As shown in the figure, roadways near the center of the City are laid out in a grid pattern with approximately 30 blocks. Residential neighborhoods surround the city center area to the east, north, and west, in non-grid pattern. Many of these roadways end at cul-de-sacs. Regional routes cross through the City on the west (SR 539) and adjacent to the northern city limits (SR 546). Table 2-1 summarizes the number of lanes and speed limits for the primary north-south and east-west roadways within the City of Lynden.

Table 2-1 Existing Major Roadways

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Number of Lanes</th>
<th>Speed Limit (mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North-South Roadways</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR 539 (Guide Meridian Road)</td>
<td>2 to 4</td>
<td>40</td>
</tr>
<tr>
<td>Benson Road</td>
<td>2</td>
<td>25-35</td>
</tr>
<tr>
<td>19th Street</td>
<td>2 to 3</td>
<td>25</td>
</tr>
<tr>
<td>Line Road</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>Depot Road/3rd Street</td>
<td>2 to 3</td>
<td>25-35</td>
</tr>
<tr>
<td>Bender Road</td>
<td>2 to 3</td>
<td>25</td>
</tr>
<tr>
<td>Vinup Road</td>
<td>2 to 3</td>
<td>25</td>
</tr>
<tr>
<td>East-West Roadways</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grover Street</td>
<td>2 to 3</td>
<td>25</td>
</tr>
<tr>
<td>Homestead Boulevard</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>Front Street</td>
<td>2 to 3</td>
<td>25</td>
</tr>
<tr>
<td>Main Street</td>
<td>2 to 3</td>
<td>25-35</td>
</tr>
<tr>
<td>Birch Bay Lynden Road</td>
<td>3</td>
<td>25-35</td>
</tr>
<tr>
<td>Aaron Drive</td>
<td>2-3</td>
<td>25</td>
</tr>
</tbody>
</table>

As shown in the table, the primary north-south roadway within the City of Lynden is SR 539, which has a maximum of three lanes and a speed limit of 40 mph. SR 539 transitions from three lanes to two lanes at Front Street and serves both local and regional traffic through the City. Other major north-south roadways include Depot Road/3rd Street, which starts at Front Street and continues through the northern city limits at SR 546, Bender Road which runs through city limits north to SR 546 (East Badger Road), and Vinup Road and Line Road which also do the same. Berthusen Road extends from Birch Bay-Linden Road along the western city limits and the UGA.

The primary east-west roadways are Main Street, Grover Street, and Front Street which extend from west of SR 539 through the downtown area. These roadways generally have a speed limit of 25 mph, though Main Street has a 35 mph speed limit in areas. These roadways connect to most of the major north-south roadways described in the previous section.

Roadway Functional Classification

Roadways are classified by their intended function to provide for a selection of roadways that provide varying degrees of access and mobility. The City of Lynden maintains a functional classification that is tied to the City’s roadway plans and street standards. In addition to the City’s functional classification system, there are federal and state roadway designations.
Federal and state grant programs provide funding for improvement projects that are on streets classified by federal or state roadway designations.

**City of Lynden Functional Classification**
The City’s Functional Classification defines the characteristics of individual roadways to accommodate the travel needs of all roadway users. The functional classification of the City of Lynden street system establishes four types of streets: major arterials, secondary arterials, collector streets, and access streets. Table 2-2 describes the roadway characteristics of the classifications included in the City’s functional classification system.

**Table 2-2 Roadway Functional Classification**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Highways</td>
<td>State Highways connect major regions with one another, and WSDOT classifies certain State highways as Highways of Statewide Significance (discussed in a following section). The City of Lynden is served by two state highways: SR 539 and SR 546.</td>
</tr>
<tr>
<td>Major Arterial</td>
<td>Major Arterials are transportation arteries that connect focal points of traffic interest within the City, provide connections with other cities or outlying areas, or have relatively high traffic volumes within the City. Major arterials are generally intended to serve predominantly “through” traffic with minimum direct service to abutting land uses.</td>
</tr>
<tr>
<td>Secondary Arterial</td>
<td>Secondary Arterials are routes that serve lesser points of traffic than major arterials, provide connections to outlying districts, or distribute traffic to/from major arterials. Secondary arterials serve trips of moderate length and may provide more direct access to abutting properties than major arterials.</td>
</tr>
<tr>
<td>Collector Streets</td>
<td>Collector Streets provide for movement within the City, including connecting neighborhoods with smaller community centers. They also provide connections to major and secondary arterials. Property access is generally a higher priority on collector streets than on arterials.</td>
</tr>
<tr>
<td>Access Street</td>
<td>Access Streets are defined as land service streets and primarily serve access to abutting property. They are tributary to major and secondary arterials and generally discourage through traffic.</td>
</tr>
</tbody>
</table>

An inventory of selected major roadways grouped by their respective City of Lynden functional classification is found below. General descriptions of the facility are included.

The City of Lynden is served by two state highways: SR 539 and SR 546.

- **Guide Meridian (SR 539)** is classified as a rural principal arterial by WSDOT. It provides regional north-south travel between I-5 in the City of Bellingham, about 11 miles south of Lynden, and the U.S.-Canada border, about 3½ miles north of Lynden. It is a 4/5-lane, two-way highway from Bellingham to Birch-Bay Lynden Road.
- **Badger Road (SR 546)** is classified as a rural principal arterial by the WSDOT and provides east-west access between Guide Meridian to the west and SR 9 to the east. It is a two-lane, two-way highway with a current posted speed limit of 50 mph within the City of Lynden.

Major and secondary arterials provide connections to the state highways and the regional arterial system.

- **Main Street** is a two-lane road having asphalt or chip seal pavement 38 to 41 feet wide. It has sidewalks from Guide Meridian to 1st Street.
- **Front Street** has three lanes with the center lane used as a two-way left-turn lane from Guide Meridian to 17th Street with a posted speed limit of 25 mph. It has a bike path and a 60- to 80-foot right-of-way.
- **Birch Bay-Lynden Road/Kok Road** is a two-lane roadway with two-way left-turn lanes along some segments with a posted speed limit ranging from 25 to 35 mph. West of the City limits, it is a designated bike route by Whatcom County.
- West of Guide Meridian, **Badger Road** is a County arterial that connects the Lynden study area with I-5 near the City of Blaine.
- **Grover Street** is a two-lane roadway connecting 17th Street to Vinup Road. It has left-turn lanes at some intersections. It has a posted speed limit of 25 mph.
- **First Street** is a two-lane, north-south arterial on the east side of downtown Lynden. It connects with Hannegan Road to provide the primary route to/from Bellingham or other areas south of the City from eastern Lynden.
- **Depot Road** is a north-south, two-lane arterial between Main Street and Badger Road.
- **Bender Road** is a north-south, two-lane arterial between Badger Road and Drayton Street.
- **Aaron Drive** is a two-lane roadway running from Bender Road to the west and Bluestem St, just west of Northwood Road.

Collector streets direct traffic from neighborhoods to the arterial system and the state highways. They can provide a higher level of direct access than arterials.

- **Benson Road** is a north-south, two-lane road. It currently serves primarily rural levels of development within the City and the urban growth area.
- **East Homestead Boulevard** is a two-lane, east-west roadway that connects between Benson and Bender Roads.
- **W Front Street** is a two-lane roadway connecting Guide Meridian to Tromp Road in the west part of Lynden. The roadway will serve future growth in the City’s west subarea.
- **BC Ave** is a two-lane, north-south roadway running from the banks of the Nooksack River to Glenning Street through primarily residential neighborhoods.

There are numerous local streets that are not described in detail. A map depicting the functional classification designations for City roadways is provided in Figure 2-2.
Federal Functional Classification
The Federal Functional Classification system provides a hierarchy of roadways as defined by the Federal Highway Administration (FHWA). This classification system defines the role of travel through a network of roadways, rather than focusing on individual roadways. As a result, the Federal Functional Classification differs in several ways from the City’s Functional Classification. Changes to the Federal Functional Classification may be submitted through the Washington State Department of Transportation (WSDOT).

National Highway System
The National Highway System (NHS) includes the Interstate Highway System as well as other roads important to the nation's economy, defense, and mobility as defined by the Federal Highway Administration (FHWA). Both SR 539 and SR 546 are classified as NHS facilities.

Highways of Statewide Significance
WSDOT designates interstate highways and other principal arterials that are needed to connect major communities in the state as Highways of Statewide Significance (HSS). This designation assists with the allocation of some state and federal funding. These roadways typically serve corridor movements having travel characteristics indicative of substantial statewide and interstate travel. SR 539 and SR 546 are classified as Highways of Statewide Significance.
Figure 2-2 Roadway Functional Classification and Intersection Traffic Control
Level of Service Standards
Traffic volumes were used to evaluate traffic operations in and around Lynden as part of the Transportation Element. Traffic operations were evaluated based on LOS (level of service) methodologies of the Highway Capacity Manual (HCM, 2010) using Synchro 8 software. The HCM is a nationally recognized and locally accepted method of measuring traffic flow and congestion. Criteria range from LOS A, indicating free-flow conditions with minimal vehicle delays to LOS F.

Signalized intersection LOS is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control and provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle.

Unsignalized intersection LOS criteria can be further reduced into two intersection types present within the City of Lynden: all-way stop and two-way stop control. All-way stop control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns.

City’s Level of Service (LOS) Standards
The City has established the following LOS standards for intersections. The levels of service shall be measured using methodologies identified in the latest edition of the Highway Capacity Manual (HCM).

Traffic Signals, Roundabouts, and All-Way Stop Controlled Intersections – LOS D or better based on overall average delay per vehicle.

Unsignalized Two-Way Stop Controlled Intersections – LOS E or better for worst traffic movement. On a case-by-case basis, the City may allow the level of service for traffic movements from the minor streets at two-way stop controlled intersections to operate below the adopted standard, if the City determines that no significant safety or operational issues will result.

The lower LOS standard for unsignalized, two-way stop controlled intersections reflects the desire to minimize delays on the major street and through street traffic, while supporting safe and efficient operations from the minor streets.

The City typically will apply the intersection LOS standard to the weekday PM peak hour. The City may, however, define additional evaluation periods for intersection review in order to identify if potential impacts would occur. These could include weekday AM peak hour, weekends, or other time periods depending on the type and location of a proposed development.
**Whatcom County Level of Service Standards**

Whatcom County has adopted level of service standards based on the volume-to-capacity (v/c) ratio of roadway segments during the PM peak hour. The County has adopted the following LOS standards:

- County arterials and collectors outside of urban growth areas – v/c less than or equal to 0.75, except corridors designated by Whatcom Council of Governments (WCOG) as primary routes which have a LOS standard requiring a v/c less than or equal to 0.90 (designated regional routes in the Lynden area are discussed in the Roadway System section).
- County arterials and collectors within a city’s urban growth area – v/c less than or equal to 0.90
- County arterials and collectors within an urban growth area not associated with a city (such as Birch Bay) – v/c less than or equal to 0.90

Whatcom County LOS standard is adjusted within urban areas to increase the allowable v/c threshold by 0.05 where transit service or adequate non-motorized facilities are available or will be provided by a development.

Policy 6A-5 of Whatcom County’s Comprehensive Plan relates to LOS standards within city urban growth areas (UGA’s): “Encourage extension of city concurrency review authority and LOS standards into their respective UGA’s to provide greater consistency in concurrency review for urban areas.”

**State Highway Level of Service Standards**

Cities in Washington are required to include the LOS standards for all state routes in the Transportation Element of their local comprehensive plan. SR 539 and SR 546 are state highways serving the City of Lynden and are designated as highways of statewide significance (HSS). The LOS standards for HSS facilities are set by WSDOT. The LOS standard for facilities in urban areas is LOS D and for facilities in rural areas is LOS C. Both SR 539 and SR 546 within the City of Lynden vicinity are designated as urban and have a LOS D standard.

WSDOT applies these standards to highway segments, intersections, and freeway interchange ramp intersections. When a proposed development affects a segment or intersection where the level of service is already below the state’s adopted standard, then the pre-development level of service is used as the standard. When a development has degraded the level of service on a state highway, WSDOT works with the local jurisdiction through the SEPA process to identify reasonable and proportional mitigation to offset the impacts. Mitigation could include access constraints, constructing improvements, right-of-way dedication, or contribution of funding to needed improvements.

**Traffic Volumes**

Traffic counts were collected at several locations on State Highways and City roadways in June 2015. Traffic volumes in urban areas are typically highest during the weekday PM peak hour. This reflects the combination of commuter work trips, shopping trips, and other day-to-day
activities that result in travel between 4:00 and 6:00 p.m., Monday through Friday. Therefore, the weekday PM peak hour is typically used to evaluate transportation system needs. Existing weekday PM peak hour volumes by direction at key locations are shown in Figure 2-3.

Roadways with the highest PM peak hour traffic volumes include SR 539 where traffic volumes are between 1,100 and 1,365 vehicles per hour. Front Street through downtown also has high traffic volumes between 565 and 625 during the PM peak hour. S 1st Street at Front Street, a major gateway into downtown, East Lynden and northeast Whatcom County, has approximately 1,080 vehicles during the peak hour.

In the 2004 Plan, average daily traffic volumes Main Street west of Guide Meridian Road were 6,000 vehicles, in 2015 5,350 vehicles. West of Depot Road on Main Street, 5,000 daily vehicles were counted in 2004 while 4,300 were counted in 2015. Additionally, 17,100 daily vehicles were reported in the 2004 plan on Guide Meridian Road south of Kok road, while 13,650 vehicles were reported in 2015. Since 2015 traffic volumes were collected during the PM peak hour, daily vehicle estimates were determined by multiplying the peak hour roadway volumes by a factor of 10.

Traffic volumes at these locations in 2015 were 18 percent lower than in 2004. This could be attributed to changes in travel patterns since that time, seasonal fluctuation, or a number of other factors. In general, volumes in the central downtown area are closer to 2004 volumes than those found on state routes. A comparison between 2015 volumes and 2036 forecast volumes is found in Figure 3-7.

**Traffic Operations**

Intersection traffic operations evaluate the performance of signalized and stop-controlled intersections according to the industry standards set forth in the *Highway Capacity Manual 2010* (Transportation Research Board, 2010). Peak hour traffic operations were evaluated at the study intersections based on level-of-service (LOS) methodology, and evaluated using Synchro version 8.0. The PM peak hour intersection operations were selected due to the higher typical traffic volumes occurring during that time period for a single hour between 4 and 6 p.m.

In the 2004 Transportation Plan, the Depot Road & Main Street intersection was LOS E while current analysis shows this location has improved to LOS A. This intersection has been signalized since that plan and is the reason for the LOS improvement. The intersections of Badger Road (SR 546) / Bender Road and Badger Road (SR 546) / Depot Road have also improved since the last plan. Roundabouts have been installed in place of stop signs at both locations. These locations were not analyzed for this update of the Transportation Element because of those recent projects to improve previous intersection operational deficiencies. Existing LOS results at several intersections in City of Lynden are shown Figure 2-4. The results of the analysis indicate that all of the intersections studied currently meet City LOS standards.

The Bender Road / E Grover Street is a two-way stop controlled (TWSC) intersection that operates at LOS D in existing conditions, which is at the adopted standard of LOS D for TWSC intersections. TWSC level of service is based on the worst intersection movement, which in this
case is the northbound approach on Bender Road. This is typical of TWSC intersections, where the minor approach experiences delay due to waiting for gaps to cross onto the major roadway. Level of service standards are discussed earlier in this chapter.
Figure 2-3 Existing (2015) Traffic Volumes
Figure 2-4 Existing (2015) Intersection LOS
Traffic Safety
Collision records for the most recent complete five-year period were reviewed for all collisions reported in City of Lynden. Historical safety data was collected from WSDOT for the period of January 1, 2010 to December 31, 2014. A review of collision history was performed to identify potential safety issues for vehicles, pedestrians, and cyclists. The most recent collision data during a five-year period for all roadways in the City of Lynden, including SR 539, were used for analysis.

Crash rates were compiled by study intersection to identify potentially problematic locations. Crash rates were analyzed to identify the average crash frequency based on the number of vehicles traveling through the study intersections. Intersections that averaged fewer than two collisions per year were not included in the summary tables due to the low number of incidents available to identify crash patterns. The typical measure for determining crash rates at intersections is the number of crashes per million entering vehicles (MEV).

Critical Crash Rate
The critical crash rate calculated for each intersection compares that location to other intersections in the City that have similar characteristics. Two groups of intersections were evaluated that included signals and two-way stop-controls since no study locations were all-way stop controlled. This is consistent with guidance provided in Chapter 4 of the Highway Safety Manual (AASHTO, 2010). The critical crash rate for a site is a function of the average crash rate associated with the control type at the site, the traffic volume at the site, and a level of confidence factor. Sites where the observed crash rate exceed the critical crash rate were identified.

Weighted crash rate calculations are based on intersection control type and intersection total entering volumes. The outcome is a proportion of collisions to vehicles entering the intersection, which can be useful in identifying locations for improvement that will serve the highest number of users. The weighted average crash rate is also used in Critical Crash Rate calculations. Table 2-3 summarizes the factors and calculations used to determine the critical crash rate for the study intersections.

Table 2-3 Intersections with Crash Rates Exceeding the Critical Crash Rate

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Peak Hour TEV¹</th>
<th>Intersection Control</th>
<th>Observed Crash Rate²</th>
<th>Weighted Average Crash Rate³</th>
<th>Critical Crash Rate⁴</th>
<th>Observed Greater than Critical?</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR 539/Front Street</td>
<td>1,665</td>
<td>Signal</td>
<td>0.92</td>
<td>0.57</td>
<td>0.74</td>
<td>Yes</td>
</tr>
<tr>
<td>SR 539/Kok Road</td>
<td>2,165</td>
<td>Signal</td>
<td>1.01</td>
<td>0.57</td>
<td>0.27</td>
<td>Yes</td>
</tr>
</tbody>
</table>

1. Total Entering Vehicles.
2. Crashes per MEV.
3. Calculated according to Equation 4-10 in the Highway Safety Manual.
As shown in Table 2-3, five intersections had an observed crash rate higher than the critical crash rate. The locations with observed crash rates exceeding the critical crash rates for signalized intersections include SR 539/Front Street and SR 539 / Kok Road. All locations were signal controlled intersections. SR 539/Front Street and SR 539 / Kok Road were also identified in the 2004 Transportation Plan as being locations with high accident rates. SR 546 / Bender Road was identified in the 2004 plan as having the highest accident rate. This location was improved to a roundabout in September 2013 by WSDOT.

**Collision Summary**

The intersections identified in Table 2-3 have observed crash rates higher than the critical crash rate. Consistent with guidance provided in the *Highway Safety Manual*, these were the locations flagged for further review. The type and severity of reported collisions provides insight into the circumstances that resulted in higher crash rates at these intersections. Table 2-4 summarizes the type and severity of reported collisions during the study period at the intersections identified for further review based on the critical crash rate analysis.

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Type of Collision</th>
<th>Severity</th>
<th>Total Collisions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rear-End</td>
<td>Turning</td>
<td>Fixed Object</td>
</tr>
<tr>
<td>1st Street/Grover Street</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>1st Street/Front Street</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>19th Street/Front Street</td>
<td>5</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>SR 539/Front Street</td>
<td>25</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>SR 539/Kok Road</td>
<td>21</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
<td>18</td>
<td>2</td>
</tr>
</tbody>
</table>

Data source: WSDOT

¹ Other includes sideswipes and parking collisions

² Property Damage Only

As shown in the table, rear-end collisions were the most frequent type of crash reported at these intersections. This type of collision is common at signalized intersections, when drivers may rapidly alter vehicle speeds while approaching the intersection in response to signal timing changes or turning vehicles. While there were no recorded fatalities at any of the intersections, there were 27 injury collisions, or approximately one-quarter of the total collisions at these intersections. Roadway capacity improvements are included in the project list (O-4) on SR 539 as part of a WSDOT project, which may help to improve safety conditions on the corridor. In addition, signal improvements at the 1st Street & Grover Street intersection are included in the project list (C-4), which may help to improve safety conditions.

**Freight Routes**

The Washington State Freight and Goods Transportation System (FGTS) classifies highways, county roads, and city streets according to the average annual gross truck tonnage they carry. Truck tonnage values are derived from actual or estimated truck traffic count data that is
converted into average weights by truck type. Lynden, via SR 539, is a major freight gateway to the Canadian border.

The FGTS uses five truck classifications, T-1 through T-5, depending on the annual gross tonnage the roadway carries:

- T-1: more than 10 million tons per year
- T-2: 4 million to 10 million tons per year
- T-3: 300,000 to 4 million tons per year
- T-4: 100,000 to 300,000 tons per year
- T-5: at least 20,000 tons in 60 days and less than 100,000 tons per year

Routes with the highest annual gross tonnage, T-1 and T-2 routes, are also identified as Strategic Freight Corridors. SR 539 and SR 546 are both designated T-2 routes, while 1st Street, Vinup Road, and Nooksack Avenue north to E Grover Street are classified as T-3 routes. W Main Street, E Grover Street, Bender Road, and short segments of other roadways are designated as T-4 and T-5 corridors in city limits. Freight routes are illustrated in Figure 2-5.

Freight corridor classifications were collected in August 2016 from WSDOT’s Freight and Goods online map. Although the map represents the most current WSDOT data, there are discrepancies between WSDOT classifications and those truck routes adopted and implemented by the City – primarily related to the designation for Vinup Road. Measures should be taken to align the freight corridor data and designation between the City and WSDOT.
Figure 2-5 Freight Routes
2.3. Transit

The following section describes the existing service, ridership and facilities provided by Whatcom Transportation Authority (WTA). WTA currently operates two bus routes providing 10 weekday trips through Lynden, and maintains 53 bus stops and one park & ride facility.

Fixed Route Service

Transit service is operated by Whatcom Transportation Authority, which operates two routes through the City of Lynden.

- **Route 25X** provides express regional service to Bellingham and Western Washington University via Guide Meridian Road. The route only operates once per weekday in the morning and evening.
- **Route 26** provides service to Cordata Station and Park and Ride and Whatcom Community College via Aaron Drive, Grove Street, 19th Street, and Guide Meridian Road. The route runs Weekdays and Saturdays from 7am to 7pm.

These routes serve both local communities and commuters and the most recent ridership data available from Whatcom Transportation Authority are summarized in Table 2-5 and transit facilities are displayed in Figure 2-6.

Table 2-5 Existing (2015) Fixed Route Ridership Summary

<table>
<thead>
<tr>
<th>Route</th>
<th>Description</th>
<th>Type of Service</th>
<th>Average Weekday Daily Boardings</th>
</tr>
</thead>
<tbody>
<tr>
<td>25X</td>
<td>Express service from WWU to Downtown Lynden</td>
<td>Weekday</td>
<td>50</td>
</tr>
<tr>
<td>26</td>
<td>Commuter service from Cordata P&amp;R to Downtown Lynden</td>
<td>Weekday, Saturday</td>
<td>240</td>
</tr>
</tbody>
</table>

Existing routes are strategically placed throughout the City to serve all members of the community. As shown in the table, Route 26 has the highest average weekday boardings (240 daily) of the two transit routes serving the City of Lynden. WTA had a 74 percent increase in transit boardings system-wide between 2004 and 2014\(^1\). There were 290 average weekday daily boardings in 2015 and 263 daily boardings in 2003; and increase of 10 percent. However, since 2004, Route 80 was rerouted so it no longer serves Lynden, and Route 25X express service to Western Washington University was added. Route 26 continues to serve Downtown Lynden. As the City continues to expand to the east, WTA should be approached about the viability of extending service in that direction.

\(^1\) Whatcom Transportation Authority *Service Performance Report* (2014)
Paratransit Service
Whatcom Transportation Authority also provides paratransit services for patrons who cannot use fixed-route bus services due to disability, in accordance with the Americans with Disabilities Act (ADA). This service provides curb-to-curb paratransit service that mirrors local fixed-routes during hours of fixed-route operation. In 2014, there were approximately 5,895 paratransit boardings in the City of Lynden representing 8 percent of total ridership. Paratransit service is described in Employment Access and Coordinated Human Services (EACH).

Vanpool Program
Whatcom Transportation Authority has a van fleet of 39 vehicles. There are currently 3 vanpool groups that originate in Lynden.

Park-and-Ride
The Lynden Station Park and Ride is located just west of the Front Street / 19th Street intersection. This facility has 89 parking stalls and a covered waiting area for transit passengers. The park and ride is served by Routes 25X and 26.

2 Whatcom Transportation Authority data received July 2015
Figure 2-6 Existing Transit Service
2.4. Non-Motorized

The non-motorized transportation network consists of facilities for residents and visitors to participate in active transportation modes and recreational activities in the City of Lynden. A combination of on-street facilities and off-street pathways provide the core network for walkers, cyclists, and other non-motorized users to travel. These facilities can be used for many of the same purposes as personal vehicles and transit, including commuter travel, grocery store trips, and other errands within the City. Non-motorized facilities, particularly off-street pathways, are also used for recreational trips or for access to parks and other destinations.

A well-established system encourages healthy recreational activities, reduces travel demand on City roadways, and enhances safety within a livable community. Pedestrian and bicycle facilities also provide access to/from transit stops. Good transit access can increase the use of non-auto modes.

The City’s existing transportation system includes a variety of pedestrian and bicycle facilities. The core facilities are located along arterials or collectors, with sidewalks existing on one or both sides of many of these study area roadways. The City has developed standards for the implementation and design of pedestrian and bicycle facilities including sidewalks, bike lanes, wider roadway shoulders, and multi-use pathways. The city encourages retail and commercial developers to design new facilities in a pedestrian and bicycle friendly way. Non-motorized facilities in the City of Lynden include multi-use pathways that connect parks and neighborhoods. Existing facilities are illustrated in Figure 2-7.

Sidewalks

Every trip begins and ends with a walk. People walk to their cars and drive somewhere where they will walk into a building or facility or they need to walk to a transit station. The City hopes to connect more destinations with walking paths and encourage walking between trip destinations. The City of Lynden will continue to develop pedestrian facilities as part of its transportation system improvements.

Sidewalks are the primary pedestrian facility within downtowns and developed areas. Along with off-street trails, sidewalks are the primary facility type for pedestrians. Sidewalks within the City of Lynden are typically provided on both sides of the street in the downtown and adjacent neighborhoods. Where sidewalks are not available, pedestrians must use the roadway shoulders. Lynden does have several shared-use pathways within City limits.

Bicycle Facilities

Bicycling is an important and growing mode of travel for people in the region. When appropriately planned, bicycle routes have a role in reducing congestion, improving air quality, providing travel choices, encouraging exercise and recreation, and providing greater mobility for those without access to a vehicle. The City encourages the use of bicycles; endeavors to coordinate linkages; considers impacts on bicycles when designing and engineering roadways and emphasizes continuous bicycle linkages to existing facilities. The City is interested in incorporating adjacent bicycle lanes or other design treatments, as appropriate, into roadway construction projects whenever the right-of-way is sufficient and funding can be secured.
There are limited formal bicycle facilities in Lynden. For the most part, bicyclists share the road with motorized traffic or use paved roadway shoulders, where available. Currently, in the City of Lynden there are 13 miles of bicycle routes. These County-designated facilities include marked bike routes, roadways with wide shoulders, and roadways with low volumes that are suitable for bicyclists.

The bicycle routes in the City are primarily located on arterials and collectors. There are marked bicycle routes along Front Street from SR 539 to 18th Street, and along Birch Bay-Lynden and Kok Roads and Hannegan Road. Grover Street, Main Street, and Depot Road are low volume roadways that are preferred for bicycling, while Hampton Road has a wide shoulder for bicycling.

**Off-Street Facilities**

Off-street facilities include multiuse pathways and unpaved trails that are used by all types of non-motorized users. These facilities are generally used for recreational purposes, but may also serve commuter and utility travel between neighborhoods and to surrounding areas. Standard trails are separated from the roadways and vary in width from approximately 5 feet to 12 feet wide. ADA access is provided on many trails, but some may not include these features. The City currently maintains over 2 miles of multi-use pathways, which are used by pedestrians and bicyclists.

Jim Kaemingk Sr. Trail, which follows a portion of Fishtrap Creek, is a pedestrian trail that links the northeast area of the City to the area north of downtown and the City Park. The trail begins at City Park along Depot Road and ends at Aaron Drive, near the Lynden Manor assisted living facility. Other multi-use pathways in the city are located south of Aaron Drive, East of Alex Drive (between Brice Loop and Mercedes Drive), and west of S 6th Street at Patterson Park. A pedestrian bridge is located on 8th Street.
Figure 2-7 Existing Non-Motorized Facilities

Legend:
- Marked Bike Route
- Wide Shoulder
- Low Volume Path
- Park and Ride
- Park
- School
- City Limits
- USA Boundary
- Railroad

Existing Non-Motorized Network

City of Lynden Transportation Element Update
2.5. **Rail Facilities**

Existing rail transportation within the City of Lynden consists of freight services that use a single-tracked line running through the City. BNSF operates the rail spur that runs through city limits from the eastern end of Front Street, west to Depot Road, just north of Main Street. The rail spur begins at Sumas where it connects to a north-south rail line that runs north into Canada and south along the Cascade foothills.

**At-Grade Rail Crossings**

Rail lines within the City of Lynden intersect roadways at several at-grade street crossings. The rail spur crosses E Grover Street just west of Vine Way before continuing into the downtown street grid where it crosses three collector roads. The rail spur ends just west of Depot Road.

Safety for all at-grade rail crossings is of potential concern for all modes near the crossing when the rail line is active. At-grade rail crossings typically include warning systems and signage to inform drivers of the conflict zone with rail traffic. Highly active crossings include gate arms to stop vehicle traffic, but spur tracks may not include these types of warning devices.

2.6. **Air Facilities**

There is one small general aviation airport located on approximately 15 acres within the City between Benson and Depot Roads, just south of Sunrise Drive with a physical address of 8635 Depot Road. The airport handles small private aircraft and has fueling facilities (100LL). There are adjacent private hanger facilities, but no major passenger or airfreight facilities exist at the airport. The Lynden Municipal Airport “Jansen Field” was deeded to the City by Lynden Transport, Inc. and is currently operated by the City of Lynden with the assistance of an appointed Airport Advisory Board. The asphalt runway is 2,425 feet in length and 40 feet in width. Because of the proximity of the Airport, consideration should be given in the future reconstruction of Benson Road to possible greater separation between landing and departing aircraft and the roadway.
3. Travel Forecasts Evaluation

The City of Lynden maintains its transportation system to accommodate future growth and development. The Growth Management Act (GMA)\(^4\) requires that the transportation planning horizon be at least ten years in the future. For the 2016 Transportation Element, the City decided that a longer-range horizon should be used and selected 2036 as the forecast year for travel. The longer-range horizon year allows the City to better plan for and scale transportation facilities that are needed as the City changes over the next two decades.

The regional travel demand model from the Whatcom Council of Governments (WCOG) was used to support the City’s transportation planning efforts. The travel demand model provides a tool for forecasting traffic volumes based on the projected growth in housing and employment. The model is also useful in evaluating land use and transportation improvement alternatives.

3.1. Land Use Forecasts

Land use forecasts are based on anticipated changes in population and employment opportunities within the City limits, UGA, and adjacent areas. The land use forecasts for the City of Lynden are consistent with City planning efforts for subareas and other elements of the Comprehensive Plan. Forecast land use assumptions generate various types of trips that are applied to the transportation network in the travel demand model. The land use forecasts developed as part of the travel demand model are intended for planning purposes only and not to restrict or require specific land use actions.

Future forecasts must incorporate growth in travel demand entering and exiting the City to develop a consistent picture with neighboring jurisdictions and regional growth strategies. These travel demands external to the City are based on regional and citywide population and employment trends.

To develop existing and forecast travel demand, Forecast Analysis Zone (FAZs) boundaries were subdivided and combined with the City’s land use data to smaller Traffic Analysis Zones (TAZs) that better fit the transportation system of the City. The result is land use within the travel demand model that reflects current conditions and future planning.

Land use forecasts within the City and UGA show an overall increase in the number of households and employees between 2013 and 2036. The City is anticipated to increase by approximately 1,400 households and 1,700 jobs, while the UGA is expected to add approximately 1,100 households and 460 jobs. Figure 3-1 shows the existing and forecast land use for the City and UGA.

As shown in Figure 3-1, the UGA makes up a smaller proportion of the overall number of households and employees, but is anticipated to add a large percentage of anticipated growth along with the City. The Lynden area is planning for approximately 7,460 total households and 7,090 total employees by 2036 for the City and UGA. A breakdown of the growth in households and employment is shown in Table 3-1.

### Table 3-1 Change in 2013 Existing and 2036 Forecast Land Use

<table>
<thead>
<tr>
<th>Planning Area</th>
<th>Households</th>
<th></th>
<th></th>
<th></th>
<th>Employment</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2013</td>
<td>2036</td>
<td>Diff.</td>
<td>Percent Change</td>
<td>2013</td>
<td>2036</td>
<td>Diff.</td>
</tr>
<tr>
<td>City</td>
<td></td>
<td>4,902</td>
<td>6,277</td>
<td>+1,375</td>
<td>28%</td>
<td>4,629</td>
<td>6,386</td>
<td>+1,757</td>
</tr>
<tr>
<td>UGA</td>
<td></td>
<td>71</td>
<td>1,179</td>
<td>+1,108</td>
<td>1,560%</td>
<td>301</td>
<td>701</td>
<td>+400</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>4,973</td>
<td>7,456</td>
<td>2,483</td>
<td>49%</td>
<td>4,930</td>
<td>7,087</td>
<td>+2,157</td>
</tr>
</tbody>
</table>

As shown in the table, the number of households is anticipated to increase by approximately 28 percent in the City and over 1,500 percent in the UGA, representing annual growth rates of 1 and 13 percent, respectively, over the planning horizon. The large percent growth in the UGA is due to a relatively small number of households in the base year of 2013. The overall growth in households is 49 percent from 2013 to 2036 across both planning areas.

Employment growth is expected to have a greater increase outside the City, where the number of jobs is anticipated to increase by 133 percent as compared to 37 percent in the City, representing annual growth rates of 1.5 and 4 percent respectively. However, the growth in the actual number of employees is expected to be higher inside the City than in the UGA with a growth of 1,760 employees inside the City and 400 in the UGA.
**Households**

Forecast household growth totals are roughly split between the City and UGA. While the total number of households in the UGA area is anticipated to grow by 1,100, it represents 44 percent of total growth across the planning area. More than 1,400 new households are expected between 2013 and 2036 within the existing city limits.

The 2004 Transportation Plan included a 4 percent growth rate during the 2002-2022 planning period while a 2 percent growth rate is anticipated for the 2013-2036 planning period. A 2 percent annual growth rate occurred between 2002 and 2013. Changes between household land use assumptions is found in Figure 3-2.

![Figure 3-2 Household Annual Growth Rates for 2004 and 2016 Transportation Plans](image)

Figure 3-2 shows household growth between the previous transportation plan and this plan update. To further understand land use changes, seven districts were mapped based on TAZ boundaries, land use, travel patterns, and other features.

Figure 3-3 illustrates household growth by these districts shown within the planning area. The circles on the figure represent the total number of new households anticipated within the district between 2013 and 2036. For example, in the northeast portion of the City (District 1) there are 691 new households forecast for this area. This represents a 51 percent increase over the planning horizon, which is represented by the shading of the district area.

As shown in Figure 3-3, the highest household growth percentages are in the UGA area located in the northwest portion of the planning area (District 6), in the southwest portion of the planning area within the UGA (District 4), and in the largely residential area on the eastern section of the City (Figure 3-3 Household Growth by District...
Employment
The majority of employment growth is anticipated to occur within the existing city limits, constituting over 90 percent of the forecast employment growth between 2013 and 2036. Employment growth is about 10 percent of total growth and represents approximately 700 total jobs in 2036 in the UGA.

Employment sectors influence the time of day and types of trips that occur on the transportation system. The general categories of employment types include Government/Education, Manufacturing, Warehousing, Services, and Retail. The job-type share is anticipated to change slightly over the planning horizon as shown in Figure 3-4.

Changes to employment type are forecast to include more manufacturing, warehousing, and retail jobs, while services and government/education jobs see a decrease as a share of total employment in 2036. Other sector jobs such as agriculture and construction were anticipated to have little-to-no change and therefore were not included in the analysis.

Figure 3-6 illustrates employment growth by land use districts that aggregate totals for areas within the City and UGA. Similar to the figure showing growth in the number of household, the circles represent the number of new jobs anticipated between 2013 and 2036 while the shading of the district area represents the growth percentage.

The figure also shows the growth for each of the seven districts. Districts are based on TAZs boundaries and are grouped together based on a combination of land use, travel patterns, geography, and City and UGA boundaries. The 2004 Transportation Plan assumed a 4 percent growth rate during the 2002-2022 planning period while a 2 percent growth rate is used for the 2013-2036 planning period. A 2 percent annual growth rate occurred between 2002 and 2013.
More than 1,600 new employees of the employment sections found in Figure 3-4 are expected by 2036 within the City and UGA areas. The areas with the highest increase in jobs include the City area west of SR 539 (District 3) and the central city area (District 2). The central city and District 3 areas are anticipated to contain 90 percent of total job growth by 2036. The growth in annexation areas (Districts 4 and 6) and along SR 539 was anticipated in the 2004 Transportation Plan. A comparison of the forecast growth to the number of employees in the City and UGA is shown in Figure 3-5.

![Figure 3-5 Employment Annual Growth Rates for 2004 and 2016 Transportation Plans](image)

As with household land use assumptions in the 2004 Transportation Plan, the current forecasts assume less growth during the planning period than was expected in 2004. A 5 percent annual growth rate was expected in the previous plan while a 1 percent growth rate has occurred between 2002 and 2013. A 2 percent annual growth rate is anticipated to the 2036 planning horizon.
Figure 3-6 Employment Growth by District
3.2. 2036 Forecast Travel Conditions

Forecast travel conditions estimate where future bottlenecks may occur based on future travel demand. Travel demand is based on anticipated changes to land use and the types of trips generated based on the population and employment forecasts described in the previous section. The aggregation of those trips on City roadways provides planners with a future snapshot of the transportation system as a whole. The future baseline transportation system evaluated under forecast travel conditions includes committed transportation system projects and serves as a base for developing the intersection and roadway projects included in the Transportation System Plan.

Traffic Volumes

Traffic volumes in urban areas are typically highest during the weekday PM peak hour. This reflects the combination of commuter work trips, shopping trips, and other day-to-day activities which result in travel between 4:00 and 6:00 p.m., Monday through Friday. Therefore, the weekday PM peak hour is typically used for evaluating transportation system needs. The forecast traffic volumes show moderate changes in overall growth on roadways the City.

A comparison of 2013 and 2036 traffic volumes is shown in Figure 3-7. The 2036 baseline model network was developed based on committed capacity improvement projects identified in prior plans and project lists prepared by WSDOT, Whatcom County, the City of Lynden, and the other adjacent cities. Committed improvements are defined as improvements anticipated to be funded or are expected to be funded by 2036. No committed capacity improvements were identified within the study area or assumed in the future baseline network. This scenario provides a baseline for identifying future traffic operations deficiencies, which were then used to establish a framework for the Transportation Systems Plan.

The 2036 baseline model was reviewed to understand general areas where weekday PM peak hour volumes are expected to approach or exceed the capacity of the roadway. While this does not necessary mean the roadways would need widening, it does mean that these sections of roadway may need to be monitored closely and/or improved to more urban standards. Intersection related capacity concerns are discussed more in detail in the following section. Roadways with the highest PM peak hour traffic volumes include SR 539 south of Kok Road where traffic volumes are between 925 and 1,060 vehicles per hour. Grover Street through downtown also has high traffic volumes between 500 and 730 for both directions during the PM peak hour.
Figure 3-7 Traffic Volume Growth (2015 – 2036)
Figure 3-8 Future (2036) PM Peak Hour Traffic Volumes
Baseline Evaluation

The 2036 baseline model network was developed based on committed capacity improvement projects identified in prior plans and project lists prepared by WSDOT, Whatcom County, the City of Lynden, and the other adjacent cities. Committed improvements are defined as improvements anticipated to be funded or are expected to be funded by 2036. No committed capacity improvements were identified within the study area or assumed in the future baseline network. This scenario provides a baseline for identifying future traffic operations deficiencies, which were then used to establish a framework for the Transportation Systems Plan.

The 2036 baseline model was reviewed to understand general areas where weekday PM peak hour volumes are expected to approach or exceed the capacity of the roadway. While this does not necessary mean the roadways would need widening, it does mean that these sections of roadway may need to be monitored closely and/or improved to more urban standards. Typically, a roadway with a vehicle-to-capacity ratio over 1.0 is identified as having a capacity issues. There were no roadways in 2035 that were identified as having capacity issues.

Traffic Operations

As described in the Existing Conditions, intersection traffic operations evaluate the performance of signalized and stop-controlled intersections according to the industry standards set forth in the *Highway Capacity Manual 2010* (Transportation Research Board, 2010). Peak hour traffic operations were evaluated at the study intersections based on level-of-service (LOS) methodology, and evaluated using Synchro version 8.0.

City of Lynden LOS standards are identified in the Existing Conditions section of this Element for intersections within the incorporated areas of the city. For these intersections the standard is LOS D at roundabouts and all-way stop controlled intersections, and LOS E at signalized and two-way stop-controlled (TWSC) intersections. The results of the LOS analysis indicate that all of the study intersections will meet City LOS standards, with the exception of Berthusen Road/Bay-Lynden Road. Three additional intersections are at the LOS D threshold. Intersections at or exceeding the City’s LOS standards in 2036 baseline conditions are shown in Error! Reference source not found.. The forecast levels of service (LOS) for all the intersections reviewed under forecast conditions are shown Figure 3-9.

**Table 3-2 Forecast Conditions (2036) LOS Summary of Intersections Approaching City LOS Standards**

<table>
<thead>
<tr>
<th>Intersection Control</th>
<th>Intersection Control</th>
<th>2015 PM Peak Hour</th>
<th>2036 PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>LOS¹ Delay² WM³</td>
<td>LOS¹ Delay² WM³</td>
</tr>
<tr>
<td>Berthusen Road /</td>
<td>TWSC</td>
<td>C 17 SB</td>
<td>E 36 SB</td>
</tr>
<tr>
<td>Bay-Lynden Road</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benson Road / Main</td>
<td>TWSC</td>
<td>C 17 SBL</td>
<td>D 34 SBL</td>
</tr>
<tr>
<td>Street</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bender Road / Grover</td>
<td>TWSC</td>
<td>D 33 NB</td>
<td>D 31 NB</td>
</tr>
<tr>
<td>Street</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17th Street / Grover</td>
<td>TWSC</td>
<td>C 19 WB</td>
<td>D 34 WB</td>
</tr>
<tr>
<td>Street</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

² – Average delay in seconds per vehicle
³ – Worst movement reported for unsignalized intersections
Figure 3-9 Future (2036) Forecast Intersection LOS
As shown in Figure 3.9, only one of the intersections analyzed under 2036 forecast conditions is anticipated to be close to but not exceed city LOS standards. The Berthusen Road / Birch-Bay-Lynden Road intersection is currently two-way stop controlled, and the expected traffic increases associated with land use growth in the City increase congestion levels to LOS E. The lower level of service is due to the high delays experienced by side street vehicles on Berthusen Road trying to find gaps in traffic to turn onto Bay-Lynden Road. As described above, two-way stop controlled intersections have an LOS standard of E in the City of Lynden.

3.3. Transit

Transit service in Whatcom County is expected to continue being provided by Whatcom Transportation Authority in 2036. The 2015 Strategic Plan, which is in the process of being updated as of September 2016, contains the transit agency’s 20-year vision and establishes the standards and policies to support it. While Whatcom Transportation Authority also provides paratransit, and vanpool services, the influence of future transit service in the City of Lynden will be based on fixed-route service.

Future Service and Facilities

The City of Lynden works with Whatcom Transportation Authority to identify potential corridors to prioritize transit in the City and UGA. These transit emphasis corridors are arterial streets, highways, or freeways where high levels of transit service are already operated or may be operated in the future.

As the main transit provider in Whatcom County, Whatcom Transportation Authority seeks to implement long-term corridor-based fast, frequent and reliable fixed-route transit service in the City of Lynden. The following points summarize considerations for expanding the role of transit service as part of the City’s future transportation system:

- As development occurs and traffic congestion increases, buses will need effective priority paths to maintain fast, frequent, and cost effective service. Infrastructure needs may include improvements such as queue-jumps, transit signal priority, transit priority lanes, and other transit priority infrastructure along designated transit emphasis corridors.
- Some traffic calming and pedestrian improvements are not compatible with transit operations, if not designed to accommodate buses. Particular attention to transit needs may include coordinating with Whatcom Transportation Authority when designing future road improvements on arterials that have existing and planned transit service.
- Access to transit via walking, bicycling, and driving requires consideration when making infrastructure improvements and locating future developments. As roadways within the City are improved, work to maintain effective and efficient access to the Lynden Park & Ride. Public facilities and private developments requiring transit access can also take advantage of increased transit facilities.
3.4. Plan Framework

The baseline evaluation summarized in this chapter provides a framework for the City to establish a long-range multimodal transportation system plan. Transportation system improvements are required to safely and more efficiently accommodate the projected growth in population and employment within the City and its UGA. The recommended improvements are based upon analyses of the existing transportation system, forecasts of future travel demands, anticipated availability of funding resources, and the desire of the community to create an efficient transportation system that puts a priority on community livability.
4. Transportation Systems Plan

The transportation system plan provides a long-range strategy for the City of Lynden to address current and forecast transportation issues and needs. Transportation system improvements are needed to accommodate the projected growth in population and employment within the City and its UGA. The improvements are based upon analyses of the existing transportation system, forecasts of future travel demands, anticipated availability of funding resources, and the desire of the community to create a safe and efficient transportation system that puts a priority on multimodal connectivity and community livability.

4.1. Vehicle and Non-Motorized Networks

Streets and state highways are the core of the transportation system serving the City of Lynden and surrounding communities. These facilities provide for the overall movement of people and goods, for a wide range of travel modes. Streets and highways serve automobile trips, trucks, transit, vanpools, carpools, and bicycle and pedestrian travel. Therefore, the streets and highways establish the framework for the overall transportation system for the City.

Main Street and Grover Street provide east-west access within the city, while Depot Road, 1st Street, Bender Road, and Vinup Road are primary north-south connections. 1st Street, Birch Bay-Lynden Road, Hannegan Road, and Hampton Road provide access to regional county roadways. Guide Meridian Road (SR 539) and Badger Road (SR 546) are classified as state highways and provide primary regional connections to adjacent cities and counties.

Vehicles and non-motorized modes operate on the same roadway network in most locations. Through a roadway classification system, roadways are given a functional classification which assigns priority to these roadways. The following sections describe the roadway functional classification system and bicycle network classification system.

Roadway Functional Classification

Functional classification is a way to group highways, roads, and streets that comprise the transportation system. The functional classification of a roadway depends on types of trips that occur on it, the basic purpose for which it was designed, and the relative level of traffic it carries. Higher classifications (e.g., freeways, principal arterials) provide a high degree of mobility with higher traffic volumes, generally at higher speeds, and should have limited access to adjacent land uses. Lower classifications (e.g., local access streets) provide access to adjacent land and are not intended to serve through traffic, carrying lower volumes at lower speeds. Collectors balance the function between mobility and access.

Based on state law, cities and counties are required to adopt a roadway functional classification system that is consistent with State and Federal guidelines. In Washington, these requirements are codified in RCW 35.78.010 and RCW 47.26.090. Each local jurisdiction is responsible for defining its transportation system into at a minimum, three functional classifications: principal arterial, minor arterial, and collector. All other roadways are assumed to be local streets. The core of the street and highways system includes arterials and collectors.
In Lynden, the roadway functional classification system is based on the Revised Code of Washington (RCW) 35.78.10. This classification system defines the role of travel through a network of roadways, rather than focusing on individual roadways. The functional classification system has five broad categories of roadways: state highways, major arterials, secondary arterials, collector streets, and access streets. Functional classification roadway definitions are summarized in Table 2-2 and shown in Figure 2-2 of the Existing Transportation Facilities and Conditions chapter.

**Non-Motorized Network**

The non-motorized transportation network within the City of Lynden and its UGA serves pedestrians, cyclists, and other types of non-motorized users. The future non-motorized transportation network builds upon previous planning efforts that have identified future routes for bicyclists and pedestrians. These plans identify future pedestrian and bicycle routes for the City of Lynden through a combination of on-street facilities and off-street pathways provide the core network for walkers, cyclists, and other non-motorized users to travel.

The future non-motorized network in the City of Lynden builds on the existing pedestrian and bicycle networks described in the Existing Transportation Facilities and Conditions. Future facilities for walking and bicycling expand on the types of facilities already present in the City, which include sidewalks, bicycle lanes, striped shoulders, shared roadways, and multiuse pathways. In addition to those facilities, future non-motorized facilities in the City of Lynden may include:

**Pedestrian Facilities**

Sidewalks, walkways, and trails are integral to the City's overall transportation system. The City desires to have sidewalks on both sides of streets, unless special circumstances make it prohibitive. The City's Transportation Plan includes a program to enhance pedestrian connections and safety. The ADA Transition Plan will provide for constructing missing sidewalk links, repair or replacement of existing substandard sidewalks, improvements to crosswalk markings, and installation of curb ramps to meet the standards of the ADA (Americans with Disabilities Act).

**Bicycle Facilities**

Bicycles generally operate on the same roadways as vehicles within the city. Lynden has adopted a bicycle network classification system that identifies the types of bicycle facilities to be used within the city. The class type is generally based on the roadway functional classification system, with higher class bicycle facilities utilized on urban arterials and collectors. City defines bikeways in the following categories, consistent with national guidelines as follows.

- **Bike Lanes** – A portion of the road that is designated by signs and/or pavement markings for exclusive bicycle use. Bicycle lanes may be signed as part of a directional route system. Bicycle lanes are one-way facilities and carry bicycle traffic in the same direction as adjacent motorized traffic. The minimum width of the bike lane is 5 feet on a curbed road and 4 feet as a shoulder bike lane.
• **Marked Bike Routes** – Roadways that provide a widened paved outer curb lane to accommodate bicycles in the same lane as motor vehicles. Lane widths are typically increased at least 3 feet to improve conditions for bicyclists sharing the travel lane with vehicles.

• **Low Volume Roads** – A publicly maintained facility that is not designated with signs and/or pavement markings as a bikeway, but is preferred by bicyclists. Residential streets off of main arterials with low volumes of cars designed to provide a safe and pleasant travel priority for people walking and bicycling. A network of low volume roads can benefit from specific signage, traffic calming and diverters to create a low street environment for non-motorized travel.

Pedestrians and bicyclists benefit from facilities that improve the experience of walking down the street or parking a bicycle at the end of a trip. Street furniture and bicycle racks in areas with high non-motorized activity are part of a safe, convenient, and accessible non-motorized network of facilities.

**Multi-Use Pathways**
A separate, paved multipurpose trail for the principal use of bicycles and other non-motorized modes. Multi-use paths are a minimum width of 10 feet. Multi-use paths are part of a transportation circulation system and are built to provide access for people with disabilities. Facilities typically include wayfinding at trail entrances and may include striping to provide sufficient separation for users traveling at different speeds.

These types of facilities constitute a portion of the potential options for non-motorized travel within the City of Lynden. The specific application of the type of facility or specific treatment depends on overlapping demands for the location, available right-of-way, and a range of other considerations.

The project list that follows the Transportation Projects & Programs section includes projects that will complete the future vehicle and non-motorized transportation networks. Additional detail on these projects is found in the following section. The future non-motorized network is illustrated in Figure 4-1.
Figure 4-1 Future Non-Motorized Network
4.2. Transportation Projects & Programs
Regional roadways and local streets provide for the overall movement of people and goods, for a wide range of travel modes. Streets and highways serve automobile trips, trucks, transit, vanpools, carpools, and bicycle and pedestrian travel. Therefore, the streets and highways establish the framework for the overall transportation system for the City. Based on an evaluation of existing and forecast traffic volumes, traffic operations, safety, capacity deficiencies, and circulation needs, a recommended list of transportation improvement projects and programs were identified. The project list is organized into the following categories:

- **Safety and Capacity** include upgrading intersections through added turn lanes or modifications to traffic controls. Where applicable, improvements may also include upgrading traffic signals and implementing Intelligent Transportation Systems (ITS), which could encompass modifications to vehicle detection and coordinated signal timing.
- **Corridor Upgrades** include modifying roadways to current City design standards and incorporating multimodal improvements to serve higher traffic volumes and non-motorized travel.
- **Multimodal Connections** are new roadways that incorporate non-motorized facilities into the roadway cross section including sidewalks, bike lanes, or shared facility markers.
- **Active Transportation** improvements add pedestrian and bicycle facilities to roadways or construct off-street multiuse pathways to complete gaps in the existing non-motorized network.
- **Citywide Programs** includes maintenance and operations and an annual pavement preservation project.
- **Other Agency** improvements include projects developed by other agencies that enhance the City’s transportation system.

Table 4-1 and Figure 4-2 identify each of the projects and their locations and provides a brief description of each project including the project limits. The table identifies projects that are currently part of the City’s six-year Transportation Improvement Program (TIP). This highlights the projects that are currently identified for planning, design, or construction. Planning level cost estimates have been prepared for each project based on similar, recent projects.
### Table 4.1 Project List

<table>
<thead>
<tr>
<th>Project ID</th>
<th>Location (Street)</th>
<th>Description</th>
<th>Short Term</th>
<th>Medium Term</th>
<th>Long Term</th>
<th>Total Cost Estimate ($1,000)</th>
<th>1st Priority</th>
<th>Grant Eligible</th>
<th>Other Agency Contributed ($)</th>
<th>General City Transportation Impact</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-1</td>
<td>15th Ave and Lincoln Rd and Barberry Rd</td>
<td>Evaluate intersection operations and adjust treatments to improve future level of service where needed.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Mid</td>
<td>$1,640,000</td>
<td>Y</td>
<td>Y</td>
<td>3%</td>
</tr>
<tr>
<td>C-2</td>
<td>13th and Green St</td>
<td>Evaluate intersection operations and adjust traffic signals to improve level of service where needed.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Low</td>
<td>Long</td>
<td>$495,000</td>
<td>Y</td>
<td>Y</td>
<td>0%</td>
</tr>
<tr>
<td>C-4</td>
<td>7th Street and First Street</td>
<td>New connector to 7th Street with additional turn lanes at intersection.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Low</td>
<td>Long</td>
<td>$250,000</td>
<td>Y</td>
<td>Y</td>
<td>0%</td>
</tr>
<tr>
<td>C-5</td>
<td>1st Street and Main Street</td>
<td>Add left turn signal and offset signal timing jumpers for protected left turn on Main Street.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Mid</td>
<td>$769,500</td>
<td>Y</td>
<td>N</td>
<td>0%</td>
</tr>
<tr>
<td>C-6</td>
<td>15th Street and First Street</td>
<td>Add left turn signal and offset signal timing jumpers for protected left turn on Main Street.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Mid</td>
<td>$203,000</td>
<td>Y</td>
<td>N</td>
<td>0%</td>
</tr>
<tr>
<td>D-1</td>
<td>Avenue Road and Main Street</td>
<td>Evaluate intersection operations and adjust traffic signals to improve level of service where needed.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Short</td>
<td>$496,000</td>
<td>Y</td>
<td>Y</td>
<td>0%</td>
</tr>
<tr>
<td>D-2</td>
<td>15th Street from Louise Street to River Street.</td>
<td>Upgrade contains: (i) City Standards (no. 471 width), including sidewalks.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Mid</td>
<td>$8,701,000</td>
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<td>Y</td>
<td>0%</td>
</tr>
<tr>
<td>E-1</td>
<td>15th Street between 4th Street and 6th Street</td>
<td>Upgrade contains: (i) City Standards (no. 471 width), including sidewalks.</td>
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<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Mid</td>
<td>$468,000</td>
<td>Y</td>
<td>N</td>
<td>0%</td>
</tr>
<tr>
<td>E-2</td>
<td>15th Street between 5th Street and 6th Street</td>
<td>Upgrade contains: (i) City Standards (no. 471 width), including sidewalks.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Mid</td>
<td>$1,183,000</td>
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<td>E-3</td>
<td>15th Street between 6th Street and 7th Street</td>
<td>Upgrade contains: (i) City Standards (no. 471 width), including sidewalks.</td>
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<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Mid</td>
<td>$479,000</td>
<td>Y</td>
<td>N</td>
<td>0%</td>
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<tr>
<td>E-4</td>
<td>15th Street between 7th Street and 8th Street</td>
<td>Upgrade contains: (i) City Standards (no. 471 width), including sidewalks.</td>
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<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Short</td>
<td>$2,922,000</td>
<td>Y</td>
<td>Y</td>
<td>0%</td>
</tr>
<tr>
<td>E-5</td>
<td>15th Street between 8th Street and 9th Street</td>
<td>Upgrade contains: (i) City Standards (no. 471 width), including sidewalks.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Mid</td>
<td>$1,496,000</td>
<td>Y</td>
<td>Y</td>
<td>0%</td>
</tr>
<tr>
<td>F-1</td>
<td>15th Street from 3rd Street to First Street</td>
<td>Update contains: (i) City Standards (no. 471 width), including sidewalks and bicycle facilities.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Short</td>
<td>$1,259,000</td>
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<td>Y</td>
<td>0%</td>
</tr>
<tr>
<td>F-2</td>
<td>15th Street from Lincoln Rd to Barberry Rd</td>
<td>Upgrade contains: (i) City Standards (no. 471 width), including sidewalks and bicycle facilities.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Short</td>
<td>$2,393,000</td>
<td>Y</td>
<td>Y</td>
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</tr>
<tr>
<td>G-1</td>
<td>15th Street from 3rd Street to 5th Street</td>
<td>Upgrade contains: (i) City Standards (no. 471 width), including sidewalks and bicycle facilities.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Short</td>
<td>$675,000</td>
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<tr>
<td>G-2</td>
<td>15th Street from 5th Street to 7th Street</td>
<td>Upgrade contains: (i) City Standards (no. 471 width), including sidewalks and bicycle facilities.</td>
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<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Short</td>
<td>$1,783,000</td>
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<tr>
<td>G-3</td>
<td>15th Street from 7th Street to 9th Street</td>
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<td>✓</td>
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<td>Short</td>
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<tr>
<td>G-4</td>
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<td>✓</td>
<td>✓</td>
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<td>Short</td>
<td>$1,363,000</td>
<td>Y</td>
<td>Y</td>
<td>0%</td>
</tr>
<tr>
<td>Project</td>
<td>Location (Details)</td>
<td>Description</td>
<td>Benefit</td>
<td>Mode</td>
<td>Median</td>
<td>High</td>
<td>Low</td>
<td>Total Cost</td>
<td>Present Worth</td>
<td>Rating</td>
<td>Grade</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------</td>
<td>-------------</td>
<td>---------</td>
<td>------</td>
<td>--------</td>
<td>------</td>
<td>-----</td>
<td>-----------</td>
<td>--------------</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>N1</td>
<td>Connection on 17th Street between Village Drive and Joran Street</td>
<td>Complete new roadway connection to City Street, including sidewalks and bicycle lanes (needs to connect with City)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Short</td>
<td>$560,000</td>
<td>T</td>
<td>N</td>
<td>45%</td>
</tr>
<tr>
<td>N2</td>
<td>Broadway Street from 2nd Street to Depot Road</td>
<td>Non-motorway connection adjacent to Lynden City Park with pedestrian facilities</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Mid</td>
<td>$11,100,000</td>
<td>T</td>
<td>N</td>
<td>2%</td>
</tr>
<tr>
<td>N3</td>
<td>East Salome</td>
<td>Developer-funded roadway serving new developments in Eastern Lynden, alignments will be designed as part of future public works projects. Area generally bound by S. 10th Street to the west, City limits to the east, town limit to the south and Badger Road to the north</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Mid</td>
<td>10% Discount</td>
<td>N</td>
<td>N</td>
<td>12%</td>
</tr>
<tr>
<td>N4</td>
<td>North Lynden</td>
<td>Developer-funded roadway serving new developments in Northern Lynden located adjacent to the current City limits, alignments will be designed as part of future public works projects. Area generally bound by 1st Avenue to the west, town limit to the south, and Badger Road to the north</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Mid</td>
<td>10% Discount</td>
<td>N</td>
<td>N</td>
<td>12%</td>
</tr>
<tr>
<td>N5</td>
<td>West Lynden - North-South Connection</td>
<td>Developer-funded roadway connecting Terry Road to W. Main Street serving new developments in West Lynden. Alignments will be designed as part of future public works projects. Area generally bound by 1st Avenue to the west, town limit to the south, and Badger Road to the north</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Low</td>
<td>Long</td>
<td>10% Discount</td>
<td>N</td>
<td>N</td>
<td>12%</td>
</tr>
<tr>
<td>N6</td>
<td>West Lynden - East-West Connection</td>
<td>Developer-funded roadway connecting Main Street to existing road and serving new developments in East Lynden. Alignments will be designed as part of future public works projects. Area generally bound by 1st Avenue to the west, town limit to the south, and Badger Road to the north</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Low</td>
<td>Long</td>
<td>10% Discount</td>
<td>N</td>
<td>N</td>
<td>12%</td>
</tr>
<tr>
<td>A1</td>
<td>Plain Creek-Wallina North Connection - Badger Road to Main Street</td>
<td>2-lane boulevard with 2 shoulders on each side adjacent to new street alignment, provides better traffic circulation.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Mid</td>
<td>10% Discount</td>
<td>N</td>
<td>N</td>
<td>12%</td>
</tr>
<tr>
<td>A2</td>
<td>Horizontally Aligned West-Side Connection</td>
<td>Horizontally Aligned West-Side Connection to connect new roads to existing roadways and provide access to new developments.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Long</td>
<td>10% Discount</td>
<td>N</td>
<td>N</td>
<td>12%</td>
</tr>
<tr>
<td>A2</td>
<td>Non-Street Trail Plan Projects</td>
<td>Road trail: North town limits, including new pathway adjacent to Fishtrap Creek trail, (Funded)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Long</td>
<td>10% Discount</td>
<td>N</td>
<td>N</td>
<td>12%</td>
</tr>
<tr>
<td>A4</td>
<td>Detour on 5th Street</td>
<td>Detour on 5th Street between Main and 4th Avenues</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Short</td>
<td>$2,140,000</td>
<td>N</td>
<td>Y</td>
<td>2%</td>
</tr>
<tr>
<td>A5</td>
<td>Fisher Elementary School Trail</td>
<td>Pedestrian trail extending from existing trail on perimeter of Fisher Elementary School</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Short</td>
<td>$1,492,000</td>
<td>N</td>
<td>Y</td>
<td>2%</td>
</tr>
<tr>
<td>P1</td>
<td>Street Safety, Maintenance and Operations Program</td>
<td>Annual program to maintain and operate the City's transportation roadway infrastructure.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Degrading</td>
<td>$10,000,000</td>
<td>N</td>
<td>N</td>
<td>2%</td>
</tr>
<tr>
<td>P2</td>
<td>Bicycle Facilities and Pathways Program</td>
<td>Design of City facilities and project within City limits. Some facilities may be enhanced in transportation projects.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Degrading</td>
<td>$100,000</td>
<td>N</td>
<td>N</td>
<td>2%</td>
</tr>
<tr>
<td>B1</td>
<td>Sidewalks / Crosswalk Improvement Program</td>
<td>Annual program to construct or reconstruct sidewalks, improve crosswalks, and increase pedestrian safety.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Mid</td>
<td>$100,000</td>
<td>N</td>
<td>N</td>
<td>2%</td>
</tr>
<tr>
<td>Q1</td>
<td>25th and Byron Road</td>
<td>Upgrade intersection to a roundabout consistent with projects adjacent intersections on 25th and Byron.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Mid</td>
<td>$1,100,000</td>
<td>N</td>
<td>N</td>
<td>2%</td>
</tr>
<tr>
<td>Q2</td>
<td>25th and Vivion Road</td>
<td>Upgrade intersection to a roundabout consistent with projects adjacent intersections on 25th and Vivion.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Medium</td>
<td>Mid</td>
<td>$1,000,000</td>
<td>N</td>
<td>N</td>
<td>2%</td>
</tr>
<tr>
<td>Q3</td>
<td>25th and Line Road</td>
<td>Upgrade intersection to a roundabout consistent with projects adjacent intersections on 25th and Byron.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>High</td>
<td>Mid</td>
<td>$1,100,000</td>
<td>N</td>
<td>N</td>
<td>2%</td>
</tr>
<tr>
<td>Q4</td>
<td>24th St. Bridge Expansion</td>
<td>24th Street Bridge expansion, consistent with City's future plans.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>High</td>
<td>Mid</td>
<td>$3,000,000</td>
<td>N</td>
<td>N</td>
<td>2%</td>
</tr>
</tbody>
</table>
Figure 4-2 Transportation Improvement Projects
Safety and Capacity Improvement Projects
Intersections with safety or capacity, identified under existing or forecast conditions, have projects that fit into this category. These projects include adding turn lanes or modifications to traffic control at intersections. Where applicable, intersection improvements may also include upgrading traffic signals or roundabouts, and implementing Intelligent Transportation Systems.

Project C-1 is identified as exceeding the level of service threshold by 2035 adjusting for additional traffic volume. The project at Berthusen Road & Birch Bay-Lynden Road, is a Two-way stop-controlled intersection, operates at LOS E in the future. Considerations should be made to upgrade this intersection to either a signal or roundabout in the future to mitigate the level of service deficiency. Project C-2 at 17th Street and Grover Street addresses future operations issues by installing a traffic signal when warranted. Project C-3 at Front Street & 7th Street is recommended by the city to be monitored for future level of service deficiencies. Other projects in this category are recommended to install left-turn signal heads and adjust signal timing (C-4 to C-6) to address future safety and capacity issues.

Corridor Upgrades
These projects include reconstructing and widening of roadways to urban road standards and incorporating improvements to non-motorized facilities. These projects are intended to serve both the growth in vehicular traffic, as well as the range of non-motorized users through the addition of multimodal facilities. Seventeen roadway projects were identified for corridor upgrades and are expected to serve as examples of complete streets in the City. Projects in this section generally address upgrading corridors to city standards. Included in these projects are improvements on corridors serving the downtown area such as Front Street and Grover Street (R3 to R-5). Compact roundabouts, complete streets provisions, and other context-sensitive design treatments may be considered at these intersections to encourage safety for all roadways users. Roadways in this area may see an increase in vehicle and non-motorized traffic due to the completion of roadway projects connecting this area to the riverfront area (R-12, A-3). Most of these projects are identified in the most recent Transportation Improvement Program (TIP).

Multimodal Connections
New roadways are needed to serve the growth of the City and fill gaps in the roadway network. Multimodal connections are new roadways that meet City standards and incorporate bicycle and/or pedestrian facilities into the street cross section. Projects M-1 and M-2 to provide access between existing roadways to complete the street network grid. Projects M-3 to M-6 are future projects to be completed by developer funds in support of new developments occurring in the East, North, and West subareas. The actual alignments of future streets will be determined and designed at a later date as part of subarea studies.

In the East Lynden subarea, extension of Aaron Road as a collector will be important. A second east-west collector road will also be desirable to connect between Line and Northwood Roads. The City will work with Whatcom County to preserve right-of-way to support viable roadway corridors in the unincorporated UGA.
In the north subarea, possible collector streets include extension of Homestead Boulevard between Benson Road and Guide Meridian. This would minimize the need for direct access to Badger Road. Another potential east-west corridor to serve growth in the north part of the City would be Cedar Drive. Since much of this area is outside of the City’s current UGA, the City will need to coordinate with Whatcom County to preserve the future street corridors. The City will also need to coordinate with WSDOT about potential new intersections of these collector roads with Guide Meridian between Main Street and Badger Road.

Active Transportation
Active transportation is drawing increased focus within local, state and federal planning circles as smart growth, active living, growth management, and sustainability programs stress smarter decision-making and place greater importance on system connectivity. The quality of connectivity for active transportation modes is inversely related to the number and severity of environmental and infrastructure barriers to walking and bicycling. The physical barriers that affect travel behavior occur at the neighborhood level and these barriers take many forms. Significant barriers to connectivity include inadequate networks (lack of optional routes) or disconnected routes, rail lines, freeways or major arterials, and natural features such as rivers or steep terrain.

A viable active transportation network consists of connections to pedestrian generators, such as major employers, the downtown, schools, residential areas, parks, and transit stops. Land use and neighborhood street design patterns can also form barriers to pedestrian travel. For example, long block lengths and the lack of mid-block crossings cause pedestrians to travel further to reach local destinations, often resulting in a decision to utilize a vehicle for short trips that would otherwise be completed on foot. Connectivity to schools, transit stops, parks, and other destinations were used to identify critical gaps in the pedestrian and bicycle networks to be included in these active transportation plans. Segments of arterials and collectors that do not have sidewalks or adequate walkways on both sides of the street would be improved as part of identified improvement projects or through the ADA Transition Plan discussed Citywide Programs.

Active Transportation Project A-1 provides a new paved multi-use path between Badger Road and Main Street adjacent to Pepin Brook. Project A-2 provides safe bicycle connectivity between Benson Road and the new Pepin Brook multi-use path. Project A-3 was selected from Lynden’s 2014 Park and Trail Master Plan, a multi-use pathway which primarily runs adjacent to Fishtrap Creek. Project A-6 was informed by the Whatcom County Bicycle and Pedestrian plan. The project is the in-city portion of the county designated bicycle system and is classified as Class II bike lanes.

A Safe Routes to Schools project (A-5) would improve pedestrian connections to Fisher School by paving multi-use pathways adjacent to the school and providing sidewalk and crossing treatments to the existing sidewalk network as necessary.
Citywide Programs
Citywide programs include ongoing transportation costs within the City of Lynden. The Citywide Programs include an annualized budget over the planning horizon for completing a range of pothole repairs, pavement patching, shoulder restoration and mowing, crack sealing, sign replacements, striping and other maintenance tasks.

Non-motorized citywide programs are identified in the projects P-2 Bicycle Facilities and Pathways Program and P-3 Sidewalk/Crossing Improvement Program. These programs overlap with some projects identified in the Active Transportation projects list, though the intention of project P-2 is to stripe other bicycle facilities identified by the City.

An area of focus is in relation to Title II of the American with Disabilities Act (ADA), which requires local agencies to conduct what is known as a Self-Evaluation and Transition Plan. As part of the development of the citywide pedestrian network, a strategy to address Lynden’s plan for complying with federal ADA requirements is needed. The Sidewalk/Crossing Improvement Program (P-3) includes funding for the installation of ADA-accessible curb ramps at intersections.

Other Agency Projects
Other Agency improvements include projects developed and funded (at least partially) by other agencies such as WSDOT and Whatcom County that impact the City’s transportation system.

The State Route 546 Corridor Projects (Projects O-1 through O-4) led by WSDOT are anticipated to continue over the planning horizon of the Transportation Plan. These projects address capacity and safety issues by upgrading the intersections to roundabouts. Other intersections on the corridor including SR 546 & Depot Road and SR 546 & Bender Road have been upgraded since the previous Transportation Plan.

Project O-5 addresses potential safety issues on SR 539 corridor in City Limits as a result of analysis of recent collision data. The project calls for a safety study to look further into potential issues causing higher collision rates on the corridor.

Project O-6 widens SR 539 (Guide Meridian Road) from Birch Bay-Lynden Road to Main Street as part of a WSDOT project. This project also assumes a possible roundabout at Main Street and at SR 546 to address potential future safety and capacity issues. Additional studies are necessary to determine feasibility for roundabouts at these locations.
Figure 4-3 Safety and Capacity Projects
Figure 4-4 Multimodal Connections and Corridor Upgrade Projects
Figure 4-5 Active Transportation Projects
Figure 4-6 Other Agency Projects
4.3. Public Transportation and Travel Demand Management Plans

Public transportation and travel demand management plans are vital components to a complete transportation system. The following sections describe these efforts in the City of Lynden.

Public Transit

In order to provide mobility options within the City, the Transportation Plan has been coordinated with the WTA (Whatcom Transportation Authority). Transit service within Lynden is focused on the Transit Center/Park-and-Ride lot located at the Front Street/19th Street intersection. Transit service is provided to Bellingham and Western Washington University six days a week. A local circulator bus provides connections between the Transit Center, downtown Lynden, and outlying neighborhoods. WTA regularly reviews its service plans and route structure.

WTA will need to monitor development activity within the City and may consider modifying the route structures to provide service to new urban areas as they develop. As the urban areas of the City expand, the City would encourage WTA to consider one or more additional routes to provide adequate coverage and increased service frequency. Increased service frequency and coverage is desired by the City to make transit use more convenient to meet growing local area travel demands. The decision on new routes or additional service frequency will depend on actual transit demands, land use density, and cost of service versus revenues. Continuation of the paratransit service will also provide mobility options for residents of Lynden.

The City will also continue to coordinate with WTA in the evaluation of accessibility to public transportation to/from new developments. The City’s requirements for sidewalks on all streets will support accessibility to transit service.

Transportation Demand Management Program

In addition to potential future increases in transit service, transportation demand management (TDM) programs can support the mobility needs of the community. The TDM programs target travel behavior rather than the transportation infrastructure. These programs should be coordinated with WTA, Whatcom County, and WCOG (Whatcom Council of Governments) to provide a broader basis for reducing single-occupant vehicles and expanding alternative transportation choices.

Lynden is a growing community in a rural setting. TDM strategies are typically most effective in denser and larger urban settings. However, TDM program strategies coordinated with WTA, Bellingham, and Whatcom County can provide alternatives for residents and employees within Lynden. Potential TDM strategies for the City of Lynden include the following options:

- **Transportation Coordinators.** Transportation Coordinators (TCs) can be designated for large employment centers or higher density residential areas. The TC would assist employees or residents in coordinating with WTA regarding carpool or other ridesharing programs. They would be a focal point for providing educational and promotional materials from WTA to employees and residents. One TC could serve several employers or developments.
• **Flexible/Alternative Work Schedules.** Flexible work schedules allow employees to adjust start/end times to accommodate carpools, vanpools, or transit options. Alternative work schedules may be used to reduce the number of days an employee commutes during peak travel periods. These programs help reduce the need for adding capacity to highways and arterials, and reduce the levels of peak hour congestion.

• **Telecommuting.** The use of telecommunications technology can allow some employees to work from home. This reduces the need for travel to/from a work site for some week days.

• **Site and Street Design.** Sidewalks and/or other hard surface pathways that connect a development to adjacent pedestrian and bicycle facilities should be provided. Site designs should provide reasonably direct pedestrian and access to arterials or collectors to existing or future transit stops. Transit shelters should be considered along arterial streets where the volume of transit riders warrant them.

4.4. Freight System

The City of Lynden transportation system supports significant trucking activity due to its location near the U.S./Canada border. In addition, local industry and agricultural uses generate truck traffic. The City’s Transportation Plan has been developed to support efficient movement of freight and goods through and within the City. The primary route for trucks traveling through the City are the two state highways: Guide Meridian (SR 539) and Badger Road (SR 546). Other roadways including West Badger Road, Loomis Trail Road, Bender Road, E Grover Street, Hannegan Road, and Birch Bay-Lynden Road would also serve truck travel.

Trucks entering/exiting the City to/from a destination within the City should use only major and secondary arterials to connect in the most direct manner between the state highways or county arterials and the local origin/destination. Depot Road should be the primary north-south arterial for trucks traveling between downtown and Badger Road (SR 546). Between 17th Street and First Street, trucks should use Grover Street instead of Front Street to minimize the impacts within the historic business district, except as needed for local deliveries. Trucks should limit travel on non-arterial streets to the shortest distance between the origin/destination within the City and the arterials.

4.5. Waterborne, Rail, and Air Transportation

Currently there are no waterborne transportation serving Lynden. In the past, the Nooksack River has served some travel needs of the community. The Transportation Plan does not identify waterborne transportation to be a component of the City’s transportation system.

A rail spur traverses through a portion of Lynden. It extends from just west of Depot Road to beyond the eastern City limits. It provides freight service to the industries located along the corridor, including the dairy products plant at Depot Road. These could include improvements to signing and markings, and possible crossing gates and signals. The priorities would be the crossing at Depot Road north of Main Street and Grover Street west of Vinup Road.
The existing air facility, the Lynden Municipal Airport, located between Benson and Depot Roads is expected to continue to serve local business and recreation flights. The City adopted a separate Airport Layout Plan in 2008 which identified future improvements at the airport.
5. Financing Program

The list of transportation improvement projects must be funded and implemented to meet existing and future travel demands in and around the City of Lynden. Estimated project costs and future revenues are presented and options to fund the projects are described. Implementation strategies are discussed and include items such as coordination with WSDOT, Whatcom County, and Whatcom Council of Governments to prioritize and fund regional improvements. Other strategies include refine the transportation concurrency and impact fee programs to ensure development helps fund transportation improvements necessary to support new growth. The implementation plan sets up the framework for the City to prioritize and fund the improvements identified in the transportation systems plan.

The Growth Management Act (GMA) requires the Transportation Element of the Comprehensive Plan to include a multi-year financing plan based on the identified improvement needs in the transportation systems plan. The financing plan is to be the basis in developing the required 6-year Transportation Improvement Program (TIP). If probable funding is less than the identified needs, then the transportation financing program must also include a discussion of how additional funding will be raised or how land use assumptions will be reassessed to assure that level of service standards will be met. Alternatively, the City can adjust its level of service standards.

A summary of the cost of capital improvement projects and citywide maintenance and operation programs are presented. The capital project and maintenance and operations program costs are compared to estimate revenues from existing sources used by the City to fund transportation improvements. Other potential funding sources to help reduce the projected shortfall are described. A summary of a reassessment strategy for the City to use for reviewing transportation funding in the context of the overall Comprehensive Plan is also included.

5.1. Project and Programs Cost Estimates

Table 5-1 summarizes the costs of the recommended transportation improvement projects and programs. These cover City of Lynden capital improvements, maintenance and operations. The costs are summarized for the life of the Plan. Improvements under the responsibility of WSDOT or Whatcom County are not included in the summary table. However, the City may choose to include a share of the costs of WSDOT improvements in its transportation impact fee or other funding options. In addition, Active Transportation project costs are shown below, however, these costs are assumed by the City to be the responsibility of the Parks Department and are not considered in the long-term financial outlook.
### Table 5-1 Transportation Project and Program Costs (2016 – 2036)

<table>
<thead>
<tr>
<th>Improvement Type</th>
<th>(2016-2036) Total Costs</th>
<th>Percent of Total Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transportation Capital Projects</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety and Capacity Intersection Improvements</td>
<td>$2,400,000</td>
<td>3%</td>
</tr>
<tr>
<td>Corridor Upgrades</td>
<td>$36,530,000</td>
<td>52%</td>
</tr>
<tr>
<td>Active Transportation</td>
<td>$5,070,000</td>
<td>7%</td>
</tr>
<tr>
<td>Multimodal Connections</td>
<td>$2,020,000</td>
<td>3%</td>
</tr>
<tr>
<td>Other Agency Projects</td>
<td>$24,890,000</td>
<td>35%</td>
</tr>
<tr>
<td><strong>Subtotal Capital Projects</strong></td>
<td><strong>$70,910,000</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Transportation Maintenance &amp; Operations (M &amp; O) Programs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance &amp; Operations</td>
<td>$90,160,000</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Subtotal M &amp; O Programs</strong></td>
<td><strong>$90,160,000</strong></td>
<td>100%</td>
</tr>
<tr>
<td><strong>Total Costs</strong></td>
<td><strong>$161,070,000</strong></td>
<td></td>
</tr>
</tbody>
</table>

1. All costs in 2016 dollars, rounded to $1,000
2. Includes Citywide Programs

Planning level cost estimates were developed for the capital improvements presented in the Transportation Systems Plan section of the Transportation Element. The planning estimates were prepared based upon average unit costs for recent transportation projects within the City. Planning level costs were developed with the assumption that such costs would include associated storm water development requirements, property acquisition, wetland mitigation, and utility extensions and/or upgrades, based upon historic costs for those items. The cost projections are not specific to individual projects or locations. More detailed cost estimates will need to be prepared as the projects are closer to design and construction. Future design studies will identify specific property impacts and options to reduce costs and impacts on properties. The WSDOT Construction Office has developed a Construction Cost Index that should be used to update project costs in the future to account for inflation.

The estimated capital cost of the City portion of the Transportation Plan is $70.9 million (in 2016 dollars). About 52 percent of the capital costs are associated with the corridor upgrades. These costs cover upgrading roadways to accommodate higher volumes of traffic and construction of urban features such as underground drainage, sidewalks, and street lights, bringing the roadways up to City standard. Approximately 7 percent of the capital costs are associated active transportation projects and 3 percent of the capital project costs focus on multimodal connections, which include new roadway connections.
Maintenance and operations costs were projected based on recent expenditures and assuming a 2-percent annual growth to account for expected population growth and annexation. Maintenance and operations costs cover general administration, roadway and storm drainage maintenance, street lighting, traffic signal and street signs, street sweeping, and other miscellaneous safety improvement programs. In addition, the City developed estimates of annual expenditures to repair, replace and construct sidewalks to improve connectivity and safety, beyond facilities that would be constructed as part of other capital improvements. A bicycles and pathways program is included in this estimate. An estimated need for overlays to preserve the existing street system is also included in order to reduce the need for extensive capital reconstruction projects. About 56 percent, or $90.2 million, of the total $161.2 million Transportation Element cost is associated with maintenance and operations. Of that cost, approximately 1 percent is for citywide sidewalk and pavement overlay programs.

The Transportation Element also includes other agency projects in the vicinity of the City. The costs of these improvements are estimated at almost $24.9 million (in 2016 dollars). These projects include improvements on SR 546 at Benson Road, Vinup Road, and Line Road, where roundabouts are recommended to be installed by WSDOT (Projects O-1 to O-3, respectively). Project O-4 adds roadway capacity on SR 539 also as part of a WSDOT project. Other nearby intersections on SR 546 have been improved to roundabouts since the previous transportation element. The other agency projects will serve development in Whatcom County, Bellingham, and other communities and therefore were not included in the City of Lynden totals. These projects are not currently funded by the other agencies.

Combining the cost of City capital projects and maintenance and operations programs with the cost of the other agency improvements results in a total cost of over $161.1 million (in 2016 dollars).
5.2. Funding Analysis with Existing Revenue Sources

The City has historically used tax revenues, developer fees, and grants to construct and maintain their transportation facilities. The description of available funding sources and projected revenue is listed in Table 5-2.

Table 5-2 2016-2036 Transportation Revenues

<table>
<thead>
<tr>
<th>Revenue Source</th>
<th>Total Revenues</th>
<th>Percent of Total Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real and Personal Property Taxes</td>
<td>$9,855,000</td>
<td>13%</td>
</tr>
<tr>
<td>B&amp;O Taxes on Privately Owned Utilities and St</td>
<td>$14,252,000</td>
<td>19%</td>
</tr>
<tr>
<td>Street and Curb Permits</td>
<td>$73,000</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Interlocal Grants, Impact Payments &amp; In-Leu Taxes</td>
<td>$247,000</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Motor Vehicle Fuel Tax - City Streets</td>
<td>$7,160,000</td>
<td>10%</td>
</tr>
<tr>
<td>Storm Drainage Fees &amp; Charges (15% Capital)</td>
<td>$2,272,000</td>
<td>3%</td>
</tr>
<tr>
<td>Transportation Benefit District</td>
<td>$12,879,000</td>
<td>17%</td>
</tr>
<tr>
<td>GMA Traffic Impact Fees</td>
<td>$9,435,000</td>
<td>13%</td>
</tr>
<tr>
<td>Grant Funds</td>
<td>$18,198,000</td>
<td>24%</td>
</tr>
<tr>
<td>Capital Revenue Total</td>
<td>$74,371,000</td>
<td>100%</td>
</tr>
<tr>
<td>Road/Maintenance and Repair Charges</td>
<td>$8,080,000</td>
<td>12%</td>
</tr>
<tr>
<td>Agency Type Deposits</td>
<td>$702,000</td>
<td>1%</td>
</tr>
<tr>
<td>Investment Interest</td>
<td>$51,000</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Rentals, Leases, etc.</td>
<td>$269,000</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Miscellaneous Revenues</td>
<td>$214,000</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Traffic Policing</td>
<td>$28,831,000</td>
<td>41%</td>
</tr>
<tr>
<td>Storm Drainage Fees &amp; Charges (85% M&amp;O)</td>
<td>$13,583,000</td>
<td>20%</td>
</tr>
<tr>
<td>Operating Transfers</td>
<td>$17,477,000</td>
<td>25%</td>
</tr>
<tr>
<td>Leasehold Tax Collected</td>
<td>$338,000</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Subtotal M &amp; O Revenues</td>
<td>$69,545,000</td>
<td>12%</td>
</tr>
<tr>
<td>Total Revenues</td>
<td>$143,916,000</td>
<td></td>
</tr>
</tbody>
</table>

1 – Miscellaneous capital revenues include impact payments, street and curb permits, and other sources.
2 – Miscellaneous M&O revenues include barricade rentals, interest, and other sources.
The revenue projections were estimated based upon the City’s 2015 budget, historical revenues, and input from the City’s finance department. Based on recent historical data, it is estimated that revenues would be approximately $143.9 million during the 20-year period, of which nearly 52 percent would be dedicated for capital improvements and 48 percent for maintenance and operations programs.

Of the approximately $74.4 million in revenues dedicated for capital improvements, nearly 13 percent, $9.4 million, are expected to come through GMA and other developer impact fees, frontage improvements, and SEPA or concurrency mitigation. Transportation Benefit District funds are anticipated to represent 17%, or nearly $12.9 million of capital revenue. Grants are assumed to generate approximately $18.2 million, or more than 24 percent of all capital revenues.

Over $69 million in revenues dedicated for maintenance and operations programs are anticipated over 20 years. Over 40-percent is expected to come from Traffic Policing. Storm and Drainage charges are expected to create nearly $13.6 in revenue over the planning period while Road/Maintenance and Repair Charges represent 12-percent of the total maintenance and operations revenue.

**Tax Revenues**

The existing tax revenues used by the City will need to be maintained as one source of revenue to fund transportation projects and programs. These revenue sources include motor vehicle fuel tax, property taxes, and other tax revenues that support the City’s general fund. These sources of revenue are projected to contribute approximately $32 million during the 20-year period. The majority of the existing tax revenue sources will be used for maintenance, and to provide the matching funds for grants or to complete a portion of the improvement projects not covered by other agencies.

**Developer Transportation Funding**

The City uses several programs to help offset the increased traffic impacts of new development or redevelopment. These include construction of frontage improvements such as curb, gutter, and sidewalks and internal roadways needed to serve the development. The City is also required to review the potential transportation impacts of development and define appropriate mitigation under the State Environmental Policy Act (SEPA) and GMA concurrency requirements. In addition, the City previously adopted a Transportation Impact Fee (TIF) program as allowed for by the GMA to help fund growth-related transportation system improvements. The funding program identifies $9.4 million (2016) in development generated funding for City growth related improvement projects. The City may generate additional impact fee revenues to help fund WSDOT improvements on the SR 546 and SR 539 corridors.
Transportation Impact Fees
The GMA allows agencies to develop and implement a Transportation Impact Fee (TIF) program to help fund part of the costs of transportation facilities needed to accommodate growth. State law (RCW 82.02) requires that TIF programs are:

- Related to improvements to serve new growth and not existing deficiencies;
- Assessed proportional to the impact of new developments;
- Allocated for improvements that reasonably benefit new development, and;
- Spent on facilities identified in the adopted Capital Facilities Plan.

TIFs can only be used to help fund improvements that are needed to serve new growth. The projects can include recently completed projects to the extent that they serve future growth and did not solely resolve existing deficiencies. The cost of projects needed to resolve existing deficiencies cannot be included.

The TIF program must allow developers to receive credits if they are required to construct all or a portion of system improvements to the extent that the required improvements were included in the TIF calculation. Cost associated with dedication of right-of-way for improvements included in the TIF also would be eligible for credits.

Each of the capital improvement projects was evaluated for potential inclusion in an updated TIF program based on the 2036 horizon year. This resulted in up to $9.4 million (2016 dollars) eligible for inclusion in the transportation impact fee program. The analysis did not assume improvement projects under the jurisdiction of WSDOT or Whatcom County. The travel forecasting model was applied to determine the proportionate share of the costs of these improvements due to growth in the City, its UGA, and other areas. The analysis shows that approximately $9.4 million (2016 dollars) of the City’s project costs would be attributable to growth within the City. The City would need to apply a cost escalation factor and systematically update the TIF program to keep revenues on pace with future increases in project costs.

Other Developer Mitigation and Requirements
The City has adopted specific development related requirements which will help fund the identified improvements. These include frontage improvements and mitigation under the State Environmental Policy Act (SEPA) and concurrency requirements. The City requires developments to fund and construct certain roadway improvements as part of their projects. These typically include reconstructing abutting streets to meet the City’s current design standards. These improvements can include widening of pavement, drainage improvements, and construction of curb, gutter, and sidewalks.

Several of the projects identified in the Transportation Element could be partially funded and constructed as part of new developments. As noted above, to the extent that costs of a transportation improvement are included in the TIF then credits would be required. If improvements to an abutting local street are not included in the TIF, then credits against the TIF would not be required or allowed.

The City also evaluates impacts of development projects under SEPA. The SEPA review may identify adverse transportation impacts that require mitigation beyond payment of the TIF.
These could include impacts related to safety, traffic operations, non-motorized travel, or other transportation issues. The needed improvements may or may not be identified as specific projects in the Plan. As with frontage improvements, if the required improvements are included in the TIF program, then the City must provide credits to the extent that the costs are included in the impact fee.

The City also requires an evaluation of transportation concurrency for development projects. The concurrency evaluation may identify impacts to facilities that operate below the City’s level of service standard. To resolve that deficiency, the applicant can propose to fund and/or construct improvements to provide an adequate level of service. Alternatively, the applicant can wait for the City, or another agency or developer to fund improvements to resolve the deficiency.

The improvement projects were also reviewed for potential developer construction or funding through frontage improvements, SEPA, or concurrency. Approximately $60 million of the plan’s capital improvements were assigned as other developer mitigation over the 20-year time period. This is approximately 30 percent of the over project cost. As noted above, if the City requires a developer to construct improvements included in the TIF program then the City must provide credits.

Grants
Over the past several years the City has secured grants for transportation improvements. Based on recent grant awards, this source would provide over $18.2 million in revenues during the 20-year period. Grant funding is typically tied to specific improvement projects and distributed on a competitive basis. Due to reduced federal and state revenues the pool of grant funding will likely decrease in the future. In addition, more local agencies are pursuing grants resulting in a more competitive environment. The grant award total over the 20-year period represents an optimistic, yet realistic forecast.

5.3. Forecasted Revenue Surplus
Table 5-3 summarizes the City’s proposed transportation financing strategy for the $50.1 million City portion of the capital improvement costs as well as the over $120 million in maintenance, operations, and program expenditures. All values are presented in 2016 dollars. The plan results in a shortfall of over $30 million dollars. This assumes that the level of grants and developer commitments will be generated as estimated in the Transportation Element. The deficit could be greater if the level of development or the level of grant funding is less than forecast. This would be offset by a reduced need for transportation improvements necessitated by growth. If the City is more successful in obtaining grants or other outside funding for projects then potential deficit could be reduced, as discussed in the next section.

The shortfall identified in the Transportation Element is not unusual, particularly as many of the improvements identified in the plan will require partnership with other agencies. However, in an era of diminished public resources and increased competition for grant funding the City must take a realistic view of potential revenue sources.
In order to be consistently successful in receiving grant funding, the City cannot become a part-time participant in grant requests. Preparation of grant applications must begin early, and must be supported by the Comprehensive Plan and the 6-Year Transportation Improvement Project list.

The City shall also consider funding options which more equitably distribute the costs of the transportation system among the users of the system. While the “growth pays for growth” principle has been applied throughout the Transportation Element, the costs of maintaining the existing transportation system over time are the shared responsibility of all of the Lynden community. This could include adoption of other citywide transportation funding programs similar to the previously adopted Transportation Benefit District (TBD), changes to the existing TBD program, or increased use of general revenues from sales taxes or other sources.

The City of Lynden has historically experienced growth trends somewhat later than other cities, particularly cities within the Puget Sound corridor in Snohomish, King, Pierce, and Kitsap counties. The Puget Sound Regional Council (PRSC), which comprises these four counties, noted in 2010 through its Transportation 2040 planning process that revenue shortfalls in the planning region are projected to be so substantial that the introduction of user fees such as toll roads were included in each planning alternative. The City of Lynden’s projected shortfall is not as dramatic, and the capital projects described in the plan are much more modest. However, it may be naïve to expect that traditional revenue sources can be depended on to fund necessary projects.

**Table 5-3 Forecasted Revenues and Costs**

<table>
<thead>
<tr>
<th>Revenue Source</th>
<th>Total (2016–2036)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation Capital Revenues</td>
<td>$74,369,000</td>
</tr>
<tr>
<td>Total Capital Project Costs</td>
<td>$40,950,000</td>
</tr>
<tr>
<td><strong>Capital Estimated Surplus</strong></td>
<td>+ $33,419,000</td>
</tr>
<tr>
<td>Transportation M&amp;O Revenues</td>
<td>$72,464,000</td>
</tr>
<tr>
<td>Transportation M&amp;O Costs</td>
<td>$90,160,000</td>
</tr>
<tr>
<td><strong>M &amp; O Estimated Shortfall</strong></td>
<td>-$17,696,000</td>
</tr>
<tr>
<td><strong>Total Estimated Shortfall</strong></td>
<td>+$15,723,000</td>
</tr>
</tbody>
</table>

1. All revenues in 2016 dollars
2. Does not include other agency improvements or active transportation projects

**Capital Revenue Surplus**

Capital improvement revenues are expected to exceed the cost of the capital improvements program by $33.4 million dollars. This surplus is based on an optimistic assumption of grant funding ($18.2M) which may not materialize. Further, some of the sources of capital funding are likely to be redirected to reduce the estimated M& O funding shortfall.
Maintenance and Operations Revenue Shortfall
The $18 million shortfall in funding would primarily affect the ability of the City to fund maintenance and operations improvements as well as citywide programs. The City is committed to funding the existing maintenance and operations programs needed to preserve the integrity, safety, and efficiency of its existing transportation system and therefore would redirect some of the funding contributing to the Capital Revenue Surplus to this need.

5.4. Potential Options to Balance the Plan
As noted above, projected existing revenue sources would allow the City to fund the identified transportation improvement projects and program costs. However, should the revenue forecast change, the City could address a shortfall through delaying lower priority projects or increasing revenues. Increases in revenues can be segmented into capital project needs and citywide preservation or sidewalk programs.

Options for Reducing a Funding Shortfall for Capital Improvement Projects
The City can increase funding for capital street projects using a range of revenue options. These include partnering with other agencies or additional grants and use of tax increment financing. Alternatively, the City could delay implementation of projects, especially lower priority improvements. Possible applications of these funding strategies are discussed below.

Delaying Improvement Projects
Table 4-1 includes a relative priority list of the improvement projects. The priority list reflects the relative need for the project to meet the City of Lynden’s transportation system needs, including safety, circulation, operations/congestion, pedestrian and bicycle system connectivity, and transit service. The City will focus its funding on the higher priority improvements by making conservative adjustments to the Six-Year Improvement plan.

Approximately $9.8 million of the eligible capital improvement projects cost are listed as being of lower priority. Approximately $50 million are medium priority projects, with over $3.5 million in high priority capital projects. The City may choose not to fund the low priority projects within the 20-year horizon without additional funding sources. The priority of the projects is included in the Transportation Element to allow the City to make informed decisions.

As developments occur in these areas the City may require frontage improvements or SEPA mitigation, as appropriate. The City also may identify other programs or opportunities to partially or fully fund some of these improvements.

Additional Grants and Other Agency Funding
As discussed above, the transportation agency analyses assumes that the City will receive optimistically $18.2 million in grant funding over the life of the plan. If the City is able to pursue and receive grants at a higher rate than identified based on the City’s historic annual average, revenues would increase over the life of the plan.

The Transportation Element has a range of improvement projects that should be competitive for grant funding. These include the Active Transportation projects (A-1 to A-6), the WSDOT SR-
546 roundabout improvements, W Front Street completion, and other improvements to federally classified routes.

GMA requires the Transportation Element to identify these needs to facilitate coordination between the local and state transportation planning efforts. At this time, WSDOT indicates funding for these improvements is not available. The City will continue to work with WSDOT and other local, regional, and state agencies to develop strategies for funding and implementing these improvements.

**Tax Increment Financing**
Washington State allows cities to create “increment areas” that allows for the financing of public improvements, including transportation projects within the area by using increased revenues from local property taxes generated within the area. The specific rules and requirements are noted in the Community Revitalization Financing (CRF) Act.

The Local Infrastructure Financing Tool (LIFT) program is a potential tool for the City to pursue. Under this concept the annual increases in local sales/use taxes and property taxes can be used to fund various public improvements.

The City may choose to further consider these types of funding programs in the future as part of its annual budget and six-year Transportation Improvement Program (TIP) processes.

**Voter Approved Bond/Tax Package**
Bonds do not result in additional revenue unless coupled with a revenue generating mechanism, such as a voter approved tax. The debt service on the bonds results in increased costs, which could then be paid with the additional voted tax revenues.

### 5.5. Reassessment Strategy
Although the financing summary identifies revenues exceeding expenditures over the life of the plan, the City is committed to reassessing their transportation needs and funding sources each year as part of its 6-year Transportation Improvement Program (TIP). This allows the City to validate the funding projections made in this plan and to match the financing program with the short-term improvement projects and funding. In order to implement the Transportation Element, the City will consider the following principals in its transportation funding program:

- Balance improvement costs with available revenues as part of the annual 6-year Transportation Improvement Program (TIP);
- Review project design standards to determine whether costs could be reduced through reasonable changes in scope or deviations from design standards;
- Fund improvements or require developer improvements as they become necessary to maintain LOS standards to meet concurrency;
- Explore ways to obtain more developer contributions to fund improvements;
• The City could consider options to fund transportation improvements based on the use of the existing transportation network, increased fuel taxes, and vehicle tab surcharges, or other funding mechanisms. Many of these options will require voter approval.

• Coordinate and partner with WSDOT, Whatcom County, and others to implement improvements to the State Route 546 and State Route 539 safety and capacity improvements.

• Vigorously pursue grant funds from state and federal sources;

• Work with Whatcom County to develop multiagency grant applications for projects that serve growth in the City and its UGA;

• Review and update the TIF program regularly to account for the updated capital improvement project list, revised project cost estimates, and annexations;

• The City could consider changes in its level of service standards and/or limit the rate of growth in the City and its UGA as part of future updates to its Comprehensive Plan;

If there is insufficient revenue, some lower priority improvements may be slid or removed from the Transportation Element. The City will use the annual update of the 6-year Transportation Improvement Program (TIP) to re-evaluate priorities and timing of projects and need for alternative funding programs. Throughout the planning period, projects will be completed and priorities revised. This will be accomplished by annually reviewing traffic growth and the location and intensity of land use growth in the City and its UGA. The City will then be able to direct funding to areas that are most impacted by growth or to roadways that may be falling below the City’s level of service standards. The development of the TIP will be an ongoing process over the life of the plan and will be reviewed and amended annually.