

WHERE WE'RE GOING

HORIZON 2040 • CHAPTER 3

Approved by the SRTC Policy Board December 12, 2013

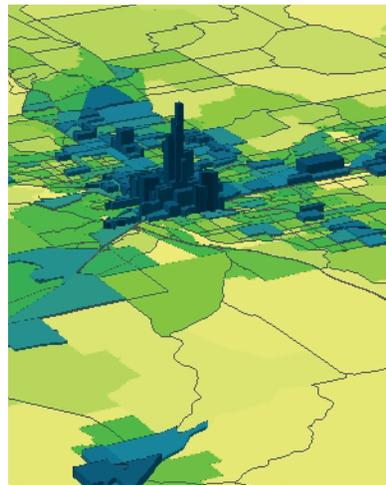


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FUTURE CONDITIONS

How the forecasted changes in demographics and other conditions will impact the future transportation system.

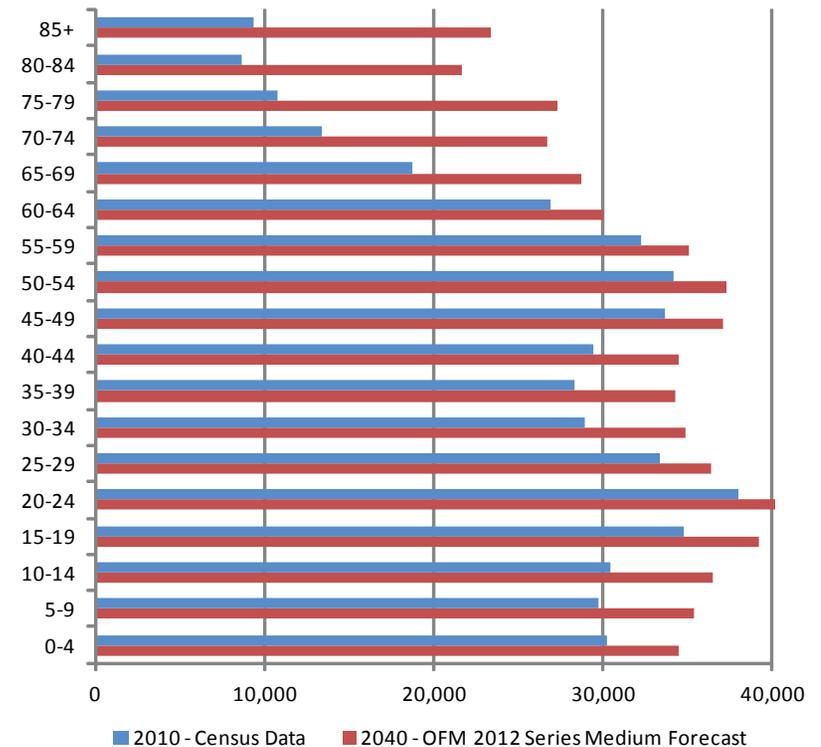
The purpose of this chapter is to forecast future transportation conditions to the year 2040. This scenario is described as the ‘No-Build’ because it assumes that the only improvements to the regional transportation system are those projects and programs that are funded and programmed in the SRTC Transportation Improvement Program (TIP). The No-Build scenario allows for consistent comparisons and analysis for several alternate scenarios. It is also required for environmental and financial review processes. “Scenarios are narratives or sets of assumptions that explore plausible trajectories of change. They provide a means of visioning possible future changes and different policy and investment options.”¹ The issues identified in this chapter are used to inform the scenario analysis process detailed in **Chapter 4 How We’ll Get There**.

Several transportation-related indicators were mentioned in the Regional Profile section of Chapter 2. Demographics such as population, employment, age distribution, income range, household composition, education level and residential location all directly relate to transportation behavior.² The US Census Bureau forecasts demographics at various geographic levels. The US Bureau of Economic Analysis and the Federal Reserve also produce economic forecasts. These forecasts are produced in ranges due to the uncertainty in projecting birth/death rates, immigration and future economic conditions. While not all demographics can be accurately forecasted 25+ years in the future,

1 FHWA Scenario Planning Guidebook. John A. Volpe National Transportation Systems Center. 2011.
2 Demographics and Transportation in the United States 2050. Nathan Guequierre. 2003.

SRTC monitors and evaluates local, regional and national trends to ascertain the expected impact to our transportation systems.

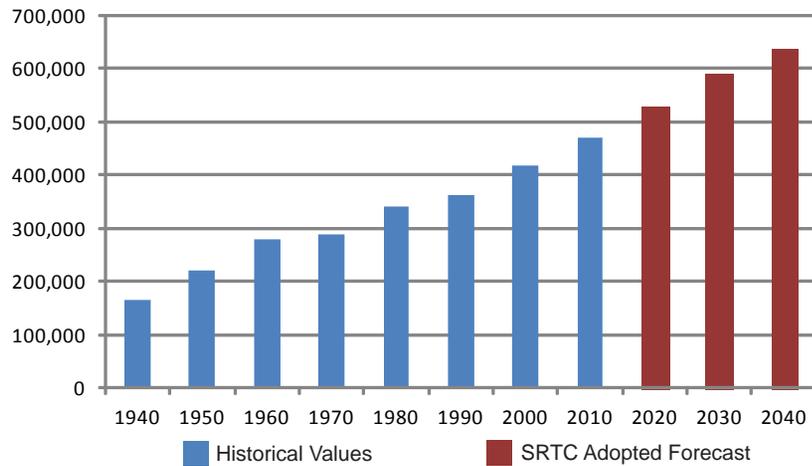
Figure 3.1 2010 and 2040 Forecasted Population by Age Group - Spokane County



Source: U.S. Census Bureau - 2010, OFM 2012 Series Forecasts for GMA.

The population of Spokane County is forecasted to grow by nearly 165,000 persons by the year 2040 (see **Figure 3.2**). Employment is expected to grow at a similar rate with the addition of 68,000 more employees. According to the US Census Bureau, projections in Spokane County and elsewhere show a large increase in elderly populations, mostly due to rising life expectancy and the aging of the large population from the baby boomer generation (see **Figure 3.1**). Household characteristics are also changing, with the average number of persons per household continuing to decline.

Figure 3.2 Population By Decade - Spokane County

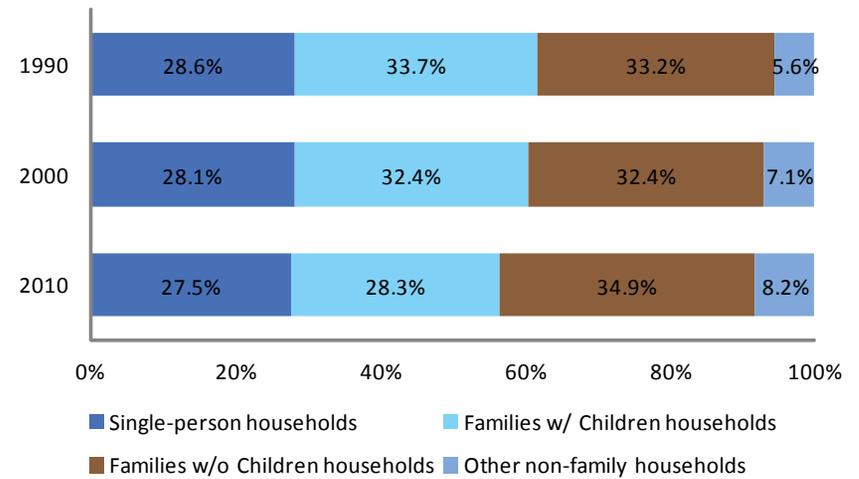


Source: U.S. Census Bureau and SRTC Policy Board Adopted Forecast

What do these changing demographics mean for long range transportation planning in our region? Population growth typically results in increased travel and, depending on the physical layout of a community, could also result in an increase in vehicle miles and/or hours traveled. With continued growth in population and employment, it is anticipated that there will be continued demand on all transportation systems, including the private vehicular network.

Travel behaviors are often different between various age groups. The 35 to 44 year old age group tends to travel the most followed by those aged 25-34. Persons aged 16-24 are more likely than those in other age groups to bicycle for transportation, while those in older age groups are more likely to drive, especially when commuting to work. With significant growth expected in the population over age 65, it is anticipated that there will be an increased demand in alternative modes of transportation, particularly public transportation.

Figure 3.3 1990, 2000, 2010 Household Makeup - Spokane County



Source: U.S. Census Bureau

Different households tend to have different travel behaviors as well (e.g., traditional single family, younger couples, single persons, families with no children, etc. - See **Figure 3.3**). These trends are subject to a variety of economic factors such as fuel prices and housing affordability. The physical land use of our area also has a large impact on modal choices. The development of land use forecasts for Spokane County is detailed in the following section.

FORECAST METHODOLOGIES AND FUTURE LAND USE

A travel demand model simulation of future transportation conditions in 2040 is one tool that is used to evaluate potential system needs and deficiencies. This first 2040 scenario is described as the 'No-Build' because it assumes that the only improvements made to the 2010 transportation system are those already committed by agencies or jurisdictions in the near future and

programmed in the TIP. As described in Chapter 2, information on the existing transportation system was used to build a travel demand model from the 2010 base transportation network in Spokane County. The forecasted population and employment growth for 2040 were applied to the 2010 base model network to obtain an image of future traffic conditions. The resulting 2040 No-Build model contains the vehicular and transit networks as of 2010, with the addition of funded projects that are programmed for completion in the next four years (listed in the SRTC TIP) and the forecasted growth in population and employment by the year 2040.

Population and Employment Forecasts

SRTC uses housing units, employees, hotel/motel rooms, and higher education commuter students in the regional travel demand model to forecast the number of trips generated by land use type. In June of 2012 the SRTC Policy Board adopted the following forecast:

	2040 Forecast	Growth	% Increase
Population	636,000	164,779	35%
Employment	262,576	68,030	
Hotel Rooms	9,086	2,354	
Higher-Education Commuter Students	34,289	8,884	

Based on the Board adopted forecast, SRTC staff used persons per household ratios to derive the following number of single family (SF) and multifamily (MF) units:

	2040 Forecast	Growth	% Increase
SF Housing Units	193,911	46,403	31%
MF Housing Units	64,329	24,670	62%

Sub-County Allocations

In addition to adopting a 2040 population and employment forecast, the SRTC Policy Board also adopted growth allocations for each jurisdiction in Spokane County.

Jurisdiction	2010 Population	Percent Growth Allocated	Total Population Growth	2040 Population
Airway Heights	6,114	2.88%	4,752	10,866
Cheney	10,590	2.46%	4,055	14,645
Deer Park	3,652	1.76%	2,897	6,549
Fairfield	612	0.19%	318	930
Latah	183	0.08%	130	313
Liberty Lake	7,591	6.19%	10,192	17,783
Medical Lake	5,060	0.92%	1,519	6,579
Millwood	1,786	0.19%	311	2,097
Rockford	470	0.20%	328	798
Spangle	278	0.26%	422	700
Spokane	208,916	27.80%	45,814	254,730
Spokane County	136,108	44.96%	74,089	210,197
Spokane Valley	89,755	12.06%	19,871	109,626
Waverly	106	0.05%	81	187

Jurisdiction	2010 Employment	Percent Growth Allocated	Total Employment Growth	2040 Employment
Airway Heights	4,707	4.50%	3,061	7,768
Cheney	3,880	4.50%	3,061	6,941
Deer Park	1,381	2.00%	1,361	2,742
Fairfield	123	0.08%	54	178
Latah	11	0.02%	14	24
Liberty Lake	4,460	8.00%	5,442	9,903
Medical Lake	1,959	0.75%	510	2,470
Millwood	467	0.40%	272	739
Rockford	121	0.08%	54	176
Spangle	58	0.05%	34	92
Spokane	111,044	36.60%	24,899	135,943
Spokane Valley	45,102	27.00%	18,368	63,470
Waverly	15	0.02%	14	28
Spokane County	19,054	16.00%	10,885	29,939

Jurisdiction	2010 Commuter Students	Percent Growth Allocated	Total Commuter Student Growth	2040 Commuter Students
Airway Heights	0	0.00%	0	0
Cheney	8,071	32.00%	2,843	10,914
Deer Park	0	0.00%	0	0
Fairfield	0	0.00%	0	0
Latah	0	0.00%	0	0
Liberty Lake	0	0.00%	0	0
Medical Lake	0	0.00%	0	0
Millwood	0	0.00%	0	0
Rockford	0	0.00%	0	0
Spangle	0	0.00%	0	0
Spokane	15,592	61.83%	5,493	21,085
Spokane Valley	120	0.48%	42	162
Waverly	0	0.00%	0	0
Spokane County	1,436	5.69%	506	1,942

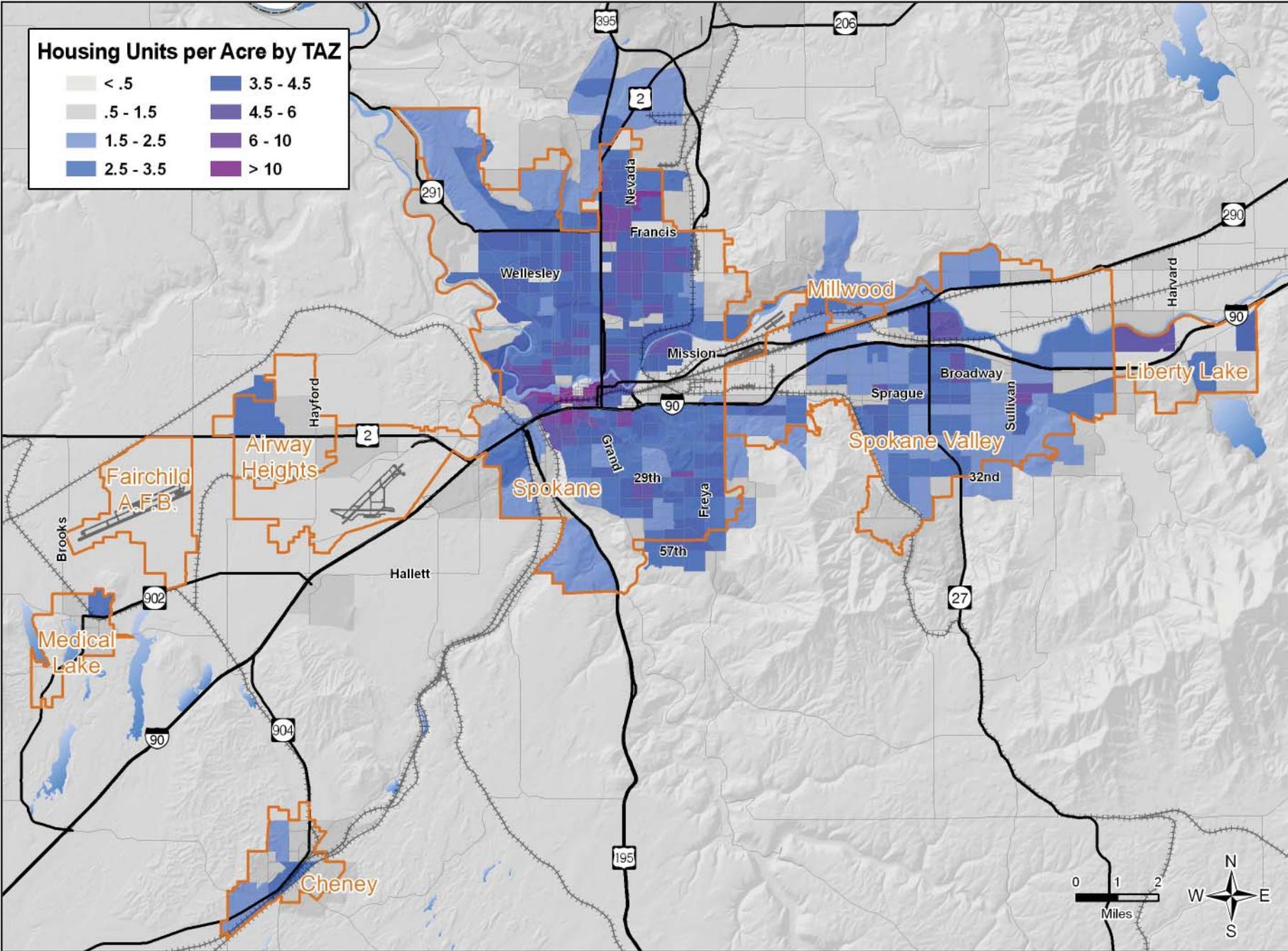
Jurisdiction	2010 Hotel Rooms	Percent Growth Allocated	Total Hotel Room Growth	2040 Hotel Rooms
Airway Heights	154	7.30%	172	326
Cheney	54	7.30%	172	226
Deer Park	0	0.00%	0	0
Fairfield	0	0.00%	0	0
Latah	0	0.00%	0	0
Liberty Lake	146	9.75%	230	376
Medical Lake	0	0.00%	0	0
Millwood	0	0.00%	0	0
Rockford	0	0.00%	0	0
Spangle	0	0.00%	0	0
Spokane	4,382	43.80%	1,031	5,413
Spokane Valley	1,465	19.69%	464	1,929
Waverly	0	0.00%	0	0
Spokane County	531	12.15%	286	817

SRTC staff, in close coordination with area agencies, applied the Board adopted 2040 allocations of employment and population to Transportation Analysis Zones (TAZs), the geographic unit used in SRTC’s travel demand model. See **Map 3.1** for the 2040 Housing Density and **Map 3.2** for the 2040 Employment Density. For more information on how household and employment data is collected, forecast, and represented in the travel demand model, please see the SRTC Travel Forecasting Documentation in **Appendix B**.

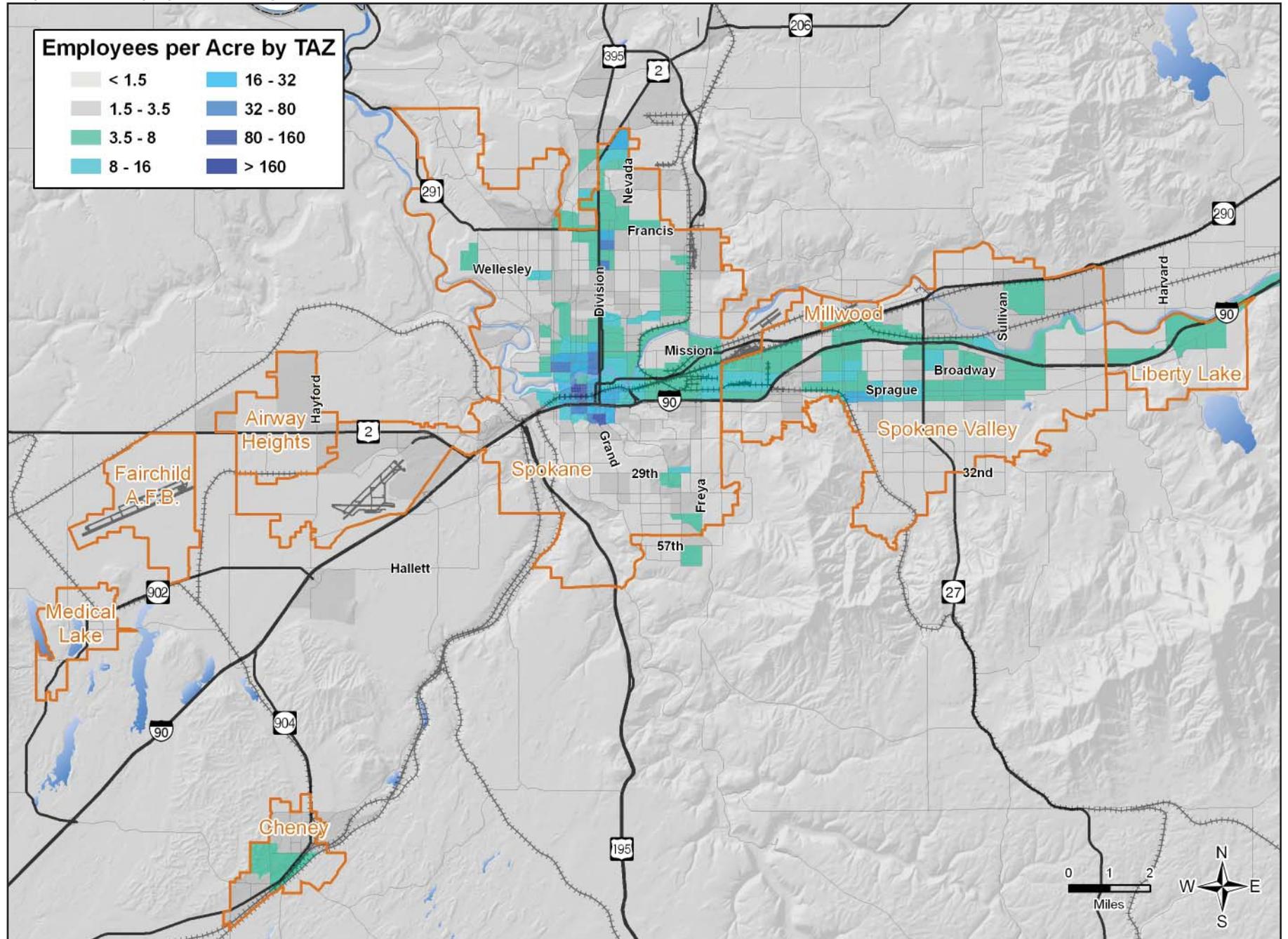
Future Employment Activity Centers

Employment activity centers have a significant impact on regional and local travel patterns. Employment centers are defined as concentrations of jobs by type - transit focused, freight focused, or both. As described in Chapter 2, SRTC has analyzed concentrations of job types in order to track where employment activity centers

Map 3.1 2040 Housing Density



Map 3.2 2040 Employment Density



will be in the future. Businesses that depend on shipping (and the associated freight focused jobs) are more likely to be located on freight routes and benefit from freight-related road improvements. Transit focused centers are associated with businesses that are more likely to have employees and customers that use transit and would benefit from related improvements. Future employment centers appear to be largely consistent with existing centers, with some growth in freight focused employment in the West Plains. The employment activity centers as forecasted for 2040 are illustrated in **Map 3.3**. Employment activity centers and the corridors linking them will be part of the criteria used to analyze future scenarios in Chapter 4.

Future Land Use Analysis

Future land use forecasts for the year 2040 indicate increased densities in a few areas (such as Downtown Spokane) but overall continued development or growth in outlying or peripheral areas. This forecasted pattern of development is a baseline scenario that was guided by current Spokane County and city comprehensive plans. Alternate land use scenarios, such as redevelopment and densification of existing areas, will be explored in the Scenario Analysis section of Chapter 4. The impact of the 2040 land use projections on the regional transportation systems is described in the following section.

PROJECTED FUTURE TRANSPORTATION CONDITIONS

The forecast of future regional transportation conditions includes the aforementioned technical land use analysis and travel demand modeling. Also, input from various outreach activities has been very valuable in gauging the priorities of businesses and the traveling public. A series of Horizon 2040 roundtables, workshops, forums,

and a survey captured the future needs expressed by the public and stakeholders. Some of these needs include:

- Prioritize the maintenance and preservation of existing roadways and bridges
- Ensure freight mobility is sustained and enhanced for the region's economic benefit
- Implement sidewalk improvements such as fixing damaged sections or filling in gaps
- Enhance safety education and enforcement efforts
- Improve snow removal and/or storage to ensure accessibility for all users year-round
- Increase education about available public transportation resources
- More resources to provide additional public transit services
- Emphasize future investments as part of an integrated, fully connected multimodal network
- Put a priority on connecting systems, not just constructing individual pieces here and there

The forecasted conditions and projected future needs for the various transportation networks and programs in the region are discussed in more detail in the following sections.

Forecasted Traffic Conditions

The regional travel demand model is used to estimate forecasted increases in traffic and public transportation usage. **Table 3.1** illustrates the forecasted increase in daily person, walk/bike, vehicular and transit passenger trips from 2010 to 2040 for the No-Build scenario.

Map 3.3 2040 Transit and Freight Focused Employment Activity Centers

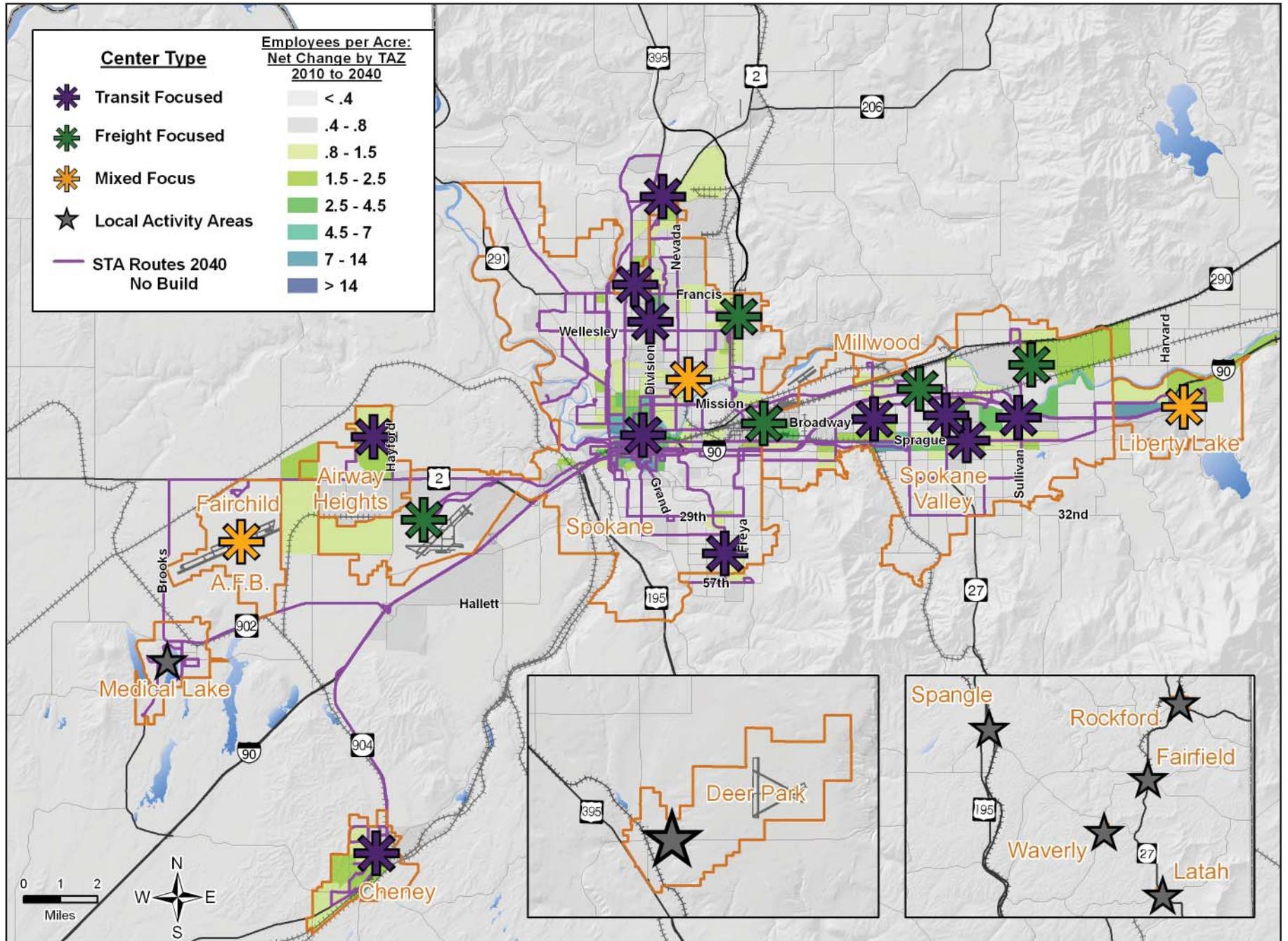


Table 3.1 Daily Person, Vehicle and Transit Trips Forecast 2010-2040 No-Build Scenario

	2010 Base	2040 No-Build	% increase
Total person trips	2,083,112	2,857,567	37%
Total vehicle trips	1,388,341	1,906,095	37%
Total transit passenger trips	41,299	50,805	23%
Walk/bike trips	184,591	255,965	39%

While the existing roadway network has the ability to accommodate the projected 37% increase in traffic, the transit network as it exists today could not keep pace and accommodate the forecasted demand due to the existing constraints on capacity.

Congestion impacts many elements of a community including personal travel times, costs to shippers, air quality, and fuel inefficiencies. In other words, congestion wastes time, fuel and money and impacts the quality of life of people (particularly their health and income) who travel in congested conditions. The average commuter in the Spokane urban area loses \$518 dollars per year due to traffic delays (23 hours per year spent in traffic). The annual cost of congestion to truck freight movement in the area is \$38 million alone, which includes the costs related to delay and excess fuel consumed.³

Results from SRTC’s 2040 No-Build travel demand model are used to help identify future congested roadways and other deficiencies in the regional transportation system. The No-Build model includes the existing transportation system network, with the additions of transportation improvements that are currently funded and programmed for completion over the next four years (projects in SRTC’s Transportation Improvement Program) and the forecasted

³ 2012 Urban Mobility Report. Texas A&M Transportation Institute. <http://d2dtl5nnlpr0r.cloudfront.net/tti.tamu.edu/documents/mobility-report-2012.pdf>

growth in population and employment for 2040. While it is unlikely that no other roadway improvements would be made to support future growth, the No-Build scenario allows for a direct comparison of the impacts of future growth on the current transportation system.

Congestion

For the purposes of using the travel demand model as one tool for traffic conditions analysis, congested roadways are defined as those where volumes exceed 75 percent of capacity. Volumes exceeding 75 percent of the roadway capacity does not automatically equate to a congested roadway, but rather, serves as a “red flag” indicating that these locations require further evaluation. The higher the volume to capacity ratio in the model, the more likely it is that the facility is actually congested. For example, a roadway that is forecasted at a 95 percent volume to capacity ratio in the travel demand model is more likely to be congested than a roadway with a volume to capacity ratio of 80 percent. **Maps 3.4** and **3.5** illustrate congestion (v/c ratios for PM peak hour only) of roadway sections in 2010 as compared to 2040 if the transportation network remains somewhat the same. **Table 3.2** summarizes the amount of congested lane miles in the 2010 and 2040 No-Build models.

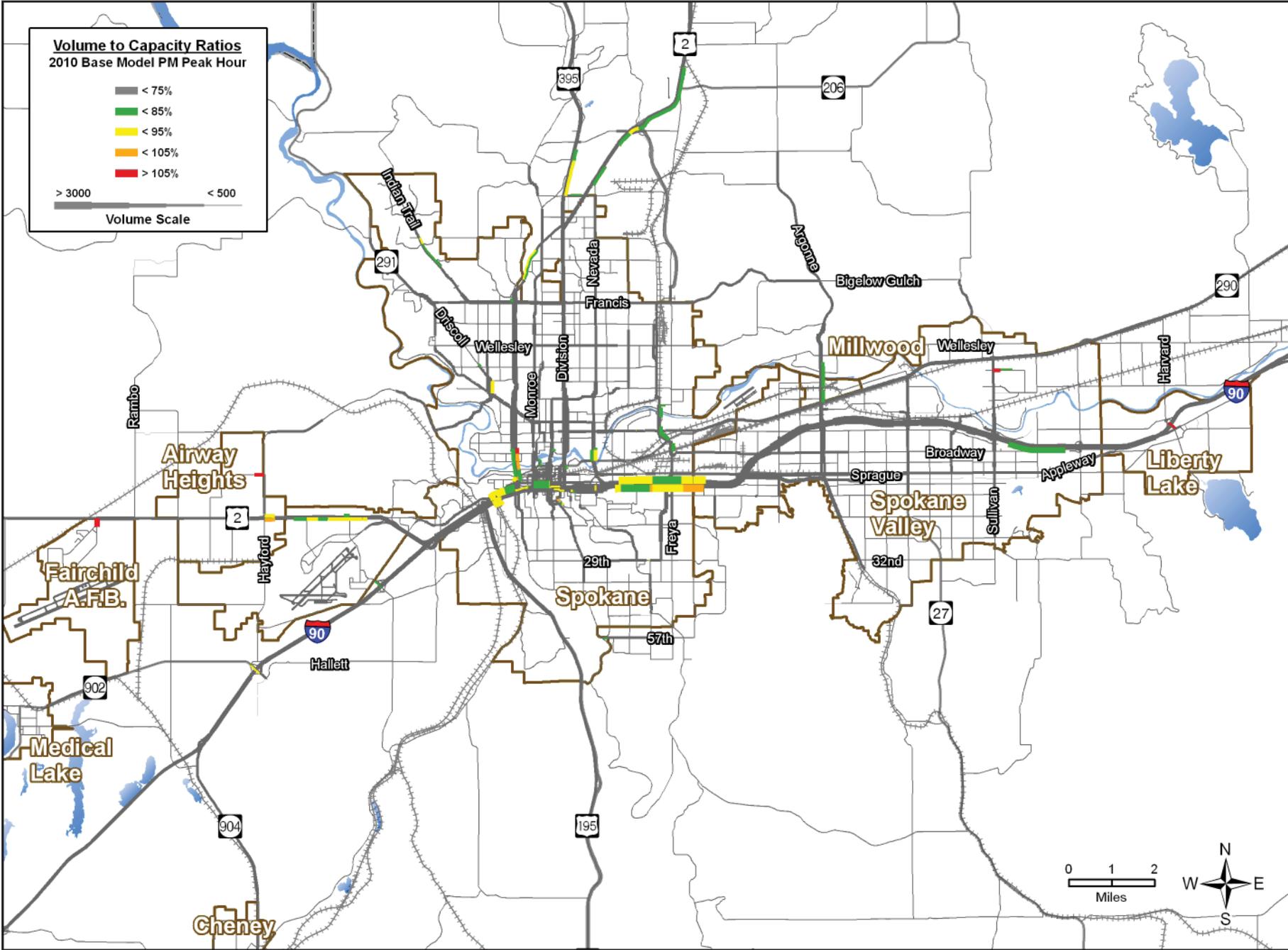
Table 3.2 Percent of Congested Lane Miles 2010-2040

V/C Ratio	<=85%	<=95%	<=105%	>105%
2010	2.62%	1.02%	0.46%	0.23%
2040	2.63%	1.37%	0.62%	0.33%

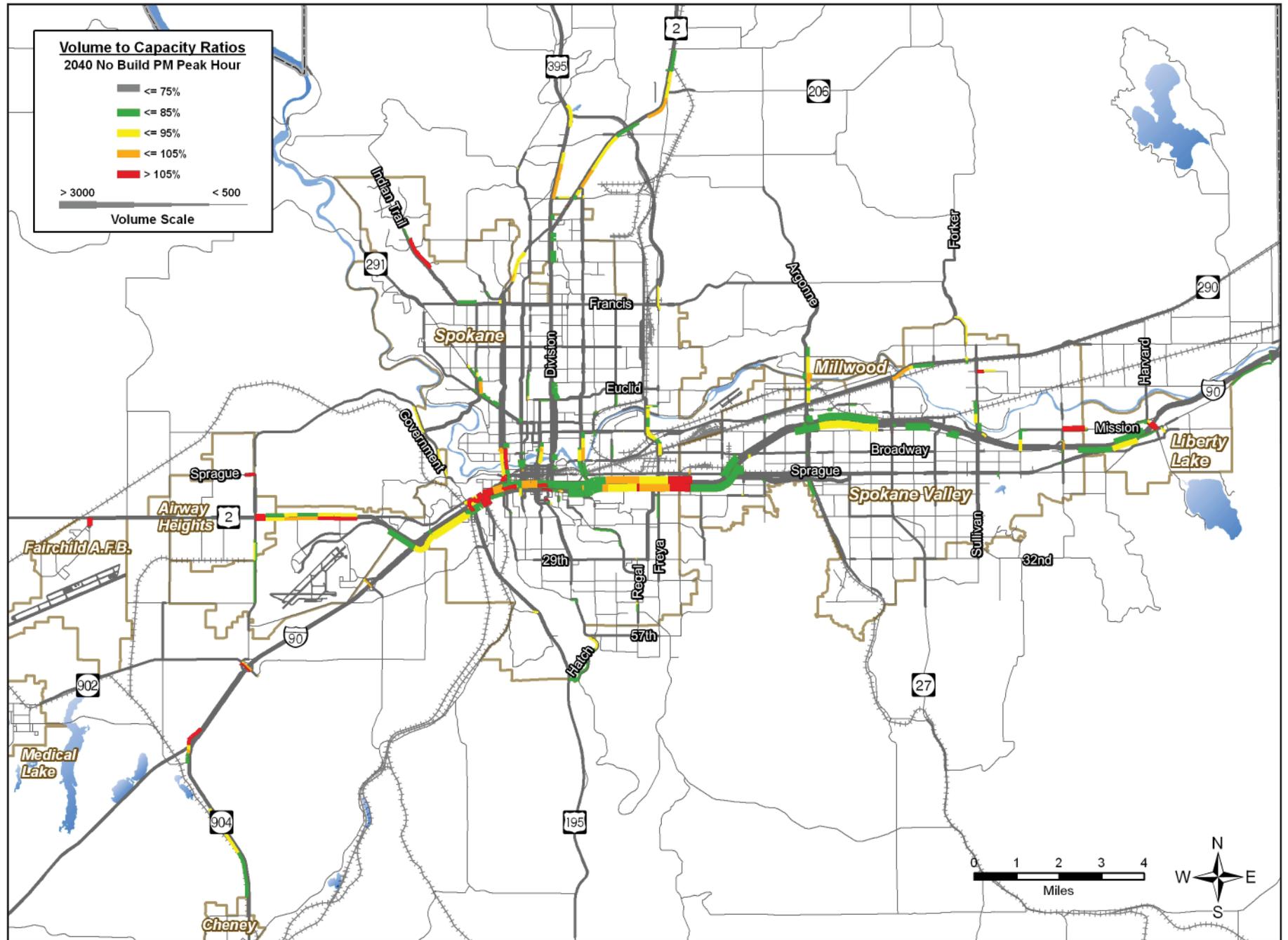
Note: Only reflects lane miles in the regional travel demand model.

From a regional perspective, there is currently very little congestion in Spokane County and only a small increase is forecasted for the future. The 2040 No-Build shows a small increase in congested

Map 3.4 Spokane Metropolitan Area, Link V/C Ratios 2010 Base



Map 3.5 Spokane Metropolitan Area, Link V/C Ratios 2040 No-Build Scenario



roadways over the 2010 base conditions including some segments of Interstate 90, US 2, US 395, SR 290 (Trent), and several north-south routes near downtown Spokane. Other routes that are more congested in the 2040 No-Build include Indian Trail, Cochran, Hamilton, Argonne, Mission, and several facilities in close proximity to I-90 interchanges. Some of these are important truck freight routes. However, there may be future congestion issues at the local level that are beyond the scope of this plan. These include intersection delay or other factors such as access control and geometries that could potentially increase congestion on some roadways.

Vehicle Miles Traveled (VMT) and Vehicle Hours of Travel (VHT)

Table 3.3 reports Vehicle Miles Traveled (VMT) and Vehicle Hours of Travel (VHT) during the PM Peak Hour and for all day, which were derived from SRTC’s 2010 Base and 2040 No-Build models. VMT and VHT are planning indicators showing the growth of travel by miles and can indicate congestion by revealing how much time vehicles spend on area roadways. These results are used for further comparison with future scenarios.

Table 3.3 Vehicle Miles and Hours Traveled for No-Build Scenario

	2010 Base	2040 No-Build	% increase
PM Peak HR Vehicle Miles Traveled (VMT)	710,539	955,928	35%
Daily Vehicle Miles Traveled (VMT)	8,408,329	11,306,096	34%
PM Peak HR Vehicle Hours Traveled (VHT)	19,373	27,687	43%
Daily Vehicle Hours Traveled (VHT)	226,925	323,763	43%

However, it is important to note that when looking at travel behavior by household, VMT per household is forecasted to decrease slightly by the year 2040 and VHT per household is forecasted to increase by a small amount in the 2040, possibly due to the higher levels of congestion in the No-Build scenario (see **Table 3.4**).

Table 3.4 VMT and VHT per Household (HH) for No-Build Scenario

	2010 Base	2040 No-Build	% increase
PM Peak Hour VMT per HH	3.80	3.70	-2%
Daily VMT per HH	44.92	43.78	-3%
PM Peak Hour VHT per HH	0.10	0.11	4%
Daily VHT per HH	1.21	1.25	3%

Projected Roadway Operations, Maintenance and Preservation Needs

According to the recently released 2013 Report Card for America’s Infrastructure, there are 366 structurally deficient bridges and 67 percent of roads are in poor or mediocre condition in the State of Washington. These deficiencies cost Washington motorists more than \$1.3 billion (\$272 per motorist) each year in additional repairs and operating costs.⁴ Clearly, there is a critical need to address current or impending infrastructure issues before conditions deteriorate further in the future. Over the last few years, transportation maintenance expenditures in Spokane County have averaged about \$42 million per year. However, this doesn’t account for unfunded needs like deferred maintenance due to financial limitations. Forecasted amount of backlog and additional costs to achieve regional “state of good repair” and “safe and adequate”

See **Table 3.5** for the projected amounts of road and bridge operations, maintenance, and preservation expenditures for all jurisdictions in Spokane County over the horizon of this plan. Currently, there isn’t a consistent regional system for monitoring road and bridge conditions as well as estimating maintenance, operations and preservation expenditures in Spokane County. However, WSDOT’s Economic Analysis Division provides a summary of historical revenues and expenditures by county and jurisdiction.

⁴ 2013 Report Card for America’s Infrastructure. American Society of Civil Engineers. <http://www.infrastructurereportcard.org/a/#p/state-facts/washington>

Initial estimates for expenditures were derived from the Washington State Auditor’s Office and their Local Government Financial Reporting System. Member jurisdictions supplied projections to supplement these estimates. The definitions for the maintenance, operations and preservation categories are as follows:⁵

Maintenance is defined as the costs of performing those activities that ensure that the right-of-way and each type of roadway, roadway structure and facilities remain, as nearly as practical, in its original, as-constructed condition or its subsequently improved condition, and the operation of roadway facilities and services to provide satisfactory and safe motor vehicle transportation. Maintenance costs do not include preservation, improvement, or new construction projects.

Operations is defined as the costs of road/street activities that are necessary to fulfill a legal requirement and/or to ensure the proper road/street operations, but are not associated directly with a specific maintenance activity, preservation, improvement, new construction project, or other activity separately recognized or financed.

Preservation is defined as the costs of performing those activities involved in extending the originally estimated life of each type of roadway, roadway structure, and facility, but do not increase its traffic flow capacity or efficiency. This preservation category also includes capital outlays captured in the “Other” category. Preservation does not include maintenance activities or new or improvement construction projects.

Bridge operations, maintenance and preservation costs are lumped together.⁶

5 Source for definitions is the Local Government Financial Reporting System, Washington State Auditor’s Office. <http://portal.sao.wa.gov/LGCS/Reports/Default.aspx>

6 Source of costs is the National Bridge Inventory for bridges in Spokane County. Federal Highway Administration. <http://www.fhwa.dot.gov/bridge/nbi.cfm>

Future capital improvements including regionally significant capacity enhancement, rehabilitation or reconstruction projects will be discussed in the Scenario Analysis section of Chapter 4.

Table 3.5 Projected Roadway/Bridge Maintenance, Operations and Preservation Costs*

All Jurisdictions in Spokane County	Operations & Maintenance	Preservation	Bridges	Total
Current through the Year 2040 (in \$ millions)	\$5.8 billion	\$5.6 billion	\$839 million	\$12.2 billion

* - Original estimates were used from WA State Auditor’s reports for high-level planning purposes. More precise information about current costs and projections of future expenditures was collected from the jurisdictions in Spokane County. Amounts are projected for an average pavement condition rating of 70 or above.

Transportation Systems Management and Operations (TSMO)

As described in Chapter 2, TSMO is an approach that uses regional strategies to improve mobility, safety, accessibility, and travel options for all users while ensuring the preservation and reliability of existing transportation systems. The 2013 Spokane Region Intelligent Transportation Systems Plan specifies projects and programs that address identified issues and future needs for TSMO, some of which include:

- Upgrade of Advanced Transportation Management System
- Installation of new and upgrade of existing ITS infrastructure
- Improved communications connectivity
- A backup center for the existing Transportation Management Center
- Regional traffic control projects in specific corridors
- A system for performance measurement of transportation operations

- Coordination and potential systems connectivity with the Idaho Transportation Department
- Regional traveler information and weather information projects
- Regional maintenance and construction activity database
- Incident management improvement projects
- Smart bus implementation, transit signal priority study/pilot program, and other public transportation projects
- Data collection, management, and archive projects

The regional ITS plan illustrates the benefit of integrating TSMO strategies in Horizon 2040. “The plan also supports the continued use and advancement of performance measurement to support the congestion management process, long range planning efforts, and emerging funding requirements.”⁷ These strategies will be considered as part of the scenario analysis in **Chapter 4 How We’ll Get There**.

Forecasted Freight Movement Conditions

As discussed in Chapter 2, the Inland Pacific Hub (IPH) project provided a wealth of information about freight mobility in the region. The IPH Regional Freight Profile report, using base year data from 2007, forecasts freight commodity flows for the mid (2017) and long (2027) terms.⁸ Even though the base year is 2007, forecasts for 2012 and 2017 were integrated to reflect the impact of the 2008-9 recession. The study identified several current issues that could pose a significant challenge for future trade competitiveness, economic development, and transportation planning. One of the biggest issues identified during the IPH study is the large lane imbalance for the region. In shipping terms, lane imbalance is the inequality of the amount of goods shipped outbound compared to inbound.

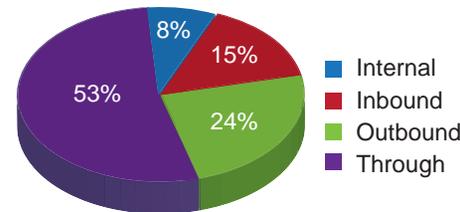
⁷ Spokane Region Intelligent Transportation Systems Plan – Executive Summary. March 12, 2013. DKS Associates in association with IBI Group.

⁸ Global Insight 2007 TRANSEARCH™ Data

Almost 24 percent of the tonnage of freight is exported while only 15 percent is imported. This creates increased costs and logistical issues for shippers, which obviously impacts area businesses.

Along these same lines is the issue of through freight traffic.

Freight Flow by Weight

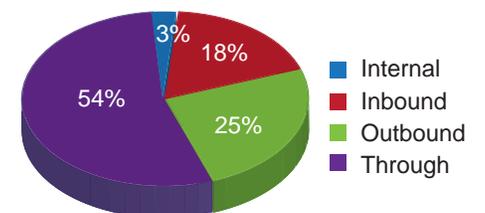


Almost 53 percent of freight by tonnage and 54 percent of freight by value just passes through the area. This through traffic places demands on the capacity and preservation of the regional highway and rail

transportation system but generates very little economic benefit to the region. The situation is a natural by-product of being located along national freight corridors such as Interstate 90 and the two Class I rail lines.

The tonnage of inbound freight to Spokane County is forecasted to increase 21 percent by 2027 while outbound is expected to increase more than 9 percent during the same period. The largest forecasted growth in export commodities is machinery, waste/scrap materials, transportation equipment, fabricated metal products, and nonmetallic minerals. The largest inbound growth commodities include electrical equipment, machinery, transportation equipment and rubber/miscellaneous plastics. Secondary traffic, which is primarily warehousing, and intermodal container transfers at transload, consolidation and distribution facilities, is expected to experience some of the largest growth

Freight Flow by Value



over the study period. Intermodal drayage to/from rail ramps is also forecasted for strong growth through 2027, for the reasons described in the following rail subsection.

Trucking

The majority of freight in the region is transported by truck. Fifty-four percent of freight by weight is hauled by truck while 79 percent of freight by value is moved by this mode. Nearly 34 percent of the weight and 65 percent of the value of the truck freight just passes through the region. Truck freight tonnage is forecasted to increase 18.5 percent by 2027. Over the midterm, truck freight flows to northern markets are forecasted to increase by 26 percent while inbound movements are expected to grow by 21 percent. The outbound commodities expected to have the most growth in transport via truck are transportation equipment (73 percent increase from 2007 to 2027), machinery (43 percent), farm products (11 percent), and fabricated metal products (6 percent). For inbound commodities, the largest growth is forecasted for transportation equipment (61 percent), petroleum/coal products (24 percent), chemicals/allied products (22 percent), and fabricated metal products (19 percent).

The aforementioned lane imbalance issue is particularly burdensome for the regional trucking industry. Nearly 32 percent of commodities shipped via truck are outbound compared to only 21 percent inbound. This indicates a potentially high number of trucks that return empty. There is a lane imbalance of more than 10.3 million tons and a value difference of nearly \$32 billion. Also, through truck traffic accounts for 33 percent of the tonnage and 45 percent of the value of commodities. The volume of empty loads is projected to grow by more than 2.26 million tons by 2027. To be effective as an inland hub, the region must reverse this trend.

Several trucking issues were raised as part of the IPH effort and in the Horizon 2040 roundtables. The primary concern was about north-south movement and support for the completion of the North Spokane Corridor. Also, the need to improve or expand bypass routes was consistently heard. Another issue included the need to address regulatory differences across neighboring states and Canada. From the Horizon 2040 survey, 26 percent of respondents felt the area needs wider shoulders and/or loading zones, 25.8 percent felt there are needed improvements to truck routes and signing, while 21 percent favor dedicated or restricted truck lanes.

Rail

The vast amount of freight transported by rail just passes through the Spokane area. More than 81 percent of the tonnage and over 92 percent of the value of goods on rail is through freight. The future trend for this through freight traffic is unclear. However, internal, inbound, and outbound rail freight is forecasted to increase by 1 percent through the year 2027. The trend towards trailer on flatcar or container on flatcar rather than train carload transport is expected to continue. This results in less carload tonnage. The forecasted increase in intermodal tonnage is nearly 43 percent by 2027. As stated in the IPH study, this “is a clear indication that freight is switching even more toward truck transport and intermodal trailers and containers.”⁹

The highest growth commodities shipped inbound via rail are forecasted to be food/kindred products (52 percent increase from 2007 to 2027), transportation equipment (47 percent), and chemicals/allied products (34 percent). For outbound rail commodities, growth in fabricated metal products (27 percent),

⁹ Regional Freight Profile. Inland Pacific Hub Transportation Study, 2009.

transportation equipment (16 percent), and clay, concrete, glass or stone (14 percent) is expected. Coal and other bulk products are also forecasted to increase, perhaps dramatically depending on the status of several proposed export terminal projects in western Washington and Oregon. However, the exact increase in commodity flow, including the number or length of unit trains and the impact to our regional transportation system, is unknown at this time. As discussed in Chapter 2, SRTC continues to track these developments closely.

As mentioned in Chapter 2, the potential for increased rail traffic due to several proposed bulk commodity port projects is a regional issue SRTC continues to monitor. According to one study¹⁰, rail lines in the region may reach capacity between the years 2025 and 2030 if all of the port projects are completed. The length of the trains could also pose a problem at several of the at-grade crossings in Spokane County. Unit grain trains are about 110 cars in length, unit coal trains are 155 to 120 cars, export potash trains have 170 cars (approximately 8,500 feet in length) while container trains are between 8,000 and 8,500 feet in length based on import demand and service requirements. While the exact number of additional trains and the specific impact to our regional transportation system is yet unknown, SRTC staff continues to communicate with lead agencies and will closely study the information once available.

During the IPH project and the outreach for Horizon 2040, the desire to increase regional access to rail transport was strong. However, there is clear understanding that without increased manufacturing, production or distribution capabilities in our area, the trend of rail through freight traffic is likely to continue. Horizon 2040 survey

¹⁰ Pacific Northwest Marine Cargo Forecast Update and Rail Capacity Assessment Final Report. BST Associates and MainLine Management, 2011.

responses about rail improvements included 25 percent favoring grade separated rail crossings, 16 percent for grade crossing safety improvements, and 16 percent wanting expanded intermodal facilities.

Air

Air cargo accounts for a small percentage of overall freight movements in Spokane County. However, the commodities transported by air carriers are mostly high value, time-sensitive products that many businesses depend upon. Therefore, strengthening the opportunity to use air cargo was a high priority of many stakeholders that participated in the IPH project. The outbound commodities forecasted to have high growth are machinery (97 percent increase from 2007 to 2027), fabricated metal products (82 percent), and food/kindred products (64 percent). Import growth is expected in transportation equipment (92 percent) and fabricated metal products (23 percent). More information on projected increases in air cargo is provided in the following Future of Air Transportation section.

Future Freight Mobility Needs

The primary deficiencies that need to be addressed were derived from the extensive outreach, research and analysis for the IPH project. Some of the identified needs include: addressing the significant empty backhaul issue due to shipping lane imbalances; improving access to northern markets by enhancing the capacity of north-south trucking routes and tapping into existing rail service to Canada; and addressing the truck size and weight regulatory differences with neighboring states and Canada. The IPH Transportation Investment and Project Priority Blueprint was developed to outline a recommended scenario of projects that are

bundled together for optimal economic benefit. The final Blueprint strategies are discussed in more detail in **Chapter 4 How We'll Get There**.

Passenger Rail

The Spokane area is served by Amtrak with one scheduled trip eastbound and two westbound each day. The Empire Builder train travels between Chicago and Portland or Seattle passing through Minneapolis-St. Paul with a departure from Spokane to Seattle at 2:15 am, Spokane to Portland at 2:45 am, and an eastbound departure at 1:30 am. The inconvenience of the late night/early morning passenger train schedules is frequently expressed at public meetings. There is no forecasted increase for passenger rail service in our area.

The Future of Air Transportation

Aviation demand forecasts are used to determine what improvements should be made at the airport facilities and also can help predict traffic and noise impacts. The Spokane International Airport (SIA) is currently updating its Master Plan which will help the airport serve the growing population and the expanding regional economy over their 20 year planning horizon. The following information is from SIA's Draft Master Plan, Chapter 2 Aviation Forecasts.¹¹

Passenger Projections

Passenger activity at SIA is forecast to nearly double by 2030. The number of enplaned passengers using the airlines at SIA is projected to grow from 1.6 million per year in 2010 to more than 3.1 million by 2030.

¹¹ Spokane International Airport Master Plan (Draft), 2011. <http://www.meadhunt.com/client/Spokane/master-plan.html>

Air Cargo Projections

Growth in air cargo at Spokane International is expected to increase during the planning horizon. By 2030, nearly 72,000 tons of air cargo is forecasted to pass through SIA annually, up from 41,686 tons in 2010.

Aircraft Operations Projections

Aircraft operations, or the number of takeoffs and landings, include air carriers, air cargo operations, general aviation, and military flights. It is expected that overall operations will increase 53 percent from 79,120 in 2010 to almost 121,000 in the year 2030.

Projected Public Transportation Conditions

With the county's population growing by almost 165,000 persons and the continued trend of a larger portion of the community age 65 and older, future demand for additional public transportation services will likely be significant. Historically, providing efficient transit services to peripheral or rural areas has been difficult due to relatively lower housing densities and dispersed activity centers, as well as the lack of sufficient local funds to match federal or state monies for operations.

SRTC monitors trends in the aging population (see **Map 3.6**), persons with disabilities (see **Figure 3.4**), veterans, young persons, and other indicators that relate to increased demand for public transportation services. Other impacts to transit ridership include fuel prices and the success of college and employer pass programs. The SRTC 2040 No-Build model forecasts an additional 8 million annual passenger trips on transit by the year 2040 (a 73 percent increase). Providing more service to meet this demand will be a challenge in the face of declining revenues. However, the importance of planning for strategies to address future needs is nonetheless critical.

Map 3.6 2010 - Population Over 65

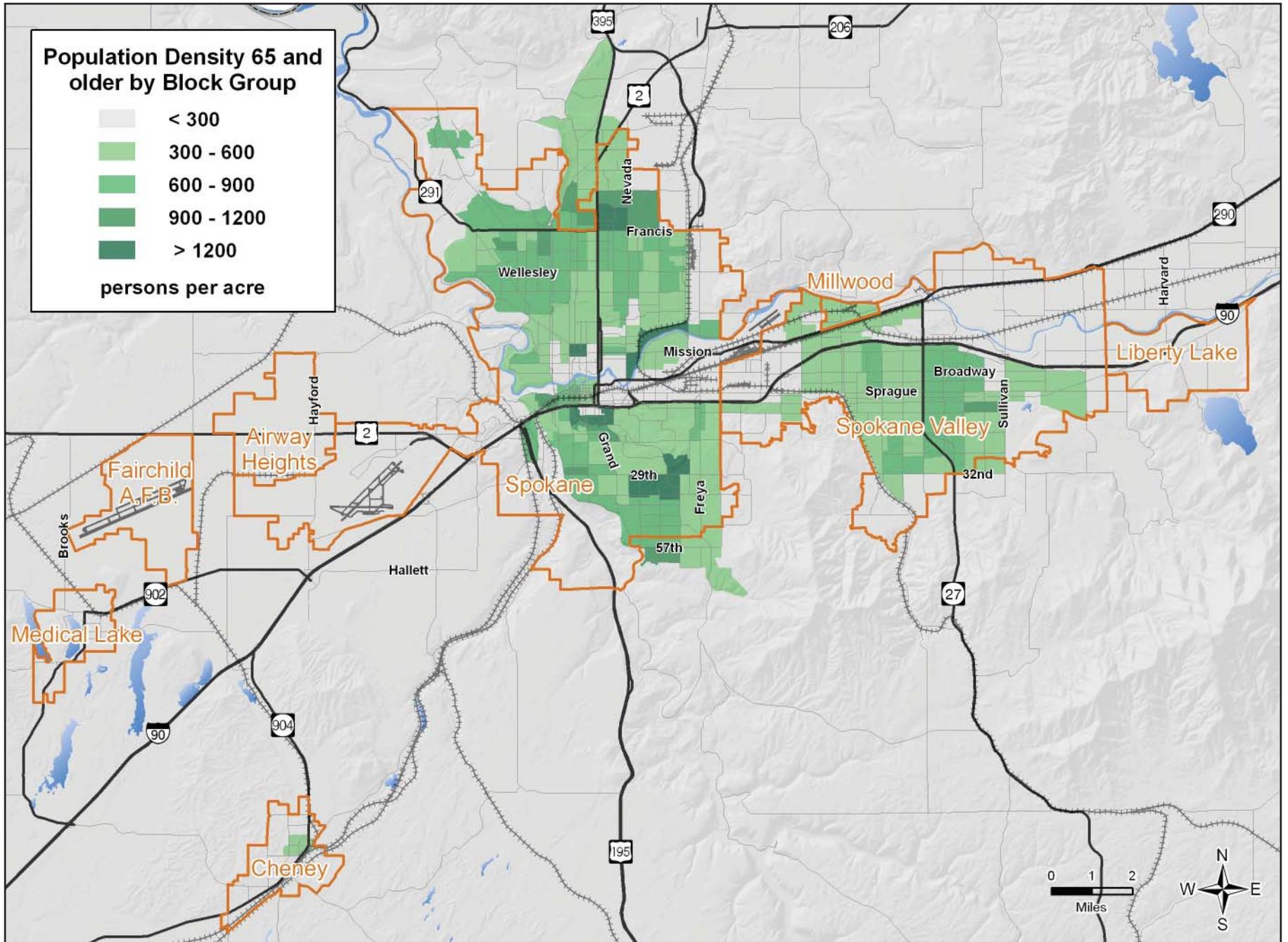
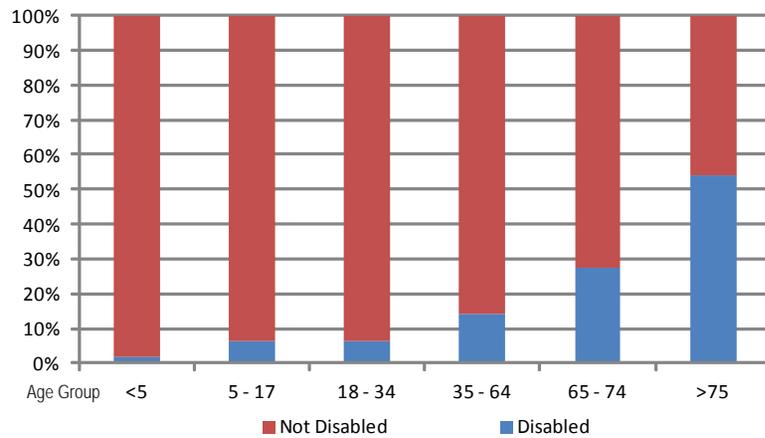


Figure 3.4 Percent of Population Disabled, by Age - Spokane County



Source: U.S. Census Bureau American Community Survey 2009-2011 3-year Estimates

The STA Moving Forward planning process is a comprehensive look at the future of transit in Spokane County. Building upon the work in their comprehensive plan, Connect Spokane, STA has formed corridor advisory panels to evaluate elements of the proposed High Performance Transit Network (HPTN). In addition to implementing the HPT network identified in Connect Spokane, STA is also considering fixed route and service enhancements, improvements to vanpool and paratransit services, as well as new transit center facilities. **Map 3.7** illustrates the STA fixed route system for the 2040 No-Build scenario in relation to areas of projected residential growth. Future transit service options are explored as part of the scenario analysis in Chapter 4.

STA’s Moving Forward effort illustrates the importance of long range planning. This process answers a fundamental question: if the next year, or even the next five years, is uncertain and can’t be predicted with any sense of exactness, then why plan for the long term? “Great transportation doesn’t just happen. It takes a community working

together. Communities that plan transportation well enjoy added vibrancy, attract more business, and help the entire transportation infrastructure run more smoothly.”¹²

The planning efforts for public transportation have a direct impact on the vitality of the region. Recent studies have shown the job generation associated with investment in transit. For every \$1 billion of public transportation investment 36,000 jobs are created with \$1.6 billion in labor income, \$3.6 billion in business sales are generated, \$490 million in additional tax revenue is received resulting in a \$1.8 billion impact to gross domestic product.¹³ Public transportation also assists with other modal issues in the region. The impact to congestion alone is significant with an estimated 576,000 hours of delay reduced and \$13.4 million in congestion costs saved annually.

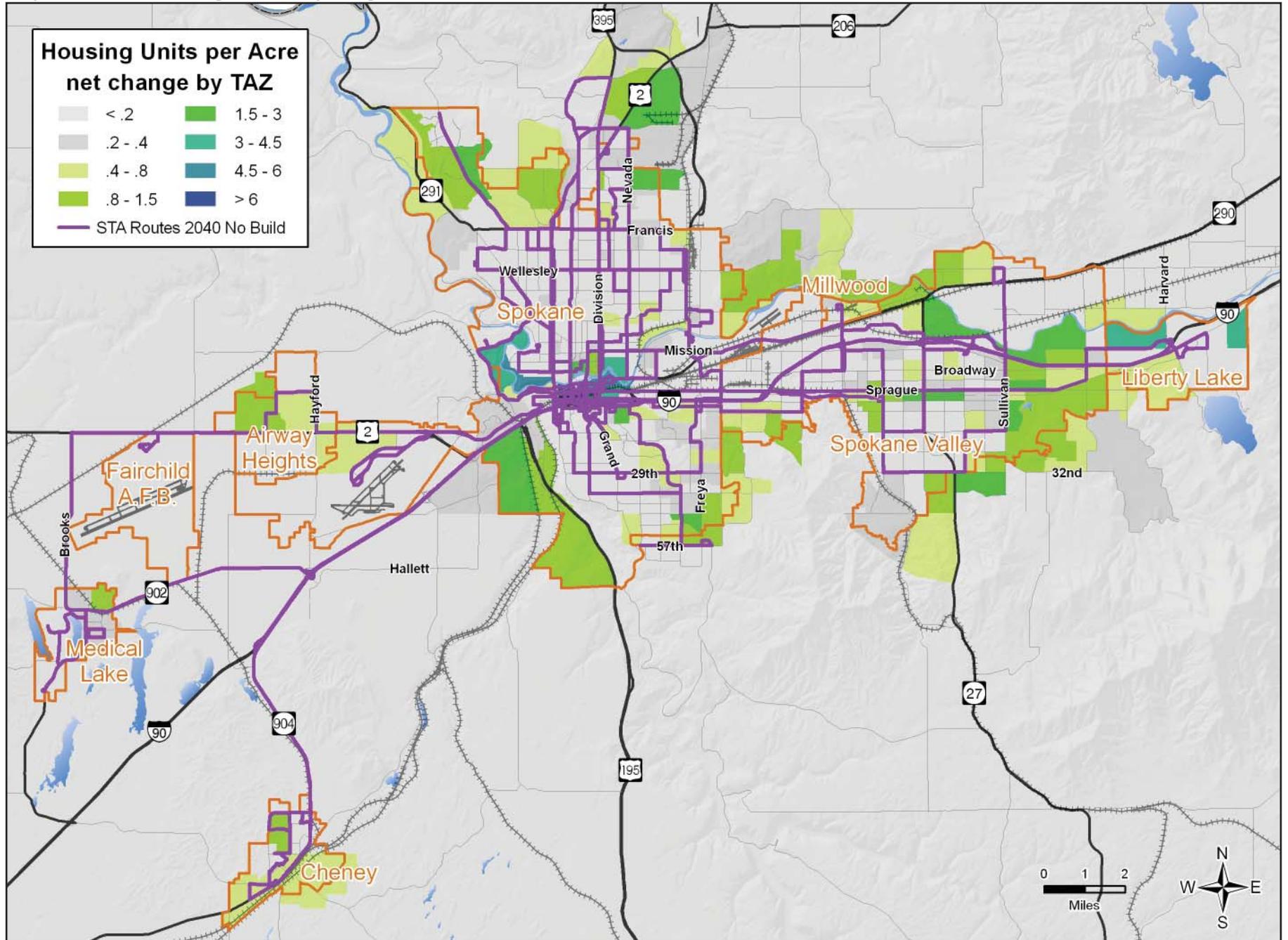
Additional public transit service is a commonly heard request at public meetings. This was no different for the Horizon 2040 outreach, as the desire for additional frequency, span, and coverage was raised repeatedly. As previously discussed, the amount of seniors living outside of the STA service area has created demand for additional public transportation options. Transportation between the small towns, rural areas and tribal reservations continues to be a prominent issue. Additional future needs identified by the public and stakeholders include:

- Additional public transit options outside of the STA service area, especially for the elderly and persons with disabilities
- Commuter service between Spokane and Kootenai Counties
- Increased local funding for connecting small towns and rural areas
- A transit hub in the West Plains, possibly in Airway Heights

¹² STA Moving Forward website, March 2013. <http://www.stamovingforward.com/why-plan/>

¹³ Economic Impact of Public Transportation Investment. Economic Development Research Group, Inc. and Cambridge Systematics, Inc., 2009.

Map 3.7 2010-2040 Housing Unit Density Change w/2040 No-Build STA Routes



- More education and communication about available public transportation resources
- Additional frequency, days, and spans of service for certain existing routes
- Better coordination, connectivity, and communication between all service providers

It should be noted that the input was captured in a way to be inclusive. The summaries of public comment are not meant to be statistically representative and therefore have not been validated for consensus. Spokane Transit has undertaken extensive public outreach to assess and respond to requests for additional service.

As previously mentioned, STA is facing declining revenues from the local sales tax (6/10ths of a cent) which funds the majority of their operations. Sales tax revenue is expected to remain flat or increase only at a marginal rate over the horizon of this plan. By the year 2016, without any additional funding, STA will no longer have sufficient revenues or cash reserves to sustain operations at current service levels. For more detail about project costs and revenues as well as assumptions for additional funding sources, please see the Financial Plan section of **Chapter 4**.

Future Nonmotorized Conditions

The outreach for Horizon 2040 provided a wealth of public comments about the future nonmotorized needs for the region. One common theme revolves around the completion of regional pedestrian and bicycle networks. Some of the topics heard during the Horizon 2040 roundtables and from the survey include:

- Access to the Centennial Trail from south Spokane Valley is needed

- More north-south routes are needed to connect to the Centennial Trail
- Fill gaps in the Centennial Trail
- North-south bikes routes are needed, especially on the northside of Spokane
- Sidewalks need improvements such as fixing damaged sidewalks and filling in gaps where none exist
- Snow removal and snow storage needs to be improved
- Land use decisions need to support nonmotorized transportation

The Horizon 2040 outreach effort has helped to illuminate future needs or desires of the public for walking and biking. The Horizon 2040 survey asked respondents what improvements would help them increase their bicycling and walking activity. The top 3 responses were:

- More off-street bike/pedestrian paths
- Wider outside shared lanes or bike lanes
- Increased street and sidewalk maintenance

When asked about spending transportation funding, constructing more on-street bike lanes and additional off-street pedestrian/bike paths trailed only repaving existing roads and improving public transit as the most popular improvements. Other frequently heard issues include the need for more education and enforcement, improved signage, more countdown timers for crosswalks and the desire for more bike lanes. Improving safety, access, and mobility for all users is a consistent theme.

One example of community and business interest in improving access is the Transportation & Pedestrian Safety Plan developed by Inland Northwest Lighthouse, a company that helps to expand

job opportunities for blind or visually impaired people. Their Plan identifies street, transit and other improvements “to enhance the ability of blind and low vision employees of the Inland Northwest Lighthouse to travel smoothly, safely, and efficiently to and from their workplace and within their community.”¹⁴ Some of the improvements identified in the Plan include; the standardization of the use of Audible Pedestrian Signals (APS) and countdown timers for crosswalks at intersections throughout the area, including several that are missing or that need to be correctly programmed; modifying two hazardous intersections in downtown Spokane due to monochromatic color schemes; the desired installation of crosswalk warning lights or other appropriate signage for a mid-block crossing; installation of “Blind Pedestrian Crossing” signs near their site; the correct installation of detectable tactile warning strips (truncated domes) at all intersections with APS signals; and, the enforcement of the clearing of snow from sidewalks.

Transit is also an extension of the pedestrian and bicycle network, enabling users to extend the length of their trips or reduce the burden of physically demanding routes (i.e. riding a bike downhill and then catching a bus for the return uphill trip).

In cooperation with member jurisdictions, SRTC has developed a draft Regional Bike Route Priority Network. With limited funding at the regional level, investment in the Regional Bike Priority Network will provide the most regionally-significant impact. Used for planning purposes, the Regional Bike Route Priority Network contains almost 500 miles of existing and proposed routes and newly identified gaps that are regionally significant to navigate within and throughout the Spokane region. Routes on this network focused on connecting key community infrastructure with growth

¹⁴ Inland Northwest Lighthouse Transportation & Pedestrian Safety Plan, 2012.

areas while maintaining adequate spacing between routes. The existing Regional Bike Network when broken down by classification is mostly comprised of unmarked shared-use roadway. See **Table 3.6**.

Table 3.6 Regional Bike Route Network by Classification

Classification	Classification Description	Mileage	Percent of Bicycle Network
Class I	Shared Use Path	65.71	5.30%
Class II	Bicycle Lane	92.51	7.46%
Class III	Signed Shared Roadway	45.73	3.39%
Class IV	Shared Roadway	1036.36	83.56%
Total Mileage		1240.30	100.00%

The focus of the Regional Bike Priority Network will be to improve the comfort, connectivity and safety of the bike route system for all users. Research indicates that dedicated bike infrastructure (improvements beyond unmarked-shared roadways) helps drop injury rates.¹⁵ Therefore, regional investments to upgrade the 84 percent of unmarked-shared roadways to dedicated bike infrastructure and/or widening shoulders on higher speed, rural roadways will improve safety and comfort for users throughout the region.

¹⁵ American Journal of Public Health, Vol. 102 No. 12, pages 2336-2343. <http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2012.300762>

The following gaps are currently identified:

City of Spokane

- 29th Avenue: between Grand Blvd and Southeast Blvd
- Freya Street: between 57th Ave and Palouse Highway
- Sherman Street: between 5th Ave and Riverside Ave
- Main Avenue: between Howard St and Pine St
- Sprague Avenue: between Erie/Ben Burr Trail and Riverside Ave
- 1st Avenue/Bernard Street: between Riverside Ave and Sprague Ave
- Boone Avenue/Atlantic Street/Sharp Avenue: between Howard St and Superior St
- Everett Avenue: between A St and Regal St
- Connection between the Fish Lake Trail and the Centennial Trail
- The Ben Burr Trail: between the Centennial Trail and Liberty Park
- The Children of the Sun Trail: between N Freya St and I-90 (following the NSC)
- The Fish Lake Trail: between Scribner Rd and Fish Lake Park/Columbia Plateau Trail
- The University District Bridge: between Riverside Ave/Sherman St and Spokane Falls Blvd

Spokane County

- Strong Road: between Indian Trail Rd and 5 Mile Rd
- Little Spokane Connection: between Little Spokane Dr and Wandermere Rd
- Thorpe Road: between Craig Rd and Hayford Rd

City of Spokane Valley

- Broadway Avenue: between Barker Rd and Flora Rd
- Mission Avenue: between Flora Rd and Harvard Rd
- Mansfield Avenue: between Pines Rd (WA 27) and Mirabeau Parkway
- Indiana Avenue: between Mirabeau Parkway and Pines Rd (WA 27)

- Progress Road: between 32nd Ave and Broadway Ave
- The Appleway Trail: between Appleway Ave and University Rd
- The Millwood-Valley Trail: between Fancher Rd and Mirabeau Parkway
- North Greenacres Trail

Multi-Jurisdictional

- Connection between Glenrose area and the Ben Burr Trail
- Connection between the City of Spokane and Airway Heights
- Connection between Airway Heights and Medical Lake

The Regional Bike Priority Network **Map 4.5** is included in Chapter 4.

The Future of Transportation Programs

Several regional programs have demonstrated their impact on improving traveling conditions, often at a much more economical level than capacity enhancements or new transportation facilities. The benefit from operational programs such as incident management, signal coordination, and access management save the region approximately 274,000 hours and \$604 million in annual congestion costs.¹⁶

Congestion Management

As mentioned in Chapter 2, the regional Congestion Management Process (CMP) is an effort to improve transportation system performance and reliability. The CMP is a regional approach to reducing congestion and is required in Transportation Management Areas (TMAs). The CMP is being updated and the full process will be incorporated in the next update of Horizon 2040.

¹⁶ 2012 Urban Mobility Report. Texas A&M Transportation Institute.

Transportation Demand Management

Transportation demand Management (TDM) is a program of projects, programs and services aimed at improving the efficiency of the existing transportation system. TDM strategies include encouraging the use of alternatives to the single-occupant vehicle such as carpools, vanpools, public transit, biking, and walking. Alternative work-hour programs such as the compressed work week, flextime, and telecommuting are also TDM approaches. Other strategies include parking management tactics such as preferential parking for carpools and variable parking pricing.¹⁷ State and regional Commute Trip Reduction (CTR) programs implement these types of services and also provide information and education resources to the traveling public.

The Spokane County CTR program began in 1991 and its purpose is to address traffic congestion, air pollution and fuel consumption by focusing on reducing single occupant vehicle trip at major employers. For two decades Spokane County has administered and assisted seven local jurisdictions that participate in the program. In 2006 legislation was passed that required SRTC, as the Regional Transportation Planning Organization, to create regional goals for the CTR program. SRTC and the Spokane County CTR work closely together to mirror the goals of our local and regional plans while Spokane County functions as the centralized administrator and implementer of the program.

Recently, the Washington State Commute Trip Reduction Board adopted a State Plan and Operational Policy for 2011-2015 which extends existing goals for local jurisdictions that are implementing the traditional CTR program.¹⁸ This policy has triggered

¹⁷ Transportation Demand Management. Winters, Paul L., Center for Urban Transportation Research.

¹⁸ <http://www.ctrboard.org/>

administrative updates to local plans to remain in compliance with the current law. Local jurisdictions have submitted their updates for consistency with the SRTC Regional Plan. SRTC is required to review local plans for regional consistency and update our SRTC regional plan. Local and regional plans must be approved by the CTR board in order to be eligible for state funding.

“HORIZON 2040 emphasizes strategies that reduce vehicular, pedestrian and bicycle collisions.”

Safety

Safety improvements continue to be a high priority for regional transportation investments. Horizon 2040 emphasizes strategies that reduce vehicular, pedestrian and bicycle collisions. The Safety and Security Guiding Principle and associated policies support improvements that eliminate safety deficiencies, promote education and enforcement programs, and stress that proper maintenance of the transportation system is critical. Evaluation criteria for project programming will be regularly revisited by SRTC to ensure there is an appropriate weight for safety investments.

The Washington State Patrol, WSDOT and other local jurisdictions monitor safety conditions in Spokane County. SRTC primarily uses WSDOT's collision data including the locations, frequency and severity to assess traffic safety for the purposes of planning and project prioritization. The Spokane County Traffic Safety Commission/Target Zero Task Force (<http://www.sctsc.org/>) is a valuable resource for regional safety programs and projects. In 2011, the collision rate per 1,000 population in Spokane County was 1.76. As mentioned in Chapter 2, traffic fatalities and injuries

have declined over the last few decades and this trend is expected to continue. Future safety conditions will be closely monitored to assist in evaluating improvements for motorists, pedestrians and bicyclists.

Security

Future transportation investments will be influenced by security considerations. The incorporation of security into the regional transportation planning process helps to:

- Preserve the reliability, robustness and resiliency of the regional transportation systems
- Maintain essential transportation services
- Instill confidence in the capability and resilience of the transportation infrastructure
- Support cost-effective transportation security projects
- Involve stakeholders with security responsibilities in the transportation planning process
- Establish security policies, performance measures and targets (see Guiding Principles)
- Develop and integrate information systems and other analytical tools to assist in risk assessment and project prioritization
- Inform decision makers about transportation security issues and resource availability¹⁹

The risks to transportation facilities are evaluated based on the probability of an incident, the vulnerability of the facility and the potential damage costs.²⁰ As discussed in Chapter 2, the County's Emergency Management Department and the Local Emergency

¹⁹ Surface Transportation Security Volume 3: Incorporating Security into the Transportation Planning Process (NCHRP Report 525). AECOM Consult, Inc. and Maier Consulting, Inc., 2005.

²⁰ Security Considerations in Transportation Planning: A White Paper. Plozin, Stephen E.

Planning Committee are involved in this risk assessment as well as in response and recovery planning. SRTC will continue to support this effort from the conditions and needs assessment stages through to project identification, prioritization and selection for funding.

Future Environmental Conditions

Stewardship and improving quality of life are adopted guiding principles at SRTC that lend itself to our commitment to environmental considerations. The construction of transportation infrastructure and the operation of vehicles have a direct impact on our natural and human environment. With this in mind, our region must be vigilant in understanding and monitoring environmental issues.

The impacts of mobile-source emissions and congestion on Carbon Monoxide (CO) are significant in the Spokane region. Operating under a CO and a PM-10 air quality maintenance plans, we are required to track and predict future CO levels and the growth rate of vehicle miles traveled (VMT) in the region. That analysis is available in Chapter 4 in the Air Quality Conformity Determination section.

Additionally, in the Spokane region is closely monitoring both ozone and PM-2.5, both of which illustrates a downward trend. Although this trend is promising, PM-2.5 and ozone will be the pollutants of focus in the future because both have had or are in the process of EPA lowering the NAAQS. At this point, the Spokane Region is well below the current ozone standard, but could get close to the proposed lower standard in 2014. The regional has also recorded values nearing the PM-2.5 24-hour standard of 35 µg/m³, with the most recent 3-year average from 2010-2012 of 21 µg/m³.

While future projections of other environmental conditions are not currently available for our region, as new or revised regulations and

methods to monitor conditions emerge, the potential for increased evaluation may become available. For example, water quality impacts from transportation has become a greater area of emphasis as regulations for cleaning of catch basins and the treatment of runoff from road facilities affect more jurisdictions.

In the absence of measurable projections SRTC has policies in Horizon 2040 that will maximize the use of existing infrastructure and improve the availability and safety of lower impact and less expensive alternative modes of transportation. These policies also support environmental conditions that relate to transportation equity issues. The region must ensure that environmental impacts are minimized and do not disproportionately impact areas of populations.

Quality of Life

Although many of the indicators used to measure quality of life or livability cannot be forecasted for the future, SRTC will continue to monitor air pollutant levels, transit accessibility, mode share, and the household affordability measures mentioned in Chapter 2. SRTC will partner with the Regional Health District, Spokane Clean Air Agency and other entities in developing transportation-related strategies to preserve and enhance the region's quality of life.

As discussed in the Projected Traffic Conditions section, congestion has an impact on a region's quality of life. However, there is a perception that all congestion is bad. This is not necessarily the case in all circumstances for all communities. Some congestion can be indicative of economically healthy and vibrant communities. Congestion can mean a lot of people doing a lot of things which translates to economic activity.

Economic Vitality

Highways, roads, bridges and other transportation investments make up nearly 39 percent of the national (non-military) assets. "State and local governments are largely responsible for maintaining the stock of non-defense assets in the U.S., including critical economic infrastructure."²¹ It's estimated that, at a minimum, an additional amount of \$26.4 billion is needed annually to maintain existing national transportation systems and accommodate future demand. What this translates to at the local level is the potential for job generation and economic impact from manufacturing, construction, operations, maintenance and preservation activities. Transportation projects have some of the highest potential for creating jobs, sustaining employment, inducing economic activity and therefore enhancing economic vitality. Mass transit projects have the greatest direct and indirect employment impact, much higher than energy infrastructure investments.

Public transportation projects generate about 22 jobs per \$1 million investment, while the repair of bridges and roads creates more than 20 and the building of new roads and bridges generates approximately 14.5 jobs for the same level of investment. In contrast, coal, oil/gas, and nuclear industries generate between 4 and 7 jobs per \$1 million in investment. Transportation projects also have a huge impact on import-export balance. Road, bridge, rail, and transit projects use nearly 90 percent domestically (often locally) produced materials versus energy projects, which range from 13 percent to 30 percent use of imported supplies. This translates to a potentially significant increase in job generation in the manufacturing sector alone.²²

²¹ How Infrastructure Investments Support the U.S. Economy: Employment, Productivity and Growth. Political Economy Research Institute, 2009.

²² How Infrastructure Investments Support the U.S. Economy: Employment, Productivity and Growth. Political Economy Research Institute, 2009.

The Inland Pacific Hub project conducted an economic analysis of potential benefits from a scenario of freight-related transportation investments. The results of the study, collectively called the Transportation Investment and Project Priority Blueprint, demonstrated a significant economic impact from the proposed projects, including the generation of more than 46,000 jobs and approximately \$3.4 billion in regional value-added benefits. The cumulative economic impact, including those to the freight sector in terms of reliability and productivity, are estimated to result in benefits that would exceed total costs by \$1.7 billion.

The Spokane Regional Comprehensive Economic Development Strategy (FY2011-2012)²³ stated that “Spokane County is a critical access point for freight, flight and rail systems.” The Strategy recognizes that continued investment in freight, private vehicular and public transportation is critical to ensuring regional economic vitality. “Economic growth and development requires large financial investment in both public and private facilities, be they public infrastructure like transportation, education opportunity (like quality public schools along with graduate professional degree programs), or private capital for factory, office, and residential housing.”

As previously described, employment activity centers have a significant impact on regional and local travel patterns. Employment centers are defined as concentrations of jobs by type - transit focused, freight focused, or both. SRTC has analyzed concentrations of job types in order to track where employment activity centers will be in the future. See **Map 3.3** in the Future Employment Activity Centers section of this chapter for the forecasted 2040 transit, freight and mixed focus employment centers.

²³ Comprehensive Economic Development Strategy for the Spokane Region. Greater Spokane Incorporated. FY2011-2012.

Energy

As mentioned in Chapter 2, SRTC continues to monitor energy prices as related to transportation forecasting. Several important transportation related indicators include forecasted vehicle miles traveled, scheduled efficiency ratings, predicted freight movement, and expected energy use by mode. According to the U.S. Energy Information Administration, by 2040 the total domestic energy production is forecasted to increase a small amount (0.8 percent) with a drop in imports of about 0.5 percent. However, consumption is only predicted to increase by 0.3 percent with oil prices rising a small amount (range of 3.1 percent to 3.6 percent). Gasoline consumption is forecasted to decline nearly 1 percent by the year 2040, mostly due to the increase personal vehicle efficiency standards.²⁴

While the future of energy prices and consumption in our area is unknown, the anticipated increase in VMT and VHT will translate into increased costs to individuals and businesses, especially if congestion increases as illustrated in the Forecasted Traffic Conditions section of this chapter.

SUMMARY OF FUTURE TRANSPORTATION CONDITIONS AND NEEDS

Assuming the No-Build scenario as described throughout this chapter, the impacts to traffic conditions could be extensive and could require reactive, rather than proactive, measures to be taken in the future to address them. Absent substantial investments in transportation improvements and programs, personal travel and the mobility of goods and services will be hindered. This is particularly evident in major corridors such as Interstate 90, US 2, US 395 as well as several other state highways and arterials. Any

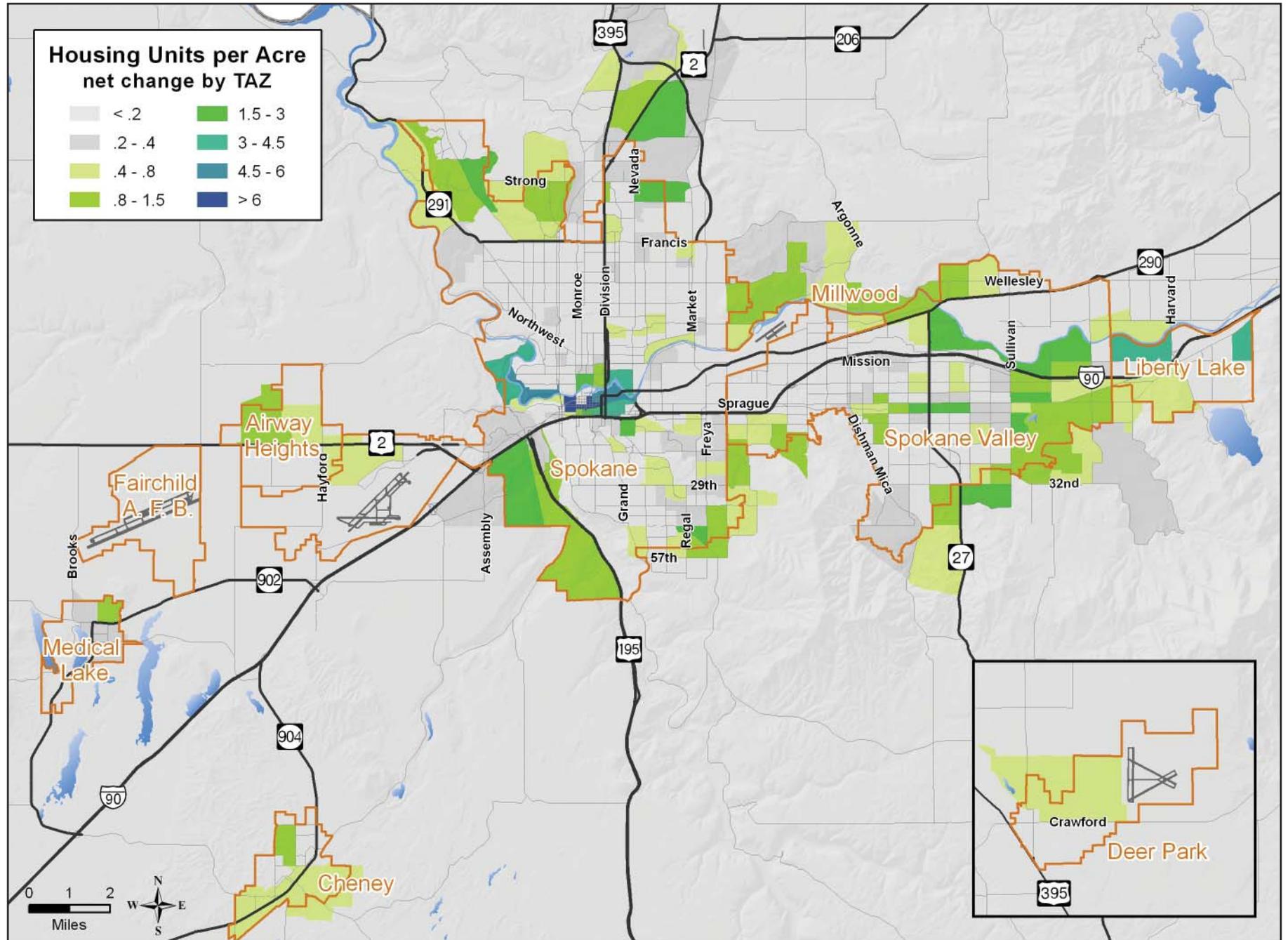
²⁴ U.S. Energy Information Administration. U.S. Department of Energy. <http://www.eia.gov/>

increase in travel time or delay has been shown to be a significant cost concern both for the traveling public and businesses. Based on the future conditions and needs identified in this chapter, the major issues for consideration are as follows:

- Sufficient transportation funding is the most critical issue for the Spokane region, especially when addressing the significant operations, maintenance and preservation costs for roads and bridges.
- Changes in demographics and land use will increase pressure on the regional transportation networks and will likely increase use of alternative modes (walk, bike, transit).
- The forecasted increase in our aging population is a significant issue, especially for public transportation.
- Absent future improvements to the vehicular and public transit networks, the Spokane region will experience some increased congestion in certain high volume corridors.
- Public transportation service and other information, technology, design and operations programs have demonstrable benefits to the traveling public and freight shippers.
- Freight movement forecasts point to the need for infrastructure and logistics improvements in order to capitalize on future economic opportunities.
- Public transportation planning efforts are making progress in addressing increased future demand; however, additional funding is critical to ensure the implementation.
- There is an increased need for education and enforcement programs to improve safety and ensure a high quality of life in the region.

Strategies to address these transportation issues are described in the following **Chapter 4 How We'll Get There**. The strategies recognize changes in housing (see **Map 3.8**), employment (see **Map 3.9**) and other indicators that will shape future transportation demand in our region. The forecasted issues identified in this chapter, including deficiencies and needs based on the No-Build scenario, set the table for scenarios that are developed and evaluated in Chapter 4.

Map 3.8 2010-2040 Housing Unit Density Change



Map 3.9 2010-2040 Employment Density Change

