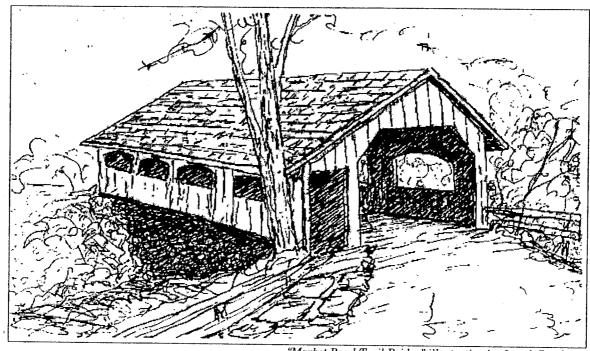
Bornstedt Village Specific Area Plan Report



"Market Road Trail Bridge" illustration by Joseph Brockway

June 30, 2003

Prepared For City of Sandy Oregon Transportation and Growth Management Program

Prepared by



In Association with Kittelson and Associates Johnson Gardner

Funding

The Bornstedt Village Specific Area Plan was prepared with funding by the State of Oregon's Transportation and Growth Management (TGM) Program in support of TGM's mission to enhance Oregon's livability, foster integrated land use and transportation planning and encourage development that results in compact, pedestrian, bicycle and transit friendly communities.

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I. Summary

The Bornstedt Village Specific Area Plan is a guide to the transition of a 230-acre rural area to a walkable, complete neighborhood in Sandy, Oregon. The plan is intended to coordinate the separate actions of property owners, the City of Sandy, state agencies and developers into a cohesive, livable neighborhood.

The subject area is located between Arletha Court on the west, Jacoby Road on the east, Tickle Creek on the north, and the Urban Growth Boundary on the south. Highway 211 runs through the northern half of the subject area. Approximately 65 acres are within the City of Sandy, and 165 acres are within the City's urban growth boundary but outside the Sandy city limits.

Key features of the Specific Area Plan include:

- A variety of housing that includes opportunities for large-lot, medium-lot and small-lot single-family homes, townhomes, apartments and senior housing.
- A land use pattern that focuses density closest to the center of the village, with a planned transition to lower densities at the edges of the village.
- A new three-acre village commercial center along Highway 211.
- A circulation plan that identifies the general location for through connections, while
 providing flexibility for specific alignments. The circulation plan also suggests locations
 for local street connections, which is supported by a code standard that requires the
 creation of a connected network of local streets.
- A network of pedestrian and bicycle connections, featuring future paths along Hwy 211, the historic Barlow Road, and the "Market Road" right-of-way.
- Preservation of the historic Barlow Road corridor, with the southeasterly segment included in a neighborhood boulevard.
- A parkway design for Highway 211.
- Planned traffic calming for Bornstedt Road.
- Two new neighborhood parks; located to serve each of the new residential areas north and south of Hwy 211.
- Mapping of flood, slope and hazard areas as part of the Village Plan, and a new code standard that promotes transfer of density out of areas protected by the City's resource and tree protections ordinances.
- Designation of the Single-Family Residential zone at the northwest and southwest ends
 of the Village in order to place lower density residential zoning where key resources
 (Tickle Creek, sloped areas, tree groves) are located.

II. Purpose and Process

The two primary purposes of the planning process were to:

- Effectively engage the public and specific stakeholders in the process.
- Prepare a Specific Area Plan for consideration by the Sandy Planning Commission and City Council.

The plan was developed with the input of stakeholders and the community. A series of community meetings were held between June 2002 through March 2003. In the beginning of the process, meetings were attended primarily by the advisory committee and a relatively small group of interested parties. As the process gained momentum in November 2002, the meeting format changed to a "town hall" format, with 40-60 people attending each meeting. Additional "community discussions' were scheduled and advisory committee meetings were also widely attended.

The major steps in the process were:

- Inventory of base conditions.
- Establishment of project goals.
- · Development of two alternative Specific Area Plans.
- Evaluation of alternatives and preparation of a hybrid Specific Area Plan.
- Refinement of the Specific Area Plan and preparation of implementation strategies.
- Endorsement of the final Specific Area Plan and implementation strategies.

In order to ensure an open planning process that achieved broad support and to ensure that key stakeholders are involved in the development of a "specific area plan" for the Bornstedt Village area, an Advisory Committee was formed and endorsed by the City Council.

The Bornstedt Village Advisory Committee members were:

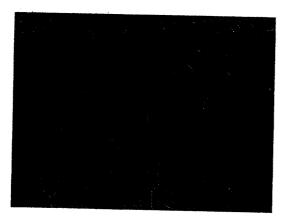
- Tim Belanger, Oregon Trail School District
- Pat Bigelow, Fire Districts #72 & #59
- Joe Brockway, Neighbor & Property Owner
- Nancy Enabnit, City Community Development Director & Parks Advisory Board
- Dave Fleming, Neighbor and Property Owner
- Kevin Frostad, Friends of Tickle Creek
- John Gardiner, Friends of Tickle Creek
- Stephen Greenall, Neighbor & Property Owner
- Ellen Greenlaw, Transit Advisory Committee, Accessibility Advocate
- Margaret Holman, Planning Commissioner
- Lori Mastrantonio-Meuser, Clackamas County Planning
- Glen Mueller, Neighbor & Property Owner
- Don Oakley, Developer of the Cascadia Village subdivision
- Joan Ragan, Neighbor & Property Owner
- Hans Simon, Neighbor & Property Owner
- Dick Sleeper, Planning Commissioner
- Julie Stephens, City Transit Manager



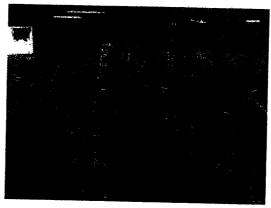
The meetings and events held to prepare the plan included:

- Advisory Committee Project Kick-off, July 23, 2002
- Advisory Committee Meeting; September 12, 2002
- Saturday Field Visit; September 21, 2002
- Community Open House and Workshop; September 28, 2002
- Stakeholder Meetings; November, 2002
- Briefing for Residents within Cascadia Village
- Community Workshop; November 14, 2002
- Advisory Committee Meeting; December 5, 2002
- Field Visit with Advisory Committee and property owners, January 8, 2003
- Community Meeting; January 23, 2003
- Community Meeting: February 13, 2003
- Community Meeting; March 20, 2003
- Joint Planning Commission/City Council/Advisory Committee Meeting; May 7, 2003
- Planning Commission Public Hearing; July 28, 2003
- City Council Public Hearing; August 18, 2003

The public process described above was supplemented by a Bornstedt Village website that posted public meeting and workshop dates, supplemented with meeting summaries, introduced the advisory committee and project principles, and offered the latest working draft of the Specific Area Plan map. City staff continued to update the mailing list and was responsive to requests from the public. In addition, city staff received calls, e-mails and visits by property owners and potential developers throughout the process.



Community Design Workshop



Community Design Workshop

III. Project Principles

The City of Sandy requested the assistance of the TGM program to evaluate transportation-related planning and land use issues associated with transitioning a semi-rural area to the development of the Bornstedt Village. After reviewing initial inventories, the project endorsed the following principles (on September 12, 2002) as the guide to preparing the Village Plan.

- A. Create a livable village Create a neighborhood-oriented village that fulfills the village definition in the Sandy Comprehensive Plan, and, responds to the unique opportunities and stakeholder perspectives identified for Bornstedt Village.
- B. Provide transportation options and a local street network Plan for transportation improvements and a village setting that is conducive to walking, bicycling and transit, while accommodating automobile traffic. Integrate planned land uses with existing and future transportation modes.
- C. Plan for a new, village-oriented character for Hwy 211, Bornstedt and Jacoby Roads Evaluate ways to calm traffic, improve safety, create an attractive character, protect natural resources and generally minimize adverse impacts from traffic on these high-speed roads.
- D. Protect, restore, and enhance natural resources in balance with creating an urban village Plan for integration of land use, transportation, and natural resources in the village. This objective seeks to protect, restore and enhance key resources and implement appropriate green and sustainable development practices, all in balance with creating an urban village.
- E. Plan for a parks and open space Provide parks that implement the City of Sandy Parks Master Plan, and other open space opportunities that enhance the livability of the village.
- F. Provide housing choices Provide a variety of housing choices that meet the needs of a broad spectrum of Sandy residents.
- G. Conduct an open process Provide meaningful opportunities for stakeholders and the public to participate in the planning process.
- H. Coordinate with relevant plans and policies Coordinate with the Sandy Comprehensive Plan, Sandy Transportation System Plan, the Oregon Highway Plan, the Oregon Highway Design Manual, and the Oregon Transportation Planning Rule.
- I. Create workable zoning and design guidelines Identify zoning and design guidelines that will be workable for participants in the land use review process, and guide the development of the village over the long term.

IV. Existing Conditions and Plans

Land Use

The Bornstedt Village area is approximately 230 acres located in the southeastern portion of the City of Sandy. The subject area is located between Arletha Court on the west, Jacoby Road on the east, Tickle Creek on the north, and the Urban Growth Boundary on the south. Existing development includes some low-density rural housing, a mobile-home park, a recent subdivision called Cascadia Village, and farmland. The Bornstedt Village area is currently served by Oregon Highway 211 (Eagle Creek-Sandy Highway), Bornstedt Road, Dubarko Road, and Jacoby Road (SE 395th Avenue). In addition, U.S. Highway 26 provides both statewide and regional access to the subject area via Highway 211 to the north.

The Bornstedt Village area consists of one Comprehensive Plan designation, the Village (V) designation, which provides for a mixture of commercial and residential uses within the context of a village. Permitted zoning in Bornstedt Village includes low-density residential, medium density residential, high density residential, and village commercial. The Sandy Zoning Map depicts "conceptual zoning" for the Bornstedt Village area for those properties that have not annexed. The areas of the existing zoning for land inside the City and conceptual zoning for land outside the City is summarized in the following table.

Table 1: Existing Zoning

Zoning	Acreage	Max. Density/Acre	DU (Max)
R1 - Low Density Res.	150.00	10	1, 500
R2 – Medium Density Res.	53.00	14	742
R3 - High Density Res.	22.00	20	440
Village Commercial	5.5	_	
Total	230.5*	11.6 (average)*	2,682*

^{*}Includes land within existing right-of-ways, and unbuildable flood, slope and hard (FSH) areas.

The Bornstedt Village area currently consists of several "island parcels" that have had annexations take place around them. Annexations in Sandy are initiated by property owners, and must be approved by voters.

Cascadia Village comprises about 52 acres of the Bornstedt Village area. Approved in 1998, it is the first Specific Area Plan and village development built under Sandy's award winning "2040" comprehensive plan. Cascadia Village includes a 1.84-acre park and a .42-acre "tot lot". In addition, there is a public plaza currently under construction at the commercial site located near the intersection of Bornstedt Road and Cascadia Village Drive.

The Parks Master Plan Park (1997) Facility Plan shows one proposed neighborhood park within the study area north of Highway 211. In addition, the Parks Master Plan includes reference of future park development and that will provide the opportunity and connectivity between neighborhoods via hiking, walking and biking trails along Tickle Creek. There is also a proposed on-street bike trail that follows along the southern boundary of the Bornstedt Village area.

A segment of the historic Barlow Road runs through Bornstedt Village, as described in Clackamas County's "Barlow Road Historic Corridor – Background Report & Management Plan":



The wagon route crosses Tickle Creek and turns southeastward, ascending a steep hillside, first following a current residential drive and then becoming visible as an abandoned roadbed near the top of the hill. This isolated road section displays some characteristics, such as a width greater than 10 feet and general consistency of grade, suggesting it was likely the original wagon road improved in the 1920s into the market road. The route again disappears at the top of the hill where it apparently turned back in a southwest orientation, traversing level fields before joining the current highway alignment. Road remains of this section are shown in an early aerial photo taken around 1950, and is also dramatically indicated by the orientation of a still standing 1880s residence.

Market

The Sandy area has witnessed fairly modest growth over the last decade. Sandy's market area is defined in terms of four census tracts surrounding Sandy (233, 234.01, 234.02, 235). The market area's population increased from an estimated 13,566 in 1990 to 14,888 in 2001, reflecting an average annual growth rate of 0.8%. Over the next five years, the rate of population and household growth is projected to average a modest 0.5% rate of growth. Income growth within the market area has been strong since 1989. In 1989, per capita income was \$12,723 and the median household income was \$32,191. Between 1989 and 2001 per capita and median household income levels had grown to \$22,875 and \$54,352, respectively. These figures represent annual growth rates of approximately 5.0% and 4.5%.

The development of the Bornstedt Village area will provide an increased demand for small-scale retail and services south of Highway 26. Commercial development in Sandy is currently centered along Highway 26, with large format retailers, such as Safeway on the western edge of town, and smaller format tenants located along the couplet portion of the highway and downtown.

The Bornstedt Village area has good access to adjacent areas via Highway 211, and is proximate to Highway 26. Nonetheless, the village will be at a competitive disadvantage visà-vis the existing commercial concentrations centered on Highway 26. In addition, the configuration of Highway 211 and the intersection with Bornstedt Road presents some difficulties for access.

Retail at the subject site is expected to draw primarily from rural populations south of the study area as well as the existing population south of Highway 26. The existing population in the market area will support additional retail, and the development of Bornstedt Village area will further increase the buying power in the immediate area around the subject site.

With the majority of retail demand generated from the area immediately surrounding the subject site and rural areas to the south, retail potential at the site is expected to be limited to smaller retail formats.

These would include convenience-oriented retailers serving the immediate area, such as take home food, convenience grocery, video rental and service firms.



Table 2. General Demographic Profile Primary Trade Area

EXHIBIT 1

GENERAL DEMOGRAPHIC PROFILE PRIMARY TRADE AREA

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Population	13,566	17,224	2.2%	17,693	0.5%
Households	4,812	6,317	2.5%	6,558	0.8%
Families	3,729	4,758	2.2%	4,882	0.5%
Housing Units	5,069	6,635	2.5%	6,890	0.8%
Household Size	2.82	2.73		2.60	
	1 2.02	2.73	+	2.69	
Income					
	(0),00	2000	Clawfi -4	Militar	Controlly
	and Continue	G (Dixp.)	168343	78677-234	lyn (c
					CEAUGUD :
Per Capita (\$)	\$12,723	\$22,875	5.0%	\$28,743	4.70/
Average HH (\$)	\$35,791	\$61,458	4.6%	\$75,924	4.7%
Median HH (\$)	\$32,191	\$54,352	4.5%	\$64,550	4.3% 3.5%
				7 .,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	3.570
Average HH Wealth \$)		\$208,139		\$248,566	3.6%
Median HH Wealth (\$)		\$128,370		\$183,135	7.4%
		A Section		719	Property (
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opulation	10.504	10.251	 		
Iouseholds	18,504	19,351	0.9%	20,238	0.9%
TOUS CHOIUS	6,858	7,173	0.9%	7,501	0.9%

Transportation

Kittelson & Associates, Inc. conducted a transportation analysis in September, 2002. Based on the results of the transportation impact analysis, the 2022 future operations in the Bornstedt Village area can operate safely and efficiently provided the City of Sandy continues to implement the goals and objectives outlined in the Sandy Transportation Systems Plan (TSP). The following is a summary of the findings and recommendations:

- The subject area is primarily served locally and regionally by State Highway 211, which
 carries approximately 3,100 vehicles per day (vpd) west of Bornstedt Road and 5,100 vpd
 south of Dubarko Road.
- The primary roadways (Highway 211, Dubarko Road, Bornstedt Road, and Jacoby Road)
 within the subject area currently lack sufficient pedestrian and bicycle amenities.
- A fixed route currently runs along Highway 26 and could be expanded to serve the study area. The City may start a bus service to Eagle Creek. This would pass directly through the village.
- All subject area intersections currently operate safely and efficiently and maintain acceptable levels of service during morning and evening peak hour time periods with the exception of the Highway 26 (Pioneer Boulevard)/Highway 211 intersection.
- Highway 211 is forecasted to experience approximately 49 % growth (i.e., 4,600 to 7,600 vpd) in through traffic by year 2022. This growth, combined with future buildout within the subject area will necessitate either direct or indirect capacity-related improvements at the US Highway 26/Highway 211 junction, as well as other capacity improvements within the subject area.
- The Sandy Transportation System Plan envisions the subject area to be served in the future by the extension of Bluff Road to Highway 211 and the extension of Dubarko Road to Bluff Road and eventually to SE 362nd Avenue.
- To develop a main street atmosphere through the village, the City and ODOT would need
 to investigate the possibility of lowering the posted speed to 35 mph or lower and
 designating this segment of Highway 211 as a Special Transportation Area (STA). In
 addition, various streetscape techniques will need to be implemented to achieve the
 desired speed reductions.
- To provide the necessary multi-modal connections within the village area, the specific development plan will need to develop a local roadway system and a system that provides for all modes of travel and takes into account the significant topographical constraints along the Highway 211 corridor, as well as crossings of Tickle Creek.

In addition, the City should continue to:

- Coordinate with ODOT on the roadway improvement alternatives including the Highway 26 By Pass recommended in the TSP.
- Coordinate with developers to ensure roadway improvements, including sidewalks and bike lanes, are constructed as required along property frontage.



Environmental Considerations

Mapping for the Specific Area Plan began with a compilation of the environmental features illustrated on Figure 1, Existing Conditions Map. The elements inventoried focused on the environmental topics regulated by the City of Sandy, specifically: slopes, wetlands, riparian areas, and, trees. Discussions with the Advisory Committee revealed an interest in a wide range of environmental indicators, ranging from water temperature and air quality. The elements shown on Figure 1 were combined with local expertise from the community to frame the environmental considerations of the plan.

Slopes were mapped to identify areas within slope categories of 15-24.9% and 25%+, per the City's Flood, Slope and Hazard (FSH) Overlay provisions. During the process, the 15-24.9% category was deleted as a regulatory definition within the code. The steeper areas of the study area are focused in the north, bordering Tickle Creek, and along the tributaries that drain north to the creek.

Wetlands are also shown on Figure 1. There are approximately eleven areas that are rated as "significant" wetlands by the City's Locally Significant Wetland Inventory and Local Wetland Inventory Update (June 2001). During the process, two property owners along the west side of Bornstedt Road noted that their ponds/wetlands were man-made.

As illustrated in the Drainage Basin Map, Figure 2, the western half of Bornstedt Village is comprised of seven sub-basins. One drainage in particular, located just south of Highway 211 in the western portion of the plan was discussed for potential designation as an open space. It was concluded that this bowl-shaped area was not subject to the FSH ordinance provisions or other open space/environmental considerations currently in the Sandy comprehensive plan or code, and therefore should not be designated for open space in the village plan. The Advisory Committee examined several options for the location of a neighborhood park in this vicinity and concluded that when a park acquisition is considered, there may be opportunities to combine the location of the open space with a portion of a lower lying area.

Regarding the City's tree protection ordinance, nothing applies outside the City. Inside, the city boundaries, properties greater than one acre, save three 11" DBH trees per acre of land under a contiguous ownership.

V. Opportunities and Constraints

Figure 3 illustrates selected site opportunities and constraints, as identified early in the specific plan process. Key opportunities and constraints discussed during the process included:

Highway 211 – The highway is highly constrained by high speeds, sight distance problems, and noise. Properly designed, these problems can be lessened while providing a safe crossing for pedestrians and connection to the downtown.

Tickle Creek corridor – Tickle Creek is the most significant resource area within the village. The forested slopes adjacent to the creek were identified as very important areas to protect, in balance with some development potential for the less steep areas away from the creek.

Historic Barlow Road — There is an opportunity to preserve and commemorate the route of the historic Barlow Road as the village transitions to urban use. The challenge is to determine a feasible mechanism for preservation and commemoration of the route in the context of a developing neighborhood.

Area north of Highway 211 – Some participants in the process stated that this area should be considered for "removal" from the specific area plan, based on the premise that one of the property owners indicated he did not intend to develop his property. During the process, other property owners of land north of the highway indicated they intended to develop in the future. In general, most participants saw an opportunity for the plan to guide the future of this area, even if it is many years before development occurs.

Arletha Court – Arletha Court is a private road. It currently is the sole access to about 15 properties. Over the long term, has the opportunity to be part of a future connected street pattern in the village. However, it was recognized that this will only occur when owners along Arletha Court decide to develop their properties, and the legal aspects of granting public access are worked out (potentially through transfer to a public right-of-way).

Sharing of infrastructure costs – There is an opportunity to design a system for properties to jointly plan and share the costs of infrastructure. Participants identified this issue from the perspective of equity, i.e. not burdening any one property too much with the costs of infrastructure.

Bornstedt Road – Like Highway 211, Bornstedt Road is constrained by very high speeds and safety problems. The road's slope and the sensitive environmental areas adjacent to the road exacerbate this. Opportunities exist to calm the traffic flow by through speed bumps, regrading, and other physical means starting south on the village and continuing up to a stop controlled intersection where Bornstedt Road intersects with Cascadia Village Drive.

An elementary school for Bornstedt Village – Participants in the planning process stated a desire to include a future school in the village. The school district was not optimistic about the need to place a school in Bornstedt Village, however, participants agreed that a plan should be flexible to include a school if the need arises.



VI. Specific Area Plan

The Bornstedt Village Specific Area Plan is a guide to the creation of a walkable, complete neighborhood in Sandy. The plan fulfills the overall Sandy Comprehensive Plan's village concept while responding to the unique opportunities and site conditions of the Bornstedt Village area.

Key features of the plan are summarized below.

Land Use and Zoning

- The plan includes a land use pattern that focuses density closest to the center of the village, with a planned transition to lower densities at the edges of the village.
- The range of zone districts provides a variety of housing opportunities, including largelot, medium-lot and small-lot single-family homes, townhomes, apartments and senior housing.
- A new 3-acre village commercial center is located along Highway 211.
- The following zone districts set the framework for planned uses and densities:

Single Family Residential (SFR) Low Density Residential (R1) Medium Density Residential (R2) High Density Residential (R3) Village Commercial (C-3) 2-6 dwelling units per acre 5-10 dwelling units per acre 8-14 dwelling units per acre 10-20 dwelling units per acre

Circulation

- The Circulation Plan identifies the general location for through streets, while providing
 flexibility for specific alignments. The circulation plan also suggests locations for local
 street connections, which will implement a code standard that requires the creation of a
 connected network of local streets.
- Highway 211 is planned as a Parkway, with its own unique cross-section, and proposed signalized intersection where "Village Boulevard" meets the highway.
- Two boulevard streets are proposed: Barlow Road Boulevard and Village Boulevard.
- The Illustrative Street Plan provides a graphic representation of how local street connections could be located within the village.
- Traffic calming measures are proposed for Bornstedt Road.

Open Space, Parks and Pedestrian Network

- Flood, slope and hazard areas have been mapped as part of the Village Plan. These
 areas serve as a framework for planning open space within the village.
- The Single Family Residential zone is located at the northwest and southwest ends of the village in order to place lower density residential zoning near key resources (e.g. Tickle Creek, sloped areas, tree groves).
- Two new neighborhood parks are proposed: Barlow Road Park and Bornstedt Park. The
 parks are located to serve the new residential areas north and south of Highway 211, and
 serve as recreational focal points.
- The historic Barlow Road corridor is preserved, with the southeasterly segment included in a neighborhood boulevard.
- The plan includes a network of pedestrian and bicycle connections, featuring future
 paths along Highway 211, the historic Barlow Road, and the "Market Road" right-of-way.
 The Open Space, Parks and Pedestrian Network map illustrates the potential network of
 pedestrian routes that would follow the street network.



Land Use and Zone Districts

The Zone Districts map illustrates the proposed zoning for the village. Within the City limits, the zones match existing zoning. Outside the city limits, the zones would be implemented as new "conceptual" zoning. Upon annexation, the conceptual zoning converts to actual city zoning.

The overall land use pattern and zoning concept includes:

- A new neighborhood commercial parcel located along the south side of Highway 211, resulting in two small commercial nodes for the entire village.
- High density (R-3) and medium density (R-2) residential uses focused generally in the center of the village, progressing from higher to lower densities away from the village center.
- Low Density (R-1) and Single Family Residential (SFR) densities as part of the transition of densities from center to village edge. SFR is not typically applied in Sandy's villages, but was supported by the Bornstedt Village Advisory Committee as a way to reasonably limit development potential in areas that are close to sensitive natural resources.
- Identification of the general locations of the environmentally sensitive areas, called "unbuildable land" on the map. This is the estimated boundary of the City's Flood, Slope and Hazards resources, as regulated by Section 17.60 of the development code.

The Zone District map does not include the village's three parks because they are not zone districts as defined by the comprehensive plan and development code. However, the parks are a very important element of the Village Plan. The estimated land use capacity of the Village Plan is summarized below.

Table 3: Proposed Zoning

Proposed Zoning	Approximat. Gross Acreage	Maximum Density/Acre	DU (Max)
SFR – Single Family Res.	65.00	6	390
R1 – Low Density Res.	68.50	10	685
R2 - Medium Density Res.	25.00	14	350
R3 – High Density Res.	16.00	20	320
Village Commercial	4.00	0	0
(Cascadia Village)**	52.00	8.3 (average)	433*
Total	230.50	9.4 (average)	2,178

^{*}This number includes an 84 unit assisted living complex, a 43 unit multi-family parcel adjacent to the assisted living complex, and a 27 unit multi-family parcel adjacent to Cascadia Village commercial center. **Not a separate zone.

Note: Proposed parkland (5 ac.) is included here within the applicable zone district areas. Detached dwellings-to-attached dwellings are estimated at 62%-38% as follows:

390 (SFR) + 685(R1) + 279(detached units in Cascadia Village = 1, 354 detached units 1,354 detached units/2,178 total units = 62.1% detached units.



Circulation

Bornstedt Village is envisioned to be a neighborhood where there are options for driving, walking, biking and even local transit. Three maps in this section illustrate how circulation choices have been planned for Bornstedt Village.

Circulation Plan

The Circulation Plan, Figure 7, shows existing and planned streets. The "proposed through streets" are the neighborhood connector routes that are intended to provide the backbone of through circulation for neighborhood traffic. Two key through routes are the extension of Cascadia Village Drive and a new north-south street that intersects Highway 211 at the village center.

The "proposed boulevard streets" are local streets with landscape medians. The boulevard street located north of Highway 211 is labeled Barlow Road Boulevard. The concept is to build a neighborhood street that: (1) follows the general alignment of the historic Barlow Road; and, (2) includes a landscape median (minimum 20 feet wide), interpretive signage and a trail within the median. The conceptual design recognizes that the historic road is no longer visible, so the Barlow Road is incorporated into the design of the neighborhood's circulation. The north-south boulevard shown on the Circulation Plan (labeled as Village Boulevard) is intended to provide a landscaped central corridor for the area south of Highway 211. It is aligned with and existing hedgerow of trees, which should be incorporated into the center median, if practicable.

The "proposed local connections" are suggested locations for local streets to intersect with the through streets. These connections will complete the street and block system that makes up Bornstedt's local network. When complete, it should be possible to "take a walk around the block" in almost every part of the village.

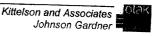
Highway 211 has been planned as a parkway. The parkway cross-section, as shown in Figure 6, has been prepared that utilizes the existing 80' right-of-way width.

Illustrative Street Plan

The Illustrative Street Plan, Figure 8, is an illustration of how the combination of through streets and local connections could combine to form the neighborhood street pattern. This plan is intended to be guiding, not binding. Flexibility will be needed to respond to local conditions and specific building types proposed in the future. However, the constant should be that a connected network results from the series of land use approvals that will occur over time.

Pedestrian Network Plan

Off-road trails and on-street pedestrian routes are shown on the Open Space, Parks, and Pedestrian Network Map, Figure 9. They are described in the following section.



Open Space, Parks and Pedestrian Network

The Open Space, Parks and Pedestrian Network Map, Figure 9, combines open space features with the illustrated network of walking and biking routes in the neighborhood. Key features are summarized below.

Open Space

The map illustrates the estimated extent of land regulated by the City's Flood, Slope and Hazards regulations (SDC 17.60). This land has very limited development potential and will provide the main component of Bornstedt Village's open space framework. The framework follows areas of existing major tree groves, steep slopes, and stream corridors.

Parks

The Specific Area Plan recommends two new neighborhood parks, located on either side of Highway 211. These parks are intended as "walk-to" facilities that provide access to basic recreation opportunities for nearby residents of all ages. The also are intended to contribute to neighborhood identity and livability.

The specific location of each park is flexible – the locations shown on the plan are illustrative and are not are binding upon the property owners. As described below, the park locations have been designed to integrate with other elements of the plan. In this sense, they are considered optimal park locations, but they are not the only locations. Actual sizing and siting of the parks will result from a combination of city acquisitions, land use reviews, and other public-private collaborations.

Barlow Road Park – This park is located along the historic Barlow Road. It connects the northern portion of the Barlow Road (that drops down to Tickle Creek and is believed to be the actual route of the historic road) with the southeasterly open-field portion of the historic route. The open-field portion of the road is no longer visible – it is planned for incorporation within a neighborhood boulevard as a way to permanently commemorate the route. Barlow Road park also includes a portion of the open space area that is currently a gun club.

Bornstedt Village Park - This park is located adjacent to the neighborhood center, just south of Highway 211. It serves as:

- A central village green next to the activity of the neighborhood center.
- Open space near the adjacent high and medium density land uses.
- A "crossroads" open space feature for the area south of Highway 211.
- A relatively large impervious area located within one of the drainage basins of Bornstedt Village. As such, water quality features can be incorporated into a portion of the park.

Off-road Trails

A network of off-road trails are planned at the northern end of the village. Tickle Creek Trail is referenced in the City's Parks Master Plan. Barlow Road Trail follows the historic Barlow Road route, as described above. The Market Road Trail follows an existing public right-of way. This route was suggested by Committee members as an additional way to connect the village to the downtown. The crossing of Tickle Creek could be accomplished via a small covered bridge, as shown in the illustration. The "trail" that parallels Highway 211 would actually be the multi-use path portion of Highway 211.



Pedestrian Network

The pedestrian network shown on the map follows the routes of the illustrative street plan, i.e. it is essentially a map of potential future sidewalk routes. The network is an illustration – actual pedestrian routes will be determined during land use reviews.

VII. Implementation

Annexation

As described earlier in this report, approximately 28% (65 acres) of Bornstedt Village is within Sandy's city limits. The balance of the village is within Sandy's urban growth boundary but outside the City. The intent for the annexation of the unincorporated portions of Bornstedt Village is to follow Sandy's current system of owner-initiated and voter approved annexations. The City is considering amendments to annexation criteria to incorporate aspects of the tree-cutting ordinance.

The land use designations on Figure 5 will replace existing "conceptual zoning" for the areas outside the current city limits. City zoning, consistent with the Village Plan, will then be applied on a parcel by parcel basis as properties annex.

Comprehensive Plan

The Village Plan can be incorporated into the Sandy Comprehensive Plan as follows:

For the Comprehensive Plan map, the current Comprehensive Plan "Village" designation would continue. For the plan text, it is suggested that one new policy be adopted. The new policy would amend Goal 2 (page 2 of Comprehensive Plan text) by adding a Bornstedt Village policy. The policy would:

- 1. Acknowledge the creation of the Bornstedt Village Specific Area Plan as the guide to the future of the village area;
- 2. Recognize the public process used to create the plan and the contributions of citizens and stakeholders working together; and
- 3. Authorize the creation of a special implementing chapter in the Sandy Development Code.

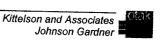
Two refinements to existing policies are needed. First, the "Village" section (page 6 of Comprehensive Plan) should be amended to allow additional zones (e.g. single family residential) that are identified through a specific plan process.

Secondly, this same section should be amended to allow existing review procedures (Types I-IV) to be used after the legislative adoption of a specific area plan. For example, a subdivision that would normally be approved as a Type II review, could be a Type II review following approval of a specific area plan.

To support the above-listed amendments, it is important that the code include a policy basis for specific development standards. This can be accomplished by placing planning principles and objectives for Bornstedt Village Plan in the "Intent" section of the implementing chapter of the Development Code. The intent section would essentially serve as the policy basis for the code.

Zoning Map and Development Code

The Sandy Zoning Map and Development Code will serve as the primary implementing regulations for the Bornstedt Village Specific Area Plan. The code recommendations offered below assume that the Village will annex and develop incrementally over time as a series of separate land use decisions.



Zoning Map

The zoning map should be amended to place new "conceptual zoning" on village lands that are currently outside the city limits. Then, as properties annex to the city, the conceptual zoning converts to the actual zoning administered by the City. No changes are proposed to the zone designations for properties within the current city limits.

One new zone designation is proposed: the "Bornstedt Village Overlay (BVO) district". The intent of this designation is simply to designate on the zoning map the area of applicability for the BVO provisions of the code. As described below, the new "zone" fits within a new chapter of the code that will be the location for all legislatively adopted specific area plans.

Development Code

The recommended approach is to amend the Development Code to create a new chapter called "Specific Area Plan Overlay". The Bornstedt Village Overlay (BVO) district would be the first specific area plan codified within the chapter, and others will be added as the City prepares them. The BVO section would include the subsections described below.

Intent

The intent section of the Bornstedt Village Overlay district will establish the overall purpose and "policy" direction for the specific standards. The following is a draft intent statement for the code.

"The intent of the Bornstedt Village Overlay (BVO) district is to guide the creation of a new, pedestrian-oriented neighborhood in Sandy, and, implement the Comprehensive Plan's village policies. The district is intended to integrate land use, transportation, natural resource and infrastructure planning in a way that recognizes and enhances the unique qualities of Bornstedt Village. The district references other chapters within the Sandy Development Code in combination with establishing provisions that apply solely within Bornstedt Village.

The planning objectives for Bornstedt Village are to:

- A. Create a livable village Create a neighborhood-oriented village that fulfills the village definition in the Sandy Comprehensive Plan, and, responds to the unique opportunities and site conditions of Bornstedt Village.
- B. Provide transportation options and a local street network Provide for transportation improvements and a village setting that is conducive to walking, bicycling and transit, while accommodating automobile traffic. Integrate planned land uses with existing and future transportation modes.
- C. Plan for a new, village-oriented character for Hwy 211, Bornstedt and Jacoby Roads Evaluate ways to calm traffic, improve safety, create an attractive character, protect natural resources and generally minimize adverse impacts from traffic on these high-speed roads.
- D. Protect, restore, and enhance natural resources in balance with creating an urban village Plan for integration of land use, transportation, and natural resources in the village. This objective seeks to protect, restore and enhance key resources and implement appropriate green and sustainable development practices, all in balance with creating an urban village.



- E. Plan for a parks and open space Provide parks that implement the City of Sandy Parks Master Plan, and other open space opportunities that enhance the livability of the village.
- F. Provide housing choices Provide a variety of housing choices that meet the needs of a broad spectrum of Sandy residents.
- G. Ensure attractive and village-oriented design Identify zoning and design guidelines that will result in attractive design that supports the creation of a walkable village.

Uses

The BVO code should use the existing zones in Sandy as a reference point for permitted, conditional and accessory uses. A parcel designated R-1 in Bornstedt Village is therefore governed by the same use list as any other R-1 parcel in Sandy, however, additional provisions of the BVO chapter can apply. Where there is a conflict between a referenced section of the code and the BVO chapter, the BVO plan provision supercedes.

It should be noted that the community may want to modify some of the uses for Bornstedt Village. This can be readily done through the final implementing code language for the village.

The proposed zones for Bornstedt Village include:

- A. Single Family Residential (SFR) see SDC 17.34
- B. Low Density Residential (R1) see SDC 17.36
- C. Medium Density Residential (R2) see SDC 17.38
- D. High Density Residential (R3) see SDC 17.40
- E. Village Commercial (C-3) see SDC 17.46

As noted in the discussion above regarding comprehensive plan text amendments, the SFR zone (2 to 6 dwelling units per acre) is typically not applied in Sandy's villages. It is applied in the Bornstedt Village Plan at the north and south ends of the village where environmental conditions and/or existing parcel sizes are such that densities lower than R-1 are appropriate. It also is part of a progression of densities from highest (at the village center) to lowest (at the village edge).

Development Standards

As with the uses described above, the basic list of development standards for Bornstedt Village includes those standards that currently apply in each zone. For example, the development standards applicable in the R-1 zone would apply in the R-1 designated portions of Bornstedt Village, unless superceded by a special standard in the BVO section.

The following is a summary of the standards that currently apply in each of the residential zones recommended for Bornstedt Village. Several of the current standards have been updated for application in Bornstedt Village. The modified lot width standards are intended to work with a new provision requiring alleys or courtyard design to serve narrow lots – see discussion under "Access to Narrow Lots."



Table 4: Residential Development Standards

Туре	SFR	R1	R2	R3
Minimum Average Lot Width	50 ft. single family detached	40 ft. single family detached; 50 ft. duplex; 30 ft. zero lot line and row house	40 ft. single family detached; 30 ft. zero lot line and duplex; 20 ft. row house	40 ft. single family detached; 20 ft. duplex; 20 ft. zero lot line; 20 ft. row house
Lot Width at Building Line	40 ft. single family detached	40 ft. single family detached; 20 ft. duplex; 20 ft. row house	40 ft. single family detached; 20 ft. zero lot line and duplex; 20 ft. row house	40 ft. single family detached; 20 ft. zero lot line and duplex; 20 ft. row house
Minimum Lot Frontage	20 ft.	20 ft.	20 ft.	20 ft.
Minimum Average Lot Depth	No Minimum	No Minimum	No Minimum	No Minimum
Setbacks Front Yard Rear Yard Side Yard (interior)	10 ft. min. 15ft. min. 5 ft. min	10 ft. min. 15 ft. min. 5 ft. min	10 ft. min. 15 ft. min. 5 ft. min	10 ft. min. 15 ft. min. 5 ft. min
Corner Lot	10 ft. on side abutting the street	10 ft. on side abutting the street	10 ft. on side abutting the street	10 ft. on side abutting the street
Garage	20 ft. min.	20 ft. min.	20 ft. min.	20 ft. min.
Projection into Required Setbacks	See Chapter 17.74	See Chapter 17.74	See Chapter 17.74	See Chapter 17.74
Accessory Structures in Required Setbacks	See Chapter 17.74	See Chapter 17.74	See Chapter 17.74	See Chapter 17.74
Structure Height	35 ft. max.	35 ft. max.	35 ft. max.	35 ft. max.
Building Site Coverage	No minimum	No minimum	No minimum	No minimum
Off-Street Parking	See Chapter 17.98	See Chapter 17.98	See Chapter 17.98	See Chapter 17.98

Table 5: Village Commercial (C-3) Residential – In Conjunction with a Commercial Business

Туре	Standard Standard		
Lot Dimension	In conformance with Chapter 17.40 (R-3)		
Setbacks	In conformance with Chapter 17.40 (R3)		
Lot Coverage	No minimum		
Structure Height	45 ft. maximum		
Landscaping	20%		
Off-Street Parking	See Chapter 17.98		
Density	In conformance with Chapter 17.40 (R-3)		

Table 6: Village Commercial (C-3) Development Standards

Туре	Standard
Lot Area	No minimum or maximum
Lot Width	No minimum
Lot Depth	Maximum 100'
Lot Coverage	No maximum
Setbacks*	No minimum front or corner setback Maximum of 10 ft.
Structure Height	45 ft.
Landscaping	10%
Off-Street Parking	See Chapter 17.98

^{*}Unless abutting a more restrictive zoning district

Design Standards

In the Sandy Code, landscape and site/building design standards are contained in Chapter 17.90. It is recommended that the BVSAP chapter utilize these standards by reference, except for unique standards adopted for the village.

New standards suggested for Bornstedt Village fall into the following categories:

- Single Family Residential Design Standards
- Variety of Housing Standard
- Garage Standards
- Access to Narrow Lots

Single Family Residential Design Standards

Single family residential standards should be considered for updating. The current code (17.90.220) has a "menu" of design features, from which applicants must utilize at least two

- 1. Dormers
- 2. Gables
- 3. Recessed entries
- 4. Covered front porches
- 5. Pillars or posts
- 6. Bay or bow windows
- 7. Eaves of 12 inches or greater
- 8. Off-set of 16 inches or greater on building face or roof

The City should consider adding some menu choices and increasing the number of minimum required choices. If 11 items are on the menu, 6 items should be required for single family homes. The intent here is to ensure adequate detailing of buildings while providing flexibility on the type of detailing. Additional choices include:

- Window trim (minimum 4-inch) or shutters (minimum 8-inch)
- 10. Balconies or porch rail
- 11. Shakes, shingles, brick or other similar decorative materials occupy at least 100 square feet of the street façade

Variety of Housing Standard

Livable neighborhoods often have a variety of lot sizes and building types within a short walking distance. A variety of housing adds richness and interest to the architectural character of the neighborhood. Sandy should consider developing a new code standard that requires more than one building type and/or lot size in any development that exceeds a specified threshold of dwelling units. This standard would be applied to areas designated R-1, R-2 and R-3 on the plan. The following is sample code language that would implement the

"All developments exceeding 40 dwelling units must demonstrate that a variety of lot sizes and/or building types have been provided. This standard is met by providing a different lot size or housing type for at least 20% of the dwellings, by one or more of the following:

- a. A mix of attached and detached dwellings.
- b. A variety of lot sizes for detached dwellings where the "varied" lot sizes are at least 20% larger or smaller than the average lot size for the remaining lots.
- c. A mix of one and two story dwellings.
- d. Other techniques as approved by the Planning Commission."

Garage Standards

Other than the required setback from sidewalks, the City does not currently regulate the orientation of garages. Standards that minimize the visual impact of garages and driveways can contribute to walkable and pedestrian-friendly character of the streets, as is desired in Bornstedt Village.

It is recommended that garage width and location standards be implemented. Figure 10 illustrates four options that are intended to avoid the dominance of garages along neighborhood streets in the village.

Access to Narrow Lots

As a general rule, the garage standards above become increasingly important as the size of the lot width decreases (e.g. small lots in R-1 and townhome lots in R-2). Small lots (e.g. those less than 50 feet in width at the front) and townhomes can be very compatible with single-family homes in a neighborhood if the streetscape is not dominated by many driveways and garage doors. The code can ensure a quality streetscape through a standard that addresses narrow lots. The following is sample language:

"Access to Narrow Lots. Lots with less than 50 feet of frontage shall receive access from a rear alley, parking court, or other similar access to minimize the number and extent of curb cuts on each block, to de-emphasize front-facing garages, and to mitigate turning movement

Circulation

General Requirements for Through Streets and the Street Network

The Conceptual Circulation Diagram included in this report (Figure 7) would be referenced
by the BVO chapter. Its purpose is to guide the location of new streets.

Sample language for the code would include:

"New streets and vehicle access shall be developed consistent with the Bornstedt Village Circulation Plan, Figure 7. Through-roads shown on the circulation plan are considered "required" street connections, however, there is flexibility regarding the specific alignment of the streets. Proposed road "arrows" (shown on the Circulation Plan) are considered suggested locations for additional connections between the through streets, recognizing that flexibility is needed for the specific number and location of additional streets. The combination of development of the through streets and additional connections shall result in a connected network of local neighborhood streets and circulation."

Highway 211 Parkway

The Highway 211 Parkway cross-section, as shown on Figure 6, should be referenced by the BVO section, with language requiring that development is consistent with the Parkway's design. The code should include a provision for additional landscaping, including trees, within the setback adjacent to Highway 211 to enhance the parkway.

Traffic Calming on Bornstedt Road

The need for reducing excessive speeds on Bornstedt Road was a key concern expressed during the Village Plan process. Accordingly, the intersection of Bornstedt Road and Cascadia Village Drive is planned to be stop controlled. In addition, the code should also reference the need for other traffic calming methods intended for Bornstedt Road, starting south of the current urban growth boundary. Signage, striping, reflectors, narrowing of the pavement section, regrading, landscaping and other traffic calming techniques should all be considered in both private land use permits (that require road improvements) and in capital improvement planning by the City.

Boulevards

Three local "boulevard" streets are included within the neighborhood street network. The first is the general alignment on the historic Barlow Road. The location and alignment are illustrated on Figure 7 referenced by the BVO district. The code text would generally describe the design concept and require land use approvals to be consistent. Sample text includes:

"The concept for the Barlow Road Boulevard is to build a neighborhood street that: (1) follows the general alignment of the historic Barlow Road, as shown on Figure 11; and, (2) includes a park block median (minimum 20 feet wide), interpretive signage and a trail within the median. The conceptual design recognizes that historic road is no longer visible, but is still valuable and important to incorporate into the design of the neighborhood. Subdivisions for this area shall be reviewed by the Planning Commission for consistency with this text and Figure 5, Zone Districts Map".

A second boulevard extends from the signalized intersection at Highway 211 that is approximately 800 feet to the south. This street should include a park block median a minimum of 20 feet wide. The existing hedgerow of trees may be incorporated into this street design.



The extension of Cascadia Village Drive west of Bornstedt Road should also include a landscaped park-block section that is a minimum of 20 feet wide, except where the street must avoid sensitive environmental areas (near Bornstedt Road).

Green Streets

Consistent with current City practice, the preferred street design within Bornstedt Village should be a "green street". A green local street cross-section was adopted into the Sandy Code in 2002.

Bluff Road Extension and the City's TSP

The City's adopted Transportation System Plan (TSP) includes a recommendation to extend Bluff Road from Dubarko Road south to cross Tickle Creek and eventually connect to Highway 211. During the Bornstedt Village planning process, this connection was viewed as being very difficult to implement due to the topographic and sensitive resource conditions within the Tickle Creek corridor. It was also recognized that north-south connections are limited and important to make where possible. Following the adoption of the Bornstedt Village plan, the City should review its TSP to evaluate how north-south connectivity should be implemented, and, whether refinements or alternatives to the Bluff Road extension should to be formally adopted in an updated TSP.

Parks

The Open Space, Parks and Trails Map, Figure 9, illustrates both existing parks and the location of two new neighborhood parks. The proposed new parks are conceptually located. They are an important element of the Bornstedt Village Plan, however, they do not bind the subject properties to use as only parkland. Rather, the exact location and size of the parks will be established through acquisition by the City, parkland dedication during development reviews (SDC 17.86), development agreements, or other means that involve property owner participation.

Environmental Standards

As with other elements discussed above, the BVO section should utilize (by reference) the existing environmental standards in the Sandy Development Code. The principal regulations are:

- Flood Slope and Hazard Overlay (Chapter 17.60)
- Hillside Development (Chapter 17.56)
- Urban Forestry (Chapter 17.102)

Figure 9 should be included in the BVO section as a general guide to the location of these resources. A discretionary standard should be written that provides the basis to require clustering of development away from the resource areas. The standards would require properties that propose development within these areas to provide: (1) site specific information regarding whether FSH Overlay resources are present; and, (2) a demonstration of whether it is practical to transfer density to a portion of the property that is not part of the resource area.

The City's Urban Forestry regulations apply citywide and are under consideration for application in areas within the urban growth boundary. In order to better preserve the existing tree canopy within Bornstedt Village, it is recommended that the "trees retained per acre" standard in the Chapter 17.102 be amended to preserve more existing trees, particularly in areas close to resource areas. The following is sample amendment to the existing urban forestry code language:

24

"17.102.50 Tree Retention and Protection Requirements

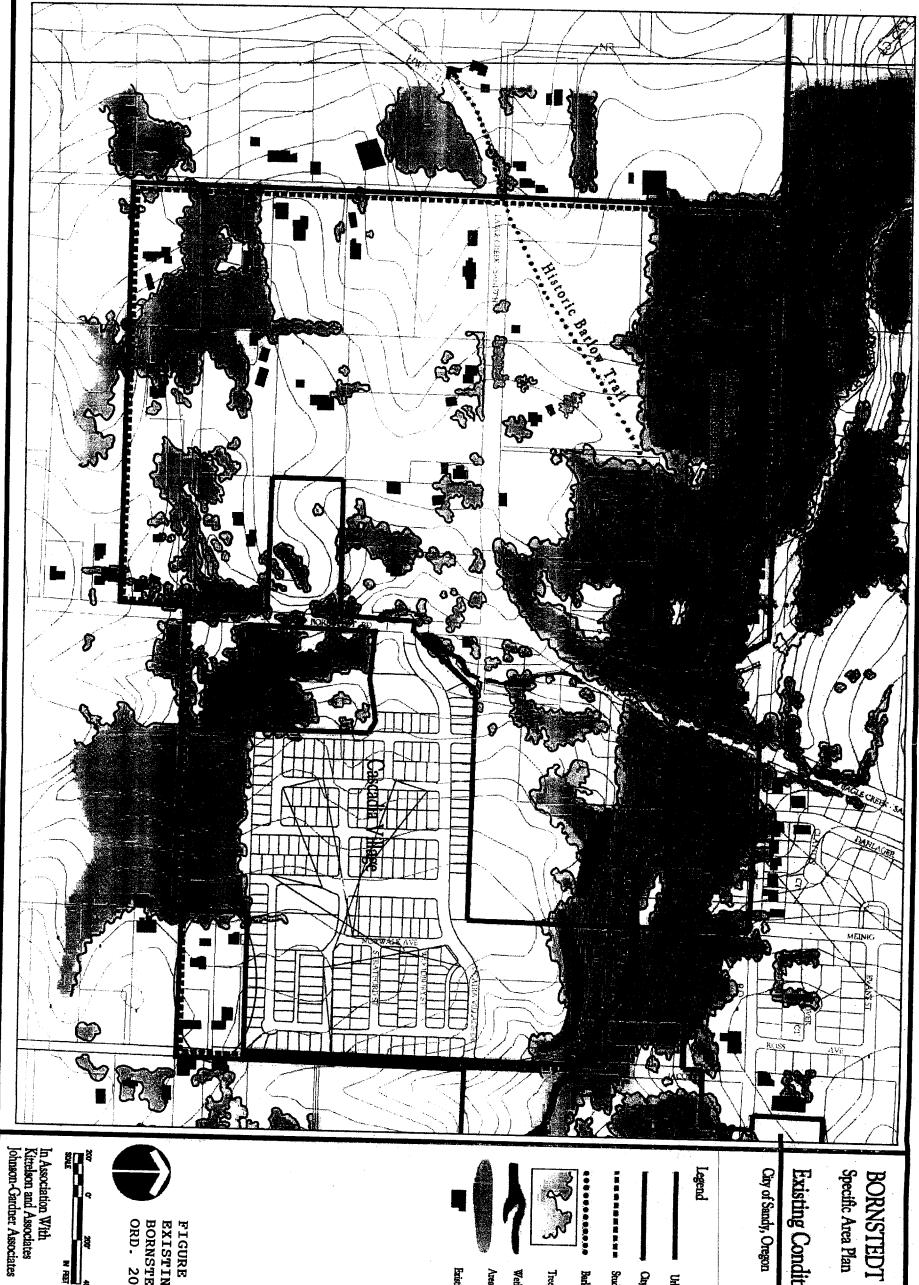
Tree Retention: The landowner is responsible for retention and protection of trees required to be retained as specified below:

- 1. At least three trees 11 inches DBH or greater are to be retained for every one-acre of contiguous ownership. Within Bornstedt Village, the standard is nine trees per acre within 300 feet of an area regulated by the Chapter 17.60 (FSH), and six trees per acre in other areas of the village.
- 2. Retained trees can be located anywhere on the site at the landowner's discretion before the harvest begins. Clusters of trees are encouraged.
- 3. Trees proposed for retention shall be healthy and likely to grow to maturity, and be located to minimize the potential or blow-down following the harvest.
- 4. If possible, at least two of the required trees per acre must be of conifer species.
- 5. Trees within the required protected setback areas may be counted towards the tree retention standard if they meet these requirements."

Infrastructure

Infrastructure provision has been evaluated by the City. In summary, water, sanitary sewer, storm drainage and other utilities are available, or can be made available, to the area. The City has anticipated providing urban services to this area since the update of the Sandy Comprehensive Plan in 1997.

In discussing infrastructure financing for Bornstedt Village, participants in the process were interested in exploring ways to share in the costs and benefits of infrastructure development. The committee referred to this issue as "equity sharing" and saw benefits associated with property owners cooperatively planning for infrastructure and then sharing in the costs and benefits. There are many ways to implement this idea, including local improvement districts and neighboring properties joining together to jointly apply for land use approvals based on a coordinated master plan. From the perspective of creating a cohesive Bornstedt Village neighborhood, these strategies offer an opportunity to implement the plan's vision and avoid fragmented development. The effort to jointly plan and finance neighboring parcels, under the guidance of the Village Plan, should be actively encouraged and supported by the City of Sandy.



BORNSTEDT VILLAGE

Existing Conditions

August, 2002

City Limits Urban Growth Boundary

Study Area Boundary

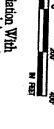
Tire Cover

Barlow Trail

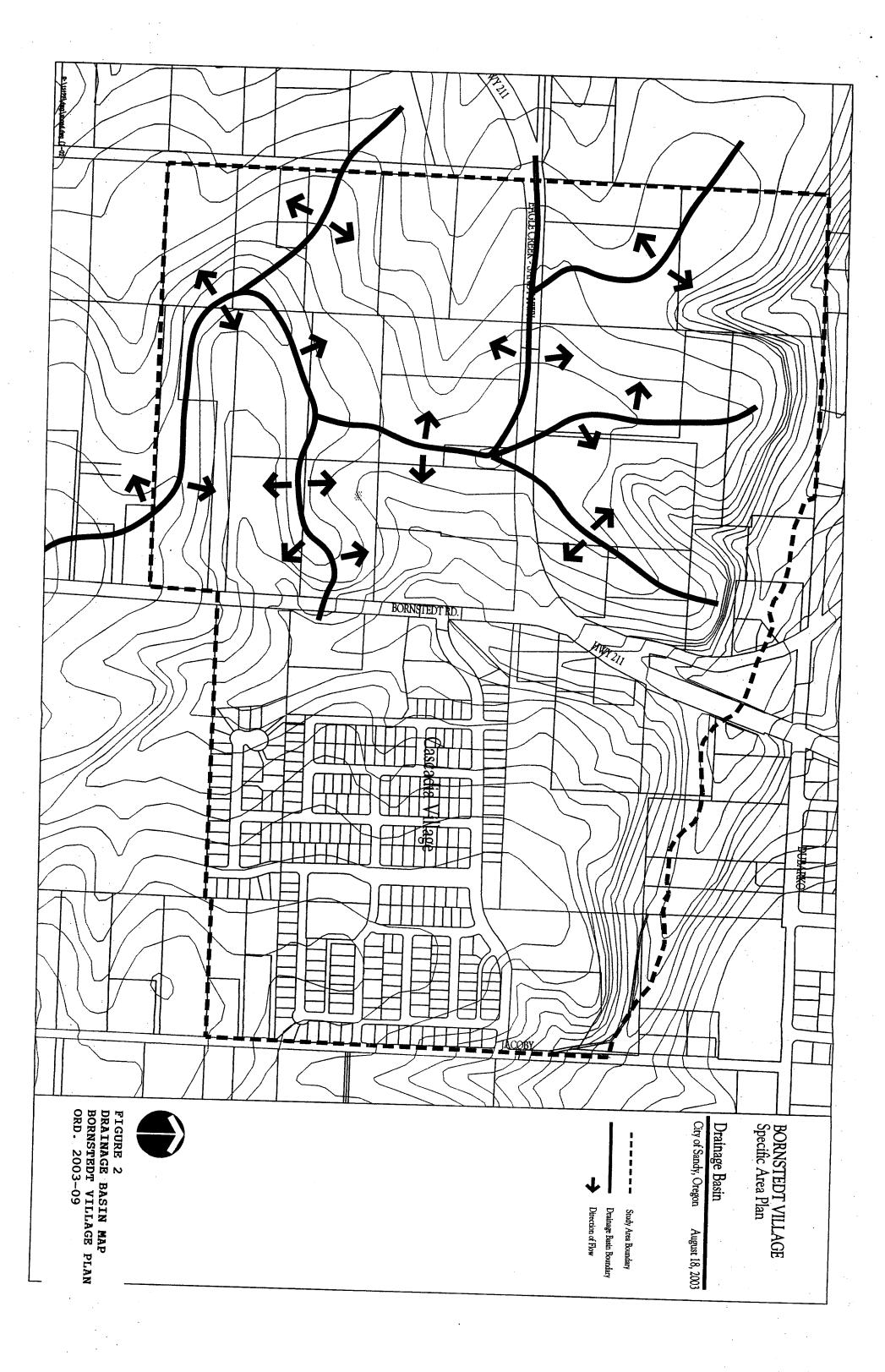
Wetlands Area of Slope Greater Then 20%

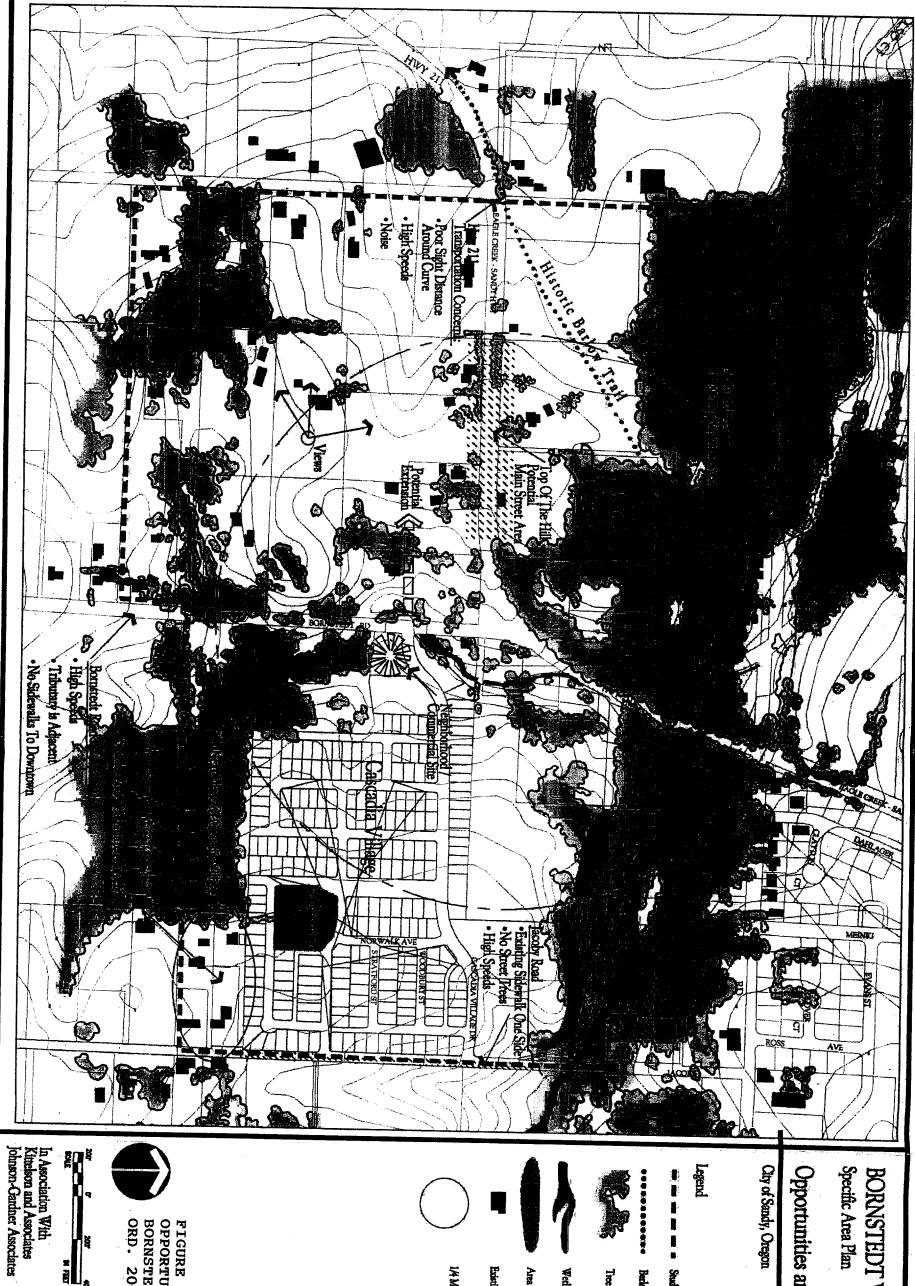
Existing Homes and Outbuildings

FIGURE 1
EXISTING CONDITIONS MAP
BORNSTEDT VILLAGE PLAN
ORD. 2003-9









BORNSTEDT VILLAGE

Opportunities and Constraints

August, 2002

Berlow Trad

Study Area Boundary

Tires Corres

Wedands

Existing Homes and Outhuildings

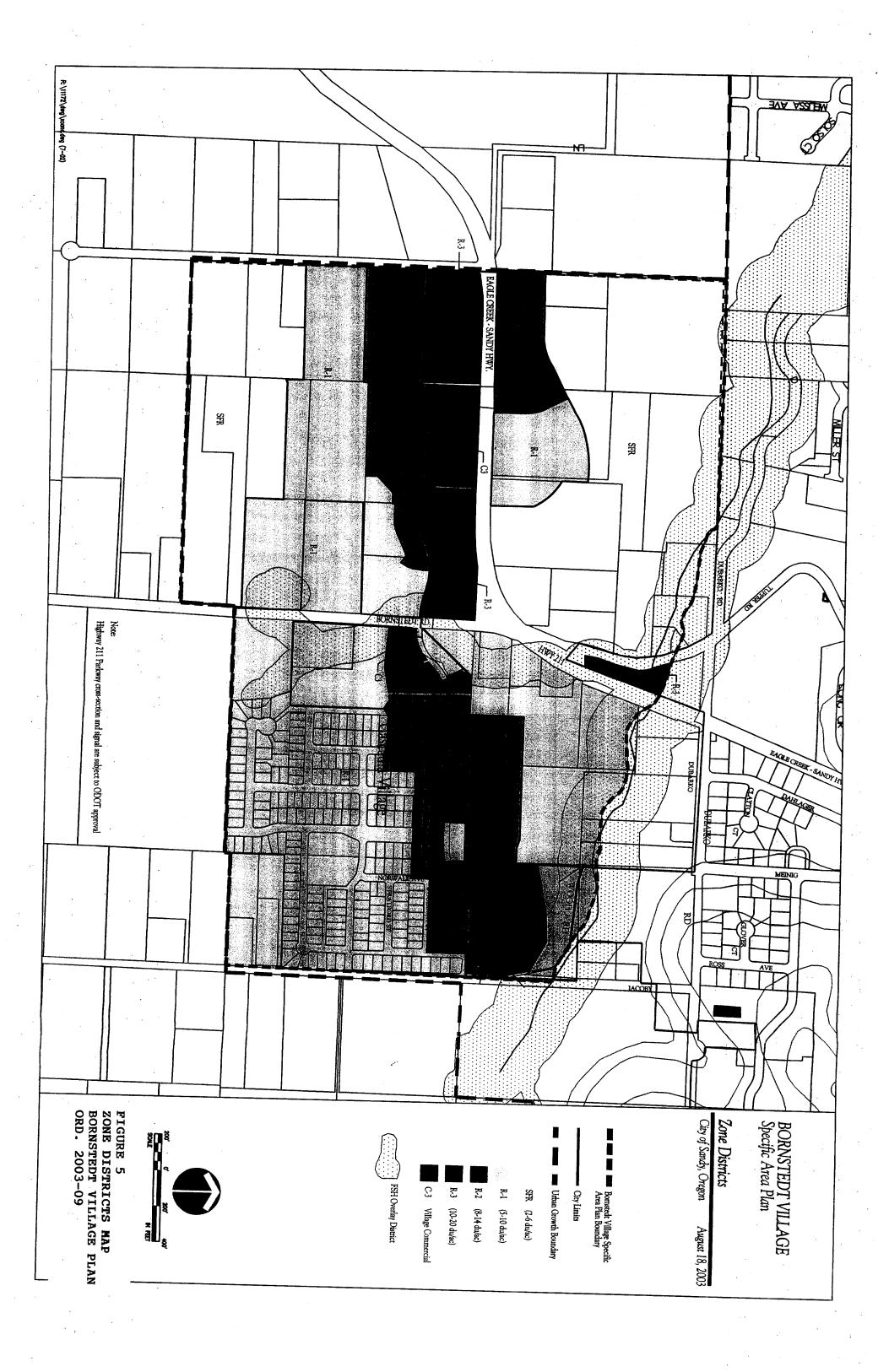
Area of Slope Greater Then 20%

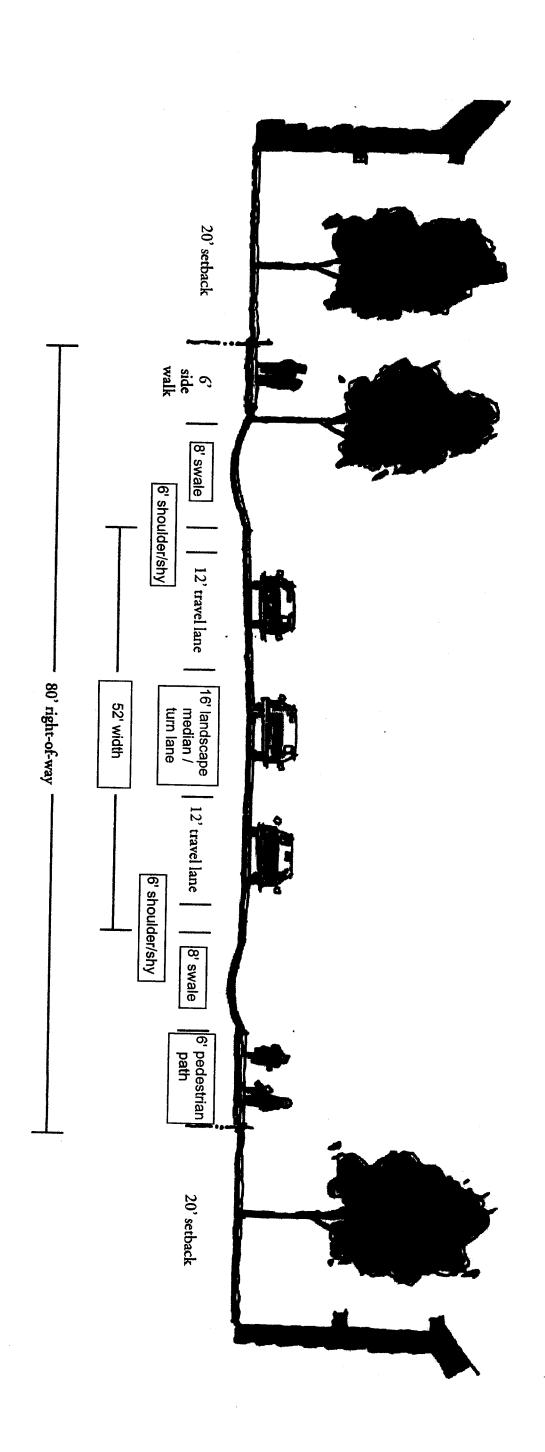
1/4 Mile Radius (5 Minute Walk)

FIGURE 3
OPPORTUNITIES & CONSTRAINTS
BORNSTEDT VILLAGE PLAN
ORD. 2003-09

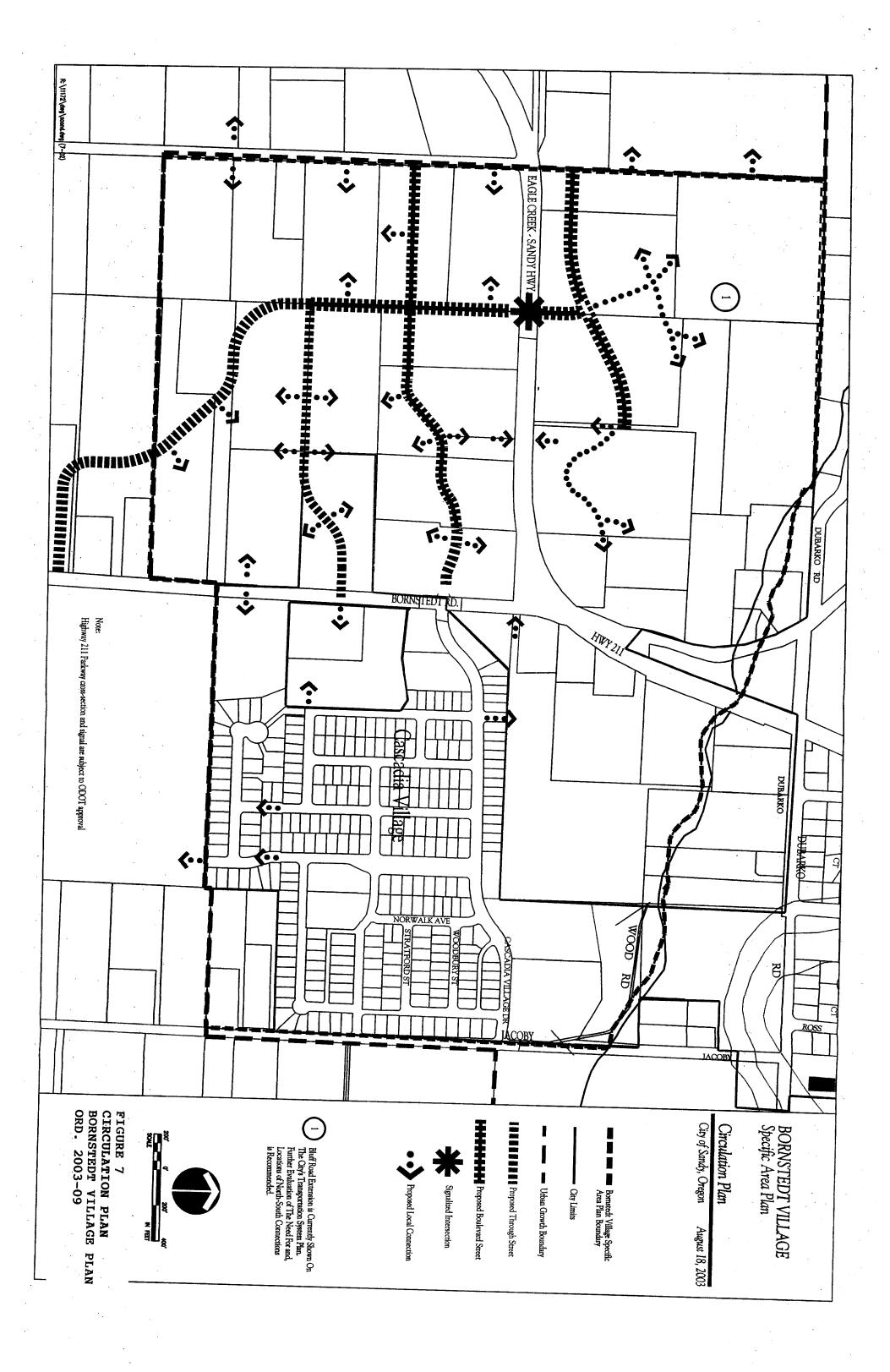


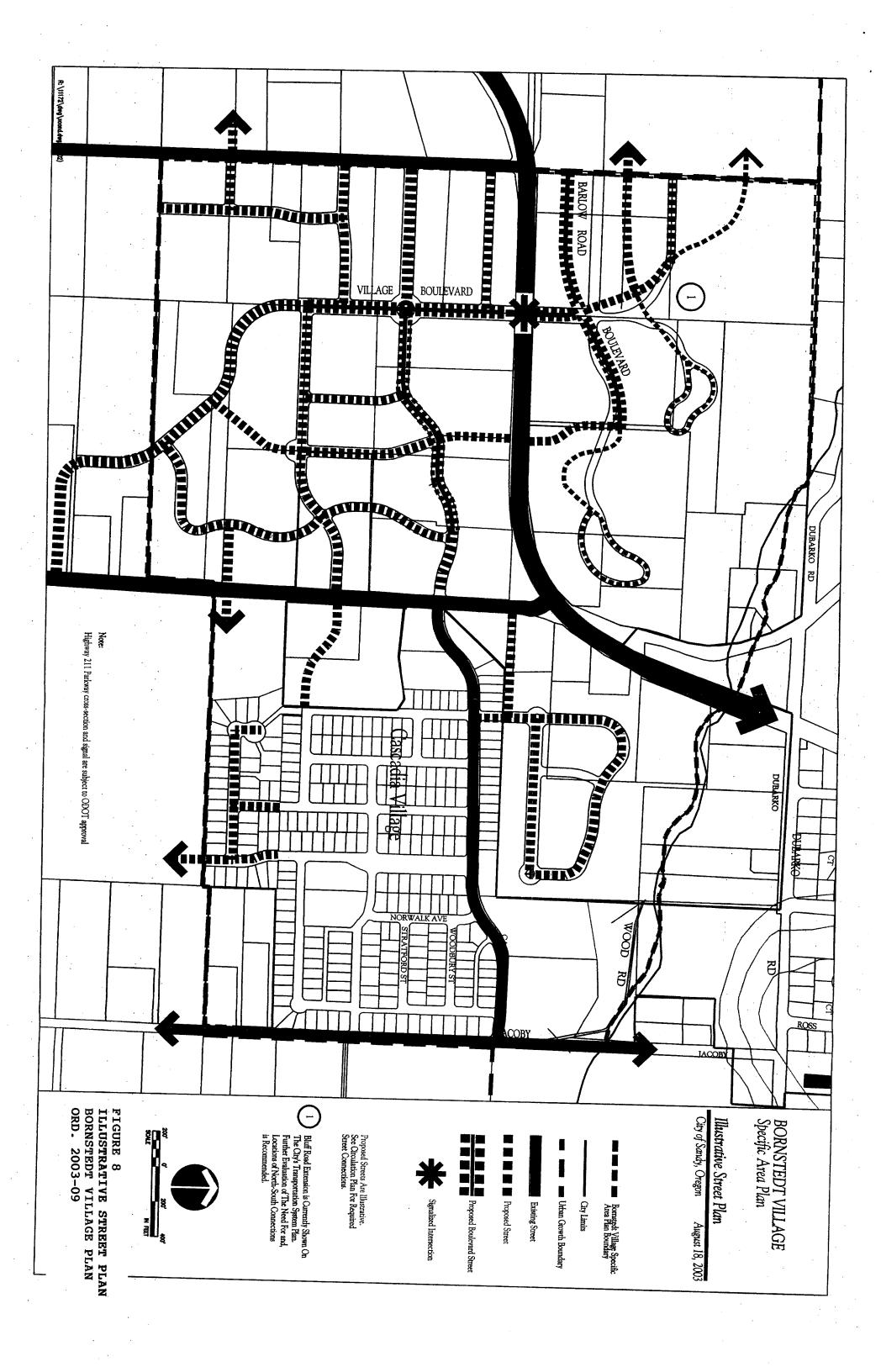


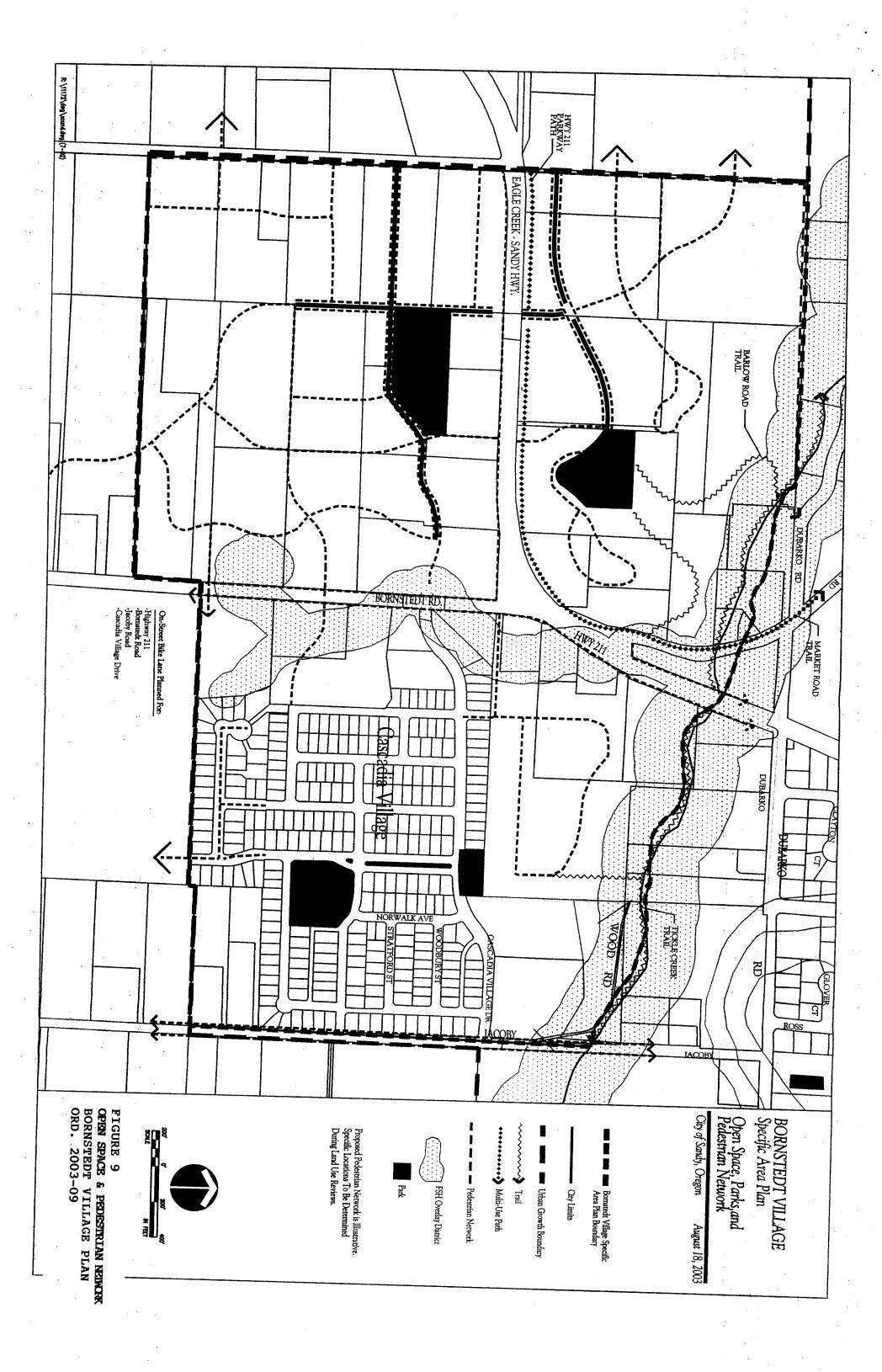


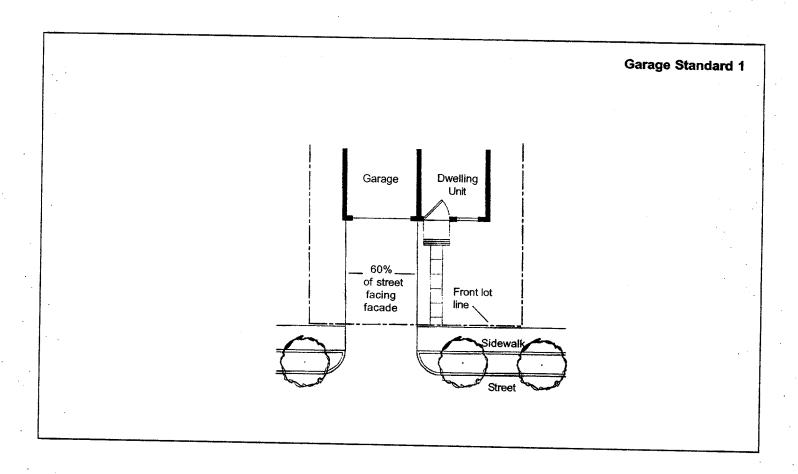


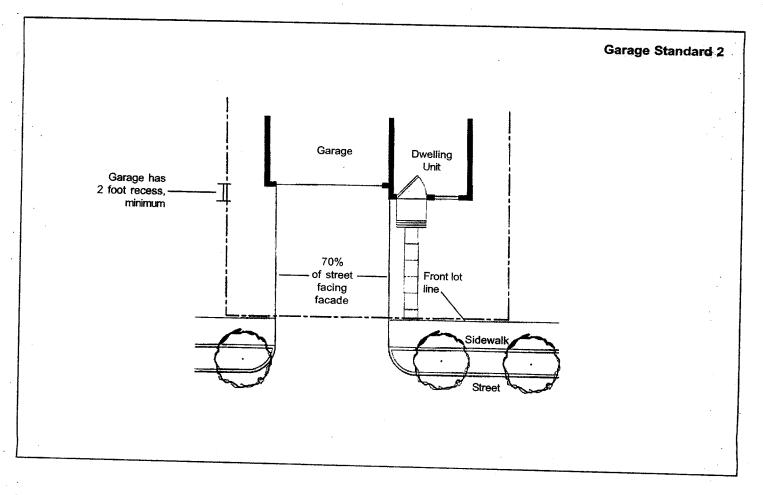
Highway 211 Parkway cross-section and traffic signal location are subject to ODOT approval

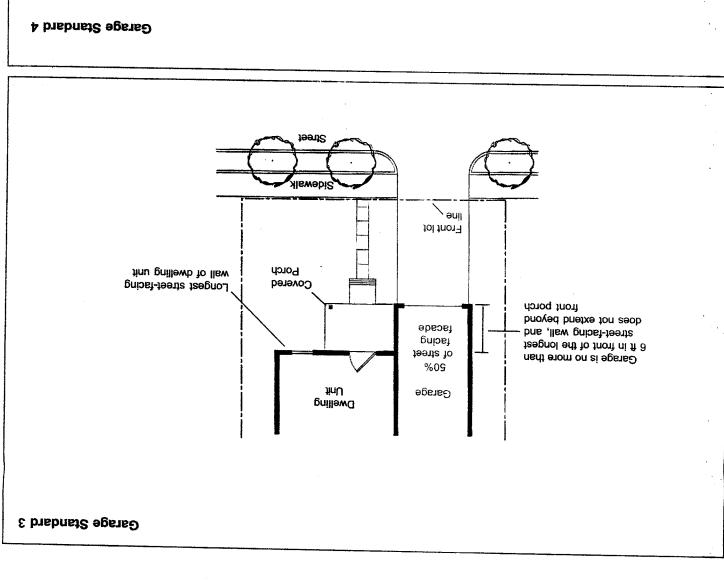


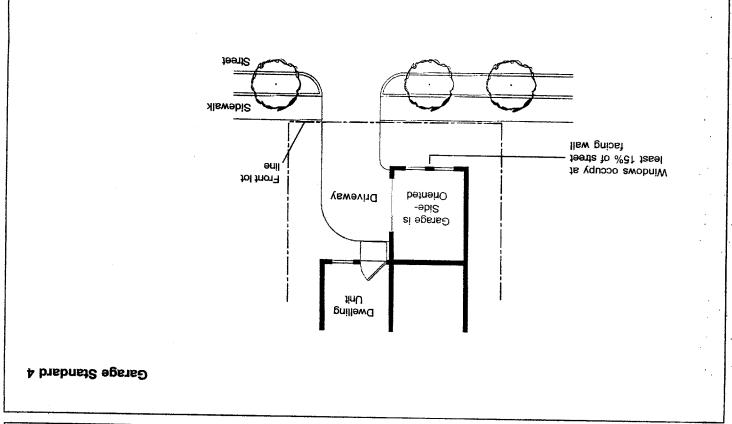


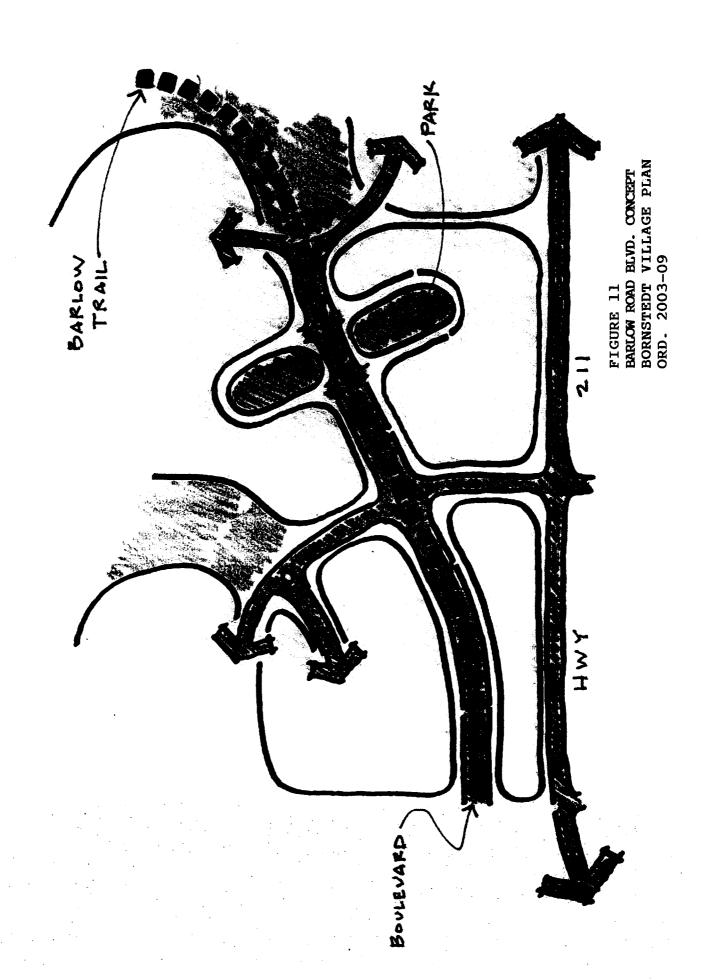






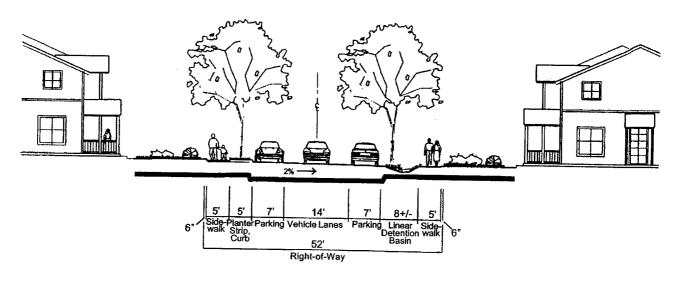




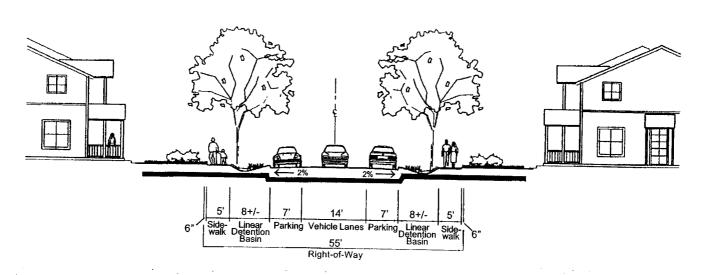


City of Sandy, Oregon Neighborhood Street Standards

Green Street Options



Green Street Option – 52 ft. ROW Swale on One Side



Green Street Option – 55 ft. ROW Swale on Both Sides

FIGURE 12 GREEN STREET STANDARDS BORNSTEDT VILLAGE PLAN ORD. 2003-09