



**Comprehensive Plan Update and Transportation System Plan Update
Technical Advisory Committee Joint Meeting
AGENDA
Wednesday, August 24, 2016**

HILLSBORO CIVIC CENTER
150 E. Main Street

1:00PM – 3:00PM
Conference Room 113B/C

Time	Topic
1:00	A. Welcome and Introductions
1:15	B. Project Overview <ul style="list-style-type: none">i. Comprehensive Plan Updateii. Transportation System Plan Update
1:30	C. Transportation Background Report discussion
2:30	D. Next steps and September meeting planning
3:00	E. Adjourn



MEMORANDUM

To: Comprehensive Plan Update Technical Advisory Committee
Transportation System Plan Update Technical Advisory Committee

From: Long Range and Transportation Planning Staff

Date: August 18, 2016

Subject: Joint TAC review of Transportation Background Report

Requested Action from both Committees:

Review and provide feedback on the Transportation Background Report.

Background:

The City of Hillsboro is currently conducting updates of its Comprehensive Plan and Transportation System Plan as distinct but coordinated projects. Careful coordination between these efforts is critical to developing updates that comply with state, regional, and local regulatory requirements and are aligned with the City's long-range vision as detailed in the Hillsboro 2035 Community Plan.

This month, staff is convening a joint meeting of the Technical Advisory Committees (TACs) from the Comprehensive Plan Update and Transportation System Plan Update projects to review the Transportation Background Report. This is the first meeting for the TSPTAC and the first of two planned joint meetings to discuss the common elements of these two projects. At the next joint meeting (intended for late September), the committees will review the Existing Conditions Report and proposed goals and policies.

Staff is requesting that members from both Committees read the attached materials prior to the meeting. The meeting will largely focus on discussion of suggested revisions to these materials.

Comprehensive Plan Update Project Overview

The City of Hillsboro's Planning Department is working to produce the first complete update of the City's Comprehensive Plan since 1983, to align the plan with the priorities set forth in the Hillsboro 2035 Community Plan, to modernize policy language to reflect changing requirements, regulatory shifts, and best practices. The project is a multi-year initiative that will engage every department of the City as well as the City's major partner agencies in setting long-term land use policies to guide the City's growth in coming decades.

The updated Comprehensive Plan is organized around seven core areas and is organized into 19 specific topics that implement the Hillsboro 2035 Community Plan and address statewide land use planning goals, while also putting in place best practices that position the community for long-term success. Staff develops a Background Report for each topic summarizing the topic, emerging trends, and policy recommendations, along with draft goals and policies for review by project stakeholders. The Cultivating Transportation Options core area will include Transportation goals and policies, which will also serve as the goals and policies for the updated Transportation System Plan.

Transportation System Plan (TSP) Update Project Overview

The State Transportation Planning Rule, OAR 660 Division 12, requires jurisdictions throughout Oregon to prepare and adopt regional or local transportation plans that serve as the transportation element for their comprehensive plans to establish the blueprint for the City's transportation system for the next 20 years. Hillsboro's last comprehensive TSP update was completed in 1999 and then partially updated in January 2004. An update is required to respond to transportation, land use, environmental, population growth, economic, and social changes in the community.

The Hillsboro Transportation System Plan (TSP) is the community's adopted guide for building and maintaining Hillsboro's transportation network. To update the TSP, the existing network will be evaluated to address what Hillsboro needs for the next 20 years. This plan will balance the needs of those using cars, transit, trucks, bikes and walking paths, and input will be sought from residents, businesses, and all transportation system users. The TSP will consider growth plans and trends in the region, while meeting the transportation needs of Hillsboro. This TSP update will also reflect the regulatory changes that have occurred in the City, region, and State since the last update. The TSP will be updated to be consistent with the State Transportation Planning Rule (TPR), Metro Regional Transportation Plan (RTP), and Regional Transportation Functional Plan (RTFP). The update process began in fall 2015 and is expected to be completed around fall 2017.

Transportation Background Report

The Transportation Background Report is intended to summarize and outline key transportation issues to inform the discussion of updated Transportation goals and policies by the joint Technical Advisory Committee, the Comprehensive Plan Citizen Advisory Committee, and Planning Commission work sessions later this year. The Background Report was prepared by planning staff.

Although the content of the Transportation Background Report should be consistent with findings from technical analyses in the Transportation System Plan update, it itself is not a technical document. The goal of the Background Report is to explore significant issues surrounding transportation planning in Hillsboro generally, to provide a basis for more in-depth discussion of specific topics or policies by participants that may not typically participate in technical discussions.

Following review by both TACs, the Transportation Background Report will be presented to the Comprehensive Plan Citizen Advisory Committee (CAC) at their August 25 meeting. Staff will convey input from the TACs at the meeting, including distributing updated drafts if necessary.

The Background Report will also be presented to the Transportation System Plan Steering Committee (TSPSC) at a meeting in early September. Should either the CAC or TSPSC request significant revisions to the Background Report, those requested revisions will be shared with the TACs at the next meeting.

Cost:

Costs for preparation of these documents includes staff time only.

Attachments:

1. Transportation Background Report

Cultivating Transportation Choices

Background Report DRAFT

Review History

Date	Reviewed By
08/16/16	Internal review, comments incorporated

1. Introduction

Planning for a transportation system that is able to move people and goods safely, efficiently, cost-effectively, and reliably, can be a challenging endeavor. The City is connected to the larger region by a network of roads, trails, rail lines, pipelines, airport, and other facilities that must be planned for, designed, funded, constructed, and maintained. This network must accommodate a variety of transportation needs including reliable freight movement, convenient commutes, enjoyable recreation, and access to daily services. Planning for these diverse users and needs is accomplished through Transportation System Plans (TSPs), which are created in order to provide direction, identify needs, and address transportation-related issues associated with development patterns.

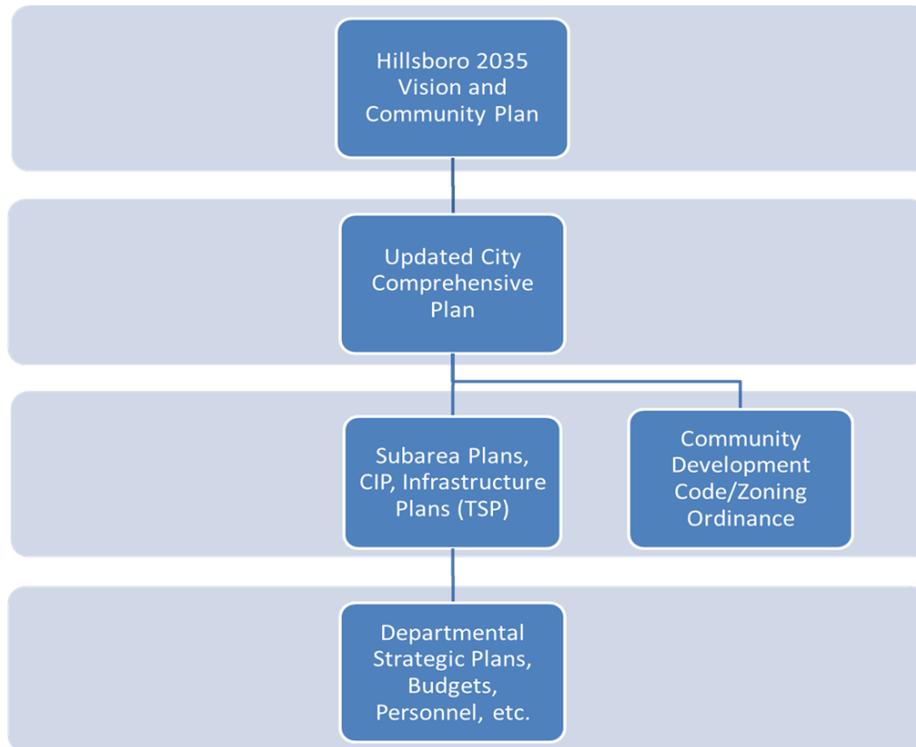
TSPs are typically updated every 10 years to account for changing economic, population, and travel trends. In addition, all metro-area jurisdictions are required to update or amend their TSPs to comply with the Regional Transportation Plan adopted by Metro, on a schedule provided by Metro. The City has been given a deadline for compliance of December 31, 2017. The City’s current TSP was adopted in 1999, partially updated in 2004, and amended several times since then. The City is in the process of updating its TSP to a) reflect its commitment to livability by planning and delivering a multi-modal transportation system that will meet the needs of City residents, businesses, and visitors over the 25 year planning horizon, b) meet legal requirements to comply with Metro’s Regional Transportation Plan and c) utilize a system-wide approach to transportation based on current transportation needs, trends, and forecasts.

The updated TSP will reflect the Hillsboro 2020 Vision and Action Plan and Hillsboro 2035 Community Plan principles and will be developed to:

1. Reflect the transportation goals and policies from the City’s updated Comprehensive Plan.
2. Design and implement a balanced and connected multi-modal transportation system.
3. Create an up-to-date inventory of the existing transportation system.
4. Identify the future needs and deficiencies for the City’s transportation system.
5. Facilitate safe and efficient travel throughout the community, while fostering sustainability, livability, and social equity.
6. Identify a finance program that could be reasonably assumed to fund the transportation plan.
7. Include necessary supporting ordinances to implement the final adopted plan.
8. Ensure compliance with latest State, Regional and Local regulations and policies.

Local governments are required to develop TSPs as a refinement to their Comprehensive Plans (*Figure 1: City of Hillsboro Plan Relationships* illustrates how these plans fit together). Hillsboro’s TSP is being updated concurrently with the Comprehensive Plan update and will be based on the goals and policies developed through the Comprehensive Plan process. Additionally, the TSP will reflect the physical and regulatory changes that have occurred in the City, Region, and State since the last update.

Figure 1: City of Hillsboro Plan Relationships



2. Background

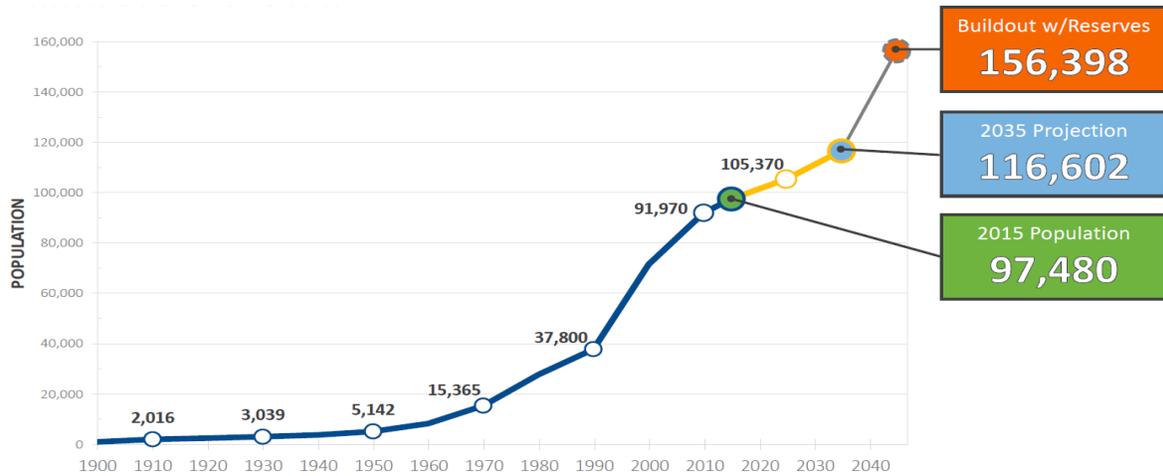
2.1. Population and Employment Trends

Hillsboro has experienced many changes that have affected transportation system needs since the current TSP was updated in 2004, such as high population and job growth rates as compared to the State average. Due to such factors as a desirable location, a robust supply of available employment land, and local and state programs favorable to employment, by 2035, the City anticipates a 20% increase in population and 31% increase in jobs¹. Growth is not limited to Hillsboro alone. By 2050, the State estimates that Washington County will be nearly as populous as Multnomah County, with each county exceeding 900,000 residents- far surpassing the population of any other county in the state².

¹Metro. (2012). *'Gamma' Forecast*. Population estimates based on household projections multiplied by 2.6 persons per household. This estimate assumes that all current urban reserves are available for development. Retrieved from http://www.oregonmetro.gov/sites/default/files/metro_gamma_forecast_distribution_city_county_profiles_1115_12.pdf

² Oregon Office of Economic Analysis. (2013, March). *Oregon's Long Term County Population Forecast 2010-2050*. Retrieved from http://www.oregon.gov/das/OEA/Documents/County_forecast_March_2013.xls

Figure 2: Hillsboro Population Projections



Over the past few decades, the economies of Hillsboro and neighboring jurisdictions have transitioned from primarily farming and agriculture to high-tech research, development, and manufacturing. The rise of the so-called “Silicon Forest” has had a dramatic impact on the City’s economy, community composition, and infrastructure needs. The City is home to numerous companies specializing in the design and manufacturing of products such as computer chips, semiconductors, and solar panels. Other major employers include those specializing in film production, food products, and sportswear and outdoor apparel. In addition, thousands of employees fill entry-level customer service jobs at call centers and retail and service establishments.

Employment in the City is somewhat concentrated, with the 10 largest enterprises accounting for nearly 37 percent of all private sector jobs.³ Although these enterprises have positive impacts on the local economy and provide valuable employment for the region, their establishment and expansion create a strain on the area’s transportation network. For example, over the past few years, Intel completed a \$6 billion expansion of its Ronler Acres campus and Kaiser Permanente opened its new \$344 million medical campus; both developments that bring more traffic to the area. Many of the area’s roads and transit facilities were not designed to accommodate the high volumes that are occurring now or anticipated in the future.

The employment opportunities in Hillsboro have attracted new residents, with many more expected in the future. The City has responded to increased demand for housing by facilitating development of several large-scale neighborhoods including Orenco Station, Witch Hazel, and Tanasbourne. These communities vary in terms of housing types, densities and neighborhood character. With only 14% of the City’s remaining projected 20-year buildable land supply located within city limits⁴, the City must look for additional options to accommodate the growing demand for housing. Areas like South Hillsboro and Urban Reserve lands such as Bendemeer and Witch Hazel Village South will be valuable for accommodating new residential growth.

³ Johnson Economics. (2016). *Economic Opportunities Analysis*. Hillsboro, OR.

⁴ EcoNorthwest. (2016). *Housing Needs Analysis*. Hillsboro, OR.

The rapid growth of the past few decades has highlighted several transportation challenges:

- Former farm roads that once were used to transport agricultural products and served as relatively low-volume rural links must now function as major multimodal streets in new housing or employment areas.
- The City has a high number of jobs but not enough housing to meet local demand (about 80% of people who work in the City live elsewhere⁵), which increases demand on the transportation network.
- New communities, job centers, and other activity centers need to be connected to the regional transportation network.
- Providing the infrastructure necessary to build new communities can be expensive and time consuming.
- Lack of transportation funding limits investments in new and improved road, sidewalk, bike, and transit infrastructure. It often precludes many lower priority transportation projects from receiving funds necessary for completion.
- Congestion and lack of reliable travel times has made moving freight difficult.
- Construction of new facilities to accommodate job and housing growth must be balanced with maintaining and improving existing facilities and services in order to prevent deterioration.

2.2. Demographic Trends

2.2.1. Aging Population

Hillsboro's population is growing older, with the aging of the Baby Boomers. Although the City has a smaller share of people over 40 years old than the regional average, Hillsboro's population is growing older, consistent with State and national trends⁶. The impact of growth in seniors in the City will depend in part on whether seniors continue to live in Hillsboro as they retire. Growth in the population over 60 years old since 2000 suggests that some (and perhaps many) of the residents that retire will continue to live in Hillsboro after retirement. National surveys show that, in general, most retirees prefer to age in place by continuing to live in their current home and community as long as possible.⁷ This is strongly reflected in the Hillsboro 2035 Community Plan, in which facilitating aging in place for seniors is included as a major initiative.

As shown in *Figure 2: Hillsboro Population Projections*, the population of Washington County, and by extension, Hillsboro, is projected to be significantly older than today. Seniors aged 65 or older are expected to account for 38% of the total population, compared to 26% today⁸. As the population grows older, meeting seniors' transportation needs will remain an important issue. Expanding transportation options, retrofitting existing infrastructure to be more suitable for older users, and facilitating development of compact neighborhoods with

⁵ Ibid. p. 53

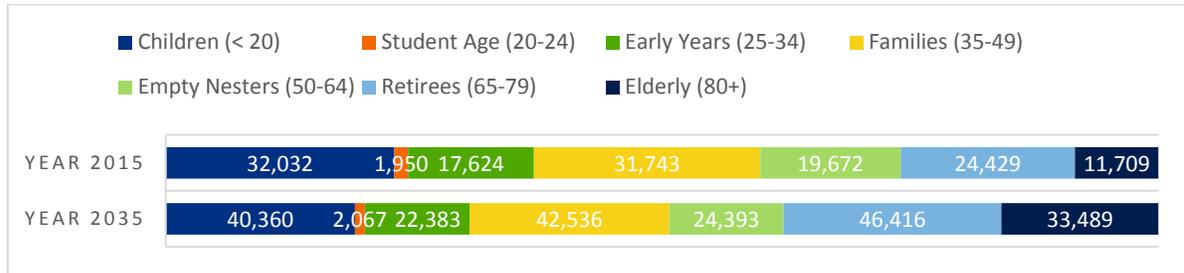
⁶ Ibid. p. 44

⁷ A survey conducted by the AARP indicates that 90% of people 50 years and older want to stay in their current home and community as they age. See <http://www.aarp.org/research>

⁸ Oregon Office of Economic Analysis. (2013, March). *Oregon's Long Term County Population Forecast 2010-2050*. Retrieved from http://www.oregon.gov/das/OEA/Documents/County_forecast_March_2013.xls

pedestrian access to retail, services, and public transportation, can all contribute to seniors' transportation independence.

Figure 3: Future Age Composition of Washington County

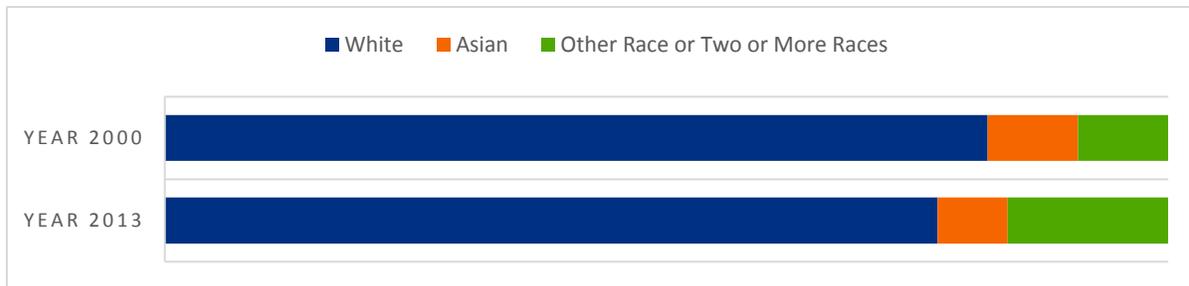


(Oregon Office of Economic Analysis, 2016)

2.2.2. Increased Ethnic and Racial Diversity

Hillsboro is becoming more ethnically and racially diverse. In 2013, about 39% of Hillsboro's population was non-white and non-Hispanic (i.e. neither white nor Hispanic). The largest ethnic and racial minority groups were Hispanic/Latino and Asians. The Hispanic and Latino population grew from 19% of Hillsboro's population in 2000 to 25% of the population in the 2011-2013 period, adding more than 10,000 new Hispanic and Latino residents to Hillsboro's population. In comparison to Washington County and the Portland Region, Hillsboro's population is more ethnically diverse⁹.

Figure 4: Racial Composition, Hillsboro, 2000-2011-13



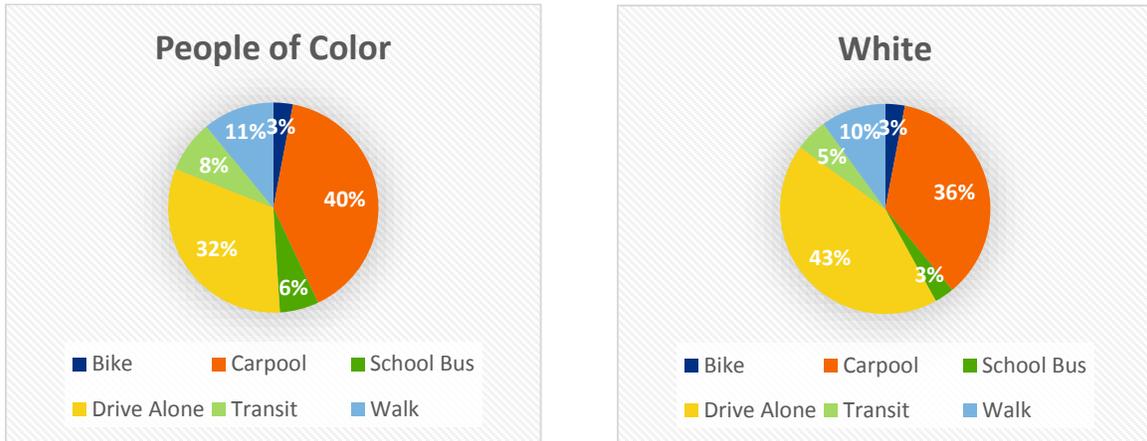
(EcoNorthwest, January 2016)

Continued growth of the City's Asian and Hispanic populations will affect transportation needs in the future. State analysis has shown that communities of color travel more using other modes aside from driving alone¹⁰. Many of the same accommodations that will be beneficial to the aging population, such as improving pedestrian access to transit and activity centers and increasing bus and light rail service, will also benefit these growing populations.

⁹ EcoNorthwest. (2016). *Housing Needs Analysis*. Hillsboro, OR.

¹⁰ (2011). *Oregon Household Activity Survey*

Figure 5: Primary Travel Mode, Portland Region



(Metro, 2011)

2.3. Commute Patterns

Hillsboro has a broad labor shed, exhibiting an attraction of workers throughout the Portland Region. In Hillsboro, roughly 80 percent of the workforce lives within 25 miles of their job. As shown in *Figure 6: Hillsboro Commute Patterns*, Hillsboro businesses generally draw labor from eastern Washington County, Bethany/Cedar Mill/Rock Creek, and Portland’s close-in neighborhoods. While an expansive labor shed is a positive for local businesses, at only 21 percent (14,331 residents), Hillsboro has a relatively low share of its workforce residing in the community¹¹.

Figure 6: Hillsboro Commute Patterns



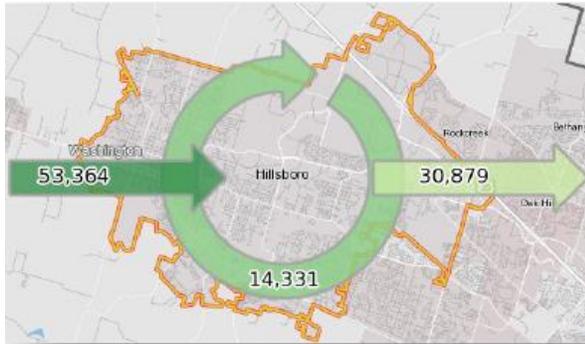
(Johnson Economics, 2016)

Nearly 31,000 (approximately 32%) of Hillsboro residents commute elsewhere for work.¹² Having such a large movement of workers and residents in and out of the city on a daily basis increases demand on the transportation network and emphasizes the importance of a well-functioning regional system for workers and residents alike.

¹¹ Johnson Economics. (2016). *Economic Opportunities Analysis*. Hillsboro, OR.

¹² Ibid.

Figure 7: Inflow Outflow Map, 2013



(US Census LEHD Program, 2013)

2.4. Consistency with Regional Plans

The Metro Urban Growth Management Functional Plan¹³ directs local jurisdictions to implement the Regional 2040 Growth Concept¹⁴, a long-range plan intended to guide growth and development of the region over 50 years. The 2040 Concept identifies 10 types of planning areas, or “design types”, that local jurisdictions in the Portland metropolitan area must respond to in updating their land use and transportation plans. Design types are the building blocks of the regional growth management strategy.

Fundamental to the Growth Concept are:

- A hierarchy of mixed-use, pedestrian friendly centers that are well connected by high capacity transit and corridors
- A multi-modal transportation system that ensures continued mobility of more people and goods throughout the region, consistent with transportation policies
- Coordination of land uses and the transportation system, to embrace the region’s existing locational advantage as a relatively uncongested hub for trade
- A jobs-housing balance in Centers and a jobs-housing balance by regional sub areas to account for the housing and employment outside of the Centers
- An urban to rural transition to reduce sprawl, keeping a clear distinction between urban and rural lands and balancing re-development
- Separation of urbanizable land from rural land by the Urban Growth Boundary for the region’s 20-year projected need for urban land
- Rural reserves that are intended to assure that Metro and neighboring cities remain separate¹⁵

Design types relevant to Hillsboro for transportation planning purposes are identified in the Design and Development Chapter of the updated Comprehensive Plan.

¹³ Metro. (2016). *Urban Growth Management Functional Plan*
http://www.oregonmetro.gov/sites/default/files/03.07%20Eff%2009102014%20%20Maps%20Title%204%20%206%20%2014%20amended%20maps%20effective%20102914%2020140910_1.pdf

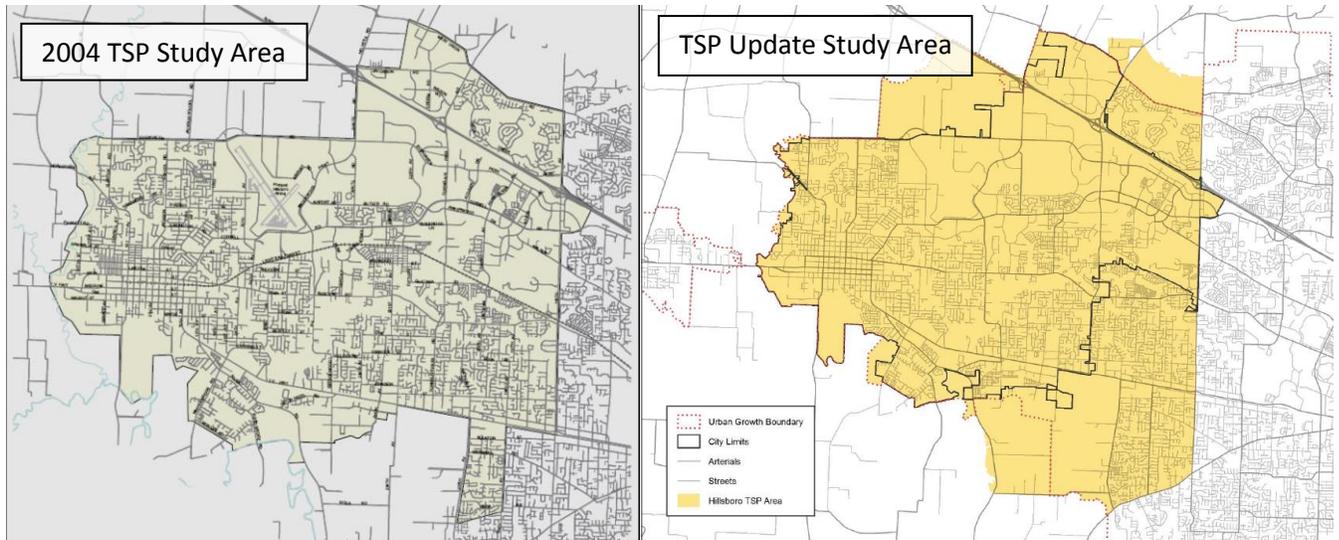
¹⁴ Metro. (2014). *2040 Growth Concept Map*
http://www.oregonmetro.gov/sites/default/files/2040_growth_concept_121914.pdf

¹⁵ Metro. (2011). *Metro's Regional Framework Plan- Summary of 2040 Growth Concept*. Retrieved from
http://www.oregonmetro.gov/sites/default/files/01132011_regional_framework_plan_2011_update_summary_of_2040_growth_concept.pdf

2.5. Changes to the Study Area

Since the last major TSP update was completed in 2004, assumptions about the City's future boundaries have changed substantially. For instance, more than 3,000 acres of land have been brought into the Urban Growth Boundary (UGB) that were not studied as part of the 2004 TSP. As shown in *Figure 8*, today's TSP study area is much larger and includes areas that will be or have the potential of being under the City's jurisdiction in the next 25 years- such as in South Hillsboro, North Hillsboro, and Witch Hazel South. Local streets will come under the City's jurisdiction if these areas annex into the City.

Figure 8: Comparison of Study Areas, 2004 and 2017 TSP Updates¹⁶



3. Hillsboro 2020 and Hillsboro 2035

The City began its visioning project, called Hillsboro 2020, in 1997. The Hillsboro Vision and Action Committee reached out to more than 1,500 citizens to create a common vision for the City, along with strategies and actions to implement this vision. The resulting Vision Action Plan was adopted by City Council in 2000, and subsequently updated in 2005 and 2010. Beginning in 2013, the City began a project to develop its next community vision, the Hillsboro 2035 Community Plan, building on the success of the original visioning project. The Hillsboro 2035 Community Plan was adopted in July 2015.

3.1. Vision 2020

The 2020 Vision and Action Plan¹⁷ was organized into a series of focus areas, strategies, and actions. The actions most related to transportation are listed below, with a brief note on the implementation status of each action.

¹⁶ 2017 TSP Study Area subject to change as ongoing discussions about urbanization may change the City's ultimate assumed boundary.

¹⁷ City of Hillsboro. (2000, updated 2010). *Hillsboro's 2020 Vision & Action Plan*.

Vision Area: Enhancing Neighborhoods and Districts	
Strategy 13: Complete an “active transportation system, integrating sidewalks, pedestrian and bike infrastructure to serve the entire city, improving neighborhood connections, access to transit, recreation and safety options.	
13.1 Identify and Map Pathways Develop and regularly update an inventory of bicycle and pedestrian pathways, and make available in print or online.	On-going
13.2 Bicycle and Pedestrian Advisory Committee Establish a Bicycle and Pedestrian Advisory Committee responsible for advising the City on active transportation investments and coordinating with regional jurisdictions on pathway and facilities connections.	On-going
13.3 Fund Pathways Explore feasible funding options including state, regional or private, grants, public or special levies or other means to upgrade and complete the City's bike path/pedestrian system in accordance with current codes and ordinances.	On-going
13.4 Sidewalk Completion and Repair Encourage adjacent property owners to complete and repair sidewalk systems and provide assistance where feasible.	On-going
13.5 Bike Rack Policy Help develop a policy and strategy for expanding the number of secure bike racks available city-wide.	To be implemented
13.6 Integrated Bike Network Coordinate with regional partners to create and promote a bicycle transportation network connecting population, transit and employment centers and other regional destinations.	On-going
13.7 Safe Routes to Schools Establish and promote safe bicycle and pedestrian routes to schools from surrounding neighborhoods.	On-going
13.8 Smart Crossings Install smart-crossings, including flashing beacons, at locations noted for heavy pedestrian use.	On-going
Strategy 14 Establish a coordinated system of buses, shuttles and light rail connecting large neighborhoods, major retail and employment areas.	
14.1 Transit System Expansion and Promotion (A) Develop public/private partnerships to expand existing transit systems and promote increased ridership. (B) Promote and encourage use of mass transit and alternative modes of transportation. Explore and promote use through new incentive programs and by providing necessary infrastructure and transit service within Hillsboro.	On-going
14.2 Transit Service Expansion Communicate to Tri-Met local need for additional transit routes and encourage ongoing operation of existing transit service.	On-going
14.3 Local Transit System Study economic feasibility of operating a limited Hillsboro transit service that complements Tri-Met service.	On-going

14.4 Transit “Free Fare” Zone Explore and if feasible implement a "free fare" transit zone in Hillsboro.	On-going
Strategy 20: Identify and develop a system of neighborhood parks, located within walking or biking distance of every community resident.	
20.2 Parks and Transportation Coordination Coordinate park system planning with transportation systems.	On-going
20.3 Bike/Pedestrian Easement Identification Identify and promote potential bike and pedestrian easements to connect parks and transportation.	On-going
20.4 Greenway Easement Advocacy Advocate parks/greenway easement opportunities to developers.	On-going
Strategy 34: Support transportation and communication system improvements to move goods, services and information and to allow residents to efficiently reach destinations throughout the community.	
34.2 Regional Transportation Plan Take leadership role in the planning for and financing of local and regional transportation systems.	On-going

3.2. Hillsboro 2035

The Hillsboro 2035 Community Plan¹⁸ includes two focus areas that address transportation: Economy & Infrastructure and Livability & Recreation

Economy and Infrastructure Goal Statement Hillsboro’s world class economy, advanced technical training, and innovative, business-friendly culture attracts and supports businesses of all sizes. State of the art infrastructure systems including communications, roads, transit and water supply are in place and continually updated to accommodate the city’s growth and evolution. Hillsboro is a vibrant regional destination for arts, recreation, cuisine and entertainment.	
<i>Initiative</i>	<i>Action</i>
Initiative 3: Create systems to facilitate aging-in-place and quality of life for our growing senior population.	Action C: Develop and Enhance Hillsboro’s globally competitive infrastructure essential to supporting and attracting traded-sector employers including development ready sites, transportation, workforce, communications systems, water supply and incentives.
Initiative 6: Implement efforts to ease traffic congestion in and around Hillsboro.	Action A: Following from the Washington County West Side Transportation Study, advocate for a more efficient multimodal west side transportation solution for people and freight between Highway 26 and I-5.
	Action B: Support continued expansion of Highway 26 including lanes, interchange capacity and bridges through targeted policies and pursuit of regional funding.
	Action C: Add capacity to the regional arterial

¹⁸ Hillsboro 2035. (2015). *Hillsboro 2035 Community Plan*.

	street network to ease congestion and improve freight mobility, with emphasis on north-south corridors.
	Action D: Dedicate resources to repair, maintain and enhance existing roadways.
Livability and Recreation Goal Statement	
With its clean, walkable neighborhoods, alternative transportation options, access to a variety of housing, open spaces and trails, abundant recreational activities and a thriving arts culture, Hillsboro is recognized as one of the most vibrant and livable communities in the Pacific Northwest.	
<i>Initiative</i>	<i>Action</i>
Initiative 2: Foster distinct, vibrant neighborhoods featuring quality development, preserved landmarks, a variety of housing, and services safely accessible by walking, biking, transit, or short commute.	Action B: Make parks and open space accessible to all neighborhoods.
Initiative 7: Make Hillsboro walkable and bicycle-friendly citywide for daily living and recreation.	Action A: Continue to complete gaps in Hillsboro’s sidewalk network, with an emphasis on sidewalks near school zones.
	Action B: Add and promote off-street walking, running and hiking trails citywide.
	Action C: Improve on-street bicycle commute and recreation infrastructure by adding lanes, improving buffers and connections, and promoting designated travel routes.
Initiative 8: Continue to enhance alternative transportation options, services and facilities.	Action A: Extend public transit hours, routes and services.
	Action B: Enhance appearance, quality and safety of bus shelter and MAX stations.
	Action C: Work with employers to increase transit usage, develop express options, and identify additional commute efficiencies.
	Action D: Promote emerging transportation alternatives that reduce single-occupancy car use.

3.2.1. Sustainability Plan

On June 16, 2015, the Hillsboro City Council adopted the first community-wide Hillsboro Environmental Sustainability Plan. The Environmental Sustainability Plan, a focus of the 2035 Community Plan, includes a number of objectives relating to transportation. The plan contains three primary goal areas:

Energy Objectives

- Reduce greenhouse gas emissions
- Reduce use of non-renewable energy resources
- Expand use of renewable energy resources to meet demand

Resource Conservation Objectives

- Enhance understanding of the importance of natural assets and ecosystem services
- Protect and enhance environmental assets (air, land, water and habitat)
- Foster healthy human and wildlife populations

Resource Recovery and Renewal Objectives

- Reduce waste stream volumes
- Repurpose waste stream elements for beneficial use
- Pursue a “one-water”¹⁹ use and reuse strategy

Table 1: Hillsboro Environmental Sustainability Plan Transportation-Related Goals and Targets

Indicator	Target	Target Year	Baseline	Baseline Year
6. Mean travel time to work	20% reduction	2035	24.4 minutes	2010
7. Single occupancy vehicle (SOV) trips as % of all trips	30% reduction by 2035 (51%)	2035	73%	2010
15. # annual days ‘Moderate’ and ‘Unhealthy for Sensitive Groups (UFGS)’ particulates and ozone AQI	Decrease # of days to 0	2025	Moderate AQI: 49 USFG AQI: 6	2011

Selected potential projects and policies:

- Develop policies to facilitate transit oriented development
- Promote and enhance employer commute incentive programs
- Enhance City bike facilities
- Develop a mobility hub pilot program
- Develop idling reduction campaign

4. Existing Comprehensive Plan Goals

The original Hillsboro Comprehensive Plan was adopted in 1977.²⁰ The City last updated its TSP in 2004, while portions of the document dates back to 1999. Since 2004, the City has conducted periodic amendments to reflect small scale regulatory or planning changes. For instance, in 2012 and 2013, the TSP was amended to incorporate new planning areas for the North Hillsboro, AmberGlen and South Hillsboro areas.

Goal 1: Promote Safety. Develop and maintain a safe transportation system that conforms to the Manual on Uniform Traffic Control Devices (MUTCD) and American Association of State Highway and Transportation Officials (AASHTO) Guidelines.

Goal 2: Support Multi-modal Travel. Provide a balanced transportation system that serves the many

¹⁹ ‘One Water’ is a concept that encourages the planning, management, allocation and use of water to broadly consider all of the increasing demands for clean water locally, regionally and globally.

²⁰ Ordinance No. 2793-4-77

modes of travel.

Goal 3: Support Trip Reduction. Develop a transportation system that reduces the rate of increase of motor vehicle trips and contributes to regional goals to reduce per capita vehicle miles of travel.

Goal 4: Performance. Fund projects that promote an efficient, economic transportation system that maximizes the movement of vehicles, pedestrians, cyclists, etc.

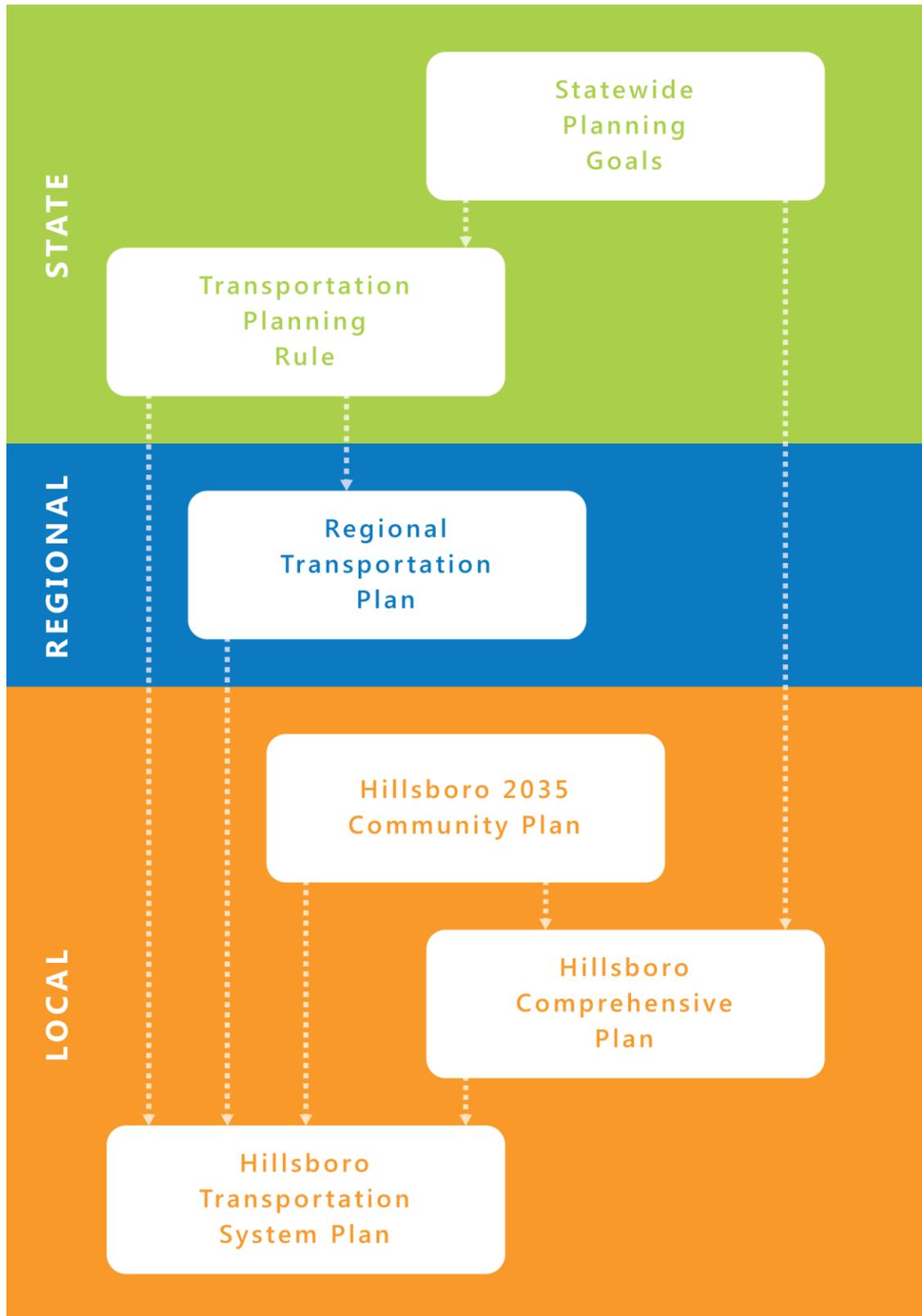
Goal 5: Goods Movement. Provide for timely and efficient movement of goods and services.

Goal 6: Livability. Transportation facilities shall be designed and constructed in a manner which enhances the livability of Hillsboro.

Goal 7: Accessibility. Develop transportation facilities which are accessible to all members of the community and minimizes out of direction travel.

5. Regulatory Context

Figure 9: TSP Relationship to Other Plans



5.1. Statewide Regulations

5.1.1. Statewide Planning Goal 12: Transportation

The aim of Statewide Planning Goal 12²¹ and the State Transportation Planning Rule (TPR) are, “To provide and encourage a safe, convenient and economic transportation system.”²² Collectively, they require the City to develop and maintain a Transportation System Plan that considers all modes of travel including automobiles, pedestrians, bicycles, transit, freight, rail, air, pipelines, and water. The City must assess local, regional and state needs and consider appropriate combinations of travel modes to avoid principal reliance upon any one mode of transportation. The TPR requires transportation and land use planning be done in a coordinated manner. The State rule also requires that the City’s TSP maintain compliance with the TPR, the State of Oregon Transportation Plan (OTP)²³, and Metro’s Regional Transportation Plan (RTP)²⁴. A TSP is also required to include a Transportation Financing Program consisting of a list of planned transportation facilities and major projects, timing and rough cost estimates, policies for selecting projects, and an allowance for phasing of major improvements.

5.2. Metro Regulations

5.2.1. Urban Growth Management Functional Plan

The Urban Growth Management Functional Plan²⁵ establishes regional policies that apply to all 24 cities and counties within the Metro region. The purpose of the functional plan is to implement regional goals and objectives adopted by the Metro Council as the Regional Urban Growth Goals and Objectives (RUGGO), including the Metro 2040 Growth Concept. The functional plan contains both “recommendations” and “requirements” for changes in local transportation plans.

5.2.2. Region 2040 Growth Concept Plan

The Region 2040 Growth Concept Plan²⁶ states the preferred form of regional growth and development and identifies the location of future land uses and activity centers. As shown in *Figure 10: 2040 Growth Concept Map Excerpt*, integral to the Growth Concept is a multimodal transportation system that assures mobility of people and goods throughout the region.

The Growth Concept establishes a network of multimodal corridors and regional through-routes that connect major urban centers and destinations. Through-routes provide for “high-volume auto and transit travel at a regional scale, and ensure efficient movement of freight”. Within multimodal corridors, the transportation system will “provide a broader range of travel options, including auto, transit, bicycle, and pedestrian networks that allow choices of how to travel in the region.” These

²¹ Oregon LCDC. *Goal 12: Transportation*. Retrieved from <https://www.oregon.gov/LCD/docs/goals/goal12.pdf>

²² Oregon DLCD. *Oregon Administrative Rule 660, Division 12*. Retrieved from http://arcweb.sos.state.or.us/pages/rules/oars_600/oar_660/660_012.html

²³ Oregon Department of Transportation. (2006). *Oregon Transportation Plan*. Retrieved from <https://www.oregon.gov/ODOT/TD/TP/docs/otp/otpv01.pdf>

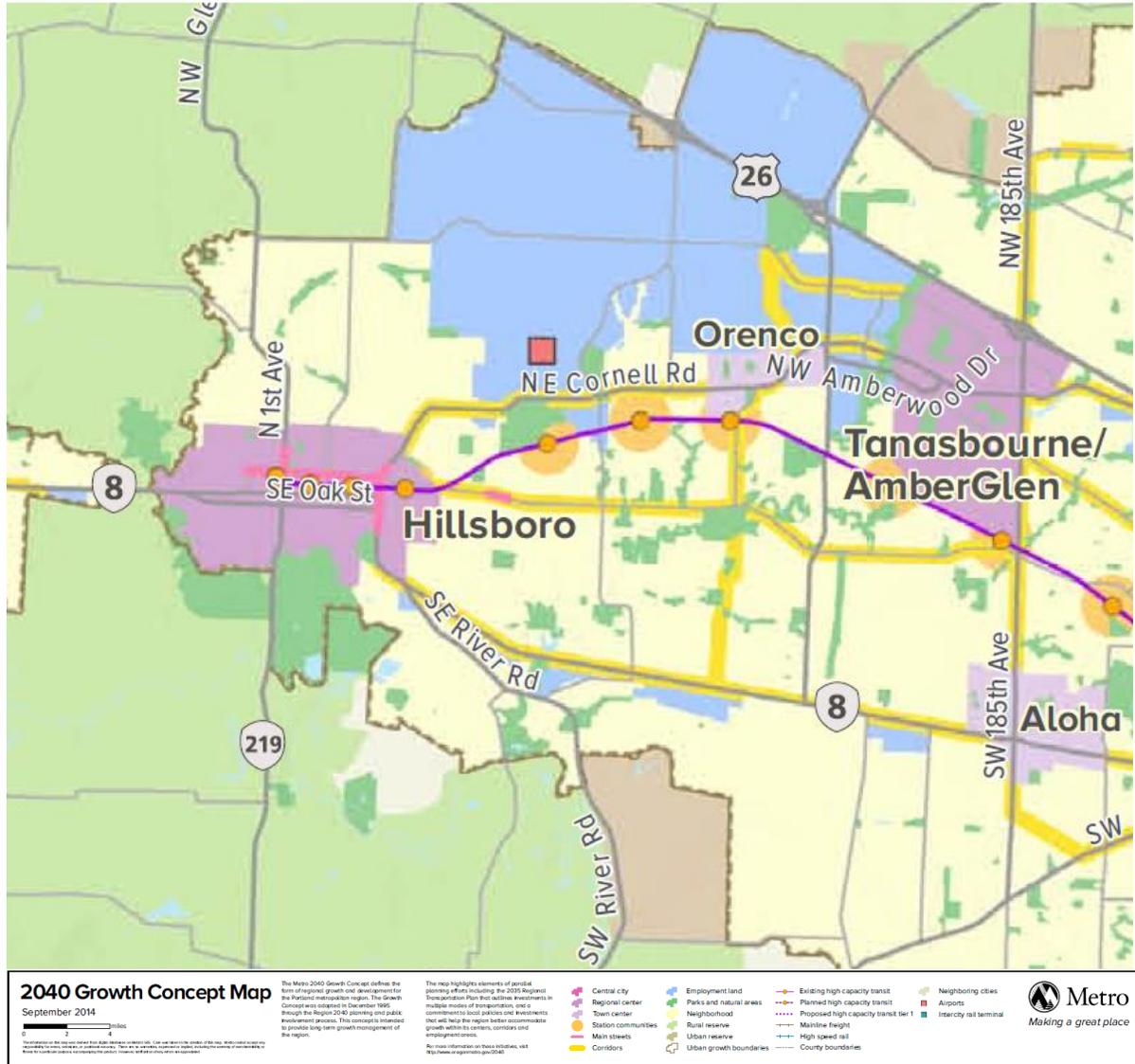
²⁴ Metro. (2014). *Regional Transportation Plan*. <http://www.oregonmetro.gov/sites/default/files/RTP-2014-final.PDF>

²⁵ Metro. (2016). *Urban Growth Management Functional Plan* http://www.oregonmetro.gov/sites/default/files/03.07%20Eff%2009102014%20%20Maps%20Title%204%20%206%20%2014%20amended%20maps%20effective%20102914%2020140910_1.pdf

²⁶ Metro. (2014). *2040 Growth Concept Map* http://www.oregonmetro.gov/sites/default/files/2040_growth_concept_121914.pdf

travel options are intended to encourage the use of alternatives to the auto.

Figure 10: 2040 Growth Concept Map Excerpt



5.2.3. Regional Transportation Plan (RTP) and Regional Transportation Functional Plan (RTFP)
The 2035 Regional Transportation Plan (RTP)²⁷, adopted by Metro in June 2010 and updated in 2014 identifies the transportation policies, projects, and strategies needed to implement the 2040 Growth Concept and to identify a transportation system that will adequately serve the travel needs of the Portland Metropolitan area for the next 20 years. The RTP also contains criteria for

²⁷ Metro. (2014). *Regional Transportation Plan*. <http://www.oregonmetro.gov/sites/default/files/RTP-2014-final.PDF>

monitoring transportation system performance for all modes of travel, and it begins to address State greenhouse gas emissions reduction goals²⁸, but does not require cities to adopt such targets.

Hillsboro participates on regional committees responsible for the ongoing development of the RTP. These include the Joint Policy Advisory Committee on Transportation (JPACT), comprised of elected officials, and the Transportation Policy Alternatives Committee (TPAC), comprised of technical staff, and ongoing RTP focus area work groups. The 2018 RTP update is currently underway and Hillsboro staff are participating in the update.

The RTP evaluates expected travel demands and patterns, and studies the impacts of expected travel on the current “committed” transportation system (i.e., projects with committed design and construction funding) based on forecasted 20-year population and employment growth. Hillsboro’s TSP must maintain consistency with policies established by the RTP, shown in *Figure 11*, below. Pursuant to Metro Code 3.08.010.C, if a local government’s TSP is consistent with the Metro Regional Transportation Functional Plan (RTFP)²⁹, Metro also deems it consistent with the RTP.

The RTFP, adopted on June 10, 2010, as Metro Code 3.08, serves as the primary transportation policy implementation of the 2040 Growth Concept. All metro-area jurisdictions are required to update or amend their TSPs to comply with the RTFP, on a schedule provided by Metro. The City has been notified that its deadline for compliance was December 31, 2015. However, as the TSP and Comprehensive Plan update process is expected to be completed in mid-2017, the City requested, and was granted, an extension of the RTFP compliance deadline until December 31, 2017.

Figure 11: Metro RTP Policies

2.5.2 Arterial and throughway network vision
Policy 1. Build a well-connected network of “complete” streets that prioritize safe and convenient pedestrian and bicycle access
Policy 2. Improve local and collector street connectivity
Policy 3. Maximize system operations by implementing management strategies prior to building new motor vehicle capacity, where appropriate
2.5.3 Regional transit network vision
Policy 1. Build the total transit system and transit-supportive land uses to leverage investments
Policy 2. Expand high capacity transit
Policy 3. Expand regional and local frequent transit service
Policy 4. Improve local transit service
Policy 5. Support expanded commuter rail and intercity transit service to neighboring communities
Policy 6. Improve pedestrian and bicycle access to transit
2.5.4 Regional freight network vision
Policy 1. Use a system approach to plan for and manage the freight network
Policy 2. Reduce delay and increase reliability (freight)
Policy 3. Protect industrial lands and freight transportation investments

²⁸ Adopted state greenhouse gas reduction goals: By 2010 to begin to reduce greenhouse gas emissions; by 2020 to achieve greenhouse gas levels 10% less than 1990 levels; by 2050 to achieve levels 75% below 1990 levels.

²⁹ Metro. (2012). *Regional Transportation Functional Plan*.

http://www.oregonmetro.gov/sites/default/files/chap308_regional_transportation_functional_plan.pdf

Policy 4. Look beyond the roadway network to address critical marine and rail needs
Policy 5. Pursue clean, green and smart technologies and practices
2.5.5 Regional Active Transportation Network Vision
2.5.5.1 Regional bicycle network vision
Policy 1. Make walking and bicycling the most convenient, safe and enjoyable transportation choices for short trips less than three miles
Policy 2. Build an interconnected regional network of bicycle routes and districts integrated with transit and nature that prioritizes seamless, safe, convenient and comfortable access to urban centers and essential daily needs including schools and jobs for all ages and abilities
Policy 3. Build a green ribbon of bicycle parkways as part of the region’s integrated mobility strategy
Policy 4. Improve bicycle – transit connections
Policy 5. Ensure that the regional bicycle network equitably serves all people
2.5.5.2 Regional pedestrian network vision
Policy 1. Make walking and bicycling the most convenient, safe and enjoyable transportation choices for short trips less than three miles
Policy 2. Build a well-connected network of pedestrian routes, including safe street crossings, integrated with transit and nature that prioritize seamless, safe, convenient and comfortable access to urban centers and essential daily needs, including schools and jobs, for all ages and abilities
Policy 3. Create walkable downtowns, centers, main streets and station communities that prioritize safe, convenient and comfortable pedestrian access for all ages and abilities
Policy 4. Improve pedestrian access to transit
Policy 5. Ensure that the regional pedestrian network equitably serves all people prior to building new motor vehicle capacity, where appropriate
2.5.6 Transportation system management and operations vision
Policy 1. Use advanced technologies, pricing and other tools
Policy 2. Provide comprehensive real-time traveler information to people and businesses
Policy 3. Improve traffic incident detection and clearance times on the region’s transit, arterial and throughway networks
Policy 4. Implement market-based incentives and programs to increase awareness of travel options

5.3. Local Priorities

State and Metro planning rules require the City to update its Comprehensive Plan and TSP periodically, but it is the City that chooses how to create a well-functioning, integrated transportation system that responds to community needs. The plans must address a variety of demands on the transportation system, such as increasing automobile congestion, new and growing development areas, and demands for alternative modes of travel. As articulated in the Hillsboro 2035 Community Plan, the community envisions an inter-connected transportation network that provides accessibility to jobs, schools, services, and other destinations for residents of all ages and abilities; one that includes well-designed streets and paths that encourage walking and bicycling throughout the City and that connect to its regional transit infrastructure. This vision is incorporated into recently adopted community plans such as South Hillsboro and Tanasbourne/AmberGlen. Through the Comprehensive Plan update, these local priorities will be translated into goals and policies and refined by technical and citizen input via the Transportation System Plan Steering Committee, Technical Advisory Committee, Citizen Advisory Committee, the City’s Transportation Committee, Planning Commission, and City Council.

5.4. Hillsboro Transportation Committee

The Transportation Committee is made up of three City Councilors who are appointed by the Mayor with the consent of the City Council. The non-voting member (citizen advisor) is appointed by the Transportation Committee Chair in consultation with the members of the Committee and confirmed by the City Council to a term not to exceed one year.

The function of the Committee is to assist in the development of the Transportation System Plan (TSP) and to serve as the Traffic Safety Commission. The Committee's functions include the following:

- Advise the City on transportation/traffic system issues, policies, standards, plans, and capital programs.
- Guide transportation system planning work and public involvement in transportation programs.
- Set goals for the Transportation System Plan and special transportation studies.
- Review and recommend an annual “Hillsboro Transportation Action Plan” that identifies modal objectives, capital priorities, funding opportunities and objectives, and a transportation work plan based on adopted local, regional, and state plans.
- In cooperation with the bicycle pedestrian task force and the Police Department, serve as the Traffic Safety Commission to research, develop, and implement traffic safety programs, promote the education of the public on traffic safety, and work toward the reduction of traffic accidents, injuries, and deaths in the public right-of-way. The Traffic Safety Commission may seek grant monies, and review and recommend to City Council proposed safety projects eligible for grant funding.

6. Emerging Issues, Challenges, and Trends

6.1. Issues & Challenges

The issues and challenges discussed in this section cover a range of topics. Some are currently being addressed by the City while others are emerging topics. All are included in order to provide an introduction and brief overview of themes likely to be included in transportation policy discussions.

6.1.1. Safety

Safety is an essential component of a well-functioning transportation network as safely designed and well-located facilities help to prevent injuries, enhance users’ sense of security, and avoid system delays caused by accidents. A number of local, regional, national, and international programs address different aspects of transportation safety. The most prominent of these programs, along with their implementation strategies, are described below.

City Transportation Safety Action Plan (TSAP)

The City is currently conducting a Transportation Safety Action Plan (TSAP) with grant funding from Oregon Department of Transportation. The TSAP will review historic crash data and analyze fatal and serious-injury crashes in the City to develop appropriate programs and projects to address the crash locations. The TSAP is expected to be completed by fall 2016.

Regional Transportation Safety Plan

In 2012, Metro produced its Regional Transportation Safety Plan³⁰, which examines federal, state, and local safety trends and offers the following findings and recommendations.

Table 2: Regional Transportation Safety Plan Findings and Recommendations

Regional Transportation Safety Plan Findings	Recommendations
Serious pedestrian crashes are disproportionately represented after dark. Serious nighttime pedestrian and bicycle crashes occur disproportionately where street lighting is not present.	Enhance crosswalk and intersection lighting where pedestrian and bicycle activity is expected.
Streets with more traffic lanes have higher serious pedestrian crash rates per mile and per VMT.	Improve the quality and frequency of pedestrian crossings on arterials and multi-lane roadways.
Streets with more traffic lanes have higher serious bicycle crash rates per mile.	Encourage protected bicycle facilities along roadways with high motor vehicle traffic volumes and/or speeds.
Increases in vehicle miles travelled (VMT) generally correlate with increases in fatal and serious crashes.	Support strategies to limit the need to drive, and therefore limit vehicle miles traveled.

Safe Routes to School

Safe Routes to School programs work to improve safety and accessibility, and reduce traffic and air pollution in the vicinity of schools. These programs are sustained efforts by parents, schools, community leaders and local, state, and federal governments to improve the health and well-being of children by enabling and encouraging them to walk and bicycle to school. Strategies to implement this program include prioritizing the improvement of paths/sidewalks, creating safer crossings and slowing down traffic near schools. Policies would also recognize the importance of a balanced roadway environment that can accommodate the needs of all modes of transportation.

Vision Zero

Making the transportation system the safest possible and eliminating serious transportation-related injuries and deaths is the fundamental goal of the Vision Zero movement. Started in Sweden in 1997, Vision Zero is a multi-national effort to protect life and health by making safety the primary consideration in transportation decision-making. Strategies to implement this program include facilitating the design of roads to limit speeds, separating users, and/or making the system easier for users to navigate (reducing the likelihood of mistakes). Policies would prioritize safety above all other considerations in the funding and design of transportation projects.

³⁰ Metro. (2012). *Regional Transportation Safety Plan*.
http://www.oregonmetro.gov/sites/default/files/051112_regional_trans_safety_plan.pdf

6.1.2. Balanced, Complete, Multimodal Network

Pedestrians and Bicyclists

Providing travelers with transportation options begins with facility designs that accommodate multiple travel modes including pedestrians, bicyclists, drivers, and transit users. Incorporating bike facilities on arterial and collector roadways is standard practice in Oregon but designing the bike facility to facilitate safe, comfortable, and convenient cycling experiences does not always follow. Similarly, pedestrians commonly find sidewalks on urban roadways, but convenient crossings, pleasant walkways, and connected facilities are not guaranteed. Improving the quality, convenience, and density (spacing) of bicycle and pedestrian facilities can encourage non-auto trips and enhance safety.

Strategies to improve the pedestrian and bicycle network include filling sidewalk gaps, increasing density of pedestrian and bicycle facilities, connecting local facilities to regional infrastructure, adding well-designed bike lanes, providing bike parking, and improving the pedestrian environment with treatments such as landscaping, lighting, and crossing signals. Policies would recognize the importance of creating a local network- as part of a larger regional network- of pedestrian and bicycle infrastructure that makes it convenient, safe, and comfortable for people to walk and bike.

Transit

Tri-Met is the region's transit service provider responsible for ensuring adequate levels of service for transit users. Over the past few years, Tri-Met has made a number of system enhancements including a set of improvements specific to the west side, as detailed in the Westside Service Enhancement Plan³¹. The Plan focuses on five core areas:

1. Completing the transit grid to better connect areas of development and future growth with MAX and frequent service bus lines.
2. Expanding frequent service bus lines and performance enhancements, including those for transit priority, to improve reliability and help increase ridership.
3. Providing transit connections and safe crossings near transit stops.
4. Connecting MAX stations to large employers with last mile improvements
5. Rethinking how transit is provided to help bring transit to underserved and low ridership areas.

The Westside Service Enhancement Plan has not yet been fully implemented; the City can assist with transit improvements through strategies including filling gaps in the pedestrian and bike networks, improving crossings near transit stops, adding bikeways and trails to connect major employers to transit, and planning for bike parking- particularly at transit centers and MAX stops. Policies would support Tri-Met's efforts to expand and enhance service, connect jobs to transit, and encourage transit-supported land uses in appropriate locations.

Airport

In order to comply with Statewide Planning Goal 12, the City must address state requirements for airport planning and compatibility with surrounding land uses in its Comprehensive Plan. The Transportation Planning Rule (TPR), which requires local governments to develop TSPs as a refinement to the Comprehensive Plan, also requires TSPs to include plans for all modes of

³¹ TriMet. (2013). *Westside Service Enhancement Plan*. http://trimet.org/pdfs/wse/wse_report.pdf

transportation (e.g. multi-modal ground, air, and water transportation systems) needed by a given jurisdiction.

The Hillsboro Airport is defined as a reliever airport by the Federal Aviation Administration (FAA).

Reliever airports are specially designated general aviation airports intended to reduce congestion at large commercial service airports. This reliever role is usually accomplished, not by accommodating commercial flights, but by providing an attractive option for the myriad of non-commercial, general aviation aircraft operations that urban areas generate. Hillsboro Airport is classified as a reliever for Portland International Airport (PDX). In this role, Hillsboro Airport is intended to preserve capacity at PDX by offering an alternative operating area for general aviation aircraft, separate from commercial airline and air cargo activities.³²

The airport's operator, the Port of Portland, adopted the Hillsboro Airport Master Plan in 2005, which stressed the importance of ensuring the facility's continuing ability to accommodate general aviation activity, which in turn maximizes the runway system at PDX and reduces the need for a third parallel runway at PDX. Strategies for accomplishing this are detailed in the Master Plan. The Port is preparing to update the Master Plan in 2016, in which issues of compatibility, terminal expansion and/or upgrades, and potential development of adjacent vacant Port-owned parcels are likely to be addressed. City Comprehensive Plan policies related to the airport could include supporting the Port's efforts to maintain the airport's status as a reliever airport, ensuring compatibility with surrounding land uses, recognizing the economic importance of the airport, encouraging and supporting the continued operation and vitality of the facility, and promoting safety and impact mitigation in the vicinity of the airport.

Access to Daily Services

Land use planning can play a significant role in the functioning of the transportation system. Connecting residents and workers to services they use on a daily basis can be accomplished by well-considered land use planning. Transit oriented development can help concentrate growth in compact, walkable areas that are adjacent to MAX stations, providing more transportation options to the people who live or work there. Placing housing near community and retail services, ensuring schools and hospitals are well located, and providing for development of major employment uses to be served by transit can increase accessibility.

The Design and Development Comprehensive Plan topic area includes proposed Design Type Designations for different geographies throughout the City. These Design Types focus higher density, pedestrian oriented, and transit supportive mixed-use development within Regional Centers, Transit Station Communities, Town Centers, Neighborhood Centers, and along select Corridors.

Strategies to improve access to daily services include retrofitting existing development for "20-minute neighborhoods"³³, promoting urban design elements that encourage walking, ensuring

³² Port of Portland. (2005). *Hillsboro Airport Master Plan*
<https://www2.portofportland.com/Airports/Hillsboro/masterplan>

³³ "20-minute neighborhoods" are typically characterized by a vibrant mix of commercial and residential establishments within a one-mile walking distance.

adequate access to transit for pedestrians and cyclists, and encouraging transit-oriented development at appropriate locations. Policies would encourage the development of appropriate bicycle and pedestrian infrastructure with development and promote mixed uses and compact development forms that promote walking and bicycling.

6.1.3. Right Sized Facilities

Right sized facilities are those that are planned, designed, and developed to provide effective and efficient services for their intended users. Just as inadequately sized and spaced roadways and insufficient parking supply can be problematic for users, so too can overly wide roadways and over-built parking. Employing innovative management and design techniques can help provide more efficient, appropriately scaled, and user-friendly facilities.

Parking Management

Parking regulations that require developers to provide more parking than needed can be expensive and result in an inefficient use of land. Careful management of parking supply and pricing can help a jurisdiction create compact, healthy neighborhoods. Strategies related to parking management might include limitations on the maximum allowable number of parking spaces, eliminating minimum parking requirements, encouraging on-street parking, and providing wayfinding signage for common parking facilities. Policies would encourage shared parking, lower parking requirements in areas served by transit, demand-based parking programs, public parking, and parking “unbundling”³⁴.

Context-Sensitive Street Design

Designing streets to meet the evolving needs of the community is the central idea behind context-sensitive street solutions. Reconfiguring the layout of streets to better serve the people who use them- whether auto commuters, cyclists, pedestrians, or others- can lead to a more efficient and useful facility. Examples of context sensitive solutions include converting vehicle lanes to expanded sidewalk and bike lane space, adding single or dual left turn lanes, curb extensions to increase pedestrian space, pedestrian islands, and roundabouts. Right sizing streets, sidewalks, transit, and bike facilities also involves considering the facility’s future transportation needs and preservation and acquisition of adequate right of way to accommodate identified future needs. Policies would focus on promotion of a broad array of design measures, sensitivity to community vision and user needs, ensuring dedication and preservation of sufficient right of way to accommodate future system expansion, and creating places that foster community livability.

6.1.4. Travel Time Reliability and Congestion

Freight

Reliable freight transportation is crucial to the local, regional and national economy. Congestion and capacity shortfalls can have a detrimental impact on travel times and delivery schedules, and ultimately, on the economy. However, freight needs can be difficult to reconcile with the needs of other modes such as cyclists and pedestrians, as they are not always in alignment. The Portland

³⁴ “Unbundling” parking involves separating the cost of parking space(s) from the cost of housing, allowing the consumer to opt-out of the supplied parking or pay for it separately if it is desired.

metropolitan area plans for freight at the regional level (in coordination with the State) and has an adopted Regional Freight Plan³⁵ that identifies the following challenges:

- congestion and hotspots – chronic road and rail network bottlenecks that impede regional freight/goods movement
- reliability – as distinct from congestion, unpredictable travel time due to crashes, construction, special events and weather (often exacerbated by capacity constraints)
- capacity constraints – lack of capacity in critical corridors as well as physical and operational issues
- network barriers – safety concerns and out of direction travel resulting from weight-limited bridges, low bridge clearances, steep grades, at-grade rail crossings and poorly designed turns or intersections
- land use – system capacity and land for industrial uses that is being lost to other activities
- environmental and other impacts – managing adverse impacts including diesel emissions, greenhouse gas emissions, water quality, noise and land use conflicts

Improved freight movement strategies include expanding intelligent transportation systems, protecting existing industrial uses, ensuring an adequate supply of appropriate, well-located industrial land, encouraging the collocation of high volume freight users along freight routes, designing roadways to be mode-separated, including freight needs in facility design- particularly on freight routes, and freeing up capacity on network roadways by reducing the number of vehicle trips and per capita vehicle miles traveled. Policies would focus on taking a system approach to improving freight travel time reliability, protect industrial lands, and encourage clean and green technology to reduce environmental impacts.

Auto Commuters

The average auto commuter in the region spent an extra 52 hours traveling in 2014 during peak travel time compared with 20 hours in 1982³⁶. Caused by an imbalance between travel demand and system capacity, congestion can quickly become a costly drain on the economy due to lost worker productivity, wasted fuel, and other factors. With transportation spending expected to hold steady in the near term, the transportation system is unlikely to expand significantly and congestion trends will likely worsen. As shown in *Figure 12* and *Figure 13* below, while vehicle miles traveled by Portland area commuters has declined over time, delay caused by congestion has increased.

³⁵ Metro. (2010). *Regional Freight Plan*.

http://www.oregonmetro.gov/sites/default/files/regional_freight_plan_june_10.pdf

³⁶ Texas A&M Transportation Institute. (2015). *2015 Urban Mobility Scorecard*.

<http://d2dtl5nnlpfr0r.cloudfront.net/tti.tamu.edu/documents/mobility-scorecard-2015.pdf>

Figure 12: Commuter Delay

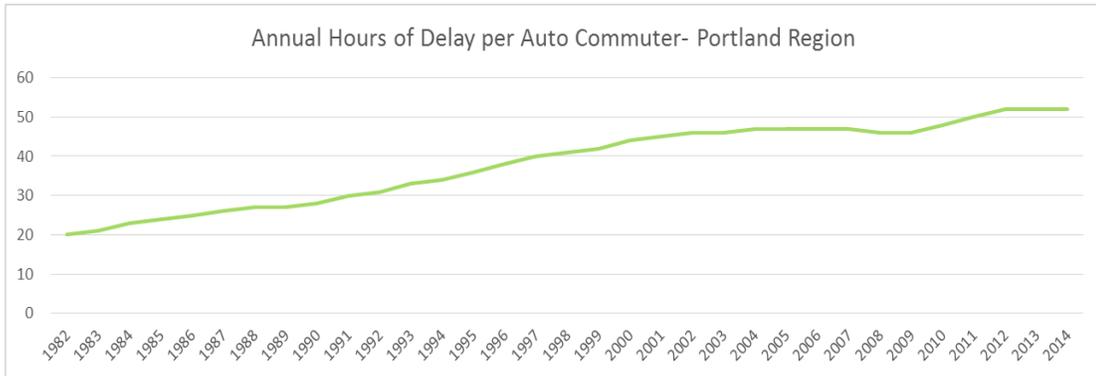
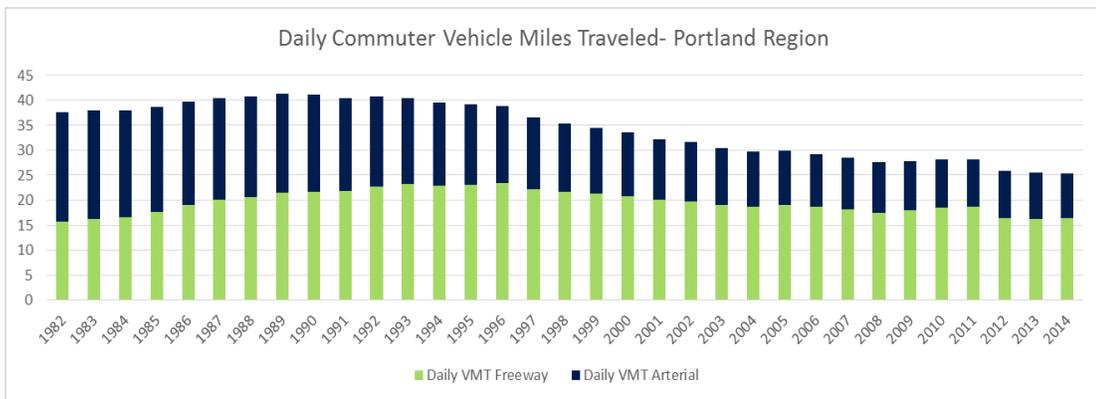


Figure 13: Daily Commuter VMT



Source: Texas A&M Transportation Institute

Strategies to improve commute times include adopting traffic management techniques such as aggressive incident clearance and traveler information systems, providing travel options during peak travel periods to make non-SOV travel more feasible and appealing, supporting active traffic management practices that modify the way travelers use the road (e.g. variable speed limits), employing system management to reduce conflict points, such as through access management and roundabouts, implementing demand management programs to shift travel to off-peak hours, and adding capacity to the system with new roads or lanes. Policies would support technological innovations designed to reduce congestion and improve safety, encourage design solutions to improve flow, encourage non-SOV travel, and add capacity to the system where necessary.

Emergency Responders

Emergency responders rely on the street system to provide prompt access to incidents. Response times can be greatly impacted by traffic speeds, volumes, and facility design. Some road treatments designed to protect vulnerable users, such as speed bumps, traffic circles, and medians, can also be challenging for emergency responders if not properly designed and located.

Strategies to improve emergency response include designation of an emergency response route network with streets designed to facilitate emergency vehicle movement, evacuations and other emergency response procedures, designating streets eligible for traffic calming devices, and considering emergency access with development. Policies would recognize the need for coordinated planning for emergency vehicle access and response procedures.

6.1.5. Health

Active transportation (any self-propelled, human-powered mode of transportation) is a growing trend as awareness of its health benefits is increasing. Physical inactivity is a major contributor to the steady rise in rates of obesity, diabetes, heart disease, stroke, and other chronic health conditions in the United States. However, active transportation requires supporting infrastructure to provide safe, comfortable, and convenient places to walk and bike. Adding and/or improving sidewalks, crosswalks and bicycle facilities can encourage physical activity and can expand access to transportation networks for people without cars.

Strategies to encourage active transportation include supporting Safe Routes to School programs to enable children to walk and bike to school safely, expanding the network of multi-use trails, utilizing street designs that provide safe and convenient travel for all users of the roadway, separating motor-vehicle traffic from non-motorized traffic with physical barriers such as bicycle boulevards, prioritizing infrastructure improvements near transit stops and public transportation stations, providing safe and convenient bicycle and pedestrian connections to public parks and recreation areas, promoting safe roadway crossings, providing streetscape amenities, encouraging way-finding with signs, maps, and landscape cues, encouraging bicycle parking at workplaces and transit stops, and encouraging the development of street-level shopping and restaurants along pedestrian and bicycle routes. Policies would also recognize health benefits as a consideration in investment and design decisions.

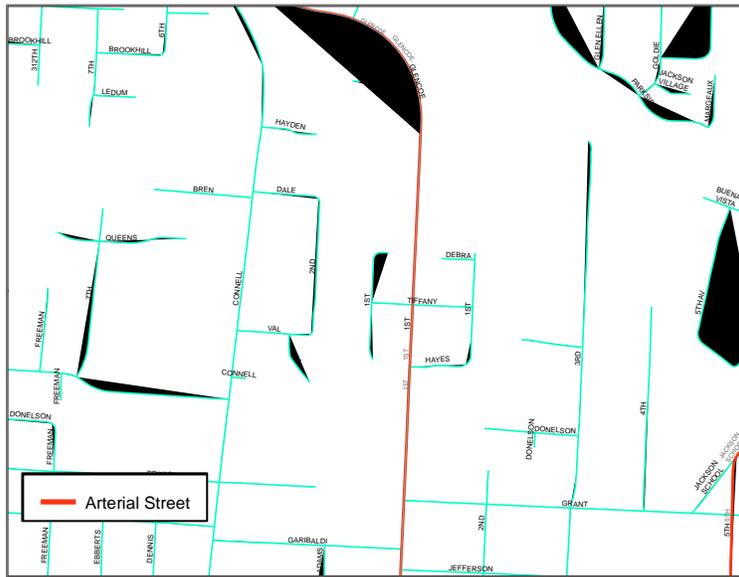
6.1.6. Livability

Neighborhood Impacts

Many of Hillsboro's neighborhoods are characterized by cul-de-sacs and loop streets – a pattern designed to force through traffic to utilize the available through streets (illustrated in *Figure 14: Hillsboro's Cul de Sac Street Pattern*). Ideally, the through streets are arterials and collectors, which are designed to accommodate vehicles travelling longer distances at higher speeds. But arterials and collectors are not always adequately spaced and can easily become congested. As a result, drivers may choose to utilize neighborhood streets to bypass the busier street. This is commonly referred to as “cut through”, wherein traffic uses local or neighborhood streets through a residential neighborhood without having an origin or destination in that neighborhood. Cut through, which brings traffic at higher volumes and speeds than warranted in the neighborhood, is often incompatible with residential uses where children are at play and more pedestrian activity occurs.

Strategies to reduce cut through traffic include speed control devices (speed humps, raised intersections, roundabouts) and volume control (diverters, medians, closures). Policies would recognize the importance of more permeable residential street designs, in which multiple residential streets can serve as through streets, thereby dispersing traffic. Policies would also focus on improving the functionality of the arterial and collector network and supporting mitigation measures in neighborhoods.

Figure 14: Hillsboro’s Cul de Sac Street Pattern



Urban/Rural Conflicts

With its location near the westernmost edge of the Portland Region, Hillsboro shares a substantial border with rural lands. The Urban Growth Boundary has provided a distinct boundary between the rural, often agricultural uses and the higher intensity urban uses found in Hillsboro. From a transportation perspective, these can sometimes conflict, particularly when rural roads must also serve the urban uses. As an example, Jackson School Road north of Evergreen Road is a rural facility located outside Hillsboro city limits and was initially designed to be an agricultural road. Today, however, it is classified as an arterial and is an important component of Hillsboro’s broader transportation network as it serves to connect western Hillsboro with US26. Its need to function as both an urban arterial and a route for rural agriculture and industry can be challenging. Furthermore, delays or malfunctions on the arterial network can push urban traffic even further into local or collector roadways in rural areas. Rural users with tractors and horse trailers usually travel at low speeds and can be at odds with higher speed urban commuters.

Strategies to reduce urban and rural transportation conflicts include coordination with other agencies and jurisdictions to ensure appropriate roadway designations and designs to accommodate all users and requiring new development to maintain rural street functionality where appropriate. Policies would also recognize the importance of an overall system design that assures adequate capacity with new development.

6.1.7. Funding

Sources of local transportation funding include:

- General funds committed to transportation projects
- Developer impact fee assessment programs
- Developer conditioned improvement programs
- Property taxes
- Special assessment programs
- Gas tax revenues committed to transportation projects

- Special funding districts
- Franchise fees
- Grants
- System development charges
- Payroll taxes
- Urban renewal area districts
- Street improvement fund programs

Lack of transportation funding affects all modes of travel. Without the necessary resources, transportation infrastructure cannot be adequately constructed, maintained, and improved to meet demand. The transportation-funding picture has been bleak for more than a decade, forcing jurisdictions to choose between important projects- such as fixing known bottlenecks, improving access to transit, filling sidewalk gaps, expanding facilities, and more. In Hillsboro, many key facilities like freeways, arterials, and transit are not in city control, meaning decisions about the timing and design of projects affecting those facilities are largely made by others and may not reflect community priorities.

Strategies to increase funding include raising local and regional revenue, supporting an increase in the gas tax, instituting a vehicle miles traveled fee, public-private partnerships, and congestion pricing. Policies would recognize the importance of prioritizing investments by aligning projects with community goals and policies, increasing transportation funding, coordinating with other agencies and jurisdictions to achieve better overall network performance, encouraging innovative and creative funding strategies, and supporting existing transportation investments through adequate maintenance of infrastructure.

6.1.8. Affordability & equity

Lower income households, people with disabilities, young people, and people of color use active transportation and transit more often than other populations in the region³⁷. For low-income residents in particular, transportation costs can be a burden. Transit fares, fuel costs, and costs passed on from transportation projects can easily become overwhelming. Local governments and transportation providers must ensure that low income communities, people of color, and persons with limited mobility (including the elderly) have affordable transportation options and that transportation costs (construction and maintenance) are distributed fairly and equitably. Improving safety (including ADA ramps, well-lit accessways, and audible crossings) is particularly important for vulnerable populations using transit and sidewalks.

Strategies to improve affordability and equity include enhancing transportation access and service in underserved areas (including local and regional transit service), retrofitting existing infrastructure to ADA standards, improving street and pathway lighting, removing or mitigating known safety issues, and reducing transportation construction and maintenance costs passed on to low income residents. Policies would focus on making walking, transit and bicycling and more accessible and visible to support people that are already driving less, consider cost burden and distribution in

³⁷ 2011. *Oregon Household Activity Survey*. People between the ages of 25 and 34 make 25% of their trips actively.

investment decisions, and ensure projects are designed and located to equitably serve all populations.

6.2. Emerging Trends & Opportunities

6.2.1. Development Trends

Hillsboro has been associated with well-designed and innovative development for decades. With an increasing number of transit oriented development projects under construction, more opportunities to improve transit are likely to become available in those locations as greater numbers of riders make transit more cost effective. With the development of new neighborhoods like South Hillsboro, high capacity transit service along heavily traveled corridors such as TV Highway may become more feasible.

As locating housing close to services becomes more desirable, it will provide more opportunities for residents to walk and bike to nearby shops, restaurants and other services. Emerging trends in real estate development include incorporating bicycle parking and other bicycle accommodations in building design, locating buildings near recreational and commuting trails (“trail-oriented development”) and unbundling parking (see *footnote 34*).

6.2.2. Sustainability

Aging infrastructure, a changing climate, and rising energy costs are increasingly at the forefront of discussions about creating healthy, livable communities. Opportunities to reduce greenhouse gas emissions, shift travel options from single occupancy vehicles to more energy efficient options, and reduce fuel consumption are becoming more available to communities as technology and awareness of the issues advance. Strategies could include providing electric vehicle charging stations, dedicating funding for active transportation projects, bike and pedestrian safety retrofits, transit access enhancements, parking management approaches, enhanced roadway designs and other operational improvements to address bottlenecks and improve traffic flow. The City employs many of these strategies and is a national leader in the deployment of public electric vehicle charging stations.

Policies would maximize the efficiency of the transportation system, improve traffic flow, promote efficient transportation options (e.g. carpooling, transit, cycling, walking), and support advanced vehicle technology.

6.2.3. Transit Trends

Tri-Met’s Westside Service Enhancement Plan identifies ways to increase transit service to include more shuttle services. Options identified include 1) creating a new entity via a joint-powers authority between Tri-Met and local jurisdictions to operate Community Connector Services and 2) contracting for shuttle services using other funding opportunities such as federal grants. These shuttles and circulators could be established to supplement fixed-route service.

As transit ridership increases, more riders will look for ways to travel to MAX stations. TriMet’s long-held philosophy is that land near MAX stations is too valuable to be used for park and rides. Busses are one solution but are not convenient for all users.

Other transit trends include electronic fares via card readers, construction of more bike parking facilities and replacing busses with more fuel efficient, hybrid, or all-electric models.

6.2.4. Recreation Trends

Hillsboro's location offers numerous opportunities for recreational cyclists, from the Tualatin Valley Scenic Bikeway to several routes to the Oregon Coast. These routes typically begin in Hillsboro and wind through scenic rural areas on highways known for low auto volumes. Recreational cyclists offer an opportunity to encourage tourism within the City as well. A study by the North Carolina Department of Transportation found that the availability of good bicycle facilities played an important role in tourist decisions, and that investments in bicycle facilities yielded an estimated nine-to-one return on investment in tourist dollar.³⁸ A recent statewide study sponsored by Travel Oregon found that travelers who participated in bicycle-related activities while traveling in Oregon spent nearly \$400 million in 2012 (\$90 million was generated in the Portland Region), representing about 4.4 percent of the direct travel spending in the state.³⁹

6.2.5. Technology Trends

With major technological innovations on the horizon, the way people travel is expected to evolve significantly in the coming decades. The United States Department of Transportation (US DOT) describes two emerging technologies: autonomous and connected vehicles.

Automated vehicles are those in which at least some aspect of a safety-critical control function (e.g., steering, throttle, or braking) occurs without direct driver input. Automated vehicles may be autonomous (i.e., use only vehicle sensors) or may be connected (i.e., use communications systems such as connected vehicle technology, in which cars and roadside infrastructure communicate wirelessly). Connectivity is an important input to realizing the full potential benefits and broad-scale implementation of automated vehicles.⁴⁰

Autonomous vehicles are attractive to both commercial operators and private users because of their lower costs. They can be shared, eliminating purchases, parking spaces, and idle time; and are less likely to suffer damage or get into accidents that occur because of driver error. Experts predict driverless freight and automated taxis will begin arriving within the next few years, with fuller implementation expected over the coming decades. Autonomous vehicles have the potential to improve mobility for the elderly and disabled, reduce traffic congestion, reduce the amount of land needed for parking spaces, and reduce the need to expand system capacity. Variations on the autonomous vehicle, such as delivery robots and transit, are also on the horizon.

Connected vehicles feature safety warnings that alert drivers of potentially dangerous conditions before the driver is aware of them, thereby preventing crashes, reducing fuel consumption, and reducing travel time. With technology available today, connected vehicles are gaining in popularity.

³⁸ North Carolina Department of Transportation. (2004, May). *Pathways to Prosperity*, <https://itre.ncsu.edu/wp-content/uploads/2016/03/OBX-EIS-Tech-Rprt-Full.pdf>

³⁹ Dean Runyan and Associates. (2012). *The Economic Significance of Bicycle-Related Travel in Oregon*, http://www.deanrunyan.com/doc_library/bicyclertravel.pdf

⁴⁰ USDOT Intelligent Transportation Systems Joint Program Office, *Automated Vehicle Research* http://www.its.dot.gov/automated_vehicle/index.htm

The technology is expected to reduce unimpaired vehicle crashes by 80 percent⁴¹.

According to the US DOT, technological advances are also occurring within the transportation system itself.

Multi-Modal Intelligent Traffic Signal System is the next generation of traffic signal systems that seeks to provide a comprehensive traffic information framework to service all modes of transportation, including general vehicles, transit, emergency vehicles, freight fleets, and pedestrians and bicyclists in a connected vehicle environment.

The vision for the MMITSS application is to provide overarching system optimization that accommodates transit and freight signal priority, preemption for emergency vehicles, and pedestrian movements while maximizing overall arterial network performance⁴².

The City has been leading in deployment of ITS systems, specifically adaptive traffic signals that are a key component of vehicle-to-infrastructure technologies.

Other trends include capturing operational data from stationary sensors, mobile devices, and connected vehicles. This research is expected to expand into the development of mechanisms for housing, sharing, analyzing, transporting, and applying those data for improved safety and mobility across all modes of travel. Using these data, metrics can be developed and monitored to better address system performance and user characteristics such as safety, demand, trip types, congestion, mode share, origin-destination patterns, and jobs-housing balance.

7. Recommended Plan Updates and Policy Questions to Consider

1. Should the City consider adopting Complete Streets policy?

Complete Streets emphasize designs that take the needs of all users into account during the planning, design and construction of transportation projects. Rather than prescriptive design criteria, Complete Streets solutions are based on thoughtful application of engineering, architectural and urban design principles. Complete Streets policies would formalize this approach for new and retrofitted streets⁴³.

2. Should the City adopt a formal context sensitive approach for transportation projects?

Context-sensitive solutions emphasize the role of streets as a part of the community rather than just as conduits for moving cars. This approach is also a way of doing business that begins with long-range planning and is carried through project implementation. It encourages transportation engineers to use creativity and flexibility in project design. This approach is often included in Complete Streets solutions (see 8.1, above) instead of as stand-alone policy.

⁴¹ USDOT Intelligent Transportation Systems Joint Program Office, *Factsheet: How Connected Vehicles Work* http://www.its.dot.gov/factsheets/pdf/JPO_HowCVWork_v3.pdf

⁴² USDOT Intelligent Transportation Systems Joint Program Office, *Dynamic Mobility Applications (DMA) Program* http://www.its.dot.gov/dma/bundle/mmitss_plan.htm

⁴³ See <http://www.smartgrowthamerica.org/complete-streets/changing-policy/policy-elements>

3. Should the City consider adopting a Vision Zero policy?

Vision Zero puts the onus on local governments to create safe streets where even drivers who fail to pay attention are relatively harmless. Essentially, traffic systems must be designed to account for human error and to protect people who walk, bike, and drive from the mistakes we can count on people making. As the movement is relatively new, few examples of Vision Zero policies exist, although a handful of cities including Portland and Seattle, are developing those policies now⁴⁴.

4. Should the City reform level-of service standards?

Road performance is ranked by their level-of-service (LOS), a system that assigns letter grades based on motorist delay. Employing this standard is increasingly viewed as an obstacle to better biking and walking. It can also inadvertently discourage or block development in urban core areas, because they typically rank low on standard level-of-service measures. This year, USDOT began encouraging state and local policy makers to consider different performance measures in order to better promote active transportation.

5. Should the City consider dedicated funding for active transportation?

Active transportation projects must compete for funding with many other types of transportation projects, which can result in lower prioritization and longer completion timeframes. Dedicated revenue that funds bicycling and walking projects could ensure active transportation projects are given priority for completion.

6. Should the City adopt transportation demand management techniques?

Demand management generally refers to strategies or techniques that reduce the number of vehicles by providing travelers with other mobility options. Examples of these strategies include carpooling or vanpooling, transit, telecommuting and flexible work schedules, park-and-ride and integrated land-use and transportation project design that allows more pedestrian or bicycle travel.

⁴⁴ See <http://usa.streetsblog.org/2016/01/27/10-cities-chosen-to-help-model-vision-zero-policy-in-the-u-s/>