



Comprehensive Plan
Citizen Advisory Committee
AGENDA
Thursday, February 18, 2016

HILLSBORO PUBLIC LIBRARY, MAIN BRANCH
 2850 NE Brookwood Parkway

4:00-6:00 PM
 Community Room

Time	Topic	Lead	Action
4:00	A. Introductions/Welcome	All	I
4:05	B. Minutes Review – December 10 meeting	Nick	I, D
4:10	C. Natural Hazards a. Background Report b. Draft Goals and Policies	Emily	I, D, R
4:50	D. Design and Development a. Background Report b. Draft Goals and Policies	Laura	I, D
5:30	E. Updates from Prior Topics a. Access to Healthy Food b. Urbanization c. Noise Management	Aaron	I, D
5:45	F. Staff Updates and Upcoming Meeting Schedules/Topics	Aaron	I
5:50	G. Public Comment	-	I
6:00	H. Adjourn	-	

I=Information, D=Discussion, R=Recommendation

Attachment	Page
1. January 21 meeting minutes	1
2. Staff report for February 2016 meeting	7
3. Natural Hazards	
a. Background Report	10
b. Updated Draft Goals and Policies	31
c. Existing Comp Plan Goals & Policies	35
4. Design and Development	
a. Background Report	37
b. Draft Goals and Policies	55
c. Design Types Map	59
5. Updates from Prior Topics	
a. Access to Locally-Grown Food	60
b. Urbanization	61
c. Noise Management	65

Next Regular Meeting

(note special date and location):

Thursday, March 17, 2016

4:00-6:00pm

Hillsboro Shute Park Library

Meeting Room

775 SE 10th Ave, Hillsboro

For further information on agenda items, contact Laura Weigel, Long Range Planning Manager, at (503) 681-6156 or email at

laura.weigel@hillsboro-oregon.gov.



Meeting Summary

Citizen Advisory Committee – Comprehensive Plan Update

January 21, 2016 - 4:00 p.m. – 6:00 p.m.

Hillsboro Main Library – Event Room

2850 Brookwood Pkwy

Hillsboro, OR 97124

Members Present

Mica Annis, Steve Callaway, Mark Cardinaux, Aron Carleson, Katie Eyre, Wil Fuentes, Bonnie Kookan, Tricia Mortell, Daniel Nguyen, Ahne Oosterhof, Ken Phelan

Members Excused

John Godsey, Glenn Miller, Gwynne Pitts, Bryan Welsh

Staff Present

Nick Baker, Laura Kelly, Aaron Ray, Dan Rutzick, Laura Weigel

Welcome and Introductions

The meeting opened with introductions of the committee members and staff.

Minutes – December 10, 2015

The minutes were approved after changing “study session” to “work session” on page 6.

Urbanization - Background Report and Draft Goals & Policies

Dan Rutzick reviewed the contents of the Urbanization Background Report. He presented maps to help explain the recent history and anticipated future of annexations and urban growth boundary expansions in Hillsboro. The key issues and challenges identified in the report included:

- Outdated urban service and planning agreements – UGB expansions over the last 14 years are not reflected in urban service and planning agreements with Washington County.
- Unincorporated county planning and urban service provision – The Aloha-Reedville area is unincorporated, and thus, not subject to planning efforts by any city, only Washington County. Planning staff raised this as a challenge for delivering full service provisions now and in the future.
- Constraints from House Bill 4078 – HB 4078 led to a removal of over 2,000 acres of urban reserve land.

- Conditions on new employment lands – The Meek Road area, recently brought inside the UGB, must have one 100 acre and two 50 acre pieces of land as a condition.
- Newly created county islands – County islands may be created as newly urbanized areas become developed.

The opportunities identified in the report included:

- Urban reserves land – Witch Hazel South is an urban reserve, and a great opportunity for future growth.
- Climate change mitigation and adaption – Staff explained that planning efforts in South Hillsboro can incorporate climate change mitigation practices.

Questions from the committee included:

- What is the difference between urban and rural reserve land? Staff responded that urban reserves are where the UGB could expand into in the next 50 years. Rural reserves are agriculture, farm, forest and other lands farther away from urban land. It gives rural residents peace of mind that the UGB will not expand into their areas in the near future.
- What is the typical distance between the UGB and rural reserves? Staff responded that the distance from rural reserves to the UGB varies. Some areas are adjacent to the UGB, while some are several miles away.
- How are residents in South Hillsboro going to get to employment areas in North Hillsboro? Staff responded that Hillsboro has been actively engaged with regional partners to expand access to and from South Hillsboro. Tri-Met has said they will run a new bus line from South Hillsboro to North Hillsboro.
- How are future South Hillsboro residents going to get across the train tracks parallel to TV Highway? Staff responded that the Urbanization Goals and Policies will attempt to address this, as well as the new Transportation System Plan, which is in development. Committee members discussed new and proposed road extensions that will serve the South Hillsboro area.
- How do county islands appear? Staff responded that county islands appear over time due to voluntary annexation. Property owners decide to voluntarily annex themselves in newly urbanized areas in order to receive city services and benefits, and in exchange, pay more taxes. Some owners decline to be annexed, thus creating “islands” of unincorporated areas surrounded by city boundaries.

The conversation transitioned to a discussion of Urbanization Goals & Policies. Staff reviewed the policies under each goal with the committee and asked for input, suggestions, or questions. Staff explained that almost every policy and multiple implementation measures from the Urbanization section of Hillsboro’s existing Comprehensive Plan are being carried over to the new Plan, in addition to new policies. The CAC’s feedback included:

- Goal 1: Accommodate long-range population and employment growth within the Hillsboro Planning Area.
 - General Discussion: Staff explained this goal was taken verbatim from the existing Comprehensive Plan. The Committee inquired about policies specifying residential densities. Staff responded that Urbanization – Goal 3, as well as some Housing Goals & Policies address residential density.

- Policy 1.3: Staff indicated that this is a new policy, and intended for planning newly-incorporated areas on the edge of the city, as well as efficient use of land in existing areas in the city. The committee asked about the regulations regarding units per acre. Staff responded that Metro requires 10 units per acre on average throughout the city.. The committee discussed problems that increased density would create, like a lack of parking spaces. Staff emphasized that this policy is designed to increase density only in areas that can sufficiently accommodate it, like Regional and Town Centers.
- Goal 2: Ensure consistency of local and regional plans.
 - General Discussion: The committee recommended that “urbanized” and “unurbanized” have definitions developed.
 - Policy 2.6: The committee asked if this policy would lead to a situation where the city hopes to annex an unincorporated unurbanized area, but without a community-level plan in place. Staff responded that it is a state requirement to do community-level planning before land is brought in the UGB.
- Goal 3: Plan, develop, and enhance the urban built environment to meet the needs of community members of all ages, abilities, cultures, and incomes.
 - General Discussion: The committee raised the issues of gentrification and displacement, and brought up the possibility of including language in a policy to directly address their impact. Staff indicated that this is a good idea, and will consider how to incorporate such language into the Comprehensive Plan. Gentrification may be better addressed in a different section.
 - Policy 3.2: The committee asked if “evaluate” is a strong enough term to enforce this policy. Staff indicated that they are considering changing the wording to make it more effective.
 - Policy 3.3: Staff indicated that they have received comments from the TAC to better encompass all people. The committee discussed potential language to include in this policy. In particular, “sizes” over “cultures” was debated, and “preferences” was suggested for inclusion. It was decided that staff will reconsider the language of this policy.
 - Policy 3.4: The committee suggested replacing the term “opportunities” instead of “uses”. Staff responded that the intention is to offer a variety of uses, and that employers will offer the opportunities for employment.
- Goal 4: Provide for the orderly and efficient extension of public facilities and services.
 - Policy 4.5: Staff indicated that the language of this policy is under review after the feedback received from the TAC. The key issue is that there may be cases in the future where all city residents pay the cost of providing new services to an area.
 - Policy 4.6: The committee asked if annexation can be stopped if services are not available. Staff responded that the intention of this policy is to address this issue, although the language is currently ambiguous. New language is being developed.

- Goal 5: Enhance compatibility between urban uses and agricultural and forest uses on adjacent land outside the Urban Growth Boundary.
 - General Discussion: The committee stated that this appears to be a responsibility of the County, not the City. Staff responded that it is a requirement of the state for cities, in addition to counties, to ensure compatibility of uses.

Noise – Background Report and Draft Goals & Policies

Nick Baker reviewed the contents of the Noise Background Report. He stated that noise has quality of life impacts, that it is linked to a growing list of health issues, and that noise regulation is largely a city's responsibility to manage. Some of the tools that can be used to reduce noise are policies, design regulations, and construction methods. Comments from the committee included:

- Instead of specifically mentioning barking dogs as domestic noises, it is suggested that it be expanded to include all animal noises.
- Buses and trucks contribute to noise pollution, and this fact should be considered in developing a policy.
- Determine the City's role in managing and regulating noise generated from the airport. Staff stated they are working on a way to include airport noise reduction efforts and include airport noise contour maps in the Comprehensive Plan, but that it largely falls under the authority of the Port of Portland and federal government.
- Construction noise impacts are an issue. Construction at Orenco Station started early in the morning during the summer, and that it could be heard from large number of nearby residents. Staff responded that the Community Development Code has limits for the hours in which certain types of noise can be generated.
- The presence of noise mitigation design techniques and standards, in reference to Policy 1.3. Staff indicated that the teeth for this policy will be articulated in the implementation measures and that the language of Policy 1.3 is sufficiently strong. Staff stated that "minimize" is strong language.

Questions from the committee included:

- Does Hillsboro own equipment with which to monitor noise? Staff responded that code enforcement officers do have noise measuring equipment, and that they are trained to use it in response to a noise complaint. However, noise complaints about the airport are left to the Port to enforce.

Staff reviewed the policies under Noise Management with the committee and asked for input, suggestions, or questions.

- Goal 1 – Limit excessive and harmful noise to protect public health, wellness, and safety.
 - General Discussion – The committee asked if "nuisance" should be included in the Goal 1 language. Staff responded that this, or language similar to this, would be included. The committee also suggested "quality of life" be included in Goal 1. Staff responded in favor. The committee then discussed noise generated from the MAX light rail and crossings, and if there are construction techniques to mitigate noise to nearby

apartments. Staff responded that the Community Development Code will be updated to include implementation measures that address the new Comprehensive Plan, and that the purpose of the Comprehensive Plan update is to provide guidance in writing the code.

- Policy 1.1 – Staff clarified that this policy will provide a basis for understanding more about noise issues, particularly where and when problems occur. It would be impossible to implement noise reduction strategies without knowing what the problem is.
- Policy 1.2 – Staff indicated that “zoning” may need to be included in the policy language.
- Policy 1.3 – The committee commented that technologies exist to reduce and redirect noise, especially for trains.
- Policy 1.4 – The committee stated that there’s no language requiring cooperation with other entities to reduce noise. Staff stated they will include a new policy per the recommendation.
- Policy 1.5 – The committee stated that the structure of this policy makes it very difficult and time-consuming for users to find all of the relevant codes and standards since they’re located throughout various other plans, codes, and standards. The committee asked if there is an index to ease this process. Staff responded that they do not, but that it could be developed as an implementation measure.
- Policy 1.6 – Staff stated that federal rules allow municipalities to designate train horn quiet zones. Staff also stated that “train horn quiet zone” needs to be added to the definitions. The committee asked if there needs to be, or should be, a disclosure on the title of a property if it is within a particular overlay zone that generates noise, like the airport overlay zone. Staff said they will discuss including this in a policy.

Access to Local Food – Background Report and Draft Goals & Policies

Laura Weigel led a lengthy discussion on the feedback from the Technical Advisory Committee and Citizen Advisory Committee, as well as the updated policy language. Discussion topics included:

- Staff indicated that the most important takeaway is to change the focus from “local food” to “locally-grown food”. The updated Goals & Policies primarily reflect this change.
- “Healthy” was removed from Goal 1 because it brought up a lot of controversy in TAC. However, the committee felt that “healthy” is not sufficiently controversial to exclude from the Goals & Policies, and that in the vast majority of cases it would not be controversial at all.
- Staff clarified to the committee that “local” in this context refers just to food grown in Hillsboro.
- The committee suggested adding “locally grown and **close in.**”
- Staff stated that a definition for “urban agriculture” will need a definition.
- Staff stated that there is no explicit language regarding garden plots, and that they will revisit where to include this.

Questions from the committee included:

- Is there a definition for how far “local” extends to? Committee discussed different definitions for “local”. Staff responded that the intent is control what happens inside the city, not food grown elsewhere and brought into the city.
- Should the city take charge of or facilitate farmer’s markets expansions? Staff responded the city has the authority to help facilitate the expansion, but not to take it over. A discussion over

the exact intent of the policy took place, with the conclusion that staff will revisit the policy language.

- Should local and/or healthy food access to restaurants be included in the policy language? Staff responded that does not constitute a land use issue.

Upcoming Meeting Schedules and Topics

- Staff stated that committee should inform staff if they have any comments on changes made to Recreation Goals & Policies.
- The next meeting will take place on Thursday, February 18 from 4:00-6:00pm in the Community Room at the Hillsboro Main Library.

Public Comment

No members of the public offered comment at the meeting.

Adjournment

With no additional business to consider, the CAC meeting was adjourned.

MEMORANDUM

To: Comprehensive Plan Update Citizen Advisory Committee (CAC)

From: Long Range Planning Staff

Date: February 11, 2016

Subject: Natural Hazards and Design and Development Background Report and Draft Goals and Policies Review

Requested Citizen Advisory Committee Action:

Review and provide feedback on the background reports and draft Comprehensive Plan goals and policies concerning Natural Hazards and Design and Development, revised goals and policies concerning Access to Healthy Food, as well as any additional feedback pertaining to Urbanization and Noise draft goals and policies revised following the January meeting.

Background:

This month, the committee will examine goals and policies from two new topics:

Core Area	Topic
Promoting Health, Wellness, and Safety	<ul style="list-style-type: none"> • Natural Hazards
Enhancing Livability and Recreation	<ul style="list-style-type: none"> • Design & Development

In addition to the topics listed above, draft goals and policies for Access to Healthy Food have been substantially revised. Updated draft goals and policies are attached. For each, staff is requesting that CAC members read the materials prior to the meeting. It is, of course, preferable that you read the background reports in their entirety; however, if you do not, please do read Sections 7 and 8 of all of the background reports. The CAC meeting will include, if needed, discussion of suggested revisions to the background reports, although the meetings will focus primarily on draft goals and policies.

Natural Hazards

Statewide Planning Goal 7 requires municipalities to adopt Comprehensive Plan policies to reduce risk to people and property from natural hazards. The City’s existing Comprehensive Plan addresses natural disasters and hazards to some extent, although the limited set of existing goals and policies date to 1980 and have not been updated to reflect the physical, political, and technological changes that have occurred since that time. New policies are also necessary to address regulatory requirements put in place since the existing Comprehensive Plan was adopted.

The attached Background Report and draft goals and policies were reviewed by an internal working group consisting of representatives from Emergency Management, Risk Management, Water, Public Works, and the Development Services division of the Planning Department. The Technical Advisory Committee reviewed the Background Report and draft goals and policies at its February 18 meeting. TAC members contributed a series of relatively minor edits to refine or clarify data in the Background Report, and suggested a number of refinements to the draft policies. Due to the short turnaround between the TAC meeting and the publication of this month's CAC packet, the attached materials do not reflect these suggestions – staff will outline TAC input during the discussion at the CAC meeting.

Design & Development

Cities are not required to explicitly address urban design in their Comprehensive Plans. Action 2D of the Hillsboro 2035 Community Plan, however, calls on the City to adopt urban design standards “with emphasis on creating or preserving neighborhood character and ‘sense of place’”. Additionally, a number of other initiatives and actions in the Hillsboro 2035 Community Plan are in some way related to establishing and reinforcing patterns of effective and innovative urban design. As issues of design and development span many different aspects of land use and infrastructure policy, staff felt that a dedicated Comprehensive Plan section was the prudent way to discuss this important issue.

The Design & Development Background Report and draft goals and policies were developed primarily by the Planning Department, including staff from both the Long Range and Development Services divisions, in collaboration with staff from the Economic Development department. The draft goals and policies refer to a set of “design types”, which are described in detail in the goals and policies document and illustrated geographically on the attached Comprehensive Plan Design Types map.

TAC began its review of this section at its February 18 meeting, suggesting some modifications to the Background Report including more specific discussion of the Hillsboro Airport and Washington County Fairgrounds areas, and clarifications of how Community Plan Areas and existing neighborhoods are discussed. TAC members also had comments on the content and use of the design type map. Although TAC did not complete its review of all goals and policies, staff would like to begin review of the Design & Development section with CAC, anticipating that this topic will be reviewed again at the March CAC meeting.

Access to Healthy Food

The CAC will briefly discuss overhauled goals and policies related to Access to Local Food, and provide additional input for staff at this month's meeting. Following extensive rounds of feedback from both TAC and CAC over the prior few meetings, staff refocused the Access to Healthy Food section on a set of policies discussing residential gardening, farmers markets, community gardening, and supportive measures including periodic uses and community collaboration. Staff also are recommending a new policy to develop a Food Systems Plan in the future to more

specifically address issues of food access and production, but outside the scope of the Comprehensive Plan update.

Urbanization and Noise Management

Revised urbanization and noise management draft goals and policies reflecting input from TAC and CAC are included in this month's packet. These revisions are not scheduled for discussion at the meeting, although any additional input from CAC members can be submitted to staff offline. These goals and policies will be presented to Planning Commission at their March 9 meeting.

Cost:

Costs for preparation of these documents includes staff time only.

Attachments:

1. Natural Hazards Background Report, draft goals and policies, and existing Comp Plan section
2. Design & Development Background Report, draft Goals and Policies, and design types map
3. Access to Healthy Food draft Goals and Policies (updated January 27, 2016)
4. Urbanization draft Goals and Policies (updated February 3, 2016)
5. Noise Management draft Goals and Policies (updated February 8, 2016)

Areas Subject to Natural Hazards

Background Report DRAFT

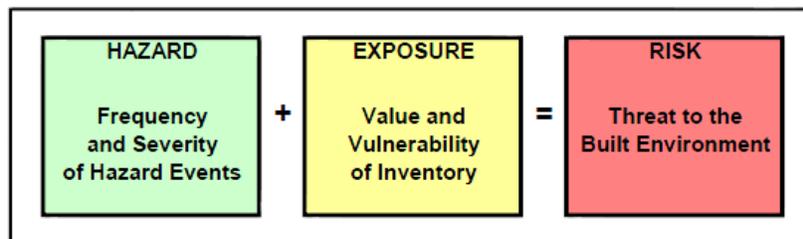
Review History

Date	Reviewed By
01.07.2016	Internal Committee – <i>Comments Incorporated</i>
01.20.2016	Internal Committee – <i>Comments Incorporated</i>
02.11.2016	Technical Advisory Committee – <i>Comments Incorporated</i>

1. Introduction

Informed by an understanding of natural hazards, the City of Hillsboro can reduce risks to property, environmental quality, and human safety by planning broad land use patterns and site-specific development. The City’s Comprehensive Plan establishes policies that impact the vulnerability of people and property to natural hazards; it is therefore important to have a good understanding of the local environment and hazard conditions when planning for updates to the Comprehensive Plan document. The figure below illustrates the relationship between hazards, exposure, and risk. Understanding the meaning of these terms and how they relate is important to discussing the potential hazards facing Hillsboro and their associated risks, as will be presented in this document.

Hazard and Exposure Combine to Produce Risk



Source: City of Hillsboro. January 2, 2008. *Multi-Hazard Mitigation Plan for Hillsboro, Oregon*.

This background report, one of a series of papers identifying recommended policy questions and updates to the Hillsboro Comprehensive Plan, provides that introduction to natural hazard risk and vulnerability in Hillsboro. The intent of this report is to examine the City’s efforts related to land use to protect people and property from natural hazards, and evaluate these efforts against relevant policies, goals, and regulations as well as emerging issues and trends. The outcome of this report is a series of policy questions and recommendations to support this planning and to inform the update of the Promoting Health, Wellness and Safety core area of the City’s new Comprehensive Plan. This background report was prepared by City of Hillsboro Planning staff, and will be refined and reviewed through a process including a Citizen Advisory Committee, the Planning Commission and City Council.

2. Background

Physical Environment

The City of Hillsboro is 24.7 square miles (as of July 2015) and is located within Washington County. The majority of the city lies within the Willamette basin, and the Tualatin sub-basin; Hillsboro is located just southeast of the county's center and borders the urban growth boundary on its western edge. The city is comprised of a complex geography with numerous wooded areas, wetlands, streams, and channels. The city is located entirely within the Tualatin sub-basin, and includes the Dairy Creek and Rock Creek-Tualatin River watersheds. Public drinking water is obtained from a water intake and treatment plant on the Tualatin River, supplemented by water from Barney Reservoir (Trask River) and Scoggins Reservoir.

Social and Economic Environment

Located in the Cascadia Subduction Zone, in the vicinity of liquefiable soils, landslide areas, flood-prone lands, and wildland fire zones, the city is at risk of natural hazards even as it continues to grow economically and in population. Home to Oregon's largest private employer, Hillsboro has seen a 10% growth in employment since 2010 and a 2% growth in population over the same period; population and jobs in the city are expected to grow at least 25% and 60% respectively 60% by 2035. This growth does not come without its challenges. The risks associated with natural hazards, including floods, landslides, earthquakes, and wildfires, increase as lands are developed due to the modification of the environment, including removal of natural resources and increases in impervious cover¹. Development abutting or within floodplains may also increase the risk of damage to people and property.

2.1. Context

Hillsboro is located in a region that is vulnerable to 8 of the 11 natural hazards that affect Oregon communities: earthquakes, floods, landslides, regional volcanic activity, wildfires, droughts, windstorms, winter storms. Hillsboro is not susceptible to coastal hazards, dust storms, or tsunamis. The three natural hazards posing the greatest risk for Hillsboro are earthquakes, floods, and winter storms. Of these, the risk from earthquakes and winter storms are relatively uniform across Hillsboro. However, the risk from floods or dam failure is limited to relatively small portions of Hillsboro adjacent to the Tualatin River and its tributary streams that run through Hillsboro.

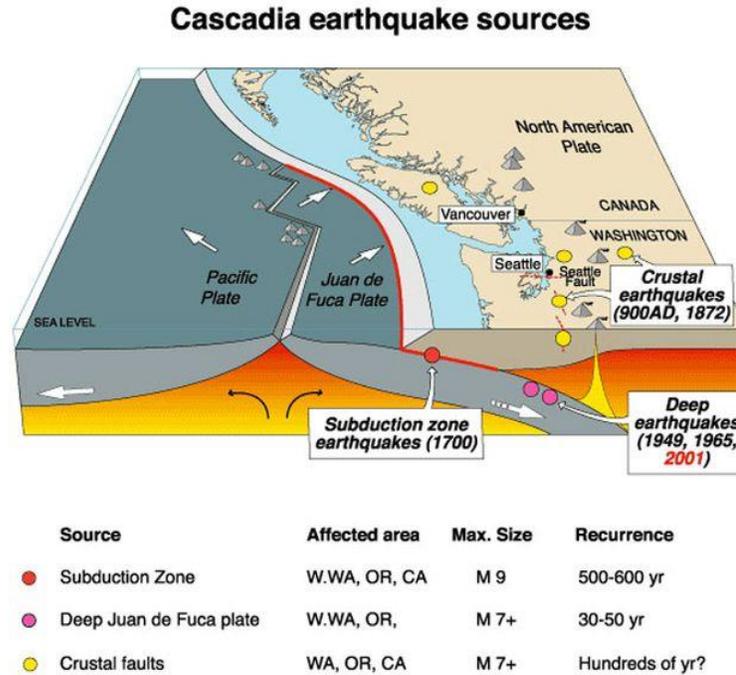
A number of critical public facilities as well as city and regional infrastructure, such as transportation routes, bridges, and utilities, are vulnerable to potential hazards. A significant amount of private development (residential, commercial and industrial) is located in areas with liquefiable soils, along earthquake fault lines, and/or within flood-prone areas.

The hazards to which Hillsboro is vulnerable are described below in terms of potential implications to the city and its residents; they are ordered according to Hillsboro's risk and vulnerability to their impacts.

¹ Impervious cover is any sort of man-made land surface that does not support ground penetration or absorption of water; this can have the result of increasing the amount and speed of water moving on the ground potentially resulting in increased erosion, pollution, and flood risk. Impervious cover results from sidewalks, parking lots, and rooftops.

2.1.1. Earthquakes

There are four types of earthquakes that could potentially affect Hillsboro: shallow crustal events, deep intraplate events within the subducting Juan de Fuca plate, the offshore Cascadia Subduction Zone (CSZ), and earthquakes associated with renewed volcanic activity. The figure below illustrates where and when crustal, deep, and subduction zone earthquakes last occurred.



Source: Pacific Northwest Seismic Network

The CSZ is responsible for some of the most massive earthquakes in the Pacific Northwest over the past 6,000 years (magnitude 9+); they occur on average of one every 500 or 600 years. Scientists estimate that the last CSZ earthquake took place about 1700 A.D. and that the next CSZ earthquake has a 10–20% chance of occurring in the next 50 years. There is at least one other fault zone located in Hillsboro in the north of the city; damage from a CSZ event is expected to be far reaching.

Oregon communities are particularly vulnerable to earthquakes because they are so irregular and difficult to predict. Hazards specific to Hillsboro associated with earthquakes include:

- Surface faulting: ground displacement caused by fault slippage
- Ground shaking: seismic waves felt on the surface
- Ground shaking amplification: increased shaking resulting from soil types that amplify waves
- Liquefaction: ground shaking that causes certain soil types to liquefy and surface structures to sink, collapse, or crumble

The severity of each of these hazards depends on several factors, including soil type, slope conditions, magnitude and type of earthquake, and proximity to the fault. Earthquake mapping by

the Oregon Department of Geology and Mineral Industries (DOGAMI) puts the entire city at risk to earthquake hazards, but shaking could be especially severe in North Hillsboro².

The statewide Natural Hazards Mitigation Plan (NHMP) rates the probability of an earthquake occurring in Washington County as Medium, with an event³ likely to occur within a 10–35 year period. The City’s vulnerability to an earthquake is rated as High because the City is highly susceptible to earthquake-induced landslides, liquefaction, and severe ground shaking, and because of the development and population density within Hillsboro⁴.

Regulations related to seismic safety are stipulated in the International Building Code, as adopted by the State of Oregon and are updated every four years. These codes have changed significantly since much of Hillsboro’s development was constructed, including several critical and essential facilities. As a result, numerous public and private facilities are not up to current seismic codes; statewide building codes and compliance are discussed in greater detail in Section 5.2.2.

2.1.2. Floods

There have been several significant flood events³ in western Oregon over the past 20 years stemming from tropical storms, heavy rainfall, severe winter storms, and snowmelt. Because of the many potential sources of flooding in Washington County, as well as the soil types and steep slopes, the state’s NHMP rates the probability of a flood event in Washington County as High. The Plan also rates the vulnerability of the critical, essential, and community features located within the FEMA Special Flood Hazard Area, as High as well⁴.

The Special Flood Hazard Area is an important geographic delineation that affects flood maps, regulations, and insurance rates. At a minimum, it is the area that would be flooded by a flood that has a 1% annual chance of occurrence⁵. The City of Hillsboro uses the best available adopted information for floodplain mapping and decision-making. As of this writing, this is the FEMA data finalized in 1982. Updated maps using 2007 data are pending FEMA approval, after which Hillsboro has six months to adopt them. In the interim, FEMA encourages communities to use pending maps as “best available data”. The updated maps could vary from the 1982 maps in several ways, including the size and depth of floodplains. Once the new maps are adopted, the City’s Community Development Code will apply its floodplain management requirements to new development. Property owners may also face changes in flood insurance requirements and rates as a result of updated map areas.

² Oregon Department of Geology and Mineral Industries (DOGAMI). *Oregon HazVU: Statewide Geohazards Viewer*. <http://www.oregongeology.org/hazvu/> (Accessed: 7 May 2015).

³ An earthquake or other hazard “event” refers to the hazard action: for example, *earthquake events* refer to the period the earth is shaking, including aftershocks, and *flood events* refer to the period of water accumulation to flood levels. The recovery period immediately following a hazard action is not considered part of the “event.”

⁴ Oregon Department of Land Conservation and Development (DLCD). 2015. *2015 Oregon Natural Hazards Mitigation Plan. Region 2 – North Willamette Valley/Portland Metro*. <http://www.oregon.gov/LCD/HAZ/pages/NHMP.aspx> (Accessed: 7 May 2015).

⁵ Areas with a 1% annual chance of flooding are also called “100-year floodplains,” which is a misnomer, since floods of that magnitude can happen more than once every hundred years

2.1.3. Winter Storms

Heavy precipitation, freezing rain, ice hail, and snow can create hazardous conditions for people living and working in Hillsboro. Extreme weather conditions can have negative impacts on public utilities, road conditions, air service, the stability of trees, powerlines, water storage⁶, and all structures.

There have been several winter storms in past decades that have closed highways and bridges, caused power outages and property damages, and limited the movement of people and goods throughout the state. Since Hillsboro's Comprehensive Plan was last updated, there have been nearly 10 major winter storm events, the most recent being a statewide winter storm emergency in November 2010.

According to the state's NHMP, the probability of winter storms affecting Washington County is High, meaning a severe incident is likely to occur in a 10- to 35-year period. The NHMP also scores the County's vulnerability to winter storms as High due to potential impacts to the population and economy here. The City is working to update the Emergency Operations Plan (EOP) that will guide operations during a storm event. Plans for public notification, maintenance of roads and bridges, and storm event preparations will be included in the EOP.

2.1.4. Wind Storms

The most frequent and strongest wind storms Oregon experiences originate over the Pacific Ocean and travel from the southwest. Major wind storms are considered Highly Probable in Washington County, according to the state NHMP, which means that one is likely to occur in the next several years. The County is also considered highly vulnerable to this type of storm and its impacts, which generally affect buildings, utilities, and transportation systems along open grasslands, farmlands, tree-lined roads, transmission lines, and residential parcels. Risk for Hillsboro would likely be highest in areas with utilities or major transportation networks fronted by trees, such as Tualatin Valley Highway. The City is working to update its EOP, which outlines operations during a storm event. Actions related to preparing for and responding to storm events will be included in the EOP.

2.1.5. Landslides

Landslides are relatively common naturally occurring events in this part of Oregon. Cities within Washington County are considered to have relatively High vulnerability to landslides because of the high annual precipitation, weak geology, and steep slopes in parts of the County. Vulnerability to landslides increases during winter months due to the higher levels of precipitation. Earthquakes can also trigger landslides. The relative vulnerability of Hillsboro is small as there are few steep banks or slopes in the City, and these tend to occur along undeveloped stream corridors.

DOGAMI, together with the US Geology Survey (USGS), is working to identify potential landslide locations using the latest high-resolution images of the earth's surface and LiDAR⁷ technology. This information can be used to identify risk areas or locations where development codes or hazard inventory mapping may need to be updated. DOGAMI's current data on landslide hazards indicate

⁶ Water storage here refers to water stored for later use in natural water sources, such as groundwater aquifers, soil water and natural wetlands, and also small artificial ponds, tanks and reservoirs behind major dams.

⁷ LiDAR is a remote sensing technology that uses light from a laser to measure distances; it is a powerful tool to map ground topography

several potential landslide hazard locations in Hillsboro, although these areas are small and sporadic, located predominantly along major creeks⁸.

Based on soil conditions and slopes, the latest state NHMP expects the probability of landslides in Washington County to be Low. The risk of impacts to critical or essential facilities and infrastructure, or vulnerability to landslides, is also ranked Low by the NHMP. The most recent major landslide in Washington County, as noted in the statewide NHMP, occurred in December 2007 when heavy rains caused slides that resulted in \$1.5 million of damage across western Oregon⁹.

2.1.6. Wildfires

As Hillsboro is located in the outskirts of the Metro region and adjacent to rural Washington County to the north and south, it has many urban–rural interfaces. The grasslands and tree canopy along the city’s edges can increase risk to wildfire, but as these areas are few and located sporadically within heavily managed agricultural areas, the wildfire risk to Hillsboro is small.

2.1.7. Drought

With changing climate conditions, droughts in summer months could become more likely. In 2015, for example, winter precipitation in Oregon was about 30% below average and, with the second warmest winter on record for Oregon, there was especially little snowfall. Drought conditions could affect wildfire risks.

Due to the numerous factors affecting weather, it is difficult to estimate the probability and frequency of future droughts. Based on historic data, though, the state has determined that there is a Low probability of drought occurring in this region, as only one drought has ever been declared here (in 1992, when all 36 counties were affected). The state NHMP therefore scores the probability of a drought affecting Washington County as Low, though the vulnerability to such a hazard is Medium due to the extensive impacts to population, economy, and environment resulting from such an event. According to the NHMP, a review of Governor-declared droughts since 1992 indicates that this region is considered less vulnerable to drought impacts than many other parts of the state, particularly east of the Cascades.

2.1.8. Volcanic Activity

The state NHMP lists the probability of a volcanic event as Low, meaning one incident is likely within a 75- to 100-year period. However, Hillsboro is located within 100 miles of four volcanoes: Mt. Hood, Mt. St. Helens, Mt. Adams, and Mt. Jefferson, and within 300 miles of nearly 15 other volcanoes. While it is unlikely that Hillsboro would be affected by lava flow, lahar, debris flow, avalanche, or ejected rocks, the ash cloud that follows a volcanic eruption could deposit ash over the city, affecting air and water quality, visibility, agriculture, and travel throughout the region.

Because of potential impacts to human and environmental health, and due to the unpredictable nature of volcanic events and associated implications, the vulnerability of the city to volcanic activity is listed as High in the NHMP; more than 10% of the population would be affected in a large-scale

⁸ Oregon Department of Geology and Mineral Industries (DOGAMI). *Oregon HazVU: Statewide Geohazards Viewer*. <http://www.oregongeology.org/hazvu/> (Accessed: 7 May 2015).

⁹ Oregon Department of Land Conservation and Development (DLCD). 2015. *2015 Oregon Natural Hazards Mitigation Plan. Region 2 – North Willamette Valley/Portland Metro*. <http://www.oregon.gov/LCD/HAZ/pages/NHMP.aspx> (Accessed: 7 May 2015).

event. Planning responses to other types of hazards might be applicable to a volcano response. Direct volcanic hazard mitigation strategies are not currently being considered by the City.

2.1.9. Liquefaction

While soil liquefaction is not listed as one of the 11 natural hazards affecting Oregon, it is a significant threat to people and property, particularly in the Willamette Valley due to the type and composition of soil as well as the relatively high water table. Liquefaction causes ground sinking and spreading, causing damage or destruction of roads, bridges, and building foundations. Soil liquefaction is expected to be a primary cause of property damage during an earthquake event and subsequent aftershocks, perhaps even more damaging than shaking. Ground conditions associated with soil liquefaction are also expected to make reconstruction and redevelopment difficult due to expected changes to landscape and topography. In Hillsboro, the areas most at risk of liquefaction are along naturally occurring streams and wetlands, which already limit development because of their proximity to significant natural features.

2.1.10. Climate Change

On March 12, 2015, FEMA announced a change in its requirements for State Hazard Mitigation Plans, requiring states to now consider the projected effects of climate change on hazard risks. According to FEMA, the challenges posed by climate change, including extreme weather events, drought, extreme flooding, and sea level change, could “significantly alter the types and magnitudes of hazards impacting states in the future.”¹⁰ This new requirement, which becomes effective on March 6, 2016, means that “probability of future hazard events” must be considered in mitigation planning in order to receive FEMA approval and funding¹¹. The potential impact of climate change on future hazard events in Hillsboro may include increased incidence, frequency, and duration of flooding, landslides, wildfire, and drought events. More extreme weather conditions may lead to an increase in the number and duration of wind or winter hazards and more extreme seasonal temperatures and conditions. A historically dry winter in 2015 reduced snowpack on Mount Hood, consequently reducing water available for natural, municipal, and agriculture uses through summer. Dry conditions also result in an increased incidence of drought and wildfire. Wetter weather conditions bring their own risks, such as flooding and landslides. Some potential implications of climate change are discussed in greater detail in the Energy and Climate Change core area.

2.1.1. Buildings and Infrastructure

Buildings

In Hillsboro, nearly half (45%) of all current structures were built in 1980 or before, using construction techniques now known to be inadequate in the event of an earthquake. These structures are vulnerable to damage or destruction in an earthquake event unless they were retrofitted after 1980. Approximately 87% of these pre-1980 structures are considered to be

¹⁰ Homeland Security, Subcommittee on Oversight and Management Efficiency. "Examining DHS' Misplaced Focus on Climate Change", House Committee (2015) (Written testimony of FEMA Federal Insurance and Mitigation Administration, Deputy Associate Administrator for Insurance and Mitigation Roy Wright).

¹¹ Per 44 CFR §201.4(c)(2)(i), states are not required to include the term “climate change” in their mitigation plan, but summarizing projected changes in the location, intensity, and frequency of each natural hazard and considering the effects of “long-term changes in weather patterns and climate on the identified hazards” are required [FEMA (2015) *State Mitigation Plan Review Guide, Appendix A*].

residential¹²; damage or destruction of these buildings has implications for protection of life and provision of shelter during a disaster and thereafter.

Bridges

There are six bridges located throughout the city over Hillsboro's complex creek network, such as over Rock Creek, Dawson Creek and Beaverton Creek. Only two of these (on Amberwood Drive over Rock Creek and on Airport Road over Dawson Creek) are managed and maintained by the City's Public Works Department; the remainder are the County's jurisdiction. The City maintains its bridge inspections and records pursuant to state guidelines. Though the bridges are compliant with state guidelines, a major shaking event could result in failure of these and possibly all bridges serving the city. All areas served by the bridges can be accessed by alternative routes and are non-essential to evacuation or emergency services. In accordance with state guidance, bridges would be closed following an earthquake until an inspection can be completed.

Road Access

Transportation networks can be impacted by hazard events, particularly winter weather conditions, wind, and flooding. Ice, flooding, downed trees and power lines can lead to road closures limiting movement in and around the city and access to critical services. Emergency responders may be unable to provide assistance in areas where road access is limited or removed as a result of natural hazards. The City endeavors to ensure all new developments have alternative access to ensure mobility following a disaster.

Water Systems

The City manages Hillsboro's water system; it is also the managing agency of the Joint Water Commission and the Barney Reservoir Joint Ownership Commission, which takes care of the source, treatment, transmission, and delivery of water resources. Hillsboro's water system is vulnerable to hazard events because of the lack of system redundancies and the reliance on surface sources for drinking water, which may be impacted by pollutants during high precipitation or flood events. In addition, underground water infrastructure could be severed, cracked, or destroyed during a seismic event. Damage of this sort could limit access to potable water and lead to unsanitary conditions, particularly where hazardous pollutants enter a waterway or underground infrastructure is cracked. A lack of water could impact industry: the industrial sector alone can use more than 4 million gallons of water per day. Impacts to the availability of water in Hillsboro would affect its economic recovery. Emergency plans are in place for the city's water system as well as for the Joint Water Commission and the Barney Reservoir Joint Ownership Commission; these plans include procedures to restore water services to residents and industry as quickly as possible.

Hazardous Material Storage

With its high-tech industry cluster and airport in the north of the city and freight rail running through the south, Hillsboro is sandwiched by hazardous material storage and movement. Toxic elements and compounds (including arsenic, phosphorus, and fluorides) and highly reactive liquids (including hydrofluoric and nitric acids) are among the materials stored for use in Hillsboro's burgeoning manufacturing sector. Fuel is another hazardous material that is transported, used, and stored in the City, notably at the airport. Potentially hazardous materials, including fuel, may also be

¹² Based on structures built in 1980 or earlier located in current residential zones

transported on the Union Pacific Railroad / Portland Western Railroad that runs along the city's southern edge. In the event of a natural hazard, especially an earthquake, storage or transport facilities may be compromised. Toxic materials may be spilled, released, or leaked into the ground or the air, potentially impacting groundwater, surface waters, air quality, and environmental and human health downstream or downwind. These facilities (private industries, Port of Portland, and Union Pacific / Pacific Western) have hazard response plans to address the risk of hazardous material release during or following a disaster event.

3. Hillsboro 2020 and Hillsboro 2035

3.1. Hillsboro 2020

Although there are not any goals specifically addressing hazard planning, Vision 2020 includes provisions for public safety programs, promotion, and planning, some of which will be addressed in the Police and Fire Background Report. These include the following:

- **Goal:** Continue to update public safety techniques and technology
 - **Action:** Incorporate public safety techniques and technologies that most-effectively serve our growing and evolving community.

- **Goal:** Expand public safety communications and community participation
 - **Action:** Develop a communications plan to inform and educate the public on current safety issues, and outline steps for more proactively engaging Hillsboro schools, community groups and neighborhoods in public safety planning and participation.

3.2. Hillsboro 2035

One of the five focus areas in the Hillsboro 2035 Community Plan is *Health, Wellness and Safety*, which includes initiatives and actions related to natural hazard preparation, management, and response. The initiatives and their associated actions relevant to this background report are provided below. Notes are also included to explain why the action is relevant to this core area.

Initiative 2: Strengthen social support networks to elevate those in need

Action Proposals:

- Pursue housing-first strategies to provide the homeless with stable shelter while they are accessing other services
- Provide targeted assistance for at-risk populations to reduce homelessness, including transitional youth
- Provide home repair help for people living in property

Note:

Ensuring availability of high quality housing for vulnerable populations is relevant to protection of life during a natural hazard and provision of shelter supporting recovery following a disaster

Initiative 3: Create systems to facilitate aging-in-place and quality of life for our growing senior population

Action Proposals:

- Create and implement an eldercare strategy to increase access to senior housing and health care

Note:

Ensuring availability of high quality housing and access to services for vulnerable populations, such as the elderly, will support hazard recovery

Initiative 4: Increase the supply of affordable housing to serve Hillsboro’s growing workforce and people at all income levels

Action Proposals:

- Develop a city-wide workforce housing strategy

Note:

Providing affordable, high quality housing for all residents provides safety and shelter during and after a disaster, and affordability is important to redevelopment. Those with limited financial resources are often hardest hit by a disaster and least able to recover and rebuild

Initiative 5: Keep Hillsboro safe through proactive community policing, fire prevention and emergency preparedness

Action Proposals:

- Continue to update public safety techniques and technology to serve our growing and evolving community
- Expand public safety education, communications and active participation opportunities for community members
- Increase disaster preparedness through education, engagement and advanced warning systems

Note:

Educating and engaging the community about safety and preparedness enhances their ability to care for themselves, neighbors, and community in the event of a disaster

4. Existing Comprehensive Plan Goals

Hillsboro’s existing Comprehensive Plan, approved by Council in 1977, had the following goal addressing Natural Disasters and Hazards:

To protect life and property within the planning area from natural disasters and hazards, developments subject to damage or capable of causing damage to other property or

resulting in loss of life shall not be allowed in known natural disaster or hazards areas without appropriate safeguards.

The key issues identified in this goal of protecting life and property and prohibiting development in known hazard areas have continued to be guiding principles to the City's work issuing development permits, improving and maintaining infrastructure, public engagement surrounding hazard mitigation, and other areas across City departments.

The policies and implementation measures in this section were added in 1980. Since that time, a number of physical, political, and technological changes that impact how we plan for natural disasters and hazards have taken place. Some of these are:

- 35 years of development has occurred since this section was last updated, doubling of the city's land area and increasing our population fourfold, bringing new businesses, homes, and infrastructure ; and increasing impervious cover and stormwater runoff
- In 2002, FEMA published Interim Final Rule 44 CFR Part 201 requiring states and local governments to develop natural hazard mitigation plans and update them every three and five years, respectively
- New LiDAR and mapping technologies became more ubiquitous for hazards planning after 2000; these tools enhanced the accuracy of hazard risk detection, vulnerability analyses, floodplain and landslide mapping

5. Regulatory Context

Several state and federal regulations direct Hillsboro and other local governments to implement natural hazard mitigation planning. According to FEMA, a primary goal of including natural hazard mitigation in Comprehensive Planning is to keep future development out of known hazard areas, prevent hazards from affecting existing developed areas, and strengthen existing development to resist hazards.¹³

5.1. Federal Regulations

5.1.1. FEMA-Required Hazard Mitigation Plans

Any jurisdiction applying for FEMA mitigation funds is required to have a hazard mitigation plan approved by FEMA.

The State of Oregon's NHMP was approved by FEMA on September 24, 2015 as an Enhanced Plan¹⁴ and is effective through September 23, 2020. The NHMP, which identifies and prioritizes hazards specific to the Portland Metropolitan Region (Region 2), details actions that would reduce the State's vulnerability. This Plan, which was updated by the Oregon Department of Land Conservation and Department (DLCD) earlier this year, satisfies FEMA requirements for hazard mitigation planning

¹³ FEMA, Region X. 2013. Integrating the Local Natural Hazard Mitigation Plan into a Community's Comprehensive Plan: A Guidebook for Local Governments."

¹⁴ An enhanced mitigation plan makes states eligible for increased funds from the Hazard Mitigation Grant Program following a disaster declaration. To receive FEMA approval on an enhanced mitigation plan, a state must develop a comprehensive mitigation program and be capable of managing additional funds to achieve their mitigation goals.

protecting Oregon’s eligibility for disaster assistance funds from the federal government. Hillsboro provided input on updates to this plan in the summer of 2015.

Local governments are also required to develop local hazard mitigation plans in order to be eligible for FEMA funding for mitigation projects. The City’s current (2008) Multi-Hazard Mitigation Plan¹⁵ identifies the risks, response solution, mitigation goals, and action items with the intention of reducing loss of life and property in the event of a natural hazard. Some of the mitigation action items identified in this Plan include :

- Develop public and private sector partnerships to foster hazard mitigation activities
- Develop education programs aimed at mitigating the risk posed by hazards
- Integrate Mitigation Plan findings into planning and regulatory documents and programs
- Review and update emergency response plans for disruptions of utilities or roads, and include public notification plan for utility conservation
- Educate homeowners about structural and non-structural retrofitting of vulnerable homes and encourage retrofit
- Inventory critical facilities within mapped floodplains or other high flood risk areas and identify mitigation options if such facilities are identified

Hillsboro’s Multi-Hazard Mitigation Plan is being updated to include the latest information about hazard risks in Hillsboro and proposed mitigation measures to address these risks. This revised Plan will be a countywide plan; Hillsboro-specific information will be included as an appendix.

5.1.2. FEMA National Flood Insurance Act

The National Flood Insurance Program (NFIP) is a Federal program created by Congress in 1968 to minimize the impact of flooding on taxpayers as well as public and private structures. This is achieved by providing affordable flood insurance to property owners contingent upon communities adopting and enforcing floodplain management regulations to reduce the structural damage from flooding. According to the DLCDC, participation in the NFIP “addresses the requirements of statewide planning Goal 7 with respect to flood hazards.”¹⁶

The mission of the NFIP is to provide a mechanism to transfer some of the costs of private property flood losses from the taxpayer to floodplain property owners (flood insurance), to provide aid after disasters, to encourage development outside of the flood hazard areas, discourage development in the flood hazard area, and to require construction that may withstand flooding. To encourage participation in the NFIP, the federal government now requires federally backed financing of development in known flood hazard areas to obtain flood insurance and does not give certain types of federal assistance to communities that do not participate in the NFIP.

5.1.3. U.S. Army Corp of Engineers

The U.S. Army Corps of Engineers works to protect the nation’s water resources, which includes flood control. The Corps manages and administers a permit program overseeing activities that affect our nation’s waterways, such as piers, outfalls, dredging, excavation, or depositing of fill. In Oregon, permits for development are issued jointly by the Oregon Division of State Lands (DSL) and the

¹⁵ City of Hillsboro. January 2, 2008. *Multi-Hazard Mitigation Plan for Hillsboro, Oregon: Final*.

¹⁶ DLCDC Natural Hazards. *Floods: Local Government*. <http://www.oregon.gov/LCD/HAZ/pages/localgov.aspx> (Accessed 3 September 2015).

Corps. Local planning agencies are generally required to sign off on any wetland or waterway permits issued by the DSL and the Corps; water quality certification is also required by the Department of Environmental Quality.

In 2006, the U.S. Army Corps of Engineers established the National Flood Risk Management Program in order to synchronize flood management programs between the Department of Homeland Security, FEMA, and other government agencies at all levels. Flood risk management requires the integration of mitigation planning, preparedness, response, and recovery programs. The *Program Management Plan*, issued by the Corps in 2009, provides guidance on the implementation of the program that helps planners and decision-makers identify opportunities to reduce flood risk.

Under the Flood Control and Coastal Emergency Act, the Corps provides disaster preparedness and response services as well as advanced planning measures designed to reduce the amount of damage caused by emergencies and disaster events.

Additionally, the Corps provide critical emergency support functions including a Public Works and Engineering function, which gives the U.S. Army Corps of Engineers a primary role in coordinating public works and engineering-related support to prepare for, respond to, and/or recover from natural or man-made disasters. The Corps performs this function together with the Department of Defense and FEMA.

5.1.4. Other Federal Acts

The Presidential Policy Directive 8: National Preparedness

The National Preparedness Goal is included in the Presidential Policy Directive 8 and provides guidance on community preparedness for all types of disasters and emergencies¹⁷. This Directive describes how the Federal government shall align its resources to deliver core capabilities to each preparedness mission area, which endeavor to integrate and synchronize existing national-level Federal capabilities to support local, state, and territorial preparedness plans. Some of the core capabilities relevant to Hillsboro and Statewide Goal 7 are:

- **Planning** - Conduct a systematic process engaging the whole community, as appropriate, in the development of executable strategic, operational, and/or community-based approaches to meet defined objectives
- **Long-Term Vulnerability Reduction** - Build and sustain resilient systems, communities, critical infrastructure and key resource lifelines so as to reduce their vulnerability to hazards.
- **Threats and Hazard Identification** - Identify the threats and hazards that occur in the geographic area; determine the frequency and magnitude; and incorporate this into analysis and planning processes so as to clearly understand the needs of a community or entity.
- **Economic Recovery** - Return economic and business activities to a healthy state and develop new business and employment opportunities that result in a sustainable and economically viable community.
- **Housing** - Implement housing solutions that effectively support the needs of the whole community and contribute to its sustainability and resilience.¹⁸

¹⁷ US Department of Homeland Security. *Presidential Policy Directive / PPD-8: National Preparedness*. Issued March 30, 2011. <https://www.dhs.gov/xlibrary/assets/presidential-policy-directive-8-national-preparedness.pdf> (Accessed: 24 December 2015).

¹⁸ Federal Emergency Management Agency (FEMA). *May 4, 2015 (last updated). "Core Capabilities."* <http://www.fema.gov/core-capabilities> (Accessed: 21 August 2015).

The City of Hillsboro, together with other regional jurisdictions, provided comments to FEMA in September 2015 on the Directives core capabilities, including recommended implementation measures.

Urban Area Security Initiative

The Urban Area Security Initiative (UASI) Grant Program was established in 2003 by the U.S. Department of Homeland Security to help urban areas respond to and recover from natural and man-made disasters. The Regional Disaster Preparedness Organization (RDPO) is a five-county collective that seeks to address threats and hazards faced by this region. Since 2003, the RDPO has received UASI grant funds totaling approximately \$48 million for regional hazard preparation and assets; this includes funding for training and exercises, development of a debris management plan, and testing of regional communication systems, among other programs and resources. As a city located in the RDPO region, Hillsboro benefits from this grant funding.

Climate Action Plan

In June 2013, the President enacted the Climate Action Plan¹⁹ intended to improve the nation's resilience to flooding and better prepare the nation for the impacts of climate change. Specifically, it directs federal agencies to take the appropriate actions to reduce risk by providing grants, technical assistance, and other programs across all sectors; the Environmental Protection Agency, for example, is already working to integrate climate change considerations into its Clean Water and Drinking Water State Revolving Funds and grants for brownfields cleanup. In addition to grant opportunities, local governments will likely experience changes to permit requirements related to federal funding for transportation; this could include a provision in National Environmental Policy Act (NEPA) permits for climate change adaptation measures in major transportation investments, for example.

5.2. Statewide Regulations

5.2.1. Statewide Planning Goal 7

The purpose of Statewide Planning Goal 7 is to "protect life and property" from natural disasters and hazards such as floods, landslides, and earthquakes. To achieve this protection, the state requires local governments to develop plans based on an inventory of known areas subject to natural hazards; they advise that "developments subject to damage or that could result in loss of life shall not be planned nor located in known areas of natural disasters and hazards without appropriate safeguards"²⁰.

Oregon Statewide Planning Goal 7 states that local governments should consider the following in adopting policies to protect people and property from natural hazards:

- Benefits of maintaining natural hazard area as open space, recreation, or other low density use

¹⁹ Executive Office of the President. June 2013. *The President's Climate Action Plan*. <https://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf> (Accessed: 6 May 2015).

²⁰ Oregon's Statewide Planning Goals and Guidelines. "Goal 7: Areas Subject to Natural Hazards." Adopted September 28, 2001. Effective June 1, 2002.

- Potential positive outcomes of natural hazards on the environment
- Effects of hazard mitigation measures on natural resource management

It further states that local governments should coordinate their land use plans and decisions with emergency preparedness, response, recovery, and mitigation programs.

Local governments have responded to Goal 7 by incorporating hazard inventories into their comprehensive plans and by adopting policies and ordinances to protect people and property from the identified hazard. Hillsboro's Natural Hazard Mitigation and Emergency Operation Plans identify the hazards to which the City is vulnerable; these Plans also document risk and preparedness opportunities to protect life and property in the city.

Although Goal 7 covers all natural hazards, other state policies and regulations address individual hazards. For example, Oregon specifically addressed "rapidly moving landslides" in 1999 in response to the catastrophic landslide events that occurred in Oregon in 1996. Additionally, the DLCDC has published significant guidance for local governments addressing planning and mitigation options for each of the hazards outlined in Goal 7. It also notifies local governments when relevant new hazards information requires a local planning response, which must occur within three years from notification. A local planning response includes evaluating the risk based on new information and adopting or amending plan policies and measures to avoid both development and siting of essential facilities in hazards areas.

5.2.2. State of Oregon Building Codes (Oregon Structural Specialty Code)

According to the State of Oregon Buildings Codes, many structures built before the 1980s used older construction techniques that we now know are inadequate for earthquake-level forces. Damage to these buildings may be severe, including cracking walls, toppling chimneys, or dwellings shifting off their foundation. Since the 1980s, the design of structures to prevent loss of life and limit structural damage has improved dramatically throughout Oregon. Because of these changes to building code, structures built after 1980 tend to be substantially safer.

For alterations, repairs, additions, and changes of occupancy to existing buildings, Oregon Structural Specialty Code (OSSC) requires compliance with current standards. Also, retrofitting of existing buildings is encouraged for any structure built prior to 1980. For residential buildings to be eligible, they must be three stories or fewer with a wood frame and wood floors²¹. Considering potential implications to life, property, and recovery, including sheltering after a disaster, retrofitting of structures built before 1980 should be encouraged, particularly for residential units.

Building code related to flood hazard areas stipulates that any additions that constitute substantial improvement²² to structures in this zone requires that *all aspects of the existing structure* be

²¹ Additional information on home retrofitting is available in the Standard Earthquake Home Retrofit (SEHR) Plan Set available in the Building Department

²² Defined as: "any reconstruction, rehabilitation, addition or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement (44 Code of Federal Regulations 59.1)

brought into compliance with the requirements for new construction in flood hazard areas (emphasis added)²³.

5.2.3. Legislation

Oregon Senate Bill 12 directs various agencies to identify high risk areas, provide technical assistance, and adopt regulations that reduce risks, provide sufficient warning or alert systems, and coordinate state resources for rapid response to landslide-related emergencies. This Bill further identifies responsibilities for local governments, requiring them to "regulate through mitigation measures and site development standards the siting of dwellings and other structures designed for human occupancy in further review areas where there is evidence of substantial risk for rapidly moving landslides." However, governments are limited in prohibiting development in high-risk areas unless they offer property owners an opportunity to participate in a Transfer of Development Rights program.

Oregon House Bill 2633 requires the Land Conservation and Development Commission to adopt administrative rules to implement a statewide land use planning goal related to natural hazards. It directs the DLCDC to develop a program to provide guidance to local governments regarding planning for natural disasters, and to adopt rules for addressing risks associated with development in areas susceptible to natural disasters. As a result of this Bill, DLCDC provides guidance to local governments on their Natural Hazards Mitigation Plan, including Hillsboro, as needed.

5.3. Metro Regulations

Hillsboro is in compliance with Title 3 of the Urban Growth Management Functional Plan (*Water Quality and Flood Management*; Section 3.07 of the Metro Code), which seeks to protect water quality and function from development impacts, and protect life and property from the effects of flooding. The Metro Water Quality and Flood Management Area map that is required for compliance is implemented in Hillsboro through the Significant Natural Resource Overlay (SNRO), which may be updated as new environmental data such as wetland delineations become available, and Flood Insurance Study maps.

6. Other Plans, Programs, or Reports

6.1. Agency Coordination

6.1.1. Joint Water Commission

The Joint Water Commission (JWC) is a consortium of water suppliers in the Tualatin Valley, of which Hillsboro is the Managing Agency. The JWC has plans for all emergencies that could compromise drinking water supplies, including earthquakes, floods, and hazardous material spills. In order to provide effective and thorough emergency response, the JWC has developed an Emergency Response Plan, which includes emergency distribution of drinking water for residents of associated jurisdictions: Hillsboro, Forest Grove, Beaverton, and the Tualatin Valley Water District. The JWC also has cooperative agreements with other agencies identifying their ability to assist in the event of an emergency; the City of Hillsboro is a participant in these agreements.

²³ State of Oregon Building Code, Section 3403.2

6.1.2. Emergency Management Cooperative of Washington County

The County's Emergency Management Cooperative (EMC) was established to provide an integrated system for disaster preparation, response, recovery and mitigation. The EMC supports government preparedness and helps to educate the residents of participating jurisdictions. The City of Hillsboro is not a member of EMC, but does coordinate and participate with the County on activities in all phases of emergency management.

6.2 Hillsboro's Emergency Operations Plan

The EOP details the roles and responsibilities of City leadership and staff during an emergency or natural hazard event. In addition to providing a response strategy, this Plan includes materials for tracking City activities and allocating resources. Rather than address specific hazards, the EOP takes an all-hazards approach to event management guiding general actions and best practices in disaster response. The Plan is valid until 2017 at which time the City's Emergency Manager will update the tool.

7. Emerging Issues, Challenges, and Trends

7.1. Issues & Challenges

7.1.1. Comprehensive approach to risk assessments

While a number of risk assessments have been prepared for the City of Hillsboro, many have a singular department or agency focus. In order to bridge the gap between sectors, a new comprehensive assessment is required. This assessment should evaluate the effect of Hillsboro's primary hazards²⁴ on all sectors, including the cascading effects of disasters: the risks associated with interdependencies and amplification of hazard conditions that can lead to secondary disasters²⁵. Primary hazards include seismic activity, which bring risk of liquefaction, dam failure and flooding, and volcanic activity. Each hazard and their accompanying vulnerabilities has the potential to interrupt service delivery, especially electricity and water, which may interrupt industry as well as residents, poor and vulnerable communities in particular. Transportation and communication connections may be severed limiting the City's ability to provide lifesaving aid in the event of a disaster or to communicate resource and recovery needs, slowing the City's response. Should air service become unavailable, Hillsboro and other cities west of the Willamette River, may be unable to receive aid from outside of the Cascadia Subduction zone area. It is expected that a Cascadia subduction zone earthquake would shut the city down for at least two weeks.

The number and interconnectedness of risks demands a comprehensive approach to evaluating and addressing the City's vulnerabilities. Absent this flexibility, the system may break resulting in a longer recovery time and hinder the inability of some individuals and industry to bounce back.

7.1.2. Outreach

Hillsboro is comprised of diverse communities with residents from around the world making up the City's neighborhoods and workforce. Recently developed outreach programs have facilitated communication with these groups and allowed for better disaster planning and response. For

²⁴ Primary hazards include those listed at the beginning of this document: earthquakes, floods, landslides, volcanic activity, wildfires, droughts, windstorms, winter storms

²⁵ Secondary disasters occur as a result of natural hazard events; for example, if an earthquake were to result in a hazardous material spill, the latter would be the secondary disaster

example, in an effort to educate and empower its citizens, the City of Hillsboro offers free Community Emergency Response Team (CERT) training to all of its residents, employees, and students in both English and Spanish; this training is intended to improve an individual's ability to take care of themselves during and after a disaster and to help others.

Though substantial strides have been made, there is opportunity for more to be done, including mobilizing the City's bilingual workforce in support of outreach, coordinating with churches, schools, and health facilities, and making resources more accessible for diverse users, such as greater dissemination of information on billboards, in bus shelters, and on the web.

7.1.3. Operational Planning

Hazard planning needs to be incorporated into the language and function of all City business. While several planning and visioning documents include items relevant to hazard planning, such as improved multilingual outreach and better agency coordination, few plans speak to emergency or hazard planning specifically. When hazard planning or response is not spelled out as a specific goal in planning documents, accountability for implementing emergency management actions becomes difficult.

7.2. Emerging Trends & Opportunities

There are a number of emerging trends and opportunities in natural hazard planning and response. Where and how we plan our community may impact our vulnerability to certain hazards. This section identifies some emerging trends in the field of natural hazard management as well as some opportunities to minimize our vulnerability to risk from natural hazards.

7.2.1. State of Oregon Playbook

At the request of the Governor, the Oregon Office of Emergency Management has launched a new initiative to synchronize efforts across the state in response to a Cascadia event or other significant disasters: the *Cascadia Playbook* is a cross-cutting emergency management tool for the State that supports various plans for the first 14 days after a catastrophic event. The Playbook defines roles and responsibilities, prioritizes actions, and allocates resources for each play; local government input and participation is vital to each play because of their community connection, local knowledge, and staff on the ground. The Playbook also endeavors to complement and support existing plans developed by local and state government by providing subject matter expertise to each critical function area, combining materials from the Oregon Cascadia Subduction Zone Plan and FEMA Region X's Cascadia Execution Checklist, identifying possible decision-making structures and authorities to expedite recovery, and providing tools to help visualize post-disaster actions to support rapid understanding and ensure a comprehensive response.

7.2.2. Resilience Planning

Resilience planning, particularly in the urban context, is the identification and implementation of urban design and planning solutions that minimize the impact to human health and well-being, and to community function, following a hazard event; it speaks to the ability to prepare for, respond to, and recover from hazards with minimum damage to health, economy, and security²⁶. It is used to

²⁶ Wilbanks, T (2007). "The Research Component of the Community and Regional Resilience Initiative (CARRI)". *Presentation at the Natural Hazards Center, University of Colorado-Boulder.*

help cities plan for and recover quickly from disasters and hazard events. Urban resilience can occur at many levels, covering everything from the built environment to the resilience of a community or population. Resilience is also used to describe preparation and robustness in response to specific hazards: drought, flood, and storm resilience, for example.

Recovery and resilience go hand-in-hand. A recent article in the American Planning Association's magazine²⁷ speaks to the critical role planners have in recovery. Not only are planners crucial to keeping people, businesses, facilities, and systems safe by keeping development out of hazard areas, they are important to the reconstruction efforts that follow a disaster; it is this ability to build back better (quickly, intelligently, and with minimal impacts) that creates a robust and resilient city.

Resilience is gaining widespread attention around the globe, particularly as governments plan how to respond and adapt to climate change. The United Nations Office for Disaster Risk Reduction (UNISDR) is undertaking a global effort to increase resiliency among cities; to date, this has included grants, guides, references, technical assistance and financial support among hundreds of cities globally (12 in the U.S.). The Rockefeller Foundation is also working to help cities around the world become more resilient by providing financial and technical assistance to participating cities (60 identified to date, of which 15 are in the U.S.). The support provided by these organizations, among others, underscores the importance of resilience planning among urban cities and make available valuable resources (such as toolkits, data, best practices) to local governments for their use. In the U.S., the federal government has addressed this in the President's *Climate Action Plan*²⁸. The Plan includes in its directives the provision of a Climate Resilience toolkit that will centralize access to data-driven resilience tools, services, and best practices, including those developed through the Climate Data Initiative.

In order to be innovative, effective, and responsive, Hillsboro should work to address its infrastructure challenges as related to natural hazards. Some of the most pressing resilience-building priorities to address the many varied and often related vulnerabilities identified above are provided in *The Oregon Resilience Plan*²⁹. These include:

- 1) Assess the city's buildings, lifelines, and social systems to develop a sustained program of replacement, retrofit, and redesign;
- 2) Launch a sustained program of capital investment in public structures, including for schools, colleges, and emergency response facilities; and
- 3) Seismically upgrade lifeline transportation routes into and out of major business centers

²⁷ Kim, Karl and Robert Olshansky. "The Theory and Practice of Building Back Better." Journal of the American Planning Association. Autumn 2014. Vol. 80, No. 4.

²⁸ Executive Office of the President. June 2013. *The President's Climate Action Plan*. <https://www.whitehouse.gov/sites/default/files/image/president27climateactionplan.pdf> (Accessed: 6 May 2015).

²⁹ Oregon Office of Emergency Management. February 2013. *The Oregon Resilience Plan*.

8. Recommended Plan Updates and Policy Questions to Consider

8.1. Policy Questions

1. Is it appropriate to develop a *comprehensive hazards plan* to integrate response and preparedness plans into all departments, and ensure that the priorities of each group are reflected in the City's all-hazards program and long-term strategy?
2. Should the City develop a Resilience Plan?
3. How can we raise awareness about natural hazard risks and preparedness? How can we target this education towards vulnerable groups?
4. Is it appropriate to incentivize building retrofits for eligible structures, especially residences?

8.2. Recommended Plan Updates

The City would benefit from technical and strategic support for implementing goals of the NHMP. This includes integrating recommendations from the NHMP into existing risk analysis plans, capital improvement plans, long-range transportation planning, long-term growth plans, and requests for proposals (and other procurement documents). In addition to updates related to implementation of the NHMP, the following goals and/or policies are recommended based on the content of this background report:

1. Improve coordination and communication with the public and private sector surrounding all-hazards planning. Where possible, integrate the hazard mitigation strategies of primary private sector partners, especially major employers
2. Update program, plans, and policies using the most current data available, including latest data (e.g., LiDAR, field data, geographic analyses) and regional best practices
3. Encourage creation of budget line items in every City department to support hazard mitigation, planning, and response
4. Support the preservation and maintenance of natural resources with consideration for natural hazard impacts; for example, maintaining, preserving, and installing trees as necessary to ensure strong and supported trees in order to minimize impacts resulting from wind storms
5. Enhance codes and policies that limit impact of flood hazards on people and property³⁰, including restrictive land use regulations to avoid siting development in flood hazard areas
6. Make the language of hazard preparation and response a regular part of the planning and permitting conversation
7. Support measures to protect historic and cultural resources from damage caused by natural hazards

³⁰ Collins, Peggy (contracted by DLCD). September 2007. *Recommendations for Improvements to the Administration of the NFIP and Flood Related State Building Codes*. http://www.oregon.gov/LCD/HAZ/docs/general/building_codes-floodplain_task_force_report.pdf (Accessed: 3 September 2015).

A full list of recommended Comprehensive Plan updates are included in the accompanying Goals and Policies document.

9. Resources

Bucher, John, R. Josh Human, and David M. Simpson. (2014). "Developing a Framework for State and Local Community Recovery Planning." *Journal of the American Planning Association*. Vol. 80. No. 4.

Executive Office of the President. June 2013. *The President's Climate Action Plan*.

<https://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf> (Accessed: 6 May 2015).

Kim, Karl and Robert Olshansky. "The Theory and Practice of Building Back Better." *Journal of the American Planning Association*. Autumn 2014. Vol. 80, No. 4.

Oregon Department of Geology and Mineral Industries (DOGAMI). *Oregon HazVU: Statewide Geohazards Viewer*. <http://www.oregongeology.org/hazvu/> (Accessed: 7 May 2015).

Oregon Department of Land Conservation and Development (DLCD). 2015. *2015 Oregon Natural Hazards Mitigation Plan. Region 2 – North Willamette Valley/Portland Metro*.

<http://www.oregon.gov/LCD/HAZ/pages/NHMP.aspx> (Accessed: 7 May 2015).

US Department of Homeland Security. *Presidential Policy Directive / PPD-8: National Preparedness*.

Issued March 30, 2011. <https://www.dhs.gov/xlibrary/assets/presidential-policy-directive-8-national-preparedness.pdf> (Accessed: 24 December 2015).

Wilbanks, T (2007). "The Research Component of the Community and Regional Resilience Initiative (CARRI)". *Presentation at the Natural Hazards Center, University of Colorado-Boulder*.

Areas Subject to Natural Hazards

Goals and Policies DRAFT – February 12, 2016

Review History

Date	Reviewed By
01.07.2016	Internal Committee – <i>Comments Incorporated</i>
01.20.2016	Internal Committee – <i>Comments Incorporated</i>
02.11.2016	Technical Advisory Committee – <i>Comments shown as tracked changes</i>

GOAL 1 Minimize impacts of natural hazards on people and property.

- POLICY 1.1 Enhance ordinances and design standards that limit the impact of flooding and other natural hazards* on people and property.
- POLICY 1.2 Facilitate the transition of natural hazard areas* to open space, recreation, or other low-density use.
- POLICY 1.3 Develop and maintain a mitigation plan for natural hazards.
- POLICY 1.4 Avoid development in natural hazard areas where the risk to people and property cannot be mitigated.
- POLICY 1.5 Prohibit the siting of essential facilities* in identified natural hazard areas where the risk to public safety cannot be mitigated, unless an essential facility is needed to provide essential emergency response services in a timely manner
- POLICY 1.6 Prohibit the siting of hazardous materials storage facilities* and special occupancy structures* in identified natural hazard areas where the risk to public safety cannot be mitigated.
- POLICY 1.7 Support ~~tree~~ the preservation and maintenance of natural resources with consideration for natural hazard impacts; for example, maintaining, preserving, and installing trees as necessary to ensure strong and supported trees in order to minimize impacts resulting from wind storms.
- POLICY 1.8 Support measures to protect historic and cultural resources from damage caused by natural hazards.

GOAL 2 Provide information and services to support the preparation and recovery of people of all ages, abilities, cultures, and incomes.

- POLICY 2.1 Ensure availability of information to build awareness about natural hazards and mitigation measures to members of the public in a variety of formats, media, and languages, focusing especially on actionable items such as earthquake retrofitting and stocking emergency supplies.

POLICY 2.2 Promote multiple channels for outreach in a variety of formats, media, and languages for sharing of information, alerts, and instruction during a hazard event.

POLICY 2.23 Promote development policies and practices that protect the safety of people in Hillsboro, including retrofitting structures and fortifying vital transportation and communication systems.

POLICY 2.34 Enable the emergency and immediate use of appropriate public and quasi-public facilities* for temporary congregation and sheltering locations during and following a disaster event.

POLICY 2.45 Facilitate the expedient provision of temporary housing immediately following disaster event.

GOAL 3 Improve coordination with public and private partners.

POLICY 3.1 Build and maintain citywide hazard response strategy based on existing plans and close coordination with public and private sector partners.

POLICY 3.2 Optimize funding for natural hazard mitigation, response, recovery, and outreach by pursuing creative and flexible funding strategies.

POLICY 3.3 Coordinate with private sector service providers and other jurisdictions to identify opportunities to expedite restoration of critical services*.

POLICY 3.4 Coordinate with local and regional jurisdictions to develop solutions for debris management following natural hazard events.

POLICY 3.5 Facilitate temporary use permits for short-term storage of debris during hazard clean up and recovery.

GOAL 4 Build capacity for greater urban resilience*.

POLICY 4.1 Promote replacement, retrofitting, and redesign of at-risk buildings*.

POLICY 4.2 Promote and support a sustained program of capital investment to improve resilience in public structures, especially emergency response essential facilities* and schools.

POLICY 4.3 Provide redundancies to critical infrastructure* to reduce service down times and expedite recovery.

POLICY 4.4 Support actions and investments to ensure availability of lifeline transportation routes* , including aviation services, following a natural hazard.

POLICY 4.5 Develop and maintain a citywide Resilience Plan to support rapid recovery of the City and its services.

POLICY 4.6 Expand the City's capacity to address cascading hazards*.

GOAL 5 Manage and maintain spatial, demographic, and economic data to support hazard mitigation planning.

- POLICY 5.1 Promote frequent updates to the ~~City's~~ spatial*, demographic, and economic data used by the City to support hazard planning and response.
- POLICY 5.2 Ensure continuous and timely revisions to natural hazard mapping ~~on~~ a community-wide basis in conjunction with federal, state, and local efforts.
- POLICY 5.3 Leverage existing technology and support investment for additional hardware and software in favor of ~~for comprehensive~~ natural hazard planning and response.

DEFINITIONS:

At-Risk Buildings – Buildings with little or no structural integrity that are unlikely to withstand a natural hazard event, such as an earthquake. Often these include structure built prior to 1980 using construction techniques now known to be inadequate for protection in the event of an earthquake. Structural retrofits can remove a building from at-risk status

Cascading Hazards - Hazard events or conditions that occur as a result of a primary hazard in which effects may be transferred or multiplied in a new medium. For example, a seismic event could be a primary hazard and a flood, failed bridge, or hazardous material spill that occur as a result of that event would be the cascading hazards.

Critical Services – Utilities and infrastructure that provide vital life services, such as electricity and potable water

Critical Infrastructure – The means by which critical services are delivered or conveyed; for example, power lines, water systems, communication networks, and transportation routes.

Essential Facilities – Hospitals, fire and police stations, structures containing water or fire-suppression materials, emergency vehicle shelters and garages, standby power generating equipment for essential facilities, and government communication centers or other facilities required in emergency response (defined by the state building code [ORS 455.447(1)(a)]).

Hazardous Materials Storage Facilities – Per state building code (ORS 455.447(1)(b)): “Structures housing, supporting, or containing sufficient quantities of toxic or explosive substances to be of danger to the safety of the public if released.”

Lifeline Transportation Routes – Transportation routes (streets, highways, and bridges) that “support emergency response and recovery efforts by providing a backbone system...that connect service providers, incident areas and essential supply lines” (ODOT Lifeline Route Selection¹)

Natural Hazard Areas – Land prone to natural hazards, such as those whose geologic conditions predispose them to earthquake, landslide, or sinkhole impacts, or whose location, within a 100-year floodplain or adjacent to wildlands, increases the likelihood of flood or wildfire.

¹ <http://www.oregon.gov/ODOT/GOVREL/Pages/news/101112a.aspx> (Accessed: 29 December 2015).

Natural Hazards – Severe or extreme weather, climate, geologic, or fire events that occur naturally or as a result of a natural event (such as lightning or high winds).

Quasi-Public Facilities – Facilities that provide public benefit but under private ownership or control

Resilience – The ability to adapt to changing conditions and recover quickly from disasters or hazard events

Spatial Data – Information with a geographic component that allows analysis, representation, and visualization of data for the purpose of decision-making. This reference to the City’s spatial data includes not just the data the City creates and maintains, but also the data acquired from other sources, such as the Oregon Department of Geology and Mineral Industries (DOGAMI), the US Geological Survey (USGS), and the Oregon Department of Land Conservation and Development.

Special Occupancy Structures – Covered structures whose primary occupancy is public assembly with a capacity greater than 300 persons; buildings with a capacity greater than 250 individuals used in association with public, private, parochial school through secondary level or child care centers; buildings for colleges or adult education with a capacity greater than 500 persons; medical facilities with 50 or more residents, incapacitated patients, or patients requiring daily care or assistance; jail and detention facilities; all structures and occupancies with a capacity greater than 5,000 persons (ORS 445.447 (1)(e)).

DRAFT

Section 8. Natural Disasters and Hazards.

- (I) **Goal.** To protect life and property within the planning area from natural disasters and hazards, developments subject to damage or capable of causing damage to other property or resulting in loss of life shall not be allowed in known natural disaster or hazards areas without appropriate safeguards.

- (II) **Definitions.**
 - (A) Areas of natural disasters and hazards. Areas that are subject to natural events that are known to result in death or endanger the works of man, such as stream flooding, groundwater, erosion and deposition, landslides and weak foundation soils.

- (III) **Policies.**
 - (A) Floodplains. See open space.
 - (B) Areas subject to natural disasters and hazards shall be inventoried, designated on the Comprehensive Plan Map, and the degree of hazard and disaster potential determined. This information shall be used to determine the suitability of a location for development and, if necessary, be used to limit a development to a level consistent with the degree of hazard and disaster potential. Lowering density requirements and intensity of development from what the land is designated shall be considered an appropriate limitation on a use in a natural disaster and hazard area.
 - (C) The potential for hazard and disaster resulting from proposed government programs and projects shall be determined and, if necessary, such programs and projects limited accordingly.
 - (D) The effect of development on land designated natural disaster or hazard should be measured against the effect of allowing the land to remain unchanged.

- (IV) **Implementation Measures.** (Added by Ord. No. 3130/6-80.)
 - (1) A Floodplain Ordinance shall be adopted to limit development in the floodplain, thereby reducing hazard to life and property. (Added by Ord. No. 3130/6-80.)
 - (2) In order to reduce erosion and deposition, soil stabilization measures shall be required on all floodplain alterations. (Added by Ord. No. 3130/6-80.)

- (3) Because of the poor percolation qualities and shallow water table associated with much of the soil in the planning area, urban level development will be required to utilize sanitary sewers. (Added by Ord. No. 3130/6-80.)

Design and Development

Background Report DRAFT- February 3, 2015

Review History

Date	Reviewed By
02.03.2015	Internal Committee – <i>Comments Incorporated</i>

1. Introduction

Urban design is the shaping of the built environment using human beings, their size and their senses, as the fundamental metric of scale, proportion, comfort, and materials. Good urban design of the public realm is a synthesis of urban planning, landscapes, and architecture for people. Hillsboro has a proud tradition of innovative urban design in developments such as Orenco Station, Tanasbourne AmberGlen, and South Hillsboro, but does not have overarching goals and policies related to the built environment. Urban design is not included as an explicit component of the existing Comprehensive Plan with the exception of identifying “design types”. The 2035 Community Plan calls for the adoption of “standards for urban design with emphasis on creating or preserving neighborhood character and ‘sense of place’.”

The best practices of urban design can be regulated and implemented to insure healthy and attractive urban environments. An Urban Design and Development component of the Comprehensive Plan allows for the creation of specific goals and policies related to:

- The arrangement and design of buildings, public spaces, transport systems, services, and amenities
- The form, shape, and character of groups of buildings, whole neighborhoods, and the city
- The organization of networks of streets, squares, and blocks.

2. Background

Located in the middle of a fertile valley with abundant water and a mild climate, Hillsboro took its logical place between the Willamette River and the Cascade Mountains in the Westward migration and settling of Oregon and its eventual statehood in 1859. Platted in an orthogonal street grid travelled by foot, horse, or wagon, the city was surrounded by farmland carved out of the old growth forests by the slash and burn techniques of the displaced Native Americans. The City of Hillsboro originally developed as an agricultural community in the mid-19th century. It was the advent of the railway that brought real growth. Willamette Valley railroad reached Hillsboro in 1872, oriented East/West for the obvious reason of connecting raw materials and goods to ports and markets in Portland. By the end of the 1870’s, Hillsboro had a station, a mill, a wheat warehouse, a classic East/West Main Street flanked by multi-

story masonry buildings, some wood-planked streets in a modest street grid pattern and a new brick courthouse. Industry thrived along the rail corridor and remains as such today.

World War II brought a new population to Hillsboro. Some sought employment in the shipyards, while others were military personnel and immigrants whose labor replaced that of the men in service. The war and the atomic age produced the high tech era, which led to today's thriving "Silicon Forest".

The post-war highway act brought the Tualatin-Valley Highway, I-5, Sunset Highway (Rt26), and auto-oriented development was quickly implemented and expanded westward from Portland to Hillsboro and the Pacific Coast. Hillsboro began its ascendance as a high-tech hub beginning with Tektronix as far back as 1946. Intel first arrived in 1979. Planning for a high-capacity transit service to the West side of Metro Portland began the same year. Large suburban model horizontal-mixed-use development grew on large tracts of farm land purchased as early as the 1960's and developed throughout the 1970's and 80's. With continued strong growth in the high-tech, bio-tech, pharmaceutical, Solar, Health Education, and industrial sectors bringing thousands of jobs and people into Hillsboro, the residential development inside the Metro Urban Growth Boundary established in 1979 has been astounding. The population of Hillsboro has grown from 28,000 in 1980, to 97,000 in 2015.

The rise of discontinuous suburban cul-de-sac development has continued through to present day. In the late 1990's and 2000's the prescient planning initiatives of the late 1970's had borne fruit in the form of light rail service and multi-modal stations from downtown Portland to downtown Hillsboro. Based on re-zoning initiatives in 1997, the City is now seeing higher density, vertical mixed-use Transit Oriented Developments as hubs of connectivity combined with green and public open space amenities.

As a result, what is now the City of Hillsboro is really a blend of developments with different forms, scales and character. This diversity of suburban form requires utilizing a variety of urban design principles to create community cohesion while retaining neighborhood identity.

In the Hillsboro 2035 Plan residents expressed the desire to "Foster distinct, vibrant neighborhoods featuring quality development, preserved landmarks, a variety of housing and services safely accessible by walking biking, transit or a short commute." They also expressed a desire to encourage the development of plazas, streetscapes, green spaces and other new venues and to make Hillsboro walkable and bicycle friendly citywide for daily living and recreation.

The City has made great strides over the past 15 years to encourage this new type of development. The new Orenco neighborhood has evolved into a very successful transit oriented development neighborhood with growth radiating out along the rest of the light rail line as a result of the Station Community Planning Area (SCPA) Comprehensive Plan designation, which is also applicable in the downtown area. There is also mixed use zoning along 185th and in the Tanasbourne AmberGlen area of the city.

3. Hillsboro 2020 and 2035 Community Plan

The City began its visioning project, called Hillsboro 2020, in 1997. The 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, which was adopted in late 2015.

3.1. Vision 2020

The Hillsboro 2020 Vision and Action Plan identified several ways the City should be addressing urban design in the City. The Plan is organized into a series of focus areas, strategies, and actions. The actions most related to urban design and form are listed below, with a brief note on the implementation.

Action & Summary	Status
4.2 Signage: Develop signage program for wayfinding, gateways, logos, neighborhoods.	Implementation underway.
13. Complete an “active transportation” system, integrating sidewalks, pedestrian and bike infrastructure to serve the entire city, improving neighborhood connections, access to transit, recreation options, and safety.	On-going implementation.
16. Develop a new public square in downtown Hillsboro that serves as the heart of the community.	Complete.
17. Provide and encourage “third places” at commercial and public facilities that are attractive and accessible where citizens can meet and talk informally, including such locations in existing and new neighborhood plans.	On-going implementation.
20. Identify and develop a system of neighborhood parks, located within walking or biking distance of every community resident.	On-going implementation.
21. Create and maintain clean, landscaped areas throughout the community.	On-going implementation.
30.4 Develop a Downtown Core Area Vision that results in an economically viable and regionally attractive downtown.	On-going implementation.
30.8 Identify and Support Economic Activity Centers	On-going implementation.

A key element of the Hillsboro 2020 Vision and a guiding principle for this plan is to promote the creation of “third places”.

3.2. 2035 Community Plan

The Vision for Hillsboro 2035 Community Plan states:

In 2035, Hillsboro is a diverse, sustainable city known for success in blending urban lifestyle, a world-class local economy, agricultural heritage and a welcoming family-friendly community for an outstanding quality of life. The program’s community outreach program over the past two years has yielded hundreds of comments related to design and development, generally along 11 themes directly related to urban design: Character and Identity, Mix of Uses, Walkability, Intensity and Type of Development, Neighborhood Design, Community Spaces, Wayfinding / Signage, Downtown, Street Trees / Vegetation. Community affirmation of the value of these themes shines a light on the importance of urban design and development as it impacts the built environment.

The Hillsboro 2035 Community Plan includes broad Initiatives related to urban design:

- Economy + Infrastructure
 - Initiative: Continue efforts to develop a vibrant, mixed-use downtown as a unique attraction
- Livability + Recreation

- Initiative 1: Launch a sustained, multi-faceted effort to make Hillsboro a clean and inviting community city-wide.
- 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.
- Initiative 7: Make Hillsboro walkable and bicycle-friendly citywide for daily living and recreation.

3.2.1. Environmental Sustainability

On June 16, 2015, the Hillsboro City Council adopted the first community-wide Hillsboro Environmental Sustainability Plan. Although there isn't language in the plan related specifically to design and development, best practices in urban design and sustainability converge on the themes of energy and natural resources. Urban design imperatives that strengthen sense of place and neighborhood identity such as walkable neighborhoods, high-quality community spaces, complex urban form, and mixed use development, will simultaneously achieve sustainability goals and policies.

The Environmental Sustainability Plan, which was added to the 2035 Community 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" use and reuse strategy

4. Existing Comprehensive Plan

Urban design is not included as an explicit component of the current Comprehensive Plan with the exception of identifying "design types". These design types, based partially on Metro's 2040 Growth Concept, are found in Section 14, the Comprehensive Plan Maps chapter. The current comprehensive plan and Metro 2040 have slightly different definitions of design types.

4.1. Community Plans

In addition to designating design types, the City created a series of "Community Plans," described in detail later in this report, to create place-specific design guidance in the face of rapid growth. Each of these communities/areas/districts/centers has quickly evolved as a market driven response to industrial

employment, housing and/or commercial growth. Each area is unique and each plan utilizes a different set of urban design tools to create cohesive, efficient, and attractive neighborhoods, many with their own distinct character.

4.2. Transportation System Plan

The importance of coordination between Transportation Systems Planning and urban design is critical. Due to the inherent complexity and multi-agency stakeholders in both arenas, this coordination is a challenge and requires departmental, and inter-agency, diligence at all levels of planning and implementation. Past efforts in Comprehensive Planning have prioritized automobile travel as a primary design driver in planning the City of Hillsboro. With the current implementation of light rail, and a growing bus, bike, and pedestrian network being considered at each road improvement, the opportunity to coordinate these elements, and their supporting transit structures, into the greater vision of design of the built environment will be a key component of success. Ultimately, the question of priority between people and automobiles must be addressed in this Comprehensive Plan update.

5. Regulatory Context

5.1. Federal

The Federal Government does not impose explicit standards or regulations for urban design. Standards are in place for federally funded Historic Tax Credit projects for Historic Preservation administered by the National Park Service. The United States Department of Housing and Urban Development provides funding for “urban environmental design and historic preservation studies” in the form of Community Development Block Grants (CDBG).

5.2. Statewide Planning Goals

Statewide Planning Goal – Goal 2: Land Use Planning, requires “establishing a land use planning process and policy framework as a basis for all decision and actions related to use of land and to assure an adequate factual base for such decisions and actions.” This goal will be addressed in the Land Use Procedure area of the Plan. The subject of urban design is not specifically defined or mandated as part of the Land Use planning goal.

5.3. Metro

In 1992, the region’s voters approved a home-rule charter that directed Metro to make regional growth management its primary mission. The charter required adoption of the Future Vision, a long-range statement of the region’s outlook and values. It also required a comprehensive set of regional policies on land use, transportation, water quality, natural areas and other issues of “regional significance” called the Regional Framework Plan.

5.3.1. Metro 2040 Growth Concept Plan

The Growth Concept Plan, adopted in 1995, identifies the preferred form of regional growth and development. The basic philosophy is to preserve access to nature and build better communities for today and the future. The Growth Concept Plan identifies ten urban design concepts as the focal points for growth and areas throughout the region, which are designated on the Concept Map. Design concepts found in Hillsboro include **Regional centers, Station communities, Town centers, and Industrial areas.**

5.3.2. Metro Regional Framework Plan

The Regional Framework Plan, adopted in 1997, identifies regional policies to implement the 2040 Growth Concept. The plan was amended in 2005 and 2010, and again in 2014 as part of the adoption of the Climate Smart Strategy. Under the Metro Charter and state law, cities and counties within Metro's boundaries are required to comply and be consistent with Metro's adopted Urban Growth Management Functional Plans and the Regional Framework Plan.

5.3.3. Metro Urban Growth Management Functional Plan

The purpose of Urban Growth Management 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 and the Regional Framework Plan. Although these principles are not the tools of urban design, they set the stage for the critical principles upon which sustainable urban design draws its programming, proportionality, and aesthetics. The Urban Growth Management Functional Plan recommends and requires changes to city and county comprehensive plans and implementing ordinances.

5.3.4. Metro Title 6

The Regional Framework Plan identifies Centers, Corridors, Main Streets and Station Communities throughout the region and recognizes them as the principal centers of urban life in the region. Title 6 calls for actions and investments by cities and counties, complemented by regional investments, to enhance this role. A regional investment is an investment in a new high-capacity transit line or designated a regional investment in a grant or funding program administered by Metro or subject to Metro's approval.

6. Hillsboro's Neighborhoods and Community Plan Areas

6.1. Historic Orenco

6.1.1. Background

The Historic Orenco neighborhood was established in 1905 as a company town owned by the Oregon Nursery Company. The 1200 acre community had 500 residents by 1910. The town was platted in a basic, small-scale single family detached residential street grid and alley pattern. The Orenco Station train depot operated from 1908 to 1928, and Orenco post office operated from 1909 to 1963. Many original structures, including a church, gas station, general store, and many original dwellings are still standing today. The Oregon Nursery Company shut down during the depression. The town of Orenco was dissolved as a municipal corporation in 1938 and later became part of the City of Hillsboro.

Oregon Nursery Company founder Malcolm McDonald's home, listed on the National Register of Historic Places, is still located on the north end of the property that was formerly The Orenco Woods Golf Course. The golf course, which opened in 1953, was owned and operated by the Hillsboro Elks Lodge until it was sold to developers and closed in 2006. Due to the Great Recession, the land was not developed, and in 2013 it became the Orenco Woods Nature Park.

6.1.2. Key Urban Design Objectives

- Primarily single family detached structures with a small number of townhomes and commercial buildings

- Original structures, including a church, gas station, general store, and many dwellings
- Unique street network and streetscapes including alley grid pattern and mature trees
- Natural areas, including nature park

6.1.3. Issues and Opportunities

- Preservation of historical, open space and architectural characteristics
- Retention/ enhancement of street and alley grid, some of which has eroded due to lack of infrastructure investment and informal encroachments
- Provisions for infill and redevelopment opportunities within historical context
- An aging-in place population
- Threat of gentrification

6.2. Downtown

6.2.1. Background

The Hillsboro 2020 Vision and other initiatives identified the revitalization of Downtown Hillsboro and adjoining neighborhoods as a high priority. Downtown Hillsboro is the heart of the Hillsboro community, serving as the primary civic gathering spot in the city. The area contains historic residential neighborhoods, the city’s traditional Main Street, and the community’s original (now relatively small) industrial area.

City officials and community leaders have recognized the importance of planning for the continued vitality of Downtown and the surrounding neighborhoods. Over the years the Station Community planning effort, the Downtown Renaissance plan, the Downtown Parking Solutions project, and other initiatives have addressed specific aspects of how the City should proceed in regard to downtown revitalization.

In April 2008, the City embarked on the Downtown Community Planning effort resulting in the Downtown Framework Plan (DFP), which provides direction for a healthy, stable, and sustainable Downtown Hillsboro. The DFP, adopted by City Council in November 2009, is intended to guide future public and private actions in Downtown Hillsboro and the surrounding neighborhoods. It consists of a comprehensive vision for Downtown and close-in neighborhoods, specific short- and long-term actions to turn the vision into reality, and an implementation component to provide the funding and regulatory tools necessary to carry out those actions. A Downtown Urban Renewal District was formed in May of 2010. Urban renewal is a fundamental tool to implement the Downtown Framework Plan, which outlines numerous possibilities and actions required to achieve economic, physical, and civic revitalization of the area.

6.2.2. Key Urban Design Objectives

- The Downtown Core is Vibrant, Active, Sustainable and Accessible
- Development in Downtown Neighborhoods is Compatible
- Pedestrian, Bicycle and Transit Travel is Safe and Well-Connected
- Major Streets are More Inviting with Enhanced Streetscapes and Safe Pedestrian/Bike Crossings
- Sustain and Enhance Downtown’s Economic, Environmental, Cultural and Historic Diversity

6.2.3. Issues and Opportunities

- Many neighborhoods surrounding downtown Hillsboro lack basic infrastructure and urban amenities such as sidewalks, street lights, parks, and storm water facilities
- Heavy regulatory focus on the historical portions of Downtown leave remaining portions relatively unregulated on design issues
- The commercial infill of residential townscape, and subsequent loss of businesses to other areas of the city results in the classic strip mall, auto oriented landscape
- A relatively stagnant economy combined with legacy land-owners creates a challenge for creating sweeping urban design change.

6.3. Witch Hazel Village

6.3.1. Background

The 318 acre Witch Hazel Village was brought into the Urban Growth Boundary in two stages (1999 and 2002), and was anticipated to eventually house approximately 5,000 residents. The City of Hillsboro adopted the Witch Hazel Village community plan for the area in February 2004.

According to the Witch Hazel Village Community Plan,

The goal of the Witch Hazel Village Community Plan is to maintain the existing close knit, small town atmosphere that defines Hillsboro. This is achieved by carefully integrating land uses and the transportation system to create a sense of place. Neighborhoods are designed with pedestrian scaled streets and service alleys that calm traffic and promote a safe, comfortable and convenient walking and biking environment close to the civic spaces, commercial core, schools and recreational opportunities.

Public plazas, parks and open spaces will be visible from almost any location in the community. Streets will be lined with wide sidewalks and canopy trees, leading to linear parks, which will lead to active parks and passive natural open spaces. Natural open space areas located along and between the Tualatin River, Gordon Creek and Witch Hazel Creek will be preserved as wildlife habitat and migration connections between the waterside riparian and upland forested zones.

6.3.2. Key Urban Design Objectives

- Linking a complex array of land uses with civic places, parks and open spaces throughout the entire site;
- Including a rich mix of neighborhood oriented opportunities for people to shop or recreate near where they live;
- Blending the best attributes of quality design, affordability and scale of housing at the Metro required ten dwelling units per net residential acre; and
- Fully integrating a diverse multi-modal transportation network that emphasizes local service and comfort over regional access and speed - preserving the principle land base for resident uses.

6.3.3. Issues and Opportunities

- Implementing urban design goals with multiple private developers with differing aesthetics
- Stylistic repetition creating monotony in the streetscape, detracting from other, more positive streetscape features

- Using cul-de-sacs resulted in a lack of coordination of the form of garages and alleys, and very visible building elevations “un-designed” as secondary elevations
- Mixed use is proving to be financially challenging for developers on this site

6.4. Orenco Station

6.4.1. Background

In 1996 the Planning Commission approved the Orenco Station Concept Development Plan on a 135-acre area located north of Cornell Road and the Orenco Station MAX stop. The goal of this plan was to assure development of a pedestrian sensitive, yet auto-accommodating, community containing a range of residential housing types, mixed-use residential, free standing neighborhood commercial uses and employment opportunities. The City of Hillsboro wrote a radically new zoning ordinance for the site, The Orenco Station Community Planning Area.

6.4.2. Key Urban Design Objectives

- Unique urban form such as "skinny" (20 foot) streets, close maximum street setbacks (19 feet), side yard easements (allowing high privacy windows for one home while the adjacent home has full use of the side yard) and alley-loaded garages
- Allowance for "granny flat" accessory dwellings and live/work homes
- In the Town Center, buildings are required to line the streets, with parking in the rear
- Mixed uses are allowed and in some cases even required
- Five and six story platform buildings of vertical mixed-use design form the compact “townscape” leading up to the train station

6.4.3. Issues

- Continuing successful management and expansion of green Public Realm/Private Park amenities
- Mitigating the size and multi-modal connectivity of Cornell Road
- Maintaining Town Center Development standards (OSCPA) further out into concentric phases (1,2,3, etc)
- Coordinating signage and wayfinding
- Street level commercial placeholders: Interim storefronts, ground floor residential, parking.

6.4.4. Opportunities

- Tenant amenities create a rich mix of activities at balcony and roof level. These “Third Places” provide opportunities for rich, diverse interaction.
- Woonerfs¹ incorporate sustainable stormwater/wastewater infrastructure.
- Development of underground parking.
- Encourage more diverse housing mix.

6.5. AmberGlen

6.5.1. Background

AmberGlen is a 605-acre area of low-intensity business, office, and institutional uses, some large undeveloped parcels, and passive open spaces located near Hillsboro’s growing residential and

¹ A **woonerf** is a living street, as originally implemented in the Netherlands and in Flanders. Techniques include shared space, traffic calming, and low speed limits.

employment populations. In 2010, the City prepared the AmberGlen Community Plan document that offers a vision to create a vibrant center enlivened with intensive, mixed-use development and high-quality pedestrian and environmental amenities that take advantage of the region's light rail system.

The AmberGlen community is envisioned to be a model for transforming suburban development that allows residents to live close to work and have access to neighborhood businesses, recreation and nature within walking distance. A guiding principle for the Plan is that it combines an intense urban development form with the natural environment.

6.5.2. Key Urban Design Objectives

- Mixed-use urban development sites are organized around a signature central park, natural corridors, habitat areas and developed open spaces
- Pocket parks and connecting green streets and parkways knit open space into an “urban green” framework
- Typical block faces are approximately 225 feet to 400 feet long
- Frequent bicycle, pedestrian and solar access ensured by access lanes through larger blocks
- A street network that allows for flexibility and coordination in the transition from current land uses and existing development to an urban, mixed use community
- A street and pedestrian network designed to provide a high level of connectivity to promote an active pedestrian environment and efficient development pattern

6.5.3. Issues and Opportunities

- Achieving density targets is financially challenging for developers
- Pro formas do not tend to support infilled commercial/residential uses, making it difficult to achieve a mixed-use form
- Preparing for the right mix of uses, street design, and building massing in the development transition
- Providing real-time design assistance in prepping ground-floor parking or other ancillary program for future function as retail space as well as site planning to connect pedestrian, street level commercial/retail use with the trail systems and the Central Park

6.6. Tanasbourne

6.6.1. Background

In the 1970s Standard Insurance Company developed a large tract of land along the Sunset 85th Avenue. Standard developed an indoor mall at the site, with the mall opening in 1975. In 1983, the county approved a master plan created by Standard to develop 850 acres in Tanasbourne. The annexation of Standard Insurance Company land in 1987 expanded the City of Hillsboro boundary to the east of Cornelius Pass Road and into much of the Tanasbourne area. In response to a Metro 2040 Growth Concept Town Center designation and as part of its periodic review work program, the City began concept planning for the Tanasbourne area starting in 1997 and adopted the Tanasbourne Town Center Plan in 2000.

6.6.2. Key Urban Design Objectives

- Encourage building one or more public or private squares, plazas, or buildings that provide an easily identifiable and recognized physical, social, and ceremonial community focal point within the Town Center
- Encourage parks, plazas, schools, churches, public buildings and other gathering places and uses with complement and support the key focal points of the Town Center
- Encourage a mix of residential, retail, workplaces and civic uses that contribute to home and business needs of the community in convenient proximity to the Town Center focal points
- Encourage upgraded, attractive building facades, storefronts and signage that enliven the street experience, increase retail and other types of desirable traffic , and contribute to the Town Center focal points as an amenity and people destination
- Encourage a business environment that contains adequate automobile access and parking, building visibility, adequate supporting infrastructure and other market amenities
- Encourage a range and variety of attractive, new and recycled housing at costs which accommodate age group and economic diversity
- Encourage a network of safe, convenient and beautiful streets and pathways that provide alternative travel routes and parking options, while facilitating walking, biking and wheelchair uses.
- Encourage development and redevelopment patterns that achieve compatibility between compact development and preservation of significant natural resources.
- Encourage compatibility with and appropriate connections to surrounding properties and land uses, as well as to other parts of the Region
- Encourage flexible, simplified and streamlined regulation and codes that reward positive changes in development patterns

6.6.3. Issues and Opportunities

- The area’s zoning doesn’t support best practice urban design principles, allowing deep setbacks and uncoordinated street design
- Residential development tends to be internally focused and disconnected from abutting properties.
- Commercial retail is single-story and automobile-dependent, separated from the adjacent streets by large parking lots.
- Continuation of the fine-grained network of pedestrian scale streets and blocks, along with the successful trail and park system connections found within the western half of the Cornell-Walker superblock.

6.7. South Hillsboro (SoHi)

6.7.1. Background

The South Hillsboro Plan Area is located at the southeastern edge of the City. The Plan Area contains approximately 1,400 acres of developed and undeveloped land. Initial concept planning began in the late 1990s, followed by the first large scale South Hillsboro community planning project in February 2007. This project resulted in a draft Community Plan in 2008. This draft was updated and refined beginning in 2012, and ultimately adopted in 2014 as the present South Hillsboro Community Plan. The plan envisions a neighborhood comprised of:

- Approximately 8,000 residences of diverse types, architectural styles, and price ranges, designed to help meet the needs of the City's growth workforce, ultimately providing housing for nearly 20,000 residents.
- Mixed-Use Town and Village Centers providing a range of shopping, services, and gathering venues serving local neighborhoods, the City, and the broader region.
- 286 acres of new parks and open space with 15 miles of new multi-use trails, co-located with planned school facilities and placed such that all residents live within one quarter-mile of a park facility.
- A fully multi-modal transportation network including world-class bicycle infrastructure and expanded transit service.

The City is currently working with its partners and local stakeholders to develop a financing plan that ensures that development pays for itself in a way that is fiscally responsible and sustainable in the long-term. Construction of initial transportation and utility infrastructure improvements will begin first (including the extension of Cornelius Pass road south of Tualatin Valley Highway), followed by residential and mixed-use construction.

6.7.2. Key Urban Design Objectives

- **Complete:** A community with the full spectrum of facilities and services. A life-cycle community that addresses the needs and desires of all residents for health, housing, education, shopping and recreation.
- **Connected:** A community that provides residents and visitors with full multi-modal access. A community that seamlessly connects neighborhoods and easily transitions from urban to rural lands. A community plan, which in addition to serving future residents, provides older neighborhoods to the East and to the North with access to needed parks, trails, open space, shopping and family services.
- **Green:** A community that provides residents and visitors with full multi-modal access. A community that seamlessly connects neighborhoods and easily transitions from urban to rural lands. A community plan, which in addition to serving future residents, provides older neighborhoods to the East and to the North with access to needed parks, trails, open space, shopping and family services.

6.7.3. Issues and Opportunities

- Development depends upon identification of funding strategies that address the costs of new road, utility, and civic infrastructure
- Development depends upon identification of funding strategies that address the costs of new road, utility, and civic infrastructure.
- As South Hillsboro is greenfield development, initial development will lack mature landscaping, significant tree canopy, and other vegetation that helps establish and reinforce pedestrian-friendly streetscapes.
- The planned town and village centers depend on establishing a mix of uses, densities, and amenities that will require creative financing, coordination with developers, and the City's close attention during design review processes.

- Achieving projected densities while ensuring attractive, innovative, and high-quality design and construction could be a challenge, particularly if market demand and/or average sale prices and rents fall.
- Parks and green spaces, particularly along the BPA corridor, will need to be phased, financed, and constructed in tandem with nearby development, even though supportive densities may not be established concurrently.
- Attracting comprehensive transit service to support walkable neighborhoods may be difficult as transit-supportive densities may not be consistently developed in the short to medium term.
- Fully realizing the potential of collocated public facilities will require close collaboration between City departments, Hillsboro School District, other agencies, and private developers.

6.8. North Hillsboro Employment Area (NoHi)

6.8.1. Background

The North Hillsboro Employment Area is home to many of Oregon's largest and most economically critical industrial businesses and related industrial clusters such as Intel, Genentech, SolarWorld, and Qorvo. According to the Oregon Employment Department, in 2014, fifty-two percent of the City's total jobs were located in North Hillsboro. With a total employment of over 32,000, the North Hillsboro Employment Area had an annual average wage of over \$114,500; 134% higher than the City-wide average wage and 215% greater than the average wage in the Portland region.

The North Hillsboro Employment Area is designated in the Comprehensive Plan for industrial development and redevelopment. Urban design for the developed portions of the North Hillsboro Employment Area range quite a bit from small business parks to large industrial campuses. Most of the industrial uses in this area are buffered from the public realm with landscaped setbacks and screening. Limited public amenities, such as recreation trails and street trees, run through or alongside much employment in this area.

The North Hillsboro Employment Area includes large areas brought into the Urban Growth Boundary (UGB) over the past 15 years to increase the city and region's employment and industrial land supply. Table 1 below, detailing the six areas that were brought into the UGB in the North Hillsboro Employment Area since the early 2000s, reflects the forecasted employment needs of a growing community.

Table 1: UGB Expansions in the North Hillsboro Employment Area

UGB Expansion	Acreage	Year
Shute Road	203	2002
Helvetia	249	2004
Evergreen	534	2005
Meek Road	330	2011*
Jackson East	545	2014**

*Metro Council approval of this UGB expansion in 2011, not upheld upon urban reserves' remand by Court of Appeals in 2013, and validated through Legislative House Bill 4078 in 2014.

**UGB expansion confirmed through Legislative House Bill 4078.

These UGB expansion areas have seen limited development or redevelopment and are to be generally maintained for large lot users (>50 acres). The City team, including Economic Development, Public Works, Planning, Water, Parks & Recreation, as well as staff from Washington County Planning and Transportation and Clean Water Services, are working to bring these UGB expansion areas closer to development-ready status. The City Council has adopted a North Hillsboro Industrial Renewal Area within a portion of the North Hillsboro Employment Area to help finance strategic infrastructure investments to these UGB expansion areas. Financial and development planning is ongoing, as well as specific infrastructure projects that are underway or planned.

6.8.2. Key Urban Design Objectives

- Screen utilitarian uses and maintain attractive sites and settings.
- Promote design and development that interacts with the public realm.
- Deliver a high-quality public realm.
- Climate change resiliency and effective land use through natural resource enhancement and environmentally sustainable development practices.
- Improve multi-modal design patterns for employees to access their work places on foot, transit, or by bicycle.

6.8.3. Issues

- Parking lots and other utilitarian uses could be better screened with sensitive design.
- Industrial development is often lacking in multi-modal design patterns for employees to access their work places on foot, transit, or by bicycle.
- The industrial area is often lacking in nearby public amenities.

6.8.4. Opportunities

- The significant vacant land within the North Hillsboro Employment Area has an opportunity to be shaped by innovative urban design and development.
- Promote innovative site design to benefit businesses and employees in the surrounding uses.
- Create a high-quality public realm by integrating street trees, the potential for regional stormwater and resource management, and recreation trails to benefit businesses and employees in the surrounding uses.
- Ensure that functionally essential elements, such as emergency generators and lay down external storage, are addressed with sensitive site design elements (e.g., landscaping, lighting, berming, and high-quality materials.)
- Facilitate the design of high-quality commercial nodes to serve the needs of businesses and employees in the surrounding uses.
- Support multi-modal design patterns for employees to access their work places on foot, transit, or by bicycle.

- Integrate emerging trends and technology in sustainable design and development, such as innovative regional stormwater management, industrial wastewater management, and natural resource enhancement.

6.9. Existing Residential Neighborhoods

Outside of the Community Plan areas Hillsboro’s existing residential neighborhoods are characterized by low-density suburban style development and housing types. Uses are primarily separated. Single family housing is primarily designed around cul-de-sacs with interior circulation.

6.9.1. Key Urban Design Objectives

- A street and pedestrian network that allows for safe connectivity to commercial areas
- Trails, Pocket parks and connecting green streets and parkways knit open space into an “urban green” framework
- Encourage a range and variety of attractive, new and recycled housing at costs which accommodate age group and economic diversity

6.9.2. Issues

- Lack of pedestrian connectivity and vehicular grid is disconnected
- Resolve residual infrastructure and emergency services conflicts with rail and fire
- Remaining development opportunities are primarily infill type

6.9.3. Opportunities

- Resolve Public/Private street disconnect
- Create trails in combination with “green” infrastructure.
- Create housing-type diversity
- Infill development could establish new precedents in existing context and materials recycling.

7. Emerging Issues, Challenges, Trends

7.1. Rapid Growth

Hillsboro has experienced a tremendous amount of growth in the past several decades. The period between 1980 and 2015 saw Hillsboro grow in population from nearly 30,000 to 97,000 and has expanded by about 7,600 acres since 1980 to its current size of about 15,360 acres, a 50% increase in geographic size. The resulting community is different in many ways including demographic composition, built environment, and character. While growth has brought many positive benefits to Hillsboro, including an expanded tax base, new community facilities, programs and infrastructure, and a diverse population, it also creates challenges. The small town feel is changing as Hillsboro takes its place as one of the largest communities in the region, and it can be difficult to maintain a sense of identity in a rapidly changing environment. Complex and ever-changing city boundaries confuse residents and visitors alike, as it is not always apparent when one is transitioning between Hillsboro, Beaverton, and unincorporated Washington County.

7.2. Wayfinding

The current directional signage in Hillsboro is a jumbled and confusing array of sign types, colors and configurations. The goal of the City is to transition to a strategic, trustworthy and consistent city-wide wayfinding system over the next several years. In summer 2014, with the help of community-wide

stakeholders, a vision for Hillsboro's community wayfinding program was established. The new program features multiple wayfinding elements including welcome gateways, vehicular and pedestrian directional signs, information kiosks, and parking identification. Goals for Hillsboro's wayfinding program are to create a sense of arrival to an amazing City, to build identity and pride, and to help locals and visitors navigate and discover Hillsboro's history, parks, culture and businesses.

7.3. Future Housing Needs

As part of the update to the Housing section located in the Enhancing Livability and Recreation core area of the Comprehensive Plan, the City was required to conduct a technical analysis that provides information about the factors that may affect residential development in Hillsboro over the next 20 years, including housing market changes, demographics, and other factors.

Hillsboro has capacity for between 17,986 to 20,986 new dwelling units. South Hillsboro is projected to have 8,000 residential dwelling units, and approximately 7,550 are located in areas that will be annexed in the future. AmberGlen and Tanasbourne have capacity for between 7,000 to 10,000 new dwelling units. Some of the capacity will be on vacant land and the remaining capacity is for redevelopment resulting in 4,900 and 7,900 new dwelling units. About one-third of Hillsboro's existing housing capacity is for single-family detached housing and two-thirds are for single-family attached and multifamily housing.

The key findings of the Hillsboro Housing Needs Analysis that are relevant to Urban Design and Development are:

- Continue to provide opportunities for development of a variety of housing choices to meet the housing needs at all income levels
- Identify additional opportunities for more single-family detached housing
- Begin to plan for additional multifamily redevelopment opportunities

7.4. Complete Streets

The streets of cities and towns are an important part of the livability of communities. Streets should be designed for all users whether young or old, motorist or bicyclist, walker or wheelchair user, or transit riders. Often streets are designed primarily for the traffic flow of cars and hospitable environment for those not in cars. In Hillsboro, the primarily low density development linked by busy, high-speed, multi-lane roadways is the norm, not the exception.

Even where daily destinations are close to home, poorly designed streets can make them inaccessible by foot, bicycle, or public transportation. Many communities, including Hillsboro, include cul-de-sacs that can increase walking distance, high-speed roads lacking bike lanes, sidewalks, comfortable transit stations, or comfortable crossings. In some cases, streets have not been designed for a pleasant pedestrian experience; the absence of benches, scarce landscaping, and storefronts set back from the sidewalk do little to encourage walking.

One major urban design question facing the community is how to connect the disparate neighborhoods to the larger community? This will likely require addressing transportation challenges in addition to finding ways to incorporate the unique identities of existing and future communities into a single community identity without losing the character of each.

7.5. Sustainability

Sustainability has long been an integral component of the Hillsboro’s community vision and identity. Over that past few years, the Hillsboro Sustainability Task Force used visioning input to develop the Environmental Sustainability Plan which set a broad roadmap for building a more sustainable community. Although there are sustainability components woven throughout existing community plans, the existing Comprehensive Plan does not include a centralized set of sustainability policies.

7.5.1. Innovative Sustainability Programs Targeted at the Built Environment

New programs, designed to encourage and support sustainable development, have emerged in recent years. Among them are LEED Neighborhood Development, EcoDistricts, Living Communities Challenge, and 2030 Districts. These programs are further described in Appendix A.

8. New Urban Design Goals and Policies to Consider

Because this is essentially a new section of the plan, all of the goals and policies should be carefully considered. Although issues identified in individual neighborhood/community plans in section 6 will not be specifically addressed in these new urban design goals and policies, it is important that the goals and policies begin to address the issues in a general sense.

Appendix A

Innovative Sustainability Programs Targeted at the Built Environment

LEED Neighborhood Development

LEED, or Leadership in Energy & Environmental Design, is a green building certification program that recognizes best-in-class building strategies and practices. To receive LEED certification, building projects satisfy prerequisites and earn points to achieve different levels of certification. LEED for Neighborhood Development (LEED ND) was engineered to inspire and help create better, more sustainable, well-connected neighborhoods. It looks beyond the scale of buildings to consider entire communities. LEED certification provides independent, third-party verification that a development's location and design meet accepted high levels of environmentally responsible, sustainable development. The LEED-ND system is a collaboration between the [United States Green Building Council](#), the [Congress for the New Urbanism](#) and the [Natural Resources Defense Council](#). The rating system encourages [smart growth](#) and [New Urbanism](#)² best practices by:

- promoting the location and design of neighborhoods that reduce vehicle miles travelled (VMT);
- creating developments where jobs and services are accessible by foot or public transit; and
- promoting an array of green building and green infrastructure practices, particularly for more efficient energy and water use.

² New Urbanism is an urban design movement which promotes walkable neighborhoods containing a range of housing and job types.

EcoDistricts

EcoDistricts are neighborhoods or districts where neighbors, community institutions and businesses join with city leaders and utility providers to meet ambitious sustainability goals and co-develop innovative district-scale projects. The Portland Sustainability Institute (PoSI) launched EcoDistricts in 2009 as an initiative to help cities remove implementation barriers and create an enabling strategy to accelerate neighborhood-scale sustainability. Success requires a comprehensive approach that includes active community participation, assessment, new forms of capital and public policy support.

Living Communities Challenge

The Living Community Challenge is a new program by the International Living Future Institute to help planners and developers rethink how they design their community-scale projects, and provide a compliance review process at the master planning stage and certification for fully built community or campus scale projects. The Living Community Challenge is an attempt to raise the bar, to extend the ideals established by the Living Building Challenge³ from the individual project site outward into the community at large. The Living Community Challenge defines the most advanced measure of sustainability in the built environment possible today and acts to diminish the gap between current limits and ideal solutions.

Whether the community is a single street or block, a park, a college campus or even a complete neighborhood for thousands of individuals, the Living Community Challenge provides a framework for master planning, design and construction and the symbiotic relationship between people and all aspects of the built environment. Projects that achieve this level of performance can claim to be the “greenest” anywhere. Whether the community effort is restorative, regenerative or operates with a net zero impact, it has a home in the construct of the Living Community Challenge.

2030 Districts

Across North America, 2030 Districts are forming to meet the energy, water and vehicle emissions reduction targets for existing buildings and new construction called for by Architecture 2030 in the [2030 Challenge for Planning](#). First established in Seattle, 2030 Districts are in the vanguard of the grassroots effort to create longterm partnerships, coalitions, and collaboration around achievable and measurable goals for renovating hundreds of millions of square feet of existing urban and suburban areas and infrastructure, as well as for infill development and redevelopment. 2030 Districts are unique private/ public partnerships that bring property owners, managers and developers together with local governments, businesses, and community stakeholders to provide a business model for urban sustainability through collaboration, leveraged financing, and shared resources. Together they benchmark, develop and implement creative strategies, best practices and verification methods for measuring progress towards a common goal.

³ The **Living Building Challenge** is an international sustainable building certification program created in 2006 by the non-profit International Living Future Institute. It is described by the Institute as a philosophy, advocacy tool and certification program that promotes the most advanced measurement of sustainability in the built environment.

Design and Development

Goals and Policies DRAFT – February 3, 2016

Review History

Date	Reviewed By
12.30.15 – 2.3.16	Internal Committee Meetings – <i>Comments Incorporated</i>

GOAL 1 Develop an urban design framework that reflects the unique character of each Hillsboro design type designation* while ensuring urban design coherence city wide.

- POLICY 1.1 Ensure context-sensitive design and development, based on the fundamental characteristics of each Hillsboro design type designation, to reinforce each area’s identity.
- POLICY 1.2 Pursue programs that create and support market incentives and partnerships to enhance urban design and architectural integrity, such as store front enhancement programs, green roofs, enhanced public spaces, and signage.
- POLICY 1.3 Ensure urban design coherence between Hillsboro design types by employing consistent citywide public realm elements including wayfinding, directional signage, gateway enhancements, public art, cohesive street naming, lighting, or other treatments.

GOAL 2 Build compact, walkable places with distinct identities and design characteristics.

- POLICY 2.1 Advance innovative architectural and site design to enrich the lives and health of the community.
- POLICY 2.2 Pursue innovative architectural and site design in new development, infill and redevelopment that preserves compatibility within existing neighborhoods.
- POLICY 2.3 Support multi-modal design patterns that allow people to easily meet the majority of their daily needs nearby.
- POLICY 2.4 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.
- POLICY 2.5 Focus higher employment densities in areas with enhanced transportation connectivity, access to transit, and utility infrastructure.
- POLICY 2.6 Facilitate review flexibility when proposed development is designed to be innovative and have positive aesthetic, environmental, and social impacts; creates public benefits; and demonstrates exemplary levels of architectural detail, site design and/or urban design best practices.

- POLICY 2.7 Develop effective transitions between higher and lower intensity development in areas of different scales and/or uses.
- POLICY 2.8 Avoid the proliferation of superblocks* by encouraging a more compact development pattern that is internally connected and publically accessible by multiple modes.
- POLICY 2.9 Integrate context-sensitive parking that enhances the quality of the built environment.

GOAL 3 Pursue employment areas with innovative site design elements that contribute to the public realm.

- POLICY 3.1 Advance innovative employment area site design, such as general orientation of development towards street frontages and appropriate setbacks and screening.
- POLICY 3.2 Facilitate the creation of a high-quality public realm in employment areas, such as integrating street trees, vegetated stormwater management, and off-street pathways.
- POLICY 3.3 Pursue the design of high-quality commercial nodes* to serve the needs of businesses and employees in the surrounding uses.
- POLICY 3.4 Design employment areas to support multi-modal commuting options.

GOAL 4 Plan, develop, and maintain an active public realm that enriches the lives and health of the community.

- POLICY 4.1 Advance innovative public facility design that promotes health and enhances livability.
- POLICY 4.2 Design and retrofit major roadways to facilitate safe, multi-modal* streetscapes.
- POLICY 4.3 Support the integration of natural and green infrastructure*, such as street trees, green spaces, eco-roofs, gardens, and vegetated stormwater management into the public realm.
- POLICY 4.4 Support the interaction and activation between the public realm and adjacent development and uses.
- POLICY 4.5 Consider partnerships for development, redevelopment, and maintenance of streetscapes*, natural areas and third places.*

GOAL 5 Contribute to the sustainability of the urban environment.

- POLICY 5.1 Support emerging trends and technology that integrate resilient and/or regenerative* energy and water infrastructure; and materials sourcing and reuse into the design and development of the built environment.
- POLICY 5.2 Facilitate the creation of ecodistricts* and other collaborative arrangements where multiple partners work together to achieve sustainability and resource efficiency goals at a district scale.

DESIGN TYPE DESIGNATIONS (please see corresponding Comprehensive Design Types map)

Regional Centers are compact hubs of high density* housing, employment, and commercial uses supported by high quality transit, multi-modal* street networks, and supportive amenities and services.

Employment Areas serve as hubs for regional commerce. They include industrial land for high tech, business parks, manufacturing, and other business uses. These areas should include limited supporting commercial and retail uses to serve employees. These areas should contain multi-modal commuting options and good connectivity to regional transportation facilities for the movement of goods and cargo.

Transit Station Communities are nodes* of higher-density development centered around a light rail or high capacity transit station that feature a high-quality pedestrian environment and feature a variety of shops and services.

Town Centers are comprised of medium to high intensity* mixed use development containing housing, commercial, retail and civic* uses. These areas are well served by transit, have supportive amenities, and are accessible by the surrounding neighborhood by walking or biking.

Neighborhood Centers have a mix of retail and services to meet day-to-day living needs of the immediate neighborhood with less density and intensity than Regional or Town Centers. These areas have a high level of connectivity to the immediate neighborhood by walking or biking, with the potential for transit access nearby.

Corridors are major streets that may accommodate higher densities and intensities and feature a high-quality pedestrian environment and convenient access to transit. Corridors provide critical connections to centers, and serve as major multi-modal transportation routes for people and goods.

Historic Neighborhoods are intended to promote public awareness and appreciation of the City's history and advance civic pride and identity. Special protections apply to preserve the character of the area while ensuring integration with surrounding areas and uses.

Plan Areas are geographic areas for which special regulations have been created by the City through the adoption of a community or area plan.

DEFINITIONS:

Commercial Nodes

Civic Uses

Density

Design Type Designation

Ecodistricts

Green infrastructure

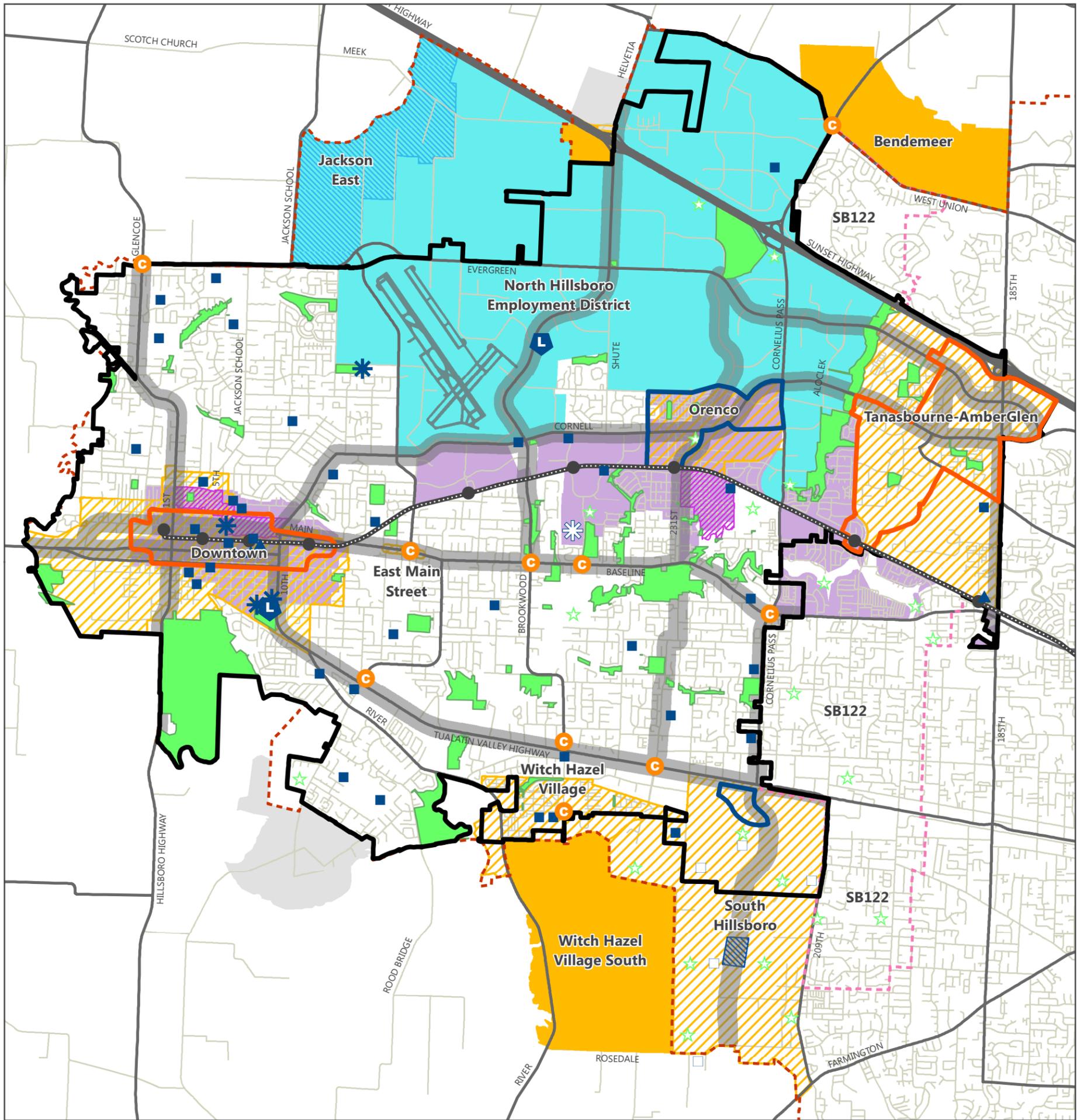
Intensity

Multi-modal

Nodes
Regenerative
Resilient
Streetscapes
Superblocks
Third places

DRAFT

Comprehensive Plan Design Types (DRAFT)



- City of Hillsboro
- Urban Growth Boundary

Design Types

- Regional Center
- Employment District
- Transit Station Community
- Town Center
- Village Center
- Neighborhood Center
- Corridor

Other Designations

- Urban Reserve Area
- Undesignated
- Senate Bill 122 Area
- Plan Area
- Jackson East
- Historic Neighborhood
- Park or Open Space
- Undeveloped / Proposed Park or Open Space

Community Assets

- Library
- Community Center
- Proposed Community Center
- School Site
- Proposed School Site
- Higher Education Site
- Light Rail
- Light Rail Station

Access to Healthy Food

Goals and Policies DRAFT – January 27, 2016

Review History

Date	Reviewed By
1.27.2016	Overhauled goals and policies created. Prior comments and tracked changes are not shown.

GOAL 1 Increase access to healthy, fresh, and affordable food.

- POLICY 1.1 Integrate opportunities into residential and mixed-use development to grow food* for personal consumption, education, and sales or donation purposes.
- POLICY 1.2 Support the retention and expansion of farmers markets* to encourage community building, support regional agriculture*, and foster economic development.
- POLICY 1.3 Allow for the establishment and maintenance of publicly-available community gardens* near residential areas or in areas with good access to transit.
- POLICY 1.4 Accommodate itinerant or periodic uses providing access to food opportunities in neighborhoods, such as Community Supported Agriculture* distribution points.
- POLICY 1.5 Support efforts of schools, local organizations, property owners, the private sector, and other agencies to expand access to healthy food.
- POLICY 1.6 Develop and maintain a citywide Food Systems Plan*.

DEFINITIONS:

Community Garden

Community Supported Agriculture

Farmers Market

Food (believe it or not – this should probably be the place where we specify that marijuana isn't food, but also talk about beekeeping, chickens, etc)

Food Systems Plan

Regional Agriculture

Urbanization

Goals and Policies DRAFT – February 3, 2016

Review History

Date	Reviewed By
12.2.15 - 1.5.16	Internal Committee Meetings – <i>Comments Incorporated</i>
1.14.16	Technical Advisory Committee – <i>Comments Incorporated</i>
1.21.16	Citizen Advisory Committee – <i>Comments included as tracked changes</i>
2.3.16	Internal Committee Meeting – <i>Comments Incorporated</i>

GOAL 1 Accommodate long-range population and employment growth within the Hillsboro Planning Area*.

- POLICY 1.1 Provide for the orderly and efficient transition of land from rural to urban use.
- POLICY 1.2 Designate land uses in a manner that accommodates projected population and employment growth.
- POLICY 1.3 Focus higher density, pedestrian oriented, and transit supportive mixed-use development within Regional Centers*, [Transit Station Communities*](#), Town Centers*, [Neighborhood Centers*](#), and along select [eCorridors*](#), ~~and at neighborhood nodes*¹~~.
- POLICY 1.4 Promote higher densities when proposed development is sufficiently designed to mitigate negative potential aesthetic, environmental, and social impacts [including gentrification*](#) and demonstrates high levels of compliance with development standards and design guidelines.
- POLICY 1.5 Manage employment land to provide a range of lot sizes that accommodate a variety of uses.
- POLICY 1.6 ~~Promote~~ [Prioritize](#) investment in and revitalization of areas where private investment patterns are not accomplishing this objective.
- POLICY 1.7 Facilitate the infill of vacant or underutilized land consistent with City Comprehensive Plan land use designations.
- POLICY [1.8](#) [Maintain a supply of developable land sufficient to meet short and long-term employment and housing needs.](#)
- POLICY ~~1.89~~ Request additional lands for urbanization* when the Hillsboro Planning Area will not accommodate the 20-year projected demand for employment or housing.

Commented [DR1]: CAC suggested adding the "gentrification" into this policy and into a Goal 3 policy.

¹ Some of these terms may change slightly to align with design types being identified as part of the Urban Design and Development topic area, to be discussed in February.

GOAL 2 Ensure local planning consistency of local and regional plans with the region and the state.

- POLICY 2.1 Partner with Washington County, other public agencies, and special districts to ensure that local planning reflects City responsibility for ultimate governance of and service delivery to identified unincorporated urbanized* and unurbanized* areas.
- POLICY 2.42 Ensure consistency with the Urban Growth Boundary and the Metro Urban Growth Management Functional Plan.
- POLICY 2.23 Support new development*, infill development*, and redevelopment* in a manner that maintains compatibility with surrounding areas and is consistent with adopted zoning, relevant community-level plans, and formal intergovernmental agreements.
- POLICY 2.34 Establish-Maintain consistent procedures for community-level planning in new development, infill development, and redevelopment areas.
- POLICY 2.45 Ensure that all lands within Hillsboro city limits receive City Comprehensive Plan land use designations.
- POLICY 2.56 Facilitate the annexation of unincorporated urbanized areas by adopting City Comprehensive Plan land use designations for newly annexed areas that are most closely comparable to existing County designations until the City has completed community level planning, consistent with Urban Planning Area Agreement(s) and/or other intergovernmental agreements
Adopt City land use designations that are most comparable to existing Washington County designations for newly annexed areas until the City has completed community-level planning, consistent with Urban Planning Area Agreement(s) and/or other intergovernmental agreements.
- POLICY 2.67 Require community-level planning and the subsequent adoption of City Comprehensive Plan Land Use designations prior to the annexation of unincorporated, unurbanized areas.
- POLICY 2.78 Establish and periodically update the Hillsboro Urban Service Area Agreement, Urban Planning Area Agreement, and other formal intergovernmental agreements as needed to support urbanization, annexation, and urban service provision.

GOAL 3 Plan, develop, and enhance the urban built environment to meet the needs of community members of all ages, abilities, cultures, and incomes.

- POLICY 3.1 Ensure development of land that is consistent and compatible with the community's needs and resources.

- POLICY 3.2 ~~Evaluate~~Consider the economic, environmental, social, and energy consequences of urban growth when determining the appropriate location and intensity of urban growth.
- POLICY 3.3 Provide a range of housing choices that meet the needs and preferences of current and future households of all ages, abilities, cultures and incomes, abilities, and sizes.
- POLICY 3.4 ~~Accommodate~~Foster a range of employment uses intended to benefit Hillsboro and the region.
- POLICY 3.5 Advance a mix of uses and innovative architectural and site designs that integrate access to daily needs into neighborhoods and yield an active public realm that enriches the lives and health of the whole community.
- POLICY 3.6 Support climate change mitigation and adaptation measures including pursuing energy efficiency, renewable energy, reduction of non-renewable energy use, and water resource efficiency* when urbanizing new areas and extending public facilities and services.

Commented [DR2]: CAC suggested replacing “evaluate” with another word to clarify this policy.

Commented [DR3]: CAC discussed the pros and cons of using “cultures” and “sizes” and suggested moving “preferences” to the end of this policy.

Commented [DR4]: CAC suggested employment “opportunities” as the City can make opportunities but cannot decree which ones.

GOAL 4 Provide for the orderly and efficient extension of public facilities and services.

- POLICY 4.1 Coordinate the extension of public facilities and services and prioritization of capital expenditures with Washington County, other public agencies, and special districts responsible for providing facilities and services within Hillsboro city limits.
- POLICY 4.2 Collaborate with regional partners on the regulations that address regional environmental and infrastructure impacts, such as transportation, stormwater mitigation, and floodplain development standards.
- POLICY 4.3 Integrate the type, design, timing, and location of public facilities and services in a manner that accommodates expected population and employment growth while maintaining the City’s ability to continue providing existing services citywide.
- POLICY 4.4 Require the provision of public facilities and services prior to or concurrent with urban development.
- POLICY 4.5 Adopt additional funding methodologies, as needed, to ensure that new development and redevelopment adequately fund the ~~adequate~~necessary extension of public facilities and services.
- POLICY 4.6 Ensure that properties to be annexed can be reasonably served by public facilities and services.
- POLICY 4.7 Maintain equitable and standardized annexation practices.

Commented [DR5]: CAC suggested calling out all the way to the “Tualatin River floodplain and beyond Tualatin”.

Commented [DR6]: CAC: Can annexation or developed be stopped when services are not available?

GOAL 5 Enhance compatibility between urban uses and agricultural and forest uses on adjacent land outside the Urban Growth Boundary.

- POLICY 5.1 Promote compatibility between urban uses and adjacent agricultural or forest practices outside the Urban Growth Boundary.
- POLICY 5.2 Focus lower-intensity urban development adjacent to rural reserves*, designed to create an effective transition between urban uses and agricultural and forest uses.
- POLICY 5.3 Design development adjacent to urban reserves* to maintain a cohesive urban environment as these areas develop in the future.
- POLICY 5.4 Consider the design of public facilities and services to accommodate nearby agricultural and forest uses.
- POLICY 5.5 Pursue a City greenway system that enhances buffering between urban uses and nearby agricultural and forest uses outside the Urban Growth Boundary.

Commented [DR7]: CAC suggested that this task belongs to the County.

Commented [DR8R7]: Requirement to address per state planning law.

DEFINITIONS:

- Corridors*
- [Gentrification](#)
- Hillsboro Planning Area*
- Infill Development*
- [Neighborhood Centers](#)
- New Development*
- Redevelopment*
- Regional Centers*
- Rural Reserves*
- Town Centers*
- [Transit Station Communities](#)
- [Unurbanized](#)
- Urban Reserves*
- Urbanization*
- [Urbanized](#)
- [Water Resource Efficiency](#)

Commented [DR9]: CAC asked for this to be added to definitions.

Commented [DR10]: CAC asked for this to be added to definitions.

Noise Management

Goals and Policies (DRAFT)

Review History

Date	Reviewed By
12/15/2015	Internal committee — <i>comments incorporated</i>
1/14/2016	Technical Advisory Committee — <i>comments incorporated</i>
2/8/2016	Citizen Advisory Committee — <i>comments shown as tracked changes</i>

GOAL 1 [Limit unwanted, excessive, and harmful noise to protect public health, wellness, and safety.](#)

POLICY 1.1 Ensure the availability and quality of noise source data through regular noise measurement, mapping, and monitoring to support noise mitigation efforts.

POLICY 1.2 Ensure compatibility between land uses by separating and buffering noise-producing* and noise-sensitive* land uses through land use designation, [zoning](#), and site design.

POLICY 1.3 Minimize the exposure of noise-sensitive land uses to noise through noise-reducing design and construction methods.

POLICY 1.4 Allow flexibility in siting and lot size standards for noise mitigation purposes.

POLICY 1.5 Ensure consistency between noise mitigation standards found in the Comprehensive Plan, Hillsboro Municipal Code, and Community Development Code, as well as alignment with standards found in other plans, such as the Hillsboro Airport Master Plan and Compatibility Study and the Transportation System Plan.

POLICY 1.6 Pursue the establishment of a train horn quiet zone in Hillsboro.

[POLICY 1.7 Coordinate noise management efforts across City departments and with other entities, including the Port of Portland.](#)

Definitions: noise-producing land use, noise-sensitive land use