

North Corvallis Area Plan

An Oregon Transportation and Growth Management Project

(TGM File Code 2B-99)

City of Corvallis

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North Corvallis Area Plan

Acknowledgements	iii
Contents	iv
Chapter 1: Introduction	1
1.1 Overview	1
1.2 Project Purpose and Plan Objectives	1
1.3 Assumptions	2
1.4 Planning Process / Public Involvement	3
1.5 Guiding Principles	5
Chapter 2: Background	9
2.1 Overview	9
2.2 Planning Area	9
2.3 Planning Context	11
2.4 Advisory Development Constraints	16
Chapter 3: Land Use	21
3.1 Overview	21
3.2 Comprehensive Neighborhoods	23
3.3 Neighborhood Design	26
3.4 Land Use Designations and Overlays	31
3.5 Recommendations	36
Chapter Four: Parks, Open Space, & Natural Resources	39
4.1 Overview	39
4.2 Natural Resource Areas	41
4.3 Proposed Parks, Open Space and Trails	42
4.4 Recommendations	44
Chapter 5: Transportation	47
5.1 Overview	47
5.2 Objectives	49
5.3 Existing Roadway Network	49
5.4 Proposed Roadway Network	50
5.5 Traffic Impacts and Mitigation Measures	55
5.6 Public Transit and Rail	60
5.7 Bicycle and Pedestrian Circulation	62
5.8 Recommendations	64
Chapter 6: Infrastructure	67
6.1 Overview	67
6.2 Storm water Management and Green Infrastructure	68
6.3 Water, Sanitary Sewer, and Other Utilities	70
6.4 School Facilities	73
6.5 Recommendations	73
Chapter 7: Implementation	76
7.1 Overview	76
7.2 Land Use	77
7.3 Parks, Open Spaces and Natural Resources	79

7.4 Transportation and Circulation	79
7.5 Infrastructure	80
7.6 Recommendations for Further Study	81
Appendix A: Glossary of Terms and Phrases	84
Appendix B: CHI Land Use Measuring Methodology	87
B.1 Methodology for measuring the Base Case and two alternative plans	87
B.2 Methodology for measuring the Preferred Alternative	88
Appendix C: NCAP Implementation Strategy	89

List of Figures & Tables

Figures

1.1 Participants in a December 2000 Community Workshop provide input for the draft alternatives .	4
1.2 Participants at a May Community Open House meeting	4
2.1 The NCAP study area shown with 1998 Comprehensive Plan designations.	8
2.2 Crescent Valley is framed by substantial topographic relief and traversed by Jackson and Frazier Creeks	11
2.3 2000 City of Corvallis zoning designations within the NCAP study area	12
2.4 Fifty foot contours and delineated storm water basins in the NCAP study area	14
2.5 1998 Wastewater Utility Plan sanitary sewer basins	15
2.6 Advisory constraints influencing land use development within the NCAP study area	18
3.1 The NCAP Preferred Alternative	20
3.2 Comprehensive Neighborhood Concept Diagram	22
3.3 NCAP Comprehensive Neighborhood Centers	23
3.4 The Timberhill Neighborhood Center	24
3.5 The Lewisburg Neighborhood Center.	24
3.6 The Crescent Valley Neighborhood Center	25
3.7 Gateway Standards from the 2000 Corvallis Land Development Code LI-O District	26
3.8 Illustrative example design standards for Highway 99W improvements	27
3.9 Illustrative example plan of a portion of a Comprehensive Neighborhood Center	28
3.10 Illustrative example Neighborhood Center building elevation	28
3.11 Illustrative example of a neighborhood green	29
3.12 The NCAP Plan Diagram	30
4.1 NCAP Parks, Open Space, and Natural Resources map	38
4.2 Chip Ross Park viewed from Jackson-Frazier Creek Wetlands	42
4.3 Illustrative plan of the transition between residential land use and open space / perennial stream corridor	43
4.4 Illustrative example plan of a trailhead	44
5.1 The NCAP Automotive transportation circulation diagram	46
5.2 Illustrative example section of a neighborhood center street	49
5.3 Figure A-1 from the 1998 Corvallis Transportation Plan	51
5.4 Illustrative example of a section of Highway 99W Parkway	53

5.5 Illustrative example section of an arterial parkway using conventional storm water management in more urbanized areas 54

5.6 Illustrative example section of an arterial parkway using bio-filtration swales for storm water management in less urbanized areas 54

5.7 Unmitigated volume to capacity ratios under PM peak loads 58

5.8 Unmitigated volume to capacity ratios under PM peak loads 59

5.9 Illustrative example plan of an automotive roundabout design 60

5.10 Illustrative example of a neighborhood center public transit station 61

5.11 The NCAP alternative transportation (i.e. bus, rail, bicycle, or pedestrian) plan diagram 63

6.1 NCAP proposed expansion to the sanitary sewer and potable water distribution system 66

6.2 Green infrastructure concepts for mitigating the impact of storm water runoff 69

6.3 Existing examples of green infrastructure storm water treatment systems 70

6.4 NCAP land use development sequencing diagram 71

6.5 Utility corridor integrated with a multi-use trail 72

6.6 Existing examples of green infrastructure storm water mitigation concepts: (a) an eco-roof at the Hamilton Building, Portland, OR; 74

B.1 Illustrative examples of Elements of a Neighborhood Case assignments 87

Tables

2.1 Proportion of existing City of Corvallis 1998 comprehensive plan designations within the NCAP study area 11

2.2 Proportion of existing City of Corvallis 2000 zoning designations within the NCAP study area 13

2.3 Corvallis Water Distribution Development Phasing 14

2.4 Development Constraints in the North Corvallis Planning Area 17

3.1 Proportion of NCAP proposed land use designations in the study area 31

3.2 A portion of the study-area-wide measures for NCAP land use designations 32

5.1 Functional street classification diagram from the 1998 Corvallis Transportation Plan 52

5.2 NCAP proposed additions to existing street standards 52

5.3 North Corvallis roadway levels of service without mitigation measures 56

5.4 North Corvallis roadways level of service with mitigation measures 57

Chapter 1: Introduction

1.1 Overview

The North Corvallis Area Plan (NCAP) represents a comprehensive planning project for future urban development in northern Corvallis, Oregon, and its urban fringe, encompassing the Crescent Valley and Lewisburg areas. This project was conducted with extensive involvement from citizens within the planning area and greater community in Corvallis and Benton County. The overall goal of the project is to create a plan, focusing on integrated land use patterns and innovative development designs, that will reduce private automobile reliance and enhance opportunities for pedestrian and bicycle travel, street connectivity, and existing and future transit service. While being responsive to natural resources and environmental quality, the plan is designed to provide for urban amenities, economic development, housing, and public facilities and services.

NCAP is funded through a grant by the State of Oregon's Transportation Growth Management (TGM) program, a partnership of the Oregon Department of Land Conservation and Development (DLCD) and the Oregon Department of Transportation (ODOT). As applicant and local project manager for the grant, the City of Corvallis engaged the consultant project team led by Satre Associates, P.C. to realize the following project objectives.

1.2 Project Purpose and Plan Objectives

The North Corvallis Area Plan project's primary function is to create an area-specific plan that establishes future land use patterns and development designs to reduce private automobile reliance and expand choices for alternative modes of travel by integrating land use and transportation. This is done to large degree by application of the Comprehensive Neighborhoods concept from the 1998 Corvallis Comprehensive Plan.

As identified in the TGM grant, specific objectives of the NCAP planning process are to:

- Update land use designations in the area consistent with policies in the 1998 Corvallis Comprehensive Plan.
- Evaluate the area's transportation needs per recommendations in the updated 1996 Corvallis Transportation Plan.
- Explore innovative site design techniques that promote development options enhancing alternative transportation.

- Identify and protect significant natural resource features, such as wetlands and natural drainages.
- Evaluate options for urbanization patterns and develop a preferred alternative specifying appropriate land uses, street connectivity, development design criteria, residential densities, innovative design patterns for non-residential development and commercial centers, parks and open space, and a multi-modal transportation system.
- Identify implementation measures with recommended Comprehensive Plan and zoning amendments, potential design criteria, and infrastructure financing mechanisms.

An additional objective identified by the NCAP project work group is to provide recommendations for Benton County to establish mechanisms to assist in preservation of the land within the UGB for future urban development consistent with the proposed objectives and land use patterns in the NCAP plan.

1.3 Assumptions

The North Corvallis Area Plan relies upon the following key assumptions:

- Development will occur over time and in a sequential, planned fashion, with build-out of the Corvallis Urban Growth Boundary (UGB) assumed to occur in approximately 80 years. This is based upon current development and demographic trends, regulatory factors, and land use planning considerations.
- Statewide planning goals (i.e., Goals 11 and 14) require planning for build-out of the Corvallis UGB, and it is assumed that the current location of the UGB in the planning area will neither expand nor contract.
- NCAP assumes that approximately 14,200 dwellings (approximately 10,400 new dwellings) will be developed within the planning area, to serve an assumed future population of approximately 32,000 people. Year 2000 Census data for Corvallis shows an average of 2.26 people per household.
- The Comprehensive Neighborhood concept will be employed in the North Corvallis area, but the specific configuration of land use designations for comprehensive neighborhoods illustrated on the NCAP Plan Diagram may be modified through the development review process for individualized development proposals following annexation.
- Until and unless annexed into the City of Corvallis, areas in the North Corvallis Urban Fringe are assumed to remain under Benton County jurisdiction and subject to inter-governmental agreements between the City and County (as specified in the Urban Fringe Management Agreement), and to provisions in the Benton County development code. In order to carry out this plan, parts of the Corvallis and Benton County development codes may need to be revised and the Urban Fringe Management Agreement updated.
- Extension of urban services, including sanitary sewer service, will continue to be development driven, responding to specific development proposals and successful contiguous annexation to the City of Corvallis.
- Due to high capital and ongoing maintenance costs of lift and pump stations, future wastewater systems will use gravity flow to the greatest extent practicable.
- The location, quantity, and scale of commercial services proposed in the NCAP Plan are not intended to draw trips into the planning area but to serve primarily the needs of the immediate neighborhoods.

- NCAP transportation system modifications, including proposed roadway extensions, will be largely development-driven.
- Statewide planning goals (i.e., Goal 5), existing federal and state laws and regulations, and City and County goals and policies will be applied to natural resource areas identified subsequent to NCAP approval.
- Development, including transportation systems, will occur in harmony with the protection of significant natural resources to the greatest extent practicable.
- Future parks, recreational facilities, and trails in the urban fringe will be developed consistent with design parameters, standards, and policies (e.g., street frontage for neighborhood parks, trail width and surfacing, etc.) established by the City of Corvallis.
- Generalized future park sites identified in NCAP may be altered as necessary to be compatible with surrounding development, natural resources, and park service area standards. Park land acquisition methods (i.e., whether part of a proposed subdivision or not) and timing may change specific locations for park acquisition areas.

1.4 Planning Process / Public Involvement

The North Corvallis Area Plan project is an intensive 10-month process managed by City staff in concert with a project consultant team composed of Satre Associates, the Center for Housing Innovation, and Innovative Transportation Concepts. The project benefited tremendously from the guidance, support, and assistance of a Citizen Advisory Committee (CAC), staff Technical Advisory Committee (TAC), and substantial public input at every stage of the process. Members of the CAC and TAC are listed in the plan acknowledgements.

The NCAP process consists of a series of nine discrete tasks as outlined broadly below, the first two of which were to establish the TAC and CAC.

- Task 1: Establish a Technical Advisory Committee
- Task 2: Establish a Citizen Advisory Committee
- Task 3: Data Collection and Synthesis
- Task 4: Public Outreach/Community Meeting Set #1
- Task 5: Refinement of Alternatives/Open House #1
- Task 6: Preparation of Draft Plan with Alternatives
- Task 7: Public Outreach/Community Meeting Set #2
- Task 8: Draft Plan Refinement and Evaluation/Open House #2
- Task 9: Preparation of Final Plan

The 12-member TAC composed of staff representing the City, County, and other public agencies provided project technical oversight and ensured inter-departmental and inter-agency coordination. The TAC conducted seven meetings to review consultant work products and provide technical support, while City project staff worked regularly with the consultant team on plan development, evaluation, and refinement.

The 18-member CAC was formed to facilitate community involvement, comment on work products, and develop recommendations for NCAP. A majority of CAC members live within the NCAP planning area, and represent a broad spectrum of interests. Between September 2000 and July 2001, the CAC held more than a dozen publicly noticed meetings to review the various stages of

plan development. At every meeting, the public was afforded opportunity to comment. Attendance at CAC meetings ranged from 1 to 50 people in addition to CAC members.

The consultant’s work began in Task 3 with research and data collection, review of applicable adopted plans and documents, calibration of the City’s transportation model, and synthesis of this information to develop an understanding of the project area, existing physical conditions, development constraints, and planning context. The consultant prepared reports and maps summarizing this data, and revised them after review with the TAC and CAC.

Task 4 consisted of an initial set of three intensive community workshops. The City provided broad notice of these meetings to the general public and specifically to area residents, property and business owners, employees, and representatives of various interest groups.

At the first of these three community workshops, some 100 community members first discussed project planning objectives, reviewed the City’s policies on Comprehensive Neighborhoods, discussed smart growth concepts, and shared information from Task 3. At the second of the three workshops, community participants formed teams as part of a cognitive mapping exercise to generate alternate visions for the area’s future, and prepared fourteen broad “visions” or scenarios for the planning area. Some teams prioritized efficient provision of transportation and other public services, others focused on preservation of significant natural features and open space, still others stressed mixed-use neighborhoods, development of a compact urban form, or the efficient use of energy. From this workshop came six principles to guide the development of three distinct alternatives derived from the fourteen alternative scenarios (see p. 6). Based upon these guiding principles, the consultant team prepared three draft plan alternatives and presented them for review and input at the third workshop. In this third workshop, community members provided input on three plan alternatives: a base case extrapolating existing development trends and standards, and two alternative development futures which conceptually developed larger

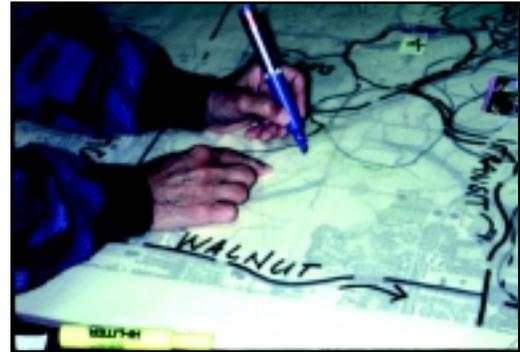


Figure 1.1 a & b. *Participants in a December 2000 Community Workshop provide input for the draft alternatives.*



a.



b.



c.

Figure 1.2 a, b, & c. *Participants at a May Community Open House meeting.*

neighborhood centers emphasizing connectivity, and fewer smaller neighborhoods emphasizing surface stormwater systems respectively.

After preparation of a preliminary traffic analysis and refinement of these alternatives with input from the TAC and CAC, the consultant team led a review of the revised alternatives at public Open House #1 as part of Task 5. As with the earlier workshops, attendance was well over 100 people.

In Task 6, with community input from the Open House and further refinement in conjunction with City staff, the TAC and CAC, the Consultant prepared a preferred alternative plan, a second traffic analysis and a first draft of the NCAP document.

As part of Task 7, the Consultant presented this preferred alternative plan at another public workshop for review and input by public and other project stakeholders and participants. In Task 8, the consultant team presented this refined second draft of the preferred alternative plan and associated maps and graphics at Open House #2. The draft and public comment was again cycled back through the CAC for their input and direction, leading to a third draft of the NCAP document which was prepared and presented to the City, TAC, and CAC for review in Task 9. A final draft, presented here, was then prepared for presentation to the Corvallis City Council and Benton County Commissioners, and approval by DLCD/ODOT.

Throughout the process, the consultant team's milestone products were posted on the City's website for public review and discussion through an NCAP e-mail listserve. The extensive public review process, ongoing feedback by the TAC and CAC, and consistently high turnout at public meetings, workshops, and open houses is testament to the high degree of interest in, knowledge of, and commitment to the NCAP planning process by Corvallis and Benton County citizens.

1.5 Guiding Principles

To establish direction for the project planning team, and to facilitate evaluation of draft plan alternatives and concepts, the CAC established broad principles to guide the NCAP planning process. The principles are outlined on the following page. The guiding principles and resulting recommended policies in this plan address a number of different elements, including land use, transportation, and protection of natural features. It must be remembered that planning at this level of detail can result in principles and policies from one of these elements being in conflict with those from another element. As the plan is used to develop standards for development codes or to evaluate specific development proposals, it is the task of the decision-makers to balance the policies in a manner they see as appropriate for the particular action under consideration. This is the same process currently used when developing standards or evaluating development proposals based on the City's and County's Comprehensive Plans.

Guiding Principles



1. Natural resource protection

- dense development away from the most sensitive areas
- buffered resource areas where adjacent to development
- minimized interruptions in the resource network



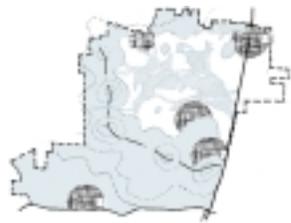
2. Accessible open space network

- spine of inter-connected natural features, parks and corridors
- multiple points of access
- links to outside the study area
- multiple purposes within natural resource conservation and habitat protection, passive and active recreation, and pedestrian and bicycle trail systems



3. Distributed but concentrated development

- distributed, pedestrian-scaled local service and employment centers within walking distance of most residences
- larger scale employment and commercial centers along more heavily traveled corridors with transit potential



4. Development pattern / landscape fit

- land uses and development patterns compatible with landscape character
- most dense patterns in already developed areas
- least dense patterns on hillsides, especially with hilltop viewsheds
- most streets parallel contours



5. Transportation alternatives to private automobiles

- daily services within walking distance (1/4 mile) of most residences
- safe, direct and convenient bicycle and pedestrian routes
- on-street and off-street alternative mode systems
- accessible, convenient transit routes and centers



6. Local employment

- strategically located major employment centers
- accessible from transit, bicycle and pedestrian routes

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Satre Associates, P.C.

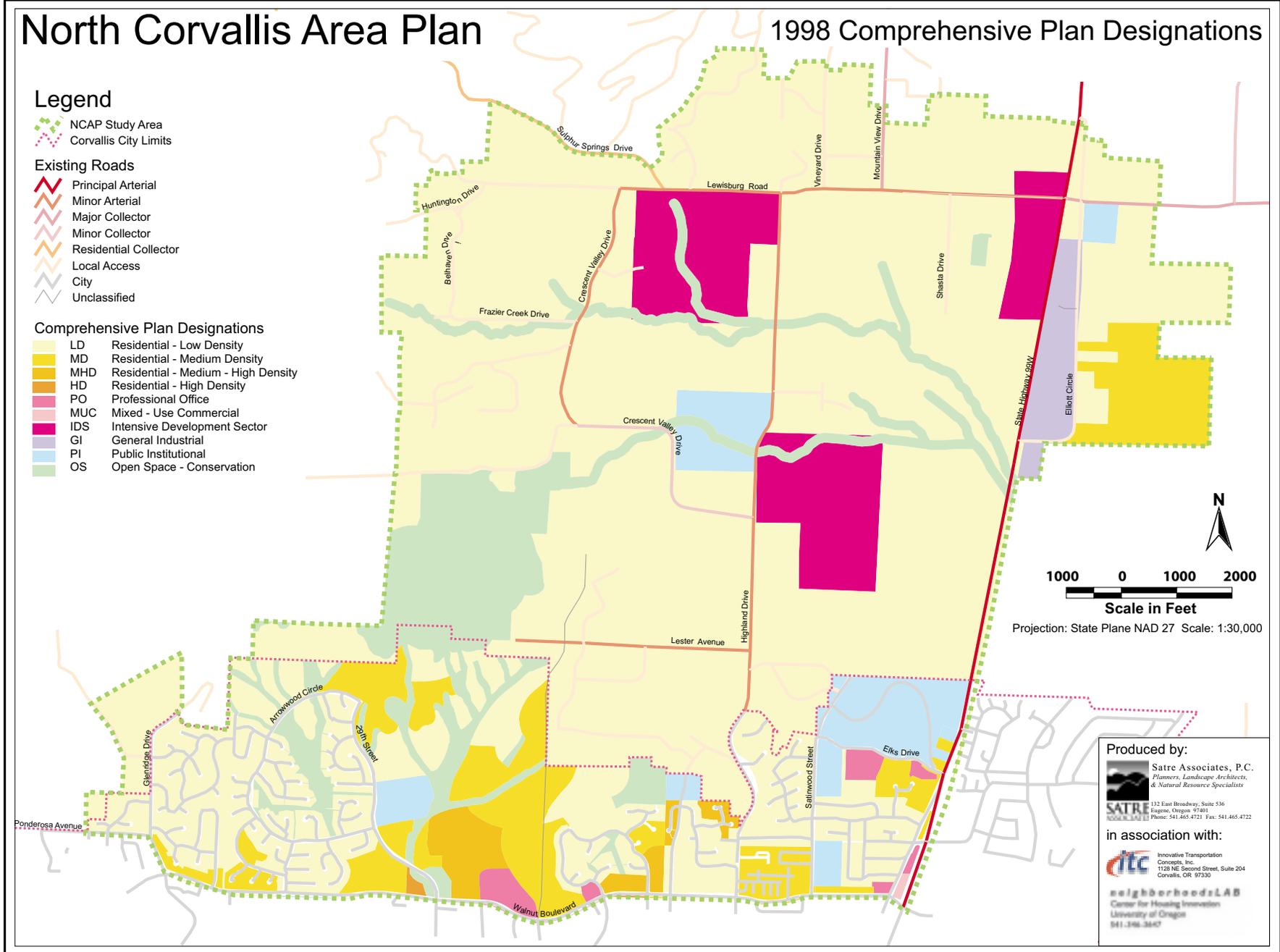


Figure 2.1 The NCAP study area shown with 1998 Comprehensive Plan designations.

Chapter 2: Background

2.1 Overview

The Corvallis 2020 Vision Statement, adopted by the City Council in 1998, establishes a broad vision for the community's future. The objectives of the Vision Statement, and specific elements within the Statement, are incorporated into each of the articles in the acknowledged 1998 Corvallis Comprehensive Plan. Whereas the Vision Statement updates the previous Vision 2010 and establishes community consensus through the current planning period for the greater Corvallis area, the NCAP establishes land use patterns to guide future development through build-out of the North Corvallis UGB area.

Anticipating development of an area-specific North Corvallis Area Plan (NCAP), land use designations in the planning area were not altered through the 1998 Comprehensive Plan update process. The policy basis directing the NCAP effort, however, is well established in the 1998 Comprehensive Plan (Figure 2.1). The Comprehensive Plan elements and policies applicable to the NCAP are summarized on the following page; these policy statements were used as evaluative factors in reviewing the NCAP draft alternative plans.

2.2 Planning Area

The North Corvallis Area Plan boundaries are roughly formed by Walnut Boulevard on the south, the Urban Growth Boundary (UGB) on the north and west, and the UGB and State Highway 99W on the east (Figure 2.1). The total area includes approximately 8,300 existing residents and approximately 3,600 existing dwellings on about 4,400 acres, of which only 28% is within the current city limits.

Uses within the city limits near Walnut Boulevard include residential development in the Timberhill, Rolling Green/Garryana, and Satinwood neighborhoods, two elementary schools, and the Good Samaritan Hospital. Existing neighborhoods are characterized by suburban-style development pattern. Between the city limits and the UGB, the NCAP area contains scattered rural residential uses, land use for agricultural production, pasture, wood lots, and Crescent Valley High School in the heart of the valley. Industrial and small scale commercial uses, and other higher intensity developments are located near Lewisburg Road and along Highway 99W.

Corvallis 1998 Comprehensive Plan Policies Applicable to NCAP

Chapter 3: Land Use Guidelines

- The land use patterns are well designed and provide for compatibility among surrounding land uses. (Policy 3.2)

Chapter 4: Natural Features, Land, and Water Resources

- Significant natural areas are identified and protected as much as possible. (Policies 4.2, 4.13)
- High quality agricultural and forest lands are maintained in these uses for as long as possible. (Policy 4.3)
- Density transfer is effectively used to protect sensitive areas. (Policy 4.5)
- Hillsides are developed in a careful manner. (Policy 4.6)
- Natural hazards are addressed. (Policies 4.7, 4.8)
- Water resources are addressed in a manner that ensures development does not significantly degrade water quality. (Policies 4.9, 4.10, 4.12)
- Wetland areas are identified and protected as much as possible. (Policy 4.11)

Chapter 5: Urban Amenities

- Planned new development is consistent with desired community character and aesthetics. (Policies 5.2, 5.3)
- Historic and cultural resources are preserved. (Policy 5.4)
- Adequate open space opportunities are provided. (Policy 5.5)
- Adequate parks and recreation options and facilities are provided. (Policy 5.6)

Chapter 7: Environmental Quality

- Environmental standards continue to be met or exceeded. (Policies 7.2, 7.4., 7.6, 7.7)
- Air and water quality is maintained. (Policies 7.3, 7.5)

Chapter 8: Economy

- Promote a healthy, diversified economy with a range of job choices. (Policies 8.2., 8.3)
- Education needs of the community can be met. (Policy 8.4)
- Adequate opportunities for visitor and conference activities are provided. (Policy 8.6)
- Adequate opportunities for a healthy lifestyle are provided, and health service needs can be met. (Policy 8.7)
- Adequate and varied supply of compatible industrial land is provided. (Policy 8.9)
- Commercial areas are integrated with neighborhood and transportation. (Policy 8.10)

Chapter 9: Housing

- Neighborhoods are well designed. (Policy 9.2)
- Diverse housing choices are available. (Policy 9.3)
- Needed housing is available. (Policy 9.4)
- Affordable housing is encouraged. (Policy 9.5)

Chapter 10: Public Utilities, Facilities, and Services

- Utility improvements are well planned and financially sustainable. (Policy 10.2)
- Water, wastewater, and storm water needs are met. (Policy 10.3)
- Private (franchise) utility services can be efficiently provided. (Policy 10.4)
- Public school locations are well integrated in neighborhood design. (Policy 10.5)
- Library, fire, and police services needs are met. (Policies 10.6, 10.7, 10.8)

Chapter 11: Transportation

- Transportation systems are well planned and promote a choice of modes. (Policy 11.2)
- Adequate provision is made for automobile traffic and parking needs. (Policies 11.3, 11.4)
- Safe and efficient bicycle and pedestrian options are provided. (Policies 11.5, 11.6)
- Opportunities for an effective transit system are provided. (Policy 11.7)

Chapter 12: Energy

- Energy is used efficiently, with an emphasis on renewable sources. (Policy 12.2)

Crescent Valley is framed by substantial relief associated with the McDonald Research Forest, Chip Ross Park, and Vineyard Mountain, all sloping eastward along the Jackson and Frazier Creek drainages to the Jackson-Frazier wetlands located just east of the NCAP study area. South of Chip Ross Park and Lester Avenue the Timberhill, Rolling Green/Garryana, and Satinwood neighborhoods slope generally southward to the Dixon Creek, Sequoia Creek, and Village Green drainage basins.

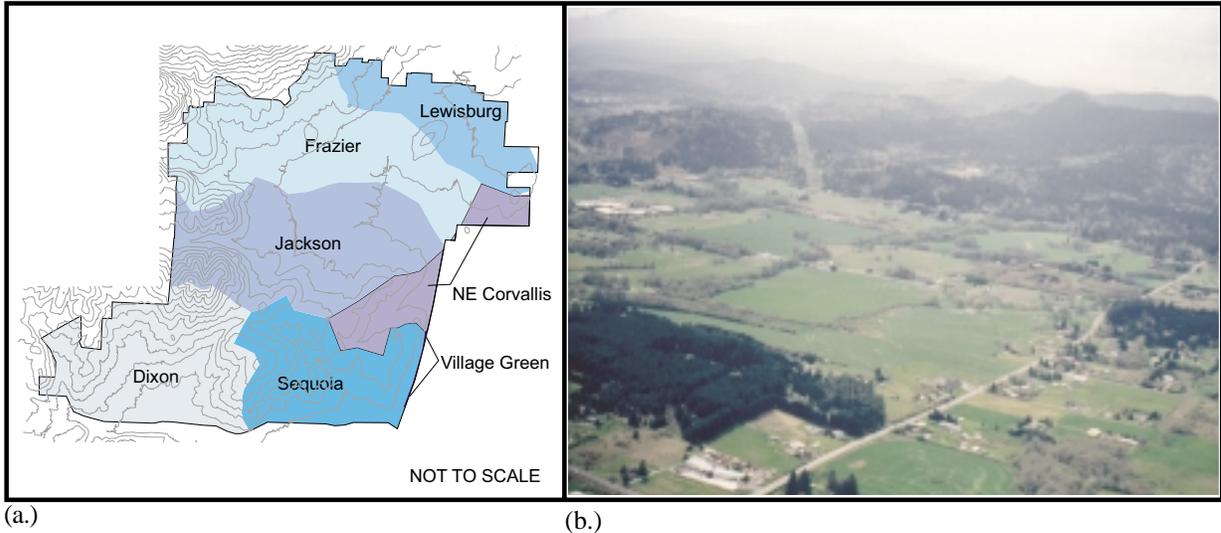


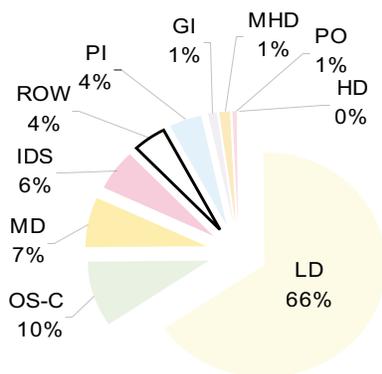
Figure 2.2 Crescent Valley is framed by substantial topographic relief and traversed by Jackson and Frazier Creeks: (a) fifty-foot contours and storm water drainage basins describing relief in the NCAP study area; (b) aerial view of Crescent Valley looking south west from the Lewisburg drainage across the Frazier and Jackson drainages towards McDonald Research Forest and Chip Ross Park (Photo: Jake Weber).

2.3 Planning Context

2.3.1 Existing Corvallis Comprehensive Plan

The entire NCAP planning area is within the Corvallis UGB, therefore all land use designations are based upon those established in the 1998 Corvallis Comprehensive Plan. Existing Comprehensive Plan designations in the NCAP area are distributed as shown in Table 2.1 and as illus-

1998 Comprehensive Plan Designations in NCAP Study Area



Label	Comp. Plan Designation	Acres	Percent
OS-C	Open Space - Conservation	417.430	9.44
GI	General Industrial	65.754	1.49
HD	Residential - High Density	2.631	0.06
IDS	Intensive Development Sector	275.419	6.23
LD	Residential - Low Density	2886.071	65.24
MD	Residential - Medium Density	320.455	7.24
MHD	Residential - Medium-High Density	55.636	1.26
MUC	Mixed Use Commercial	2.010	0.05
PI	Public Institutional	176.100	3.98
PO	Professional Office	28.073	0.63
ROW	Right of Way (existing)	194.42	4.39
	Total	4424.00	100.00

Table 2.1 Proportion of existing City of Corvallis 1998 comprehensive plan designations within the NCAP study area

North Corvallis Area Plan

2000 Zoning Designations

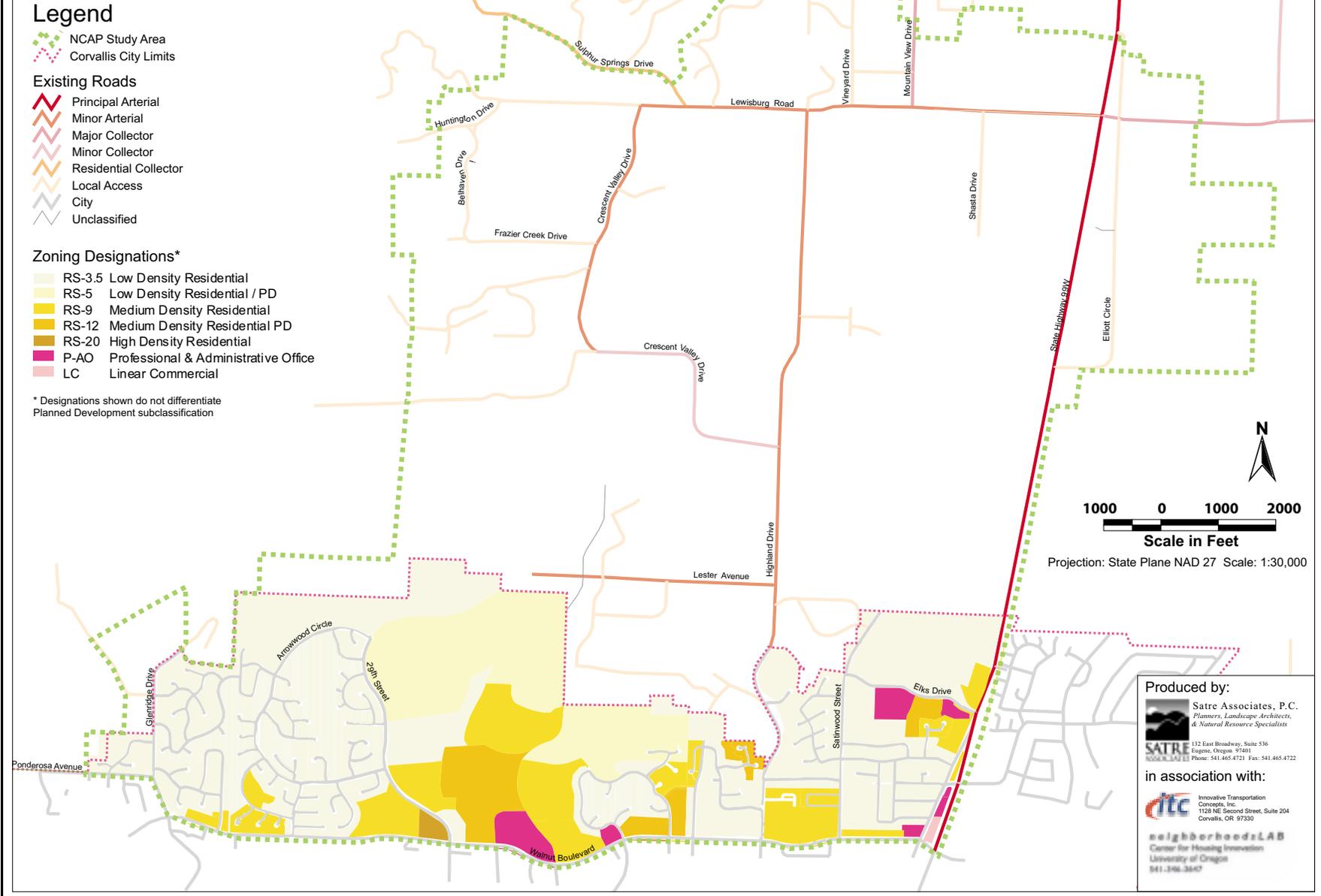


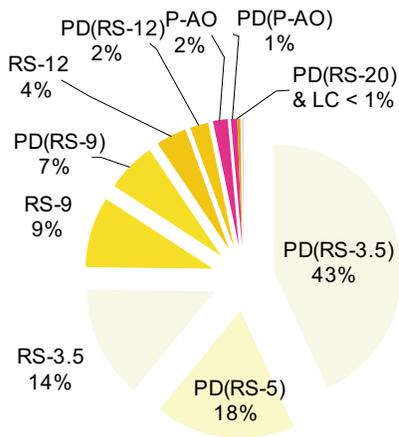
Figure 2.3 2000 City of Corvallis zoning designations within the NCAP study area

trated in Figure 2.1. The three areas within North Corvallis identified as “Intensive Development Sector” were holdovers from the earlier 1980 Comprehensive Plan, allowing an unspecified mix of commercial and residential uses.

2.3.2 Existing Corvallis Zoning

Nearly 72% of the area is within the Corvallis Urban Fringe (the NCAP area between the existing city limits and UGB); with the majority of this area in Benton County’s Urban Residential zoning district. The remainder of the area within the existing Corvallis city limits is zoned as summarized below in Table 2.2 and shown in Figure 2.3.

2000 Corvallis Zoning Designations in NCAP Study Area



Zoning Label	Designation	Acres	Percent*
PD(RS-3.5)	Low Density Residential / PD**	449.33	42.95
PD(RS-5)	Low Density Residential / PD**	186.81	17.86
RS-3.5	Low Density Residential	150.72	14.41
RS-9	Medium Density Residential	93.03	8.89
PD(RS-9)	Medium Density Residential / PD**	68.77	6.57
RS-12	Medium Density Residential	40.13	3.84
PD(RS-12)	Medium Density Residential / PD**	22.98	2.20
P-AO	Professional & Administrative Office	20.99	2.01
PD(P-AO)	Professional & Administrative Office/ PD**	7.08	0.68
PD(RS-20)	High Density Residential	4.58	0.44
LC	Linear Commercial	1.59	0.15
Total		1046.08	100

*Proportion of area within the North Corvallis Study Area and Corvallis City Limits.

**PD = Planned Development.

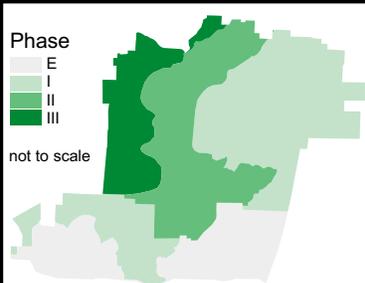
Table 2.2 Percentage of existing City of Corvallis zoning designations within the NCAP study area.

In addition to Comprehensive Plan policies outlined above and existing land use designations and zoning, NCAP planning is influenced by several functional refinements to the Comprehensive Plan and other relevant planning documents. These include: Corvallis Transportation Plan (1996), Corvallis Stormwater Master Plan (1981), Corvallis Water Distribution System Facility Plan (1998), Corvallis Wastewater Utility Master Plan (1998), Corvallis Park & Recreation Facilities Plan (2000), Buildable Land Inventory and Land Need Analysis for Corvallis (1998), and other city reports.

2.3.3 Corvallis Transportation Plan

The 1996 Transportation Plan (updated in 1998) establishes the basis for future improvements to roadways and multi-use pathways within the NCAP area. The 1996 Corvallis Transportation Plan includes policies pertaining to use of alternative transportation modes which were incorporated into the 1998 Corvallis Comprehensive Plan and the NCAP planning process (i.e., advocacy for an integrated mix of land uses with transportation systems to reduce automotive reliance and offer greater transportation mode choice). The Transportation Plan also maps proposed arterial and collector streets, including:

- Extending Kings Boulevard to Lewisburg Road
- Widening Highland Drive, Lewisburg Road, and Highway 99W
- Extending Satinwood Drive
- Developing new east-west and north-south collector streets
- Developing two new east-west arterial streets to join Highway 99W



Phase				Service Areas (approx. elev.)			
	Phase	Population (approx.)	Year (approx.)	North Hills	Timberhill	Crescent Valley	Lewisburg
Existing	Existing	50,000	2000	0 - 560'	0 - 410'		
I	I	50-60,000	2020		410' - 560'	0 - 210'	
II	II	60-80,000	2040			210' - 410'	210' - 560'
III	III	80-120,000	2080 +			410' - 560'	

Table 2.3 Corvallis Water Distribution Development Phasing

NCAP considers these recommendations within the context of overall planning for the area, allowing modifications to these recommendations, alignments, and street design as part of the planning process. Transportation recommendations are discussed in Chapter 5: Transportation & Circulation.

2.3.4 Corvallis Stormwater Master Plan

The 1981 Stormwater Master Plan identifies and maps the entire Corvallis UGB by drainage basin. The NCAP area includes virtually all of the Jackson Creek and Frazier Creek basins, and portions of the Dixon, Sequoia, Lewisburg, NE Corvallis, and Village Green basins (Figure 2.4).

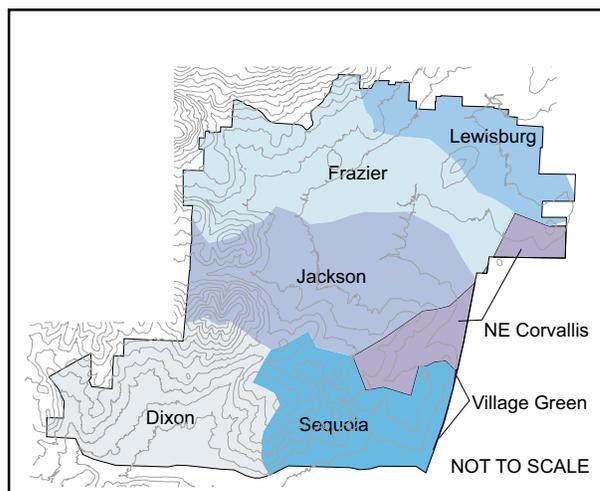


Figure 2.4 Fifty foot contours and delineated storm water basins in the NCAP study area.

The plan emphasizes handling stormwater runoff through non-structural means where possible, and recommends streamside setbacks for multiple purposes. This recommendation is the basis for drainageway dedication policies in the Comprehensive Plan and is an impetus for the NCAP’s “green infrastructure” approach to treatment of stormwater runoff-- an approach detailed in Chapter 6: Infrastructure. The City is currently updating the stormwater master plan; policy directives in the new stormwater plan could change some of the relevant NCAP assumptions.

2.3.5 Corvallis Water Distribution System Facility Plan

The 1998 Water System Master Plan outlines service areas by elevation across the UGB, and maps existing and proposed mains throughout the planning area. The only existing public water service available to the North Corvallis Urban Fringe is via a 12” main running east-west along Wild Rose Drive, and a 16” main extending north-south along Highland Drive to the Crescent Valley High School campus. A 12” main runs along the perimeter of the high school campus (see Figure 6.3). This existing water line to the high school is a line for second level service only, developed as a temporary solution and sized only to serve the school. No additional first level water service should be assumed from this line.

The 1998 Water System Plan Map shows phasing for future water service keyed to projected populations served through build-out in the UGB, and establishes “service levels” based upon

topographic elevations (literally to what elevation service will be provided). Areas above the 560' contour are deemed to be above the elevation at which public water will be extended. As identified and tabulated in Table 2.3, Phase I improvements are intended to bring second (210' - 410') and third level (410' - 560') water service to the Timberhill area and the first level (0' - 210') service between the North Hills area (west of Satinwood, east of Highland, and south of Lester) and Crescent Valley High School.

Phase I areas are identified as having the greatest potential for growth in the next 10-20 years. Phase II and III improvements would provide service to the greater Crescent Valley area through build-out. Within the broad parameters provided by the 1998 Water System Master Plan, timing and location of future development pursuant to the NCAP will be significantly based upon the ability to extend essential urban services and secure voter approval for annexation.

2.3.6 Corvallis Wastewater Utility Master Plan

The 1998 Wastewater Utility Plan (WUP) establishes the basis for sanitary sewer extensions to serve future development within the NCAP area. The planning area includes all or part of two service areas (Crescent Valley and Garfield) and is comprised of seven sewer basins (Figure 2.5). The wastewater master plan used planning horizons based upon projected future populations within the Corvallis UGB through build-out (120,000 people) to be consistent with other infrastructure plans (i.e., the 1998 Water System Master Plan and the 1996 Transportation Plan).

The WUP establishes seventeen new policies and/or management objectives and activities designed to maintain and enhance the existing sewerage system, control stormwater infiltration and inflow, meet state and federal regulatory requirements, and provide the basis for extending future utility systems to meet development needs. The Plan also identifies the high capital and maintenance costs associated with providing lift and pump stations for sanitary sewer service, and encourages the use of gravity flow systems where possible. One potential lift station was identified near Lewisburg and Highway 99W. Also identified is the need to ensure future infrastructure development will not only be fiscally responsible and meet technical and regulatory requirements, but also be consistent with environmental protection objectives.

2.3.7 Corvallis Park & Recreation Facilities Plan

The 2000 Parks Plan identifies existing park and recreation resources as well as other lands in and around the North Corvallis planning area possessing exceptional recreational potential and open space values (e.g., the Jackson-Frazier Creek Wetlands and Timber Hill area).

Relevant to the NCAP planning effort, the 2000 Parks Plan identifies the need for the following in the planning area:

- Four new 5-acre neighborhood parks in the NCAP Urban Fringe area;
- Three new 5-acre neighborhood parks within the City limits in the NCAP area;

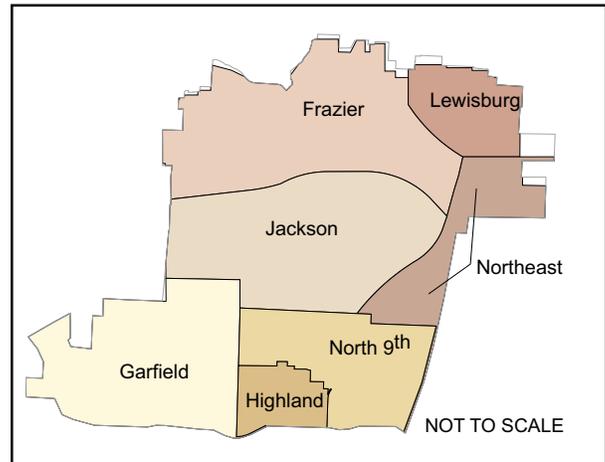


Figure 2.5 1998 Wastewater Utility Plan sanitary sewer basins

- One new community park (preferably adjacent to Crescent Valley High School to encourage joint use);
- Protection of identified natural open space areas (with developer incentives to dedicate open space through use of density bonuses or transfers); and
- An extensive trail system along ridge lines and drainages to link with other trail systems. (The 13-mile trail system is intended to refine the off-street multi-use trail network depicted in the 1996 Transportation Plan.)

Not included in the parks plan were the approximately 300 acres proposed for acquisition in the Owens Farm and Timberhill areas by the City and the Greenbelt Land Trust through Ballot Measure 02-94. In November 2000, Corvallis voters approved the \$7.9 million bond measure for open space acquisition in the planning area and elsewhere in Corvallis. Land acquired in the area includes the Owens Farm (open space to be owned by the City and the Greenbelt Land Trust) and nearly 50 acres in Timberhill immediately south of Chip Ross Park on IV Hill. Approximately 100 acres of the Owens Farm will also be used for expansion and related development by the Good Samaritan Hospital. The public land acquisitions were made consistent with the City's 1998 Criteria and Process to Acquire and/or Protect Open Space, and the City's other open space planning documents. The City is currently seeking to develop an Open Space Management Plan to distinguish acquisition and management strategies for natural open space areas and park lands needed for active recreational pursuits as outlined in the 2000 Parks Plan.

2.3.8 Buildable Land Inventory and Land Need Analysis for Corvallis

The 1998 Buildable Land Inventory (BLI) concludes that Corvallis has adequate land within its existing UGB to accommodate population and employment projected through the 20-year planning horizon under a wide range of assumptions for future growth and land use. Although the BLI does not construct its analysis to be specific to the NCAP planning area, it identifies deficits in lands designated for commercial office and public/institutional uses within the city limits and UGB. The deficiency in public/institutional uses is predicated on City standards for provision of park lands based upon future population. The City anticipates that these needs will be met through dedications or other acquisitions that occur during the development process after properties are annexed into the city. The City also anticipates that the BLI's projected deficit for commercial office uses will be addressed by the potential for commercial office demands to be absorbed within mixed use commercial designations. The BLI informs the NCAP project that the arrangement of land uses is more important to meeting project objectives than significantly altering the amount of any given land use designation within the planning area.

2.3.9 Land Development Information Report

Trends observed in the BLI can be compared with and contrasted to the City's annual summary of statistical development data. While the BLI projected annual population growth rates of 0.8% annually between 1995 and 2020 for the Corvallis UGB, the City of Corvallis' population increased at a 1.02% annual rate between 1990 and 2000. Factors such as voter-approved annexation and the ready availability of vacant and re-developable land within the existing City limits influence the timing of major land conversion from the urban fringe into the City.

2.4 Advisory Development Constraints

The NCAP area includes parts of five storm water basins (Jackson Creek, Frazier Creek, Dixon Creek, Sequoia Creek, and Village Green basins, as identified in the Corvallis Drainage Master Plan, Figure 2.4), with the bulk of the area within the Jackson Creek and Frazier Creek basins. The area is marked by forested hillsides on the western edge of the planning area, descending topographically from west to east along creek drainages to the Jackson-Frazier wetlands located east of Highway 99W. Within this context, the City of Corvallis developed a map of advisory development constraints. As modified for this planning project, the NCAP's Advisory Constraints Map (Figure 2.6) is intended to identify potential challenges to future urban development that are associated with the area's primary physical landscape features.

Primary development constraints within the planning area include lands encumbered by hydric soils, inventoried wetlands (i.e., Jackson-Frazier wetlands) or probable wetlands identified on the National Wetlands Inventory maps, the 100-year floodplain boundary, and waterside setback buffer areas designated as Open Space-Conservation areas and depicted as Perennial Stream Buffers. Other constraints include significant hillside areas, severe slopes, and areas unable to be served with potable water service (i.e., above 560 feet in elevation). Finally, the Advisory Development Constraints Map (Figure 2.6) also depicts the location and extent of fault lines and a high tension overhead (Bonneville Power Administration) power line.

Approximately 1,920 acres (44%) within the area have some form of constraint. It should be noted, however, that not all of these constraints pose a prohibition to development; some are advisory only and could alter development designs to preserve natural features or resources.

Table 2.4 quantifies acreages for the constraints shown. Note also that many of the constraints overlay each other (e.g., wetlands, hydric soils, and floodplains), so that the sum of the acreages is greater than total constrained acres within the planning area.

Constraint	Acre / Lineal Feet	Proportion of Study Area (percent)
100-yr Flood Plain	238.38 ac	5.39
Hydric Soils	983.08 ac	22.22
National Wetlands Inventory	56.40 ac	1.27
Jackson-Frazier Creek Wetlands	537.53 ac	12.15
Drainage Ways	75659.62 ft (14.3 mi)	NA
Streams	151842.99 ft (28.8 mi)	NA
Drainage Buffers / Perennial Stream Corridors	300.80 ac	6.80
Significant Hillsides	615.25 ac	13.91
Water Service Limit	185.12 ac	4.18

Table 2.4 *Development Constraints in the North Corvallis Planning Area.*

North Corvallis Area Plan

Advisory Constraints

Legend

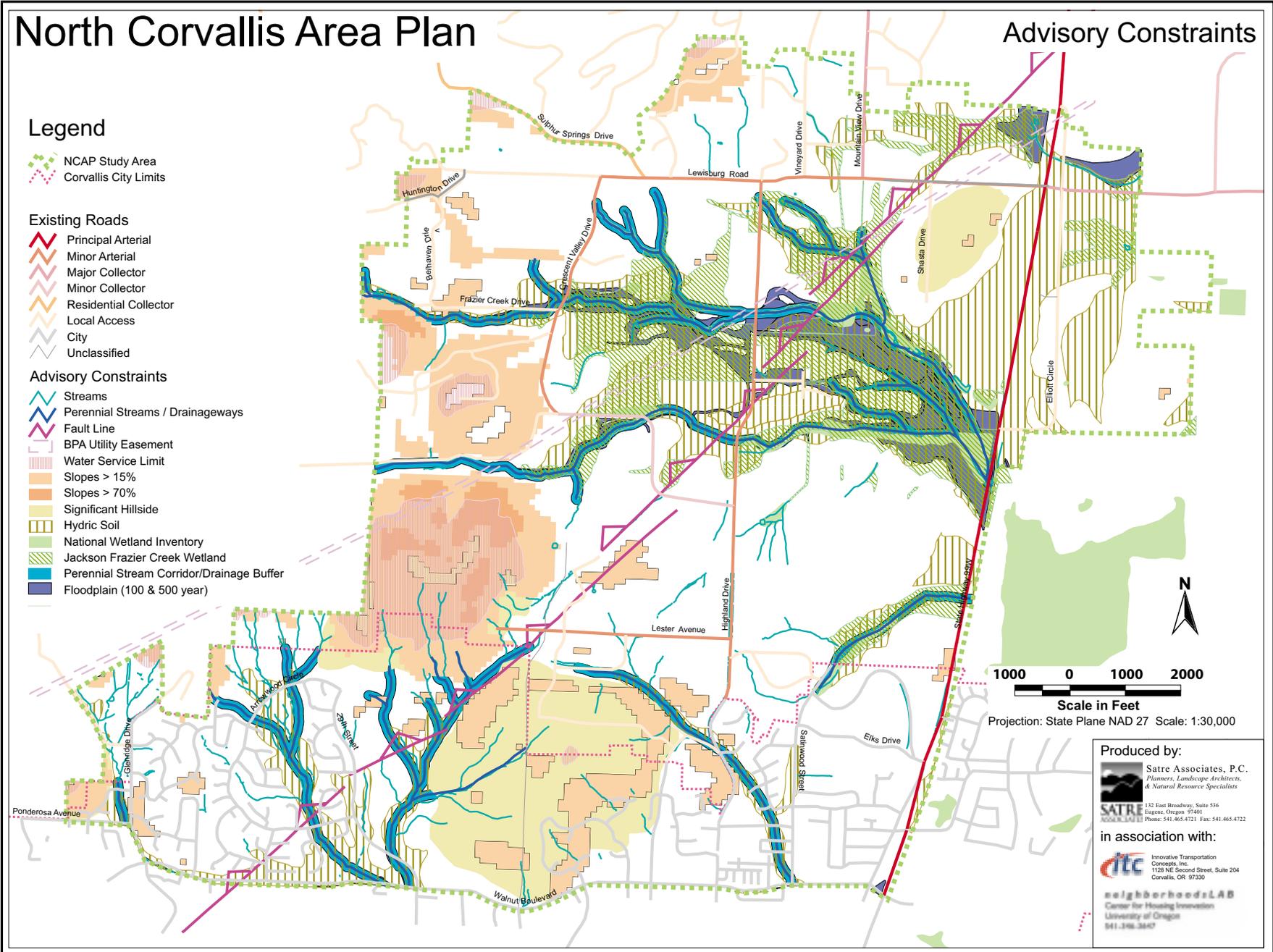
- NCAP Study Area
- Corvallis City Limits

Existing Roads

- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Residential Collector
- Local Access
- City
- Unclassified

Advisory Constraints

- Streams
- Perennial Streams / Drainageways
- Fault Line
- BPA Utility Easement
- Water Service Limit
- Slopes > 15%
- Slopes > 70%
- Significant Hillside
- Hydric Soil
- National Wetland Inventory
- Jackson Frazier Creek Wetland
- Perennial Stream Corridor/Drainage Buffer
- Floodplain (100 & 500 year)



1000 0 1000 2000

Scale in Feet
Projection: State Plane NAD 27 Scale: 1:30,000

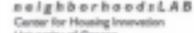
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Figure 2.6 Advisory constraints influencing land use development within the NCAP study area.

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Satre Associates, P.C.

North Corvallis Area Plan

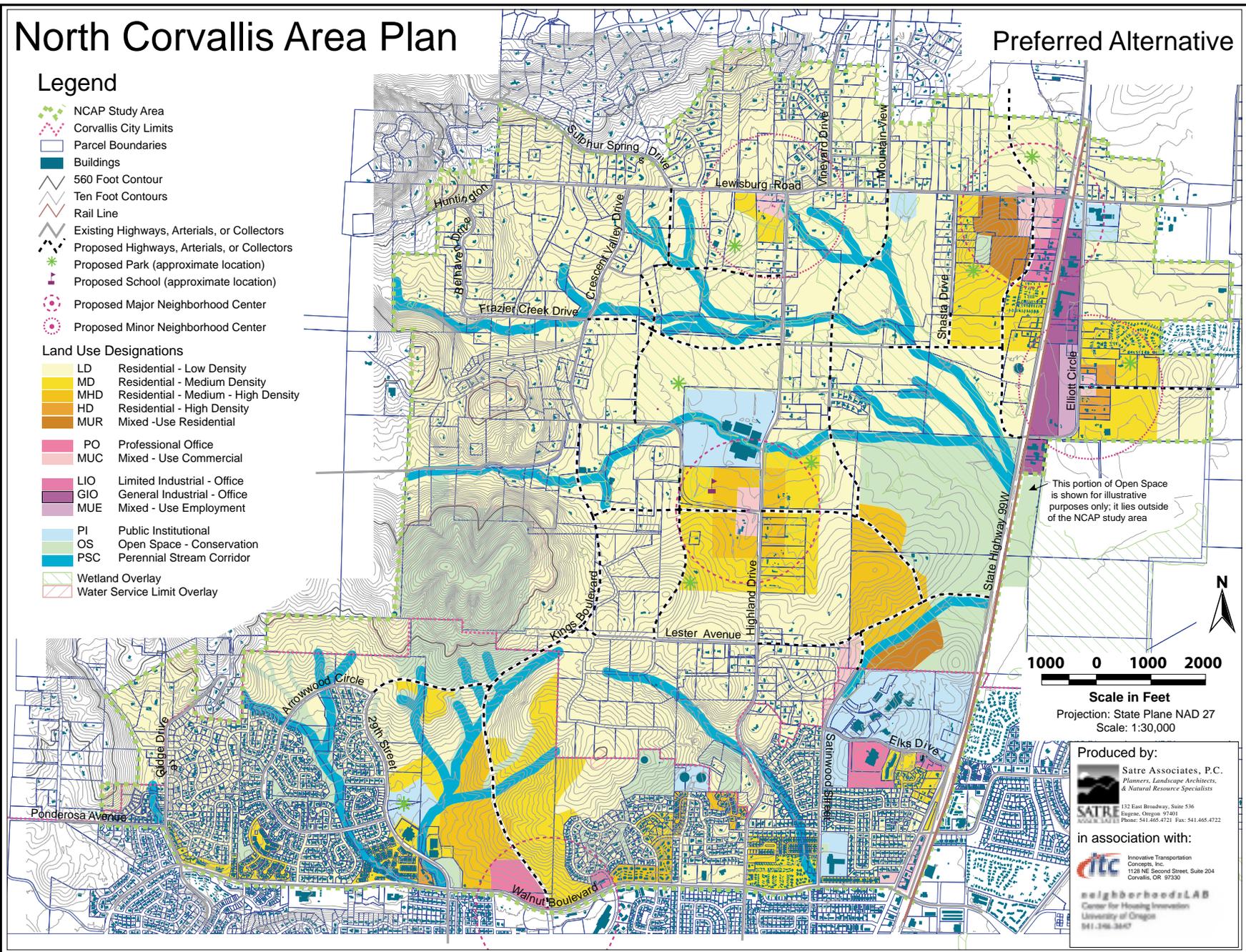
Preferred Alternative

Legend

- NCAP Study Area
- Corvallis City Limits
- Parcel Boundaries
- Buildings
- 560 Foot Contour
- Ten Foot Contours
- Rail Line
- Existing Highways, Arterials, or Collectors
- Proposed Highways, Arterials, or Collectors
- Proposed Park (approximate location)
- Proposed School (approximate location)
- Proposed Major Neighborhood Center
- Proposed Minor Neighborhood Center

Land Use Designations

- LD Residential - Low Density
- MD Residential - Medium Density
- MHD Residential - Medium - High Density
- HD Residential - High Density
- MUR Mixed -Use Residential
- PO Professional Office
- MUC Mixed - Use Commercial
- LIO Limited Industrial - Office
- GIO General Industrial - Office
- MUE Mixed - Use Employment
- PI Public Institutional
- OS Open Space - Conservation
- PSC Perennial Stream Corridor
- Wetland Overlay
- Water Service Limit Overlay



1000 0 1000 2000

Scale in Feet
 Projection: State Plane NAD 27
 Scale: 1:30,000

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 Center for Housing Innovation
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Figure 3.1 The NCAP Preferred Alternative Illustrative diagram.

Chapter 3: Land Use

3.1 Overview

As described in Chapter 2, the North Corvallis Area Plan's Preferred Alternative (Figure 3.1) represents the culmination of months of analysis, review, and revision by the consultant with assistance from the TAC, CAC, City staff and the public. The NCAP establishes a recommended configuration of land uses for future development through build-out of the North Corvallis area. The Plan includes the development of five Comprehensive Neighborhood centers with a concentrated mix of urban development and land uses. Major land use features of the NCAP depicted on the Plan Diagram include:

- Three Major Neighborhood Centers centered in the Crescent Valley, Lewisburg, and Timberhill areas;
- Two Minor Neighborhood Centers located at Elliott Circle east of Highway 99W and the Lewisburg/Highland intersection; and
- Another locus of higher density, mixed-use development near Good Samaritan Hospital that features the potential for compatible uses (e.g., health and wellness, commercial support services, assisted living).

3.1.1 Guiding Principles

The Guiding Principles outlined in Chapter 1 provide a basis for the land use plan and comprehensive neighborhood concept employed in the North Corvallis planning area.

Guiding Principle 3 calls for distributed but concentrated development. This is achieved through:

- Distributed, pedestrian-scaled local service and employment centers within walking distance of most residences;
- Larger scale employment and commercial centers along more heavily trafficked corridors with transit potential.

Guiding Principle 4 calls for creating a configuration of land uses that fit with natural features in the North Corvallis planning area. This can be achieved by providing:

- Land uses and development patterns compatible with landscape character;
- Most dense patterns in already developed areas;
- Least dense patterns on significant hillsides, especially along hilltop viewsheds; and
- Most streets parallel contours and fit with existing land form.

Guiding Principle 6 calls for the provision of local employment opportunities in the planning area. This can be accomplished with:

- Strategically located major employment centers; and
- Employment centers accessible from transit, bicycle and pedestrian routes.

3.1.2 Assumptions

The land use allocation and arrangement depicted on the Plan Diagram provides for a total of approximately 14,000 dwellings (approximately 10,400 new units) in various types and configurations, as well as employment and neighborhood commercial service opportunities, to serve a total future population of approximately 32,000 people in the planning area through build-out.

These population figures are achieved based on the following assumptions:

- Statewide planning goals (i.e., Goal 14) require planning for build-out of the Corvallis UGB, and it is assumed that the current location of the UGB in the planning area will neither expand nor contract.
- Development will occur over time and in a sequential, planned fashion, with build-out of the Corvallis UGB assumed to occur in approximately 80 years based upon current development and demographic trends, regulatory factors, and land use planning considerations.
- NCAP assumes that approximately 14,200 dwellings (approximately 10,400 new units) will be developed within the planning area, to serve an assumed future population of approximately 32,000 people .
- The Comprehensive Neighborhood concept will be employed in the North Corvallis area, but the specific configuration of land use designations for comprehensive neighborhoods illustrated on the NCAP Plan Diagram may be modified through the development review process for individualized development proposals following annexation.
- Development will occur in coordination with annexation and the extension of key urban services.
- Development will occur in harmony with the protection of significant natural resources.
- Until and unless annexed into the City of Corvallis, areas in the North Corvallis Urban Fringe are assumed to remain under Benton County jurisdiction and subject to intergovernmental agreements between the City and County (as specified in the Urban Fringe Management Agreement), and to provisions in the Benton County development code. In order to carry out this plan, parts of the Corvallis and Benton County development code may need to be revised and the Urban Fringe Management Agreement updated.

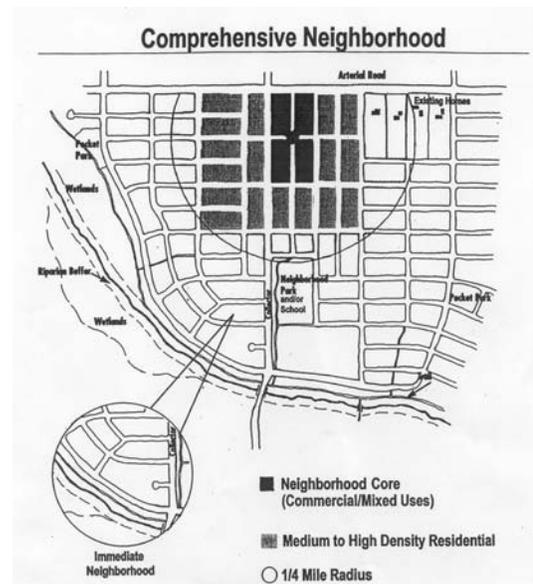


Figure 3.2 *Comprehensive Neighborhood Concept Diagram (1998 City of Corvallis Comprehensive Plan)*.

3.2 Comprehensive Neighborhoods

3.2.1 Concept

Article 9 (Housing) of the Corvallis Comprehensive Plan describes the concept of neighborhood-oriented development, designed to establish fully functional multi-use, pedestrian-friendly neighborhoods. To meet the objectives of the “comprehensive neighborhoods” concept, NCAP creates major and minor neighborhood centers at the heart of larger comprehensive neighborhoods. The centers contain designations allowing a range of uses and concentrated densities and supporting urban development within convenient walking distance (one-quarter mile) to meet the service needs of residents and employees proximate to the center. This approach offers the potential to develop a variety of housing opportunities in styles, sizes, price ranges, and densities in support of appropriately-scaled commercial, employment, and mixed-use development opportunities and expanded transportation mode options.

3.2.2 Application

Future development in the North Corvallis area will occur primarily in three major use categories: residential, commercial, and industrial. The application of these land use categories individually and as a blend of uses in mixed-use designations, and their configuration as part of major and minor neighborhood centers, is depicted on the Plan Diagram.

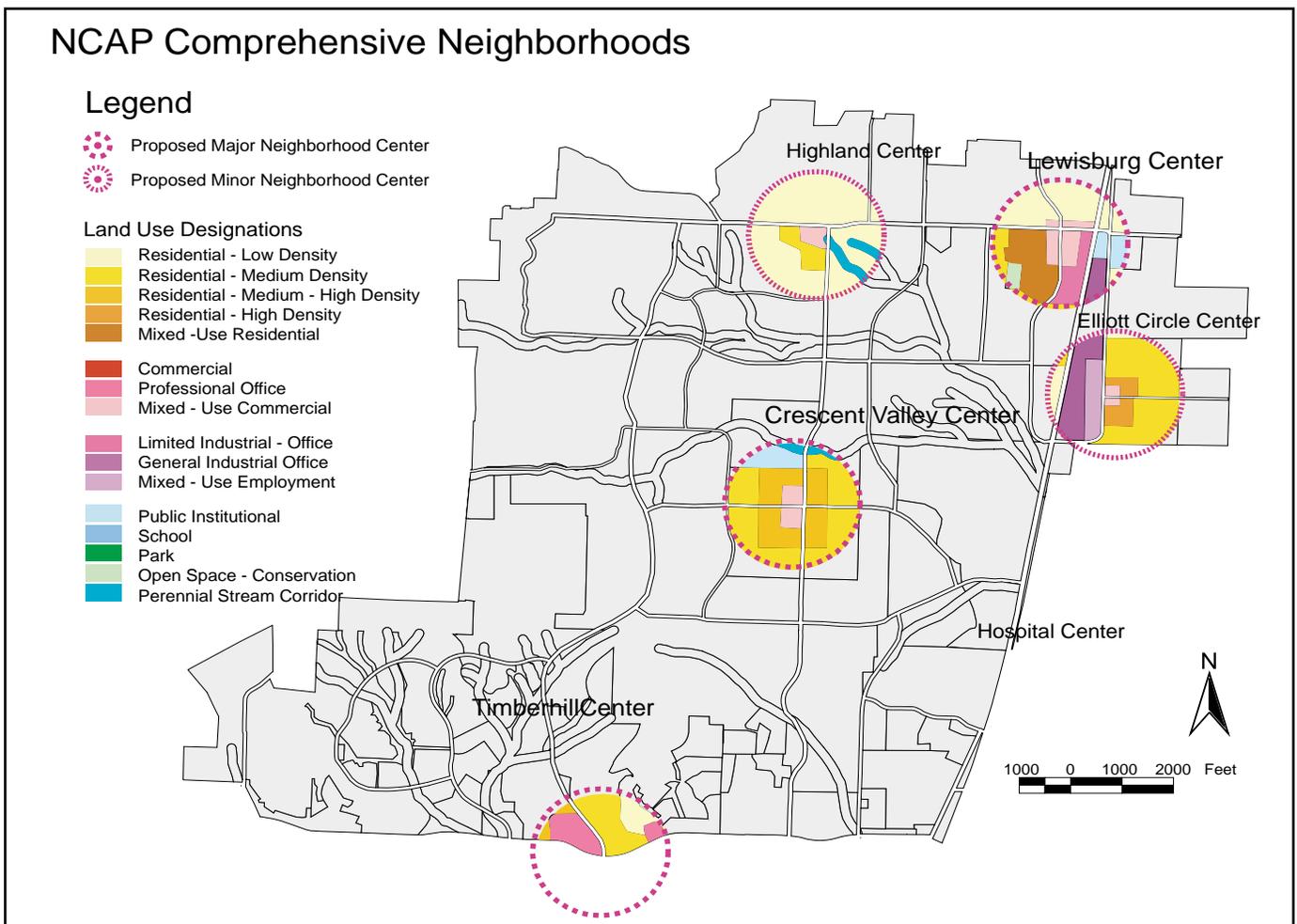


Figure 3.3 NCAP Comprehensive Neighborhood Centers.

The NCAP’s fundamental approach in configuring these land uses is to integrate them with existing natural resource constraints and opportunities and a linked transportation system that effectively serves both traditional and alternative modes of travel.

The Plan diagram retains existing and planned neighborhoods (e.g., Timberhill, Highland Dell) to the greatest degree possible, while clustering future urban development in higher densities within the proposed neighborhood centers.

3.3 Neighborhood Centers

3.3.1 Major Neighborhood Centers

NCAP proposes three Major Neighborhood Centers, each unique but all three possessing the attributes necessary to function as the heart of a larger comprehensive neighborhood. These attributes include, but are not limited to, providing mixed uses, higher residential densities radiating outward from the core of the center, and neighborhood-based commercial services within walkable distance of a large residential population.

Timberhill

The Timberhill Neighborhood Center builds upon the commercial and service uses within the existing neighborhood located at the intersection of Walnut and Kings Boulevards. Existing development includes the Timberhill Shopping Center and nearby professional office development south of Walnut Boulevard. The Timberhill comprehensive neighborhood includes land designated Professional Office west of the proposed Kings Boulevard extension, and northwest of the Walnut Boulevard/Rolling Green intersection; areas designated Medium and Medium-High Density Residential located primarily north and northwest of the Kings Boulevard extension; a future neighborhood park

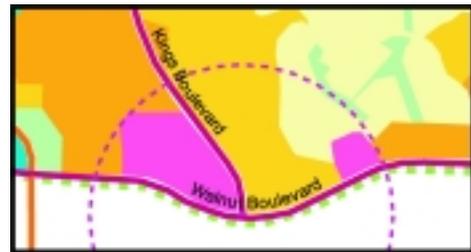


Figure 3.4 *The Timberhill Neighborhood Center. See Figure 3.2 for context within the study area, and Figure 3.1 for legend categories.*

scheduled for development along 29th Street; and lower density development radiating outward from the neighborhood center toward higher elevations to the north. This neighborhood center takes advantage of not only existing commercial services, but the amenity values associated with drainage and trail systems extending southward into the neighborhood from the IV Hill and Chip Ross Park areas.



Figure 3.5 *The Lewisburg Neighborhood Center. See Figure 3.2 for context within the study area, and Figure 3.1 for legend categories.*

Lewisburg

The Lewisburg Neighborhood Center functions as a mixed-use employment and transportation center, with its core located west of Highway 99W along Lewisburg Road and a new north-south collector street named West Elliott Circle in this plan. This center takes advantage of Highway 99W visibility but avoids strip development by restricting direct access to Highway 99W and having new development in the neighborhood center take access from Lewisburg Road and West Elliott Circle. Designs for improvements to Highway 99W, as well as design

and streetscape standards for development in the center, highlight the area as a primary gateway for the City. Figures 3.7 and 3.8 depict street treatments along the area designated Limited Industrial - Office flanking the west side of Highway 99W through the center south of Lewisburg Road. Existing industrial areas east of Highway 99W will be designated as General Industrial-Office (GI-O), a new designation designed to serve as a companion to the Limited Industrial-Office designation. The GI-O designation will allow existing industries to continue as conforming uses but will apply the gateway standards recommended in NCAP, permit large-scale office development, and allow for future industrial development consistent with General Industrial-Office uses. Emanating from the core of the center are areas designated Mixed-Use Commercial and Mixed-Use Residential, framed by the Locke Cemetery Hill, a future neighborhood park, and an area designated Medium-Density Residential. With a rail line parallel to Highway 99W, this center also offers the potential to develop a multi-modal transit station providing access to local bus service, a park-and-ride area, a shuttle to Willamette Valley high-speed rail lines, or a commuter rail or streetcar line linking North Corvallis with downtowns in Corvallis and Albany.

Crescent Valley

The Crescent Valley Neighborhood Center is located south of Crescent Valley High School at the crossroads of Highland Drive and a new east-west collector, and forms a node of mixed-use development with a focus on educational and recreational activities. Radiating from a core of Mixed-Use Commercial are areas designated Medium-High and Medium Density Residential. The east-west leg of existing Crescent Valley Drive and the new collector serves as the neighborhood's main street and provides direct access to the core area from Highway 99W, with links to the north-south extensions of Kings Boulevard and Satinwood Drive. Proximity to existing and proposed school and community park uses make this center a logical focus for a larger-scale neighborhood center in the heart of the valley.

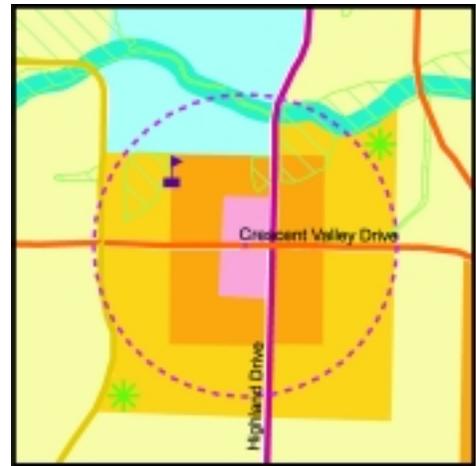


Figure 3.6 *The Crescent Valley Neighborhood Center. See Figure 3.2 for context within the study area, and Figure 3.1 for legend categories.*

3.3.2 Minor Neighborhood Centers

Highland Neighborhood Center

The Highland Neighborhood Center is located south of Vineyard Drive at the intersection of Lewisburg Road and Highland Drive. Although there is a modest amount of Medium Density Residential designated around a small Mixed-Use Commercial center, this center serves the primarily low density residential neighborhoods north of Frazier Creek and west of the major Lewisburg Center.

Elliott Neighborhood Center

The Elliott Neighborhood Center is located east of Highway 99W at Elliott Circle. In addition to a relatively small Mixed-Use Commercial core, the center features higher density residential development radiating outward and reducing in intensity towards the edge of the UGB. As with the Lewisburg Center, existing industrial areas are redesignated to General Industrial-Office to allow ongoing industrial operations to continue unimpeded, while applying Highway 99W gateway standards, and allowing for new large-scale office and other uses consistent with General

Industrial-Office uses. East of the GI-O industrial area that fronts Highway 99W and fronting the west side of Elliott Circle is a Mixed-Use Employment area. Due to its proximity to industrially designated areas, this neighborhood center offers the highest concentrated proportion of land use designations specifically targeted for employment opportunities in the planning area. The Elliott Circle center will have access to the major Lewisburg Center through a new four-way intersection with Highway 99W and Elliott Circle.

Hospital Area

Though unique in its use characteristics and not specifically identified as a neighborhood center, the Good Samaritan Hospital area already has a relatively high density of medical services employment on and around the hospital campus. In conjunction with the planned expansion of the Good Samaritan Hospital and additional medical office buildings, the Hospital Area contains the potential for a range of complementary residential housing types (assisted living, etc.) and small-scale Mixed-Use Commercial, Medium-High Density Residential and Mixed-Use Residential areas. This expanded mix of uses increases the potential for pedestrian travel, supports transit usage, and reduces the need for automobile travel, or at least the length of auto trips, for hospital area employees and visitors.

3.4 Neighborhood Design

3.4.1 Gateways and Corridors

Gateways into communities and urban areas serve as visual markers for residents and visitors alike. They signal arrival and entry points to a community. Many times Gateways have unique local history and conjure positive memories for community residents. Once visitors are no longer strangers to a particular community, Gateways become familiar markers also. The intersection of Highway 99W and Lewisburg Road serves as just such a community entry point. It is a gateway to the greater Corvallis community from points north by way of Highway 99W and from points east via Highway 20 and Lewisburg Road. The Lewisburg/99W intersection does not currently contain any particular community Gateway elements or identity. In

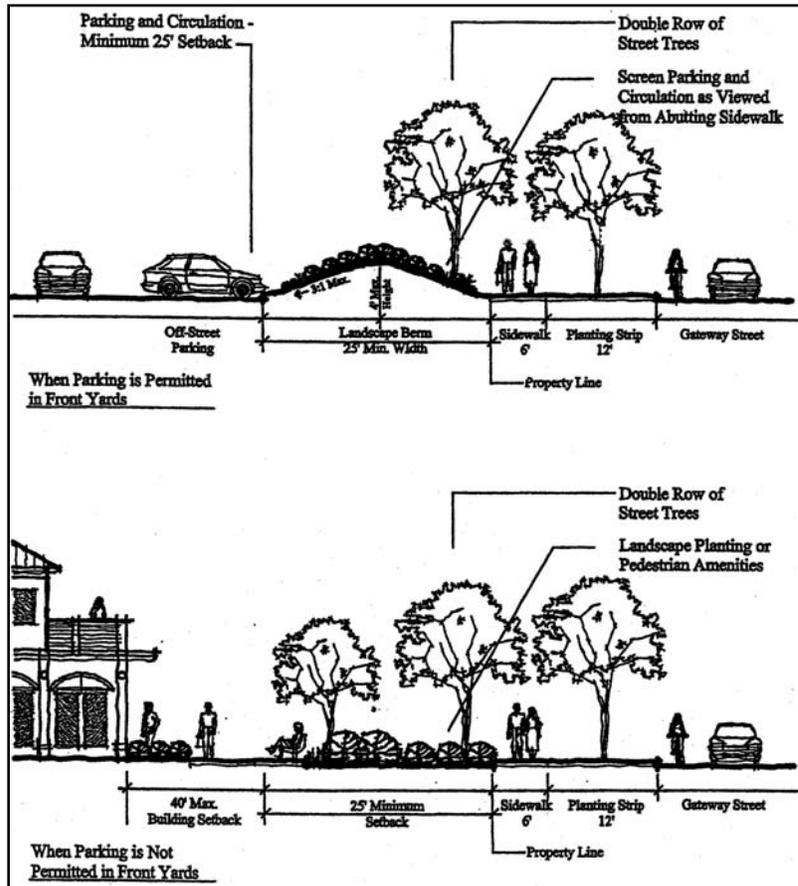


Figure 3.7 Gateway Standards from the 2000 Corvallis Land Development Code LI-O District. (1998 City of Corvallis Comprehensive Plan)

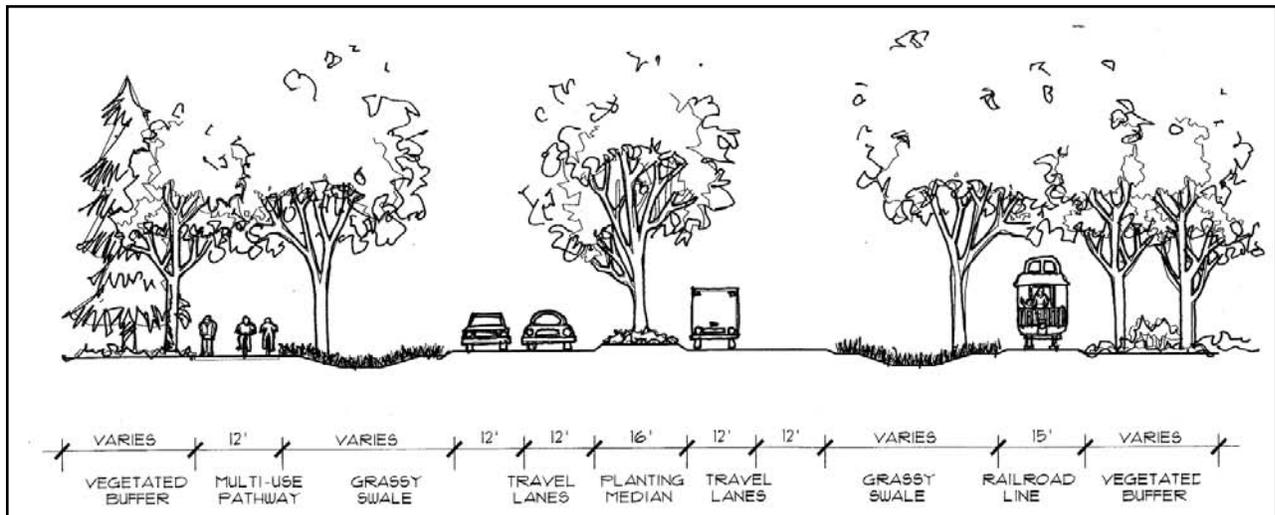


Figure 3.8 Illustrative example design standards for Highway 99W improvements. (illustration: Sara Geddes)

addition, the Highway 99W corridor serves as a linear Gateway to the Corvallis community. Specific Lewisburg/99W intersection improvements along with Highway 99W corridor improvements from Elliott Circle north to the UGB should be identified and scheduled for implementation.

The following standards are to be used in developing the Lewisburg/99W Gateway and Highway 99W Corridor:

- Employ the Gateway Standards from the 2000 Corvallis Land Development Code LI-O District when reviewing future development proposals at or near the Lewisburg/Highway 99W intersection.
- Require sufficient right-of-way width, or combination of rights-of-way and easements, for the Highway 99W corridor including the existing railroad line to the east. Acquire needed right-of-way as dedications or easements as a part of the land division and development review processes.
- Employ design standards for Highway 99W improvements in conjunction with the Oregon State Highway Plan.

Consider the following elements in designing the NCAP Gateway / Corridor:

- Limit access along Highway 99W north of existing Elks Drive to the new east-west parkway at the south end of Owens Farm, Elliott Circle, and Lewisburg intersections.
- Plan for a paved multi-use pathway along the west side of 99W, consistent with the City's established gateway and multi-use trail standards, set back from the shoulder of the highway.
- Address stormwater Best Management Practices, such as providing swales along both shoulders of the highway to serve as stormwater management elements and as an attractive green landscape visual element. Use native or other appropriate low maintenance grasses.
- Along the west side of the highway, include a mixture of canopy trees along the outer edge of the parkway corridor to serve as a visual backdrop to the gateway environment. Use native or other appropriate conifer and deciduous species or cultivars.
- Along the east side of the parkway corridor, include a double row of canopy trees as a backdrop behind the rail line.

- Develop a master plan and design solution for specific Lewisburg/99W intersection landscaping, lighting and structural signage. Include all four corners, including consideration of property ownership, right-of-way, NCAP land use designations, visual clearances and highway safety criteria.

3.4.2 Neighborhood Center Concept

The Neighborhood Center Concept is one of the key organizing principles of Comprehensive Neighborhood Centers. The Neighborhood Center is intended to be the locus of each major and minor neighborhood in the NCAP planning area, and serve as a neighborhood commercial, retail, and office area providing the daily retail and commercial needs of nearby residents (Figure 3.9). The NCAP Neighborhood Centers' Mixed Use Commercial areas are located along crossroad intersections of the two primary collector streets for each comprehensive neighborhood, and contain neighborhood public open space or civic functions. Consistent with Chapters 3.14, 4.0, and 4.10 of the updated Corvallis Land Development Code, NCAP Neighborhood Centers will incorporate pedestrian-friendly building designs and include the following objectives:

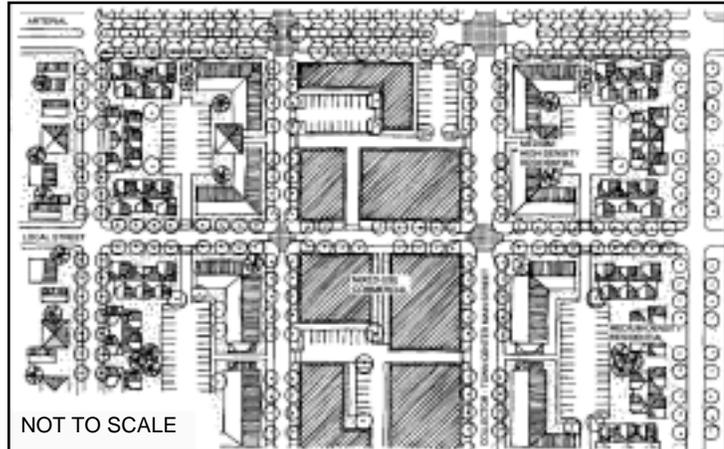


Figure 3.9 Illustrative example plan of a portion of a Comprehensive Neighborhood Center. (illustration: Sara Geddes)

- Provide a gridded, interconnected street system.
- Design streets with narrow profiles, on-street parking, wide sidewalks, street trees, and pedestrian amenities. Consider center medians with trees where practical.
- Design intersections with curb extensions and raised and/or alternative paving, colored or textured crosswalks.
- Provide 2-story buildings or establish a comparable street scape façade meeting



Figure 3.10 Illustrative example Neighborhood Center building elevation. (illustration: Sara Geddes)

required Floor Area Ratios along all neighborhood center shopping streets.

- Ensure that primary building/store fronts face the street; have building façades with awnings, eaves, balconies, and overhangs to provide visual interest and shelter for pedestrians; and contain numerous, large windows to provide maximum visual connections between the street and storefront activity where practical. (Figure 3.10)
- Require public space(s), such as a plaza, town square, pedestrian promenade, or small park. Address town center focal points or other unique identifiable features or elements. (Figure 3.11)
- Streets, blocks and buildings in neighborhood centers are to be compatible and interconnected with adjacent land uses and developments.



Figure 3.11 Illustrative example of a neighborhood green. (illustration: Sara Geddes)

3.4.3 Neighborhood and Street Design Objectives

Key to successful Comprehensive Neighborhood design, indeed to successful neighborhood design of any sort, is quality of development and consideration of design details. New development subject to the provisions of the 2000 Corvallis Development Code shall meet those requirements and observe the general design objectives outlined below.

- Foster human-scale development that emphasizes pedestrian features.
- Promote pedestrian-oriented design in buildings, amenities, and landscaping that contributes positively to an appealing street scape.
- Promote an environment where developed areas, recreational areas, and multi-use paths are accessible to all.
- Promote pedestrian safety by increasing the visibility and vitality of pedestrian areas.
- Provide direct and convenient access and connections for pedestrians and bicyclists.
- Ensure that developments connect local streets to planned future street connec-

North Corvallis Area Plan

Plan Diagram Land Uses

Legend

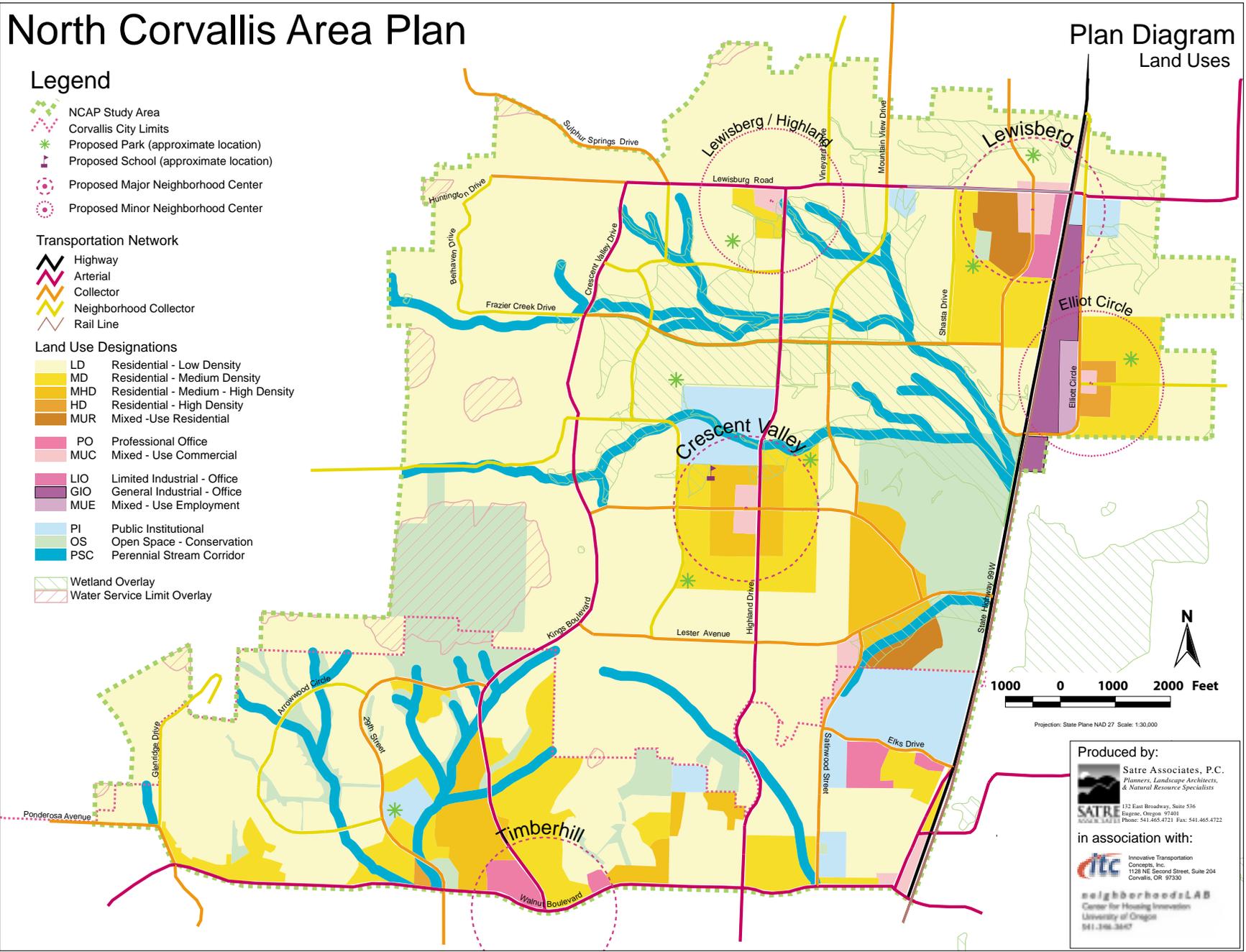
- NCAP Study Area
- Corvallis City Limits
- Proposed Park (approximate location)
- Proposed School (approximate location)
- Proposed Major Neighborhood Center
- Proposed Minor Neighborhood Center

Transportation Network

- Highway
- Arterial
- Collector
- Neighborhood Collector
- Rail Line

Land Use Designations

- LD Residential - Low Density
- MD Residential - Medium Density
- MHD Residential - Medium - High Density
- HD Residential - High Density
- MUR Mixed - Use Residential
- PO Professional Office
- MUC Mixed - Use Commercial
- LIO Limited Industrial - Office
- GIO General Industrial - Office
- MUE Mixed - Use Employment
- PI Public Institutional
- OS Open Space - Conservation
- PSC Perennial Stream Corridor
- Wetland Overlay
- Water Service Limit Overlay



1000 0 1000 2000 Feet

Projection: State Plane NAD 27 Scale: 1:30,000

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Figure 3.12 The NCAP Plan Diagram.

tions or street stubs to establish a logical continuation of the City’s street and block form, and/or establish pedestrian-friendly block patterns where they do not exist.

- Encourage the use of alleyways for vehicle access to service areas and parking.
- Encourage the use of small lots, attached, zero lot line housing developments and other means of providing diversity in architectural designs and affordable housing.
- Provide each neighborhood (as defined by arterial and or collector streets as neighborhood edges) with a neighborhood park or other public open space for passive or active recreational use.
- Use Green Infrastructure principles and Best Management Practices, detailed in Chapter 6, in mitigating the impacts of development on water resources, and incorporate natural resources into neighborhood design where practical.

3.5 Land Use Designations and Overlays

Although the majority of the NCAP planning area is located outside the Corvallis city limits and the area within the Corvallis Urban Fringe is subject to Benton County zoning classifications until annexed, the area is subject to land use designations found in the 1998 Corvallis Comprehensive Plan. Based upon existing Comprehensive Plan designations, the NCAP Plan Diagram (Figure 3.12) maps ten separate land use designations in three major land use categories: five residential designations, two commercial designations, and three industrial designations. Each of the three major land use categories also contains its own Mixed-Use designation tailored to residential, commercial, or industrial uses.

The Plan Diagram also includes existing public land use designations for Public Institutional (addressing public and educational facilities) and Open Space-Conservation (addressing parks and open spaces) uses. Table 3.1 gives the relative proportion of these land uses (and perennial stream corridor) shown in the NCAP Plan Diagram.

North Corvallis Area Plan Land Use Designations

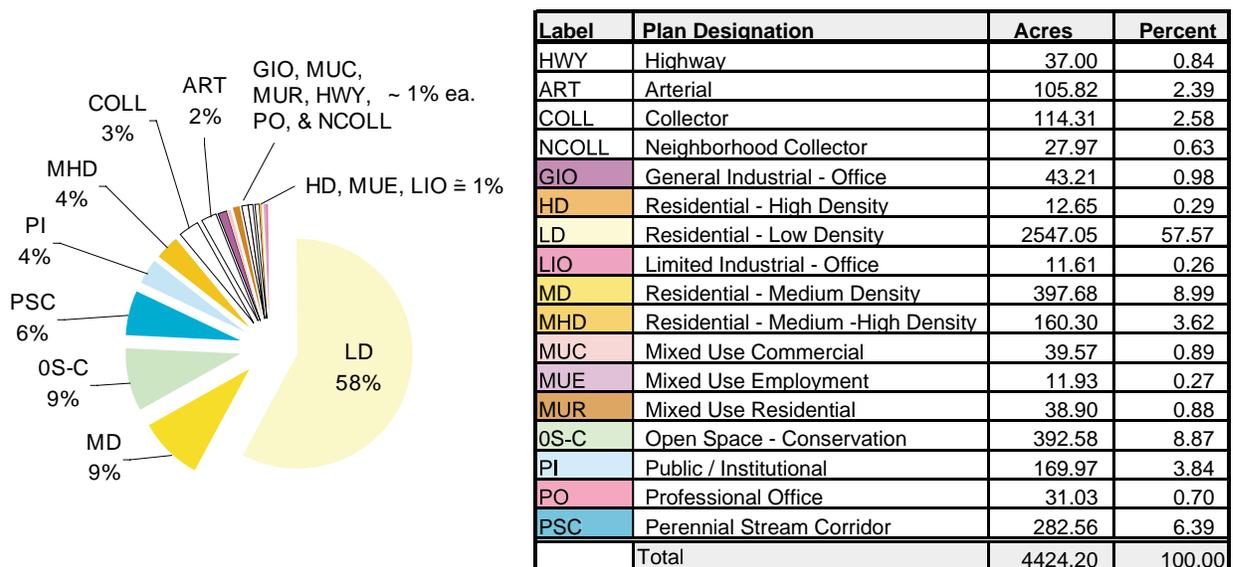


Table 3.1 Proportion of NCAP proposed land use designations in the study area

Carried forward from the 1998 Corvallis Comprehensive Plan’s Advisory Constraints Element, the NCAP Plan Diagram (Figure 3.12) incorporates three of the advisory constraints as natural resource land use designations:

- Water Service Limit Overlay (documenting those areas above 560 feet elevation which are beyond the planned extension of public water system);
- Wetland Overlay (showing those areas included in the Jackson-Frazier Local Wetland Inventory as having potential wetland indicators);
- Perennial Stream Corridor (identifying perennial streams in the planning area and their conceptual 175-foot advisory protection setback buffers).

3.5.1 Residential Designations

There are five residential land use designations in the NCAP. These are: Low, Medium, Medium-High, High and Mixed-Use Residential designations. Permitted uses, site development requirements, land division and development review procedures in the 2000 Corvallis Land Development Code shall apply. Generally, these residential designations include the following:

NCAP Study Area Total Measures

Measure	Amount	Percent
Dwellings	14168 (#)	NA
Building Area	389 ac	9
Paving Area	1021 ac	23
Wetland *	262 ac	6

* Wetland area calculated as 50% of mapped Jackson-Frazier wetland area; see Appendix B, CHI Methodology.

Table 3.2 A portion of the study-area-wide measures for NCAP land use designations.

Low Density Residential

Low density residential is primarily intended for single-family use and minimum lot sizes consistent with the minimum 2-6 du/acre range established in the Corvallis Comprehensive Plan. Areas with steeper slopes north of Chip Ross Park are allowed to develop at 2 dwelling units (du) per acre. Areas within the Urban Fringe must use Benton County’s cluster development standards until annexed into the City of Corvallis. Upon annexation, low density residential development will observe the lot area and density standards established in the Corvallis Land Development Code (i.e, RS-5 and RS-6 zoning districts).

Medium Density Residential

Intended for small lot, small footprint single-family detached or attached single- or multi-family dwelling units, including duplexes and townhouses, medium-density residential densities are 6 to 12 du/acre.

Medium-High Density Residential

Medium-high density Residential is intended to provide for a mix of residential and building types for family and group residences at a range of densities between 12 and 20 du/acre.

High Density Residential

The highest density residential designation is intended to provide for higher density individual or group home dwelling units in multi-family buildings with a minimum density of 20 du/acre.

Mixed-Use Residential

Mixed-use residential multi-family dwelling units densities are sufficient to support neighborhood commercial uses and provide residents with direct access to commercial and/or employment opportunities. Small scale retail or office uses are permitted when developed as part of a mixed-use development. Pedestrian oriented design standards are required. Minimum densities within this designation are 20 du/acre, but may be reduced to 12 du/acre if at least 10% of the total gross floor area is occupied by nonresidential uses. Refer to the Corvallis Development Code for complete list of applicable development standards.

3.5.2 Commercial Designations

There are two commercial land use designations in the NCAP: Mixed-Use Commercial and Professional Office. Permitted uses, site development requirements, land division and development review procedures in the 2000 Corvallis Land Development Code shall apply.

Mixed-Use Commercial

The NCAP Plan Diagram uses the 1998 Comprehensive Plan's existing Mixed-Use Commercial designation for core development at the heart of the proposed Major and Minor Neighborhood Centers. Allowed within this designation are a range of residential and commercial uses, such as multi-dwelling residential structures, restaurants, hotels, business and professional services, and retail sales. Future development consistent with this designation should also observe size limitations on use size and building footprints (particularly for retail commercial uses), and other applicable development considerations outlined in the 2000 Corvallis Land Development Code (e.g., Chapters 3.14, 4.0, and 4.10). These development standards shall apply upon annexation.

Professional Office

Additionally, the Professional Office designation is used in select areas in the Timberhill and Good Samaritan Neighborhoods. Permitted uses and development requirements would be as in the Corvallis Land Development Code (Chapter 3.11), and shall apply upon annexation.

3.5.3 Industrial Designations

The NCAP Plan Diagram incorporates three industrial land use designations: Limited Industrial - Office, Mixed Use Employment, and General Industrial-Office. Permitted uses and development standards would be as in the Corvallis Land Development Code (Chapters 3.21 and 3.22). The new GI-O designation is recommended to allow flexibility and provide for the creation of gateway amenities.

Limited Industrial - Office

The Limited Industrial - Office designation is applied in the Lewisburg Neighborhood as a transitional use between the neighborhood center mixed-use area and Highway 99W. It is intended to provide for local employment opportunities and reasonable flexibility as to specific uses and activities.

Mixed Use Employment

The Mixed Use Employment designation is applied in the Elliott Neighborhood between the mixed-use commercial center and the General Industrial-Office designation along the east side of Highway 99W.

General Industrial - Office

The GI-O designation is a recommended new designation applied specifically to the area along the east side of Highway 99W and currently designated General Industrial on the 1998 Corvallis Comprehensive Plan Diagram. The designation is intended to provide a means to allow existing industrial enterprises to continue as conforming uses, while applying NCAP gateway standards for treatment of the Highway 99W corridor. This allows for future large-scale office development and other uses that are less intensive than those allowed under the existing GI designation. This designation will serve as a companion to the Limited Industrial-Office designation. Permitted uses and development requirements must be developed for the Corvallis Land Development Code once these properties are annexed.

3.5.4 Public Designations

The two existing Comprehensive Plan land use designations are carried forward in the NCAP: Public Institutional and Open-Space Conservation. The former includes public and institutional uses, such as schools and hospitals. The latter includes not only active park lands, but also lands owned and maintained for passive recreational park and open space uses. Permitted uses, site development requirements, land division and development review procedures in the Corvallis Land Development Code shall apply, as well as direction established in the 2000 Corvallis Parks & Recreation Facilities Master Plan, and other relevant plans and planning documents.

Public Institutional Designation

Within the Public Institutional designation are 62 acres with existing schools in the NCAP planning area (Crescent Valley High School, Wilson Elementary, and Mountain View Elementary). The NCAP Plan Diagram retains 94 acres also with the Public Institutional designation for existing uses such as Good Samaritan Hospital, the fire station on Lewisburg Road, and the City-owned Forest Dell parcel containing two above-ground water reservoirs.

In addition to applying the designation to existing school sites, the NCAP also identifies the generalized locations for two future school sites. One site, adjacent to Crescent Valley High School, could be developed as a middle school, an elementary school, or combination of the two. Another prospective school site, actually designated Park on the Plan Diagram, is located in Timberhill east of 29th Street. This site may potentially be developed as a school/park site, much like the existing Wilson School/Wildcat Park in the Satinwood neighborhood.

Open Space-Conservation Designation

Combined, NCAP designates 332 acres for either park or open space uses. Within this designation are lands held for active park and recreational uses (e.g., the Timberhill school/park site, Wildcat Park) and those which are or will be managed for more passive recreational uses and/or conservation of significant natural resource values (e.g., Chip Ross Park, Owens Farm, Lewisburg Cemetery, and the existing open space areas in the Timberhill and Rolling Green/Garryana neighborhoods).

Consistent with the City's Open Space Plan and 2000 Corvallis Parks and Recreation Master Plan, the NCAP also identifies generalized sites for six neighborhood parks and one community park in the Urban Fringe; future neighborhood parks within the City limits off 29th Street, and at the existing City-owned undeveloped Brandis Park and Forest Dell Park sites: these area are linked by an extensive, interconnected trail network. (See Chapters 4 and 7).

3.5.5 Natural Resource Designations

NCAP proposes three new natural resource-related land use designations based upon identifications made on the City's Advisory Development Constraints Map: Water Service Limit Overlay, Wetland Overlay, and Perennial Stream Corridor.

Water Service Limit Overlay Designation

The Water Service Limit Overlay designation arises from the adopted Corvallis Water Master Plan which identified land above 560 feet in elevation as being beyond the reach of the city water system. The majority of this area is in the Timberhill area with a base designation of Open Space-Conservation. As an overlay designation, the underlying land use designation remains in terms of permitted uses, development requirements, and development review processes. However, because public water extension is not available to the water service limit area and there may be difficulty in extending sewer service there as well, other alternatives for this land must be considered.

Wetland Overlay Designation

The new Wetland Overlay designation is also applied to areas on the City's Advisory Constraints Map identified as probable wetlands based upon remote indicators (e.g., presence of hydric soils as identified in the Benton County Soils Survey, identification on National Wetlands Inventory maps, aerial reconnaissance, etc.). The NCAP acknowledges that parcel-specific designations may be modified based upon completion of site-specific wetland delineations of precise boundaries of jurisdictional wetlands.

The designation in NCAP is an overlay to underlying base land use designations, and notifies property owners of the likelihood that any development proposal must consider potential jurisdictional wetlands. Development proposals on parcels within the Wetland Overlay designation must include site-specific wetlands determinations and delineations prepared by qualified professionals to avoid wetland impacts, and where unavoidable mitigate those impacts pursuant to applicable local, state, and federal regulations and policies.

For planning purposes, the NCAP assumes that approximately one-half of the development potential of the approximately 230-acre area within the Wetland Overlay designation may ultimately be utilized consistent with the underlying land use designation. Development will be allowed as a result of wetlands mitigation, or by demonstrating the absence of jurisdictional wetlands through on-site analysis, or through means such as density transfer or transference of development rights.

Perennial Stream Corridor Designation

This designation is applied to perennial streams included in the Open Space - Conservation designation on the existing Corvallis Comprehensive Plan. The Perennial Stream Corridor designation is intended to protect water quality in perennial streams identified as "waters of the state" subject to public jurisdiction. These streams all are tributaries to the Willamette River and protection efforts are part of the City's comprehensive strategy to address threatened and endangered species under the 4(d) Rule in the federal Endangered Species Act. Specifically identifying the Perennial Stream Corridor designation serves multi-jurisdictional efforts to preserve water quality in receiving streams, mitigate potential development impacts, and conserve riparian vegetation as significant fish and wildlife habitat associated with these stream drainages.

For graphic purposes only, the area designated is 175' wide (82.5' from stream centerline), as depicted in the City's Advisory Development Constraints Map (see Figure 2.6). Individual development applications will be considered relative to drainageway dedication provisions in Chapter 4.5 of the 2000 Corvallis Land Development Code (for affected parcels within the Corvallis city limits), or Sensitive Lands development standards in Chapter 99.205 of the Benton County Development Code (for affected parcels within the urban fringe).

3.6 Recommendations

Readers and users of this plan are encouraged to review this entire chapter as well as the following recommended actions, and to develop additional actions, as means to achieve the planning and design objectives presented in this chapter and in the NCAP document as a whole.

3.6.1 Comprehensive Neighborhoods

L1. Adopt the NCAP Plan Diagram as an update of the 1998 Corvallis Comprehensive Plan Diagram for the NCAP planning area.

L2. Employ the Comprehensive Neighborhood Concept from the 1998 Corvallis Comprehensive Plan in reviewing future land division and development review processes in those areas identified in the NCAP Plan Diagram as Major or Minor Neighborhood Centers.

L3. Once a property is annexed, use the Major Neighborhood Center Master Site Plan Requirements from the 2000 Corvallis Land Development Code when reviewing future land division and development review processes in those areas identified in the NCAP Plan Diagram as Major Neighborhood Centers.

L4. At the time of annexation employ the Neighborhood Center (NC) designation from the 2000 Corvallis Land Development Code in reviewing future land division and development review processes.

L5. Following annexation, employ the Pedestrian Oriented Design Standards from the 1998 Corvallis Comprehensive Plan in reviewing future land division and development review processes.

3.6.2 Neighborhood Design

L6. Apply the neighborhood design standards herein in the Major Neighborhood Center Master Site Plan Requirements contained in the 2000 Corvallis Land Development Code.

L7. Apply gateway design standards in Section 4.2.70 of the Corvallis Land Development Code, and as outlined herein (section 3.3.1), for future improvements to and development along the Highway 99W corridor within the planning area.

L8. Use planned development processes as a means to encourage flexibility and creativity in designing neighborhood centers to successfully achieve the Comprehensive Neighborhood concept.

L9. Allow 2 du/acre densities on steeper slopes adjacent to Chip Ross Park, as provided in the Corvallis Comprehensive Plan; establish densities elsewhere as provided in the NCAP.

L10. Following annexation, employ the Pedestrian Oriented Design Standards from the 1998 Corvallis Comprehensive Plan in reviewing future land division and development review processes.

3.6.3 Land Use Designations and Overlays

L11. Add the three Advisory Constraints elements identified herein (i.e., Water Service Limit, Wetland Overlay, and Perennial Stream Corridor) as land use designations for the NCAP planning area.

L12. Amend the Corvallis Comprehensive Plan to include a new General Industrial-Office land use designation for the currently designated General Industrial land located east of Highway 99W, between Elliott Circle and Lewisburg Road. The new GI-O designation will allow existing industrial uses to occur as conforming uses but will apply NCAP's gateway standards along the length of GI-O designated area fronting the Highway 99W corridor.

L13. Develop a General Industrial-Office zoning district as a corollary to the proposed GI-O comprehensive plan designation and amend the Corvallis Land Development Code to incorporate this new zoning classification and appropriate development standards. The new GI-O zoning district will accommodate existing developments and uses, but all properties within the new zone will be subject to the NCAP's Highway 99W gateway design standards. The new GI-O zone will allow for large-scale office development and a range of uses similar to those established in the LI-O zone.

L14. Expansion of existing uses within the area designated General Industrial-Office will be subject to review through Benton County's conditional use process with application of the Highway 99W gateway design standards until annexation or change in use occurs. New uses on annexed properties will be subject to the GI-O standards outlined in the Corvallis Land Development Code.

North Corvallis Area Plan

Parks, Open Space, & Natural Resources

Legend

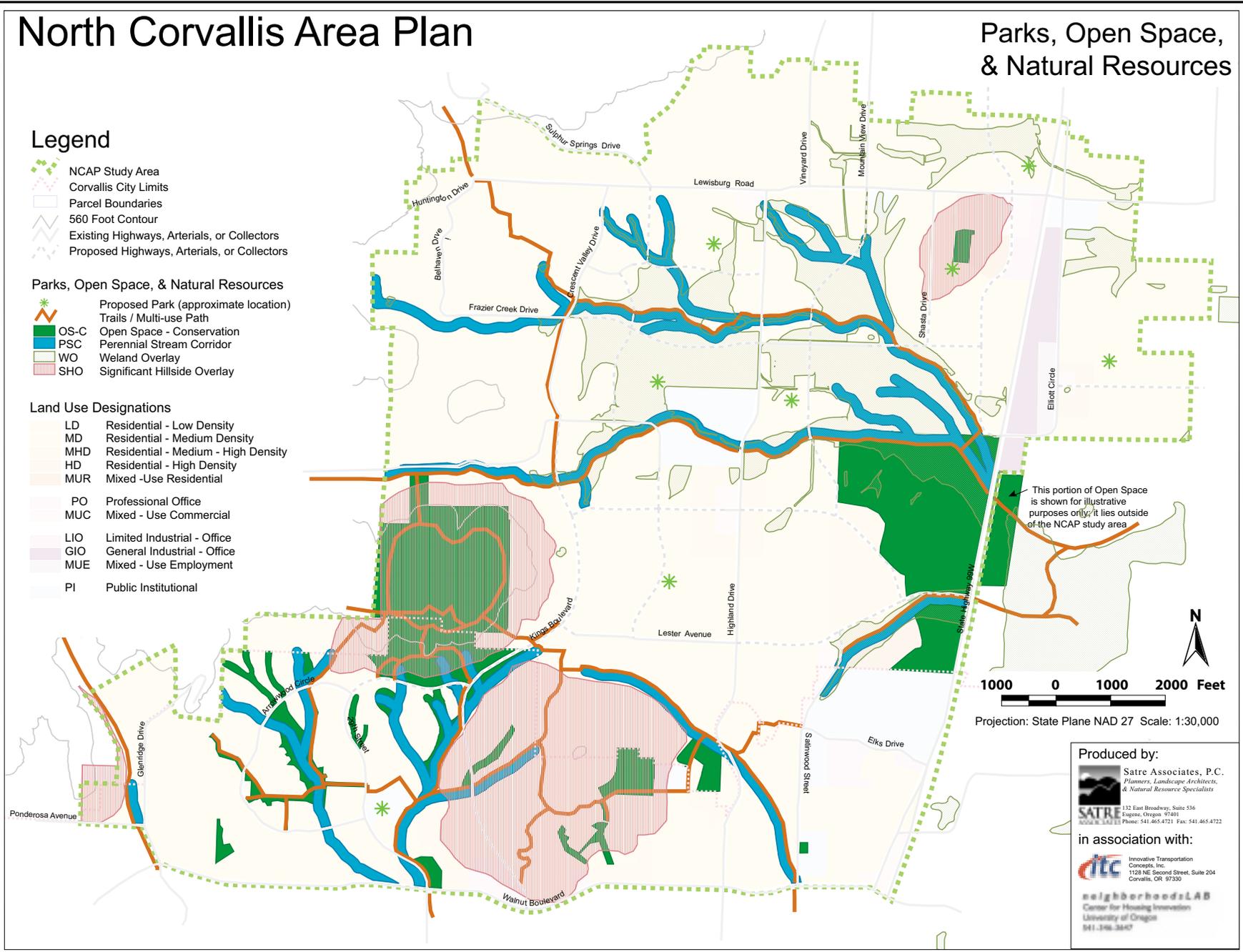
- NCAP Study Area
- Corvallis City Limits
- Parcel Boundaries
- 560 Foot Contour
- Existing Highways, Arterials, or Collectors
- Proposed Highways, Arterials, or Collectors

Parks, Open Space, & Natural Resources

- Proposed Park (approximate location)
- Trails / Multi-use Path
- OS-C Open Space - Conservation
- PSC Perennial Stream Corridor
- WO Weland Overlay
- SHO Significant Hillside Overlay

Land Use Designations

- LD Residential - Low Density
- MD Residential - Medium Density
- MHD Residential - Medium - High Density
- HD Residential - High Density
- MUR Mixed -Use Residential
- PO Professional Office
- MUC Mixed - Use Commercial
- LIO Limited Industrial - Office
- GIO General Industrial - Office
- MUE Mixed - Use Employment
- PI Public Institutional



Projection: State Plane NAD 27 Scale: 1:30,000

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Figure 4.1 NCAP Parks, Open Space, and Natural Resources map.

Chapter Four: Parks, Open Space, & Natural Resources

4.1 Overview

The NCAP area possesses a unique blend of ecological systems that physically and visually establish a sense of place. Significant hillsides to the north and west and the North Hills (to the south of the planning area) frame Crescent Valley and provide the headwaters for creek drainages, streamside wetlands, and riparian corridors that replenish local aquifers, feed the Jackson-Frazier wetlands, and sustain wildlife habitat for terrestrial and aquatic species in this portion of the greater Willamette River watershed. After more than a century of agricultural and rural settlement, the planning area still possesses high natural resource and open space values that current residents cherish and wish to closely guard for future generations. Relevant objectives established for the NCAP project by the project's Citizens Advisory Committee include:

- Ensure the healthy function of wetlands, wildlife habitats, riparian areas, and other natural resources associated with the drainage basins, particularly the Jackson and Frazier Creek drainages.
- Preserve continuous greenbelts along creek drainages and ridge lines as wildlife, riparian, and open space corridors.
- Establish and/or extend multi-use trails to connect parks and open space areas for passive recreation and alternative transportation purposes.
- Conserve significant natural features (e.g., forested hillsides, vistas) for ecological and aesthetic values and compliance with relevant laws.
- Secure and appropriately develop parks and open space in conjunction with future development to meet the varied needs of existing and future residents, and to conserve open space and natural resource areas.
- Comply with objectives in the 2000 Parks & Recreation Facilities Plan relating to the provision of publicly accessible land (e.g., public parks, school sites, etc.) in sufficient quantities and types to meet future park service area demands.
- Provide small pocket parks, courtyards, plazas and/or public or quasi-public open space as central design elements of new Neighborhood Center commercial core areas as a means to encourage vibrant urban design, pedestrian activity and an enhanced street scape.

The NCAP fosters these objectives by integrating the acquisition and development of active and passive park lands and interconnected trail systems, and the preservation of significant open space and natural resources with the Plan's land use and transportation components. Following

directives in the City's 2000 Park and Recreation Facilities Plan, and building on the 2000 ballot measure authorizing open space acquisition, NCAP seeks to preserve significant hillsides, vistas, stream corridors, and open spaces that give character and a sense of place to North Corvallis, and contribute to its livability now and in the future. The NCAP Parks, Opens Space, and Natural Resources map is shown in Figure 4.1.

4.1.1 Guiding Principles

Broad guiding principles for the NCAP project, outlined in Chapter 1, provide fundamental direction relating to protecting natural resources and open spaces within the planning area.

Guiding Principle 1 calls for protection of natural resources, such as wetlands, stream corridors, and significant wildlife habitat. Means of achieving this principle include:

- Protecting sensitive areas;
- Generally directing development away from sensitive areas;
- Buffering resource areas where adjacent to development; and
- Minimizing interruptions in natural resource corridors.

Guiding Principle 2 calls for establishing an accessible open space network, include:

- Creating a spine of inter-connected natural features, parks, and corridors that respects and protects sensitive areas;
- Providing multiple points of access;
- Linking to open space and trail systems outside the planning area; and
- Allowing for multiple purposes to be achieved within open space areas, such as natural resource conservation and habitat protection, passive and appropriate active recreational uses, and pedestrian and bicycle trail systems.

4.1.2 Assumptions

NCAP strategies for acquisition, development, conservation, and enhancement of parks, open space, and natural resource areas relies upon the following assumptions.

- Statewide planning Goal 5, existing federal and state laws and regulations, and City and County goals and policies will be observed and applied to natural resource areas identified subsequent to the approval of the NCAP.
- Statewide planning Goal 14 requires planning for build-out of the Corvallis UGB and it is assumed that the current location of the UGB in the planning area will neither expand nor contract.
- Until and unless annexed into the City of Corvallis (except for lands already owned by the City), areas in the North Corvallis Urban Fringe are assumed to remain under Benton County jurisdiction and subject to intergovernmental agreements between the City and County (as specified in the Urban Fringe Management Agreement), and to provisions in the Benton County Code.
- Future parks, recreational facilities, and trails will be developed consistent with design parameters, standards, and policies (e.g., street frontage for neighborhood parks, trail width and surfacing, etc.) established by the City of Corvallis.
- Generalized future park sites identified in the NCAP may be altered as necessary to be compatible with surrounding development, natural resources, and park service area

standards. Park land acquisition methods (i.e., whether part of a proposed subdivision or not) and timing may also change the specific locations of park acquisitions.

4.2 Natural Resource Areas

NCAP's approach to natural resources is to protect and conserve critical resources and their inherent functional values in conjunction with the establishment of comprehensive neighborhood centers over time. This conservation ethic is predicated not only on strong direction from the project's Citizen Advisory Committee embodied in the project's guiding principles, but also on state and federal regulations, Corvallis and Benton County Comprehensive Plan policy directives, and local measures to implement statewide planning Goal 5.

4.2.1 Advisory Constraints

As base material for identifying key natural resources NCAP uses the City's Advisory Constraints Map, which depicts available data on a series of potential constraints to future development. The project consultant team used this data and incorporated natural resource areas identified elsewhere (e.g., through the 2000 Park & Recreational Facilities Plan), such as park land and other property acquired specifically for open space purposes, into a refined Advisory Constraints Diagram. Natural resource data illustrated on this map include:

- Hydric soils (as taken from the Benton County Soil Survey);
- Potentially significant and probable wetlands. Jackson-Frazier creek wetlands were delineated using on-site methodologies, others were based upon National Wetlands Inventory maps and through off-site identification using the Oregon Freshwater Wetlands Assessment Methodology;
- Perennial stream corridors and drainage buffers. A 175' corridor and buffer area was drawn from the center line of perennial streams by the City of Corvallis for mapping purposes only (for specific drainage setback standards, refer to Chapter 4.5 of the 2000 Corvallis Land Development Code); and
- Significant hillsides (as taken from the City's 1983 Open Space Hillsides Report).

Natural resources identified on the Advisory Constraints Diagram (Figure 2.6), combined with extensive input from the general public and the CAC, forms the basis for natural resources identified on the NCAP Parks, Open Space and Natural Resources Diagram. This diagram reflects designations for significant natural resource areas to be conserved, and establishes new designations to better distinguish key resource areas for focused conservation efforts.

4.2.2 Wetlands and Riparian Corridors

The NCAP mapping delineates publicly held park lands and open space areas from stream corridors and wetland areas. The Corvallis Comprehensive Plan combines all park land (regardless as to whether designed for primarily active or passive recreation) and open space areas into a single Open Space-Conservation designation. The NCAP also segregates parks and open space in the Open Space-Conservation designation from Perennial Stream Corridors in separate Plan designations to better reflect the differences in land tenure, management, and natural resource values associated with these areas.

The NCAP Plan Diagram identifies 285 acres of riparian buffers and stream corridors in the Perennial Stream Corridor designation. Additionally, the NCAP recommends a new designation, Wetland Overlay, that applies to all of the potential and probable wetland areas, a total of 230 acres identified within the area. Because not all of the identified wetland areas have been delineated specifically on-site, with use of transferrable development rights and density transfers, it is assumed that up to 50% of the development potential within the Wetland Overlay designation may ultimately be realized. Measures to protect wetlands and other resources within the Wetland Overlay area are outlined below (e.g., Recommendations 15-18).

4.2.3 Significant Hillsides

Hillsides outside the planning area associated with the McDonald Research Forest and Vineyard Mountain visually and topographically frame Crescent Valley and feed the headwaters of the Jackson-Frazier creek system and other basins draining south from the IV Hill and the North Hills. Within the NCAP planning area, other areas of significant hillsides identified include those around IV Hill and Chip Ross Park, Locke Cemetery Hill, and the North Hills (Timberhill Ridge). The 2000 Corvallis Parks and Recreation Plan identified these features as steep slopes, defined as those with greater than 40% gradient.

NCAP incorporates vistas from the cemetery area through acquisition and development of land for a neighborhood park to serve the Lewisburg major neighborhood center, and to augment the open space provided by the cemetery. Development standards and other tools such as density transfers (see below) will be applied to future development within the Lewisburg neighborhood center and other areas within the Significant Hillside Overlay designation to protect significant tree stands and preserve current viewsheds. (Figure 4.2). Further evaluation of significant hillsides is being completed through the Significant Natural Features project (June-Dec., 2001).



Figure 4.2 Chip Ross Park viewed from Jackson-Frazier Creek Wetlands. (photo: Satre)

4.3 Proposed Parks, Open Space and Trails

Consistent with the 2000 Corvallis Park & Recreation Facilities Plan's typology of parks (i.e., community, neighborhood, pocket, and special use parks), recommended standards for park lands needed, and coverage of park service areas, the NCAP proposes development of seven neighborhood parks within in the urban fringe, one community park, and establishment of open spaces and off-street multi-use trails within the planning area. Additional park and/or recreation facilities may be developed in conjunction with future schools. Pocket parks, civic space, or other functional public space may also be developed as central features in future neighborhood centers. The NCAP's proposed generalized future park sites corresponds roughly to the service areas and locations for future parks identified in the 2000 Corvallis Parks and Recreation Facilities Plan. Park sites are noted on NCAP maps by symbols (*) in general locations. This approach provides flexibility for City parks planners to consider more multiple parcels and methods of acquisition that can be customized for each future park site. The NCAP follows the Parks Plan's recommended minimum acreage for neighborhood and community parks, and

provides a suitable distribution of park facilities to serve future development. The NCAP Diagram illustrates 332 acres designated for Park or Open Space-Conservation land uses within the planning area.

Trail systems are integral to hillsides, open spaces, and stream corridors identified as significant natural resources in the NCAP area, and help form a comprehensive network for alternative transportation, educational, and interpretive opportunities, and recreational access. The 13.5 miles of trails proposed within the NCAP area constitute 0.43 miles per 1,000 population (based upon projected population at build-out), a higher ratio than the City's current pathways and trail standard of 0.34 miles/1,000 people. The NCAP provides all of the multi-use trail linkages recommended in the Parks Plan, and, in conjunction with on-street bicycle and pedestrian facilities, forms a comprehensive network linking major activity areas and destinations for recreational and alternative transportation purposes.

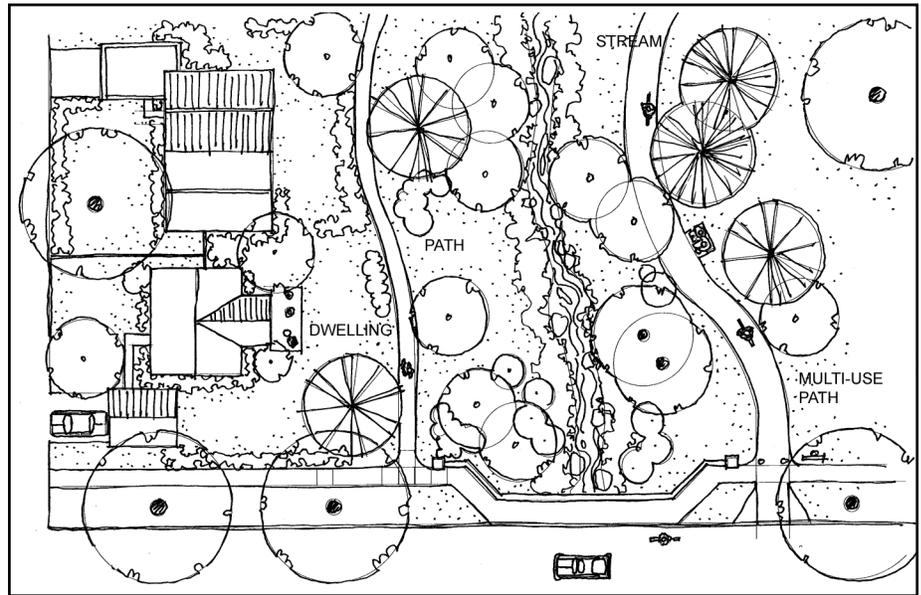


Figure 4.3 *Illustrative plan of the transition between residential land use and open space / perennial stream corridor.*

NCAP's integration of park lands, open space areas, and natural resources is consistent with community attitudes expressed in development of the Parks Plan. In this, a survey of area residents found that on a scale of 1-10 (with 10 being highest), respondents rated the importance of open space an average of 7.8. The majority of respondents also believed that wooded hillsides around Corvallis should be preserved in their natural state, and that "the acquisition of natural open space" received the most support among preferred projects.

The needs assessment developed for the Parks Plan also concluded that the open space system in Corvallis lacked adequate amounts of designated open space and suffered from a lack of connectivity. Specific needs identified include:

- Preserving open space corridors along urban drainages;
- Preserving land along hillsides for scenic value;
- Developing community buffers; and
- Conserving environmentally sensitive lands.

The following recommendations conform with NCAP's guiding principles and also meet the specific open space, park land, and natural resource protection needs identified in the Parks Plan and other applicable plans.

4.4 Recommendations

Readers and users of this plan are encouraged to review this entire chapter as well as the following recommended actions, and to develop additional actions, as means to achieve the planning and design objectives presented in this chapter and in the NCAP document as a whole.

4.4.1 Parks

- P1** Acquire at least 5 acres for each of the six future neighborhood parks proposed in the NCAP. Develop additional parks, plazas, and other public open space to assure the NCAP area is consistent with relevant parks plans.
- P2** Acquire a minimum of 20-acres for a community park adjacent to Crescent Valley High School for active and passive recreational uses and natural resource conservation. The location and size of this park adjacent to school property allows for shared use of land and maximizes open space and management opportunities. Acquisition by purchase should precede the need for land development to yield a more favorable cost basis.
- P3** Acquire neighborhood and community park land in suitable locations and quantity as soon as practicable.
- P4** Configure neighborhood and community park sites to provide street frontage on no fewer than two sides, and preferably on four sides.
- P5** Time park land development to coincide with the amount and type of development in the park service area.
- P6** Develop school/park recreational facilities in the Timberhill neighborhood center.
- P7** Develop neighborhood park services and facilities at existing City-owned park lands north of the Rolling Green/Garryana neighborhood.
- P8** Renovate existing park and recreational facilities at Wildcat Park/Wilson Elementary School and at Mountain View Elementary School.

4.4.2 Open Space and Trails

- P9** Integrate into Chip Ross Park the area to the south acquired as part of the 2000 open space bond measure for passive recreational uses, trail extensions, and natural resource conservation.
- P10** Preserve open space south of Jackson Creek on the northern portion of Owens Farm.
- P11** Develop plans for appropriate use and conservation of the remainder of the Owens Farm.
- P12** Develop the multi-use trail system proposed along stream corridors and ridgelines envisioned in the Parks Plan and illustrated in the NCAP Park and Open Space Map by securing

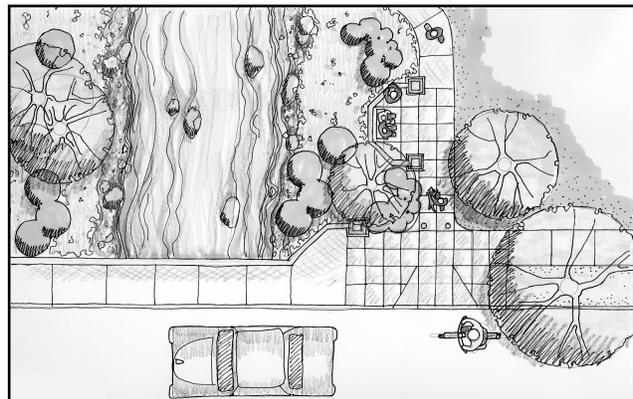


Figure 4.4 Illustrative example plan of a trailhead.

easements for off-street trails within the Urban Fringe, and dedications for trails within the City limits through the land division and development review processes. Develop additional trails and pathways as necessary to assure conformance with standards established in relevant parks and trails plans.

- P13** Modify future trail design and surfacing to fit the constraints of nearby natural resources.
- P14** Consider accepting dedication of land and conservation easements for suitable open space, passive recreational use, and education/interpretation as part of undevelopable wetland and natural resource areas.

4.4.3 Natural Resources

- P15** Lands within the Wetland Overlay will retain the underlying base zoning but will be obligated to conduct site-specific delineations to determine precise wetland boundaries prior to development.
- P16** Development within the Wetland Overlay area will also be subject to application of the City's drainageway dedication regulations (Chapter 4.5 in the 2000 Corvallis Land Development Code) or Benton County's sensitive lands provisions (Chapter 99 in the Benton County Development Code).
- P17** Development within the Wetland Overlay designation will be required to use density transfers, cluster subdivision, or planned development procedures to buffer critical streams and preserve riparian vegetation and habitat.
- P18** A program of Transferable Development Rights may also be developed to establish lands within the Wetland Overlay (and perhaps the Significant Hillside Overlay and Perennial Stream Corridor designation) as Sending Areas to conserve natural resources, thereby transferring development rights to neighborhood centers identified for higher density urban development (Receiving Areas).
- P19** Development within areas designated Significant Hillside Overlay will be subject to the Hillside Development and Density Transfer provisions in Chapter 2.15 of the updated Corvallis Land Development Code.
- P20** Locate multi-use trails at the edge of stream corridor buffers and modify trail alignments to minimize potential impacts to riparian vegetation, stream hydrology and adjacent land uses.
- P21** Modify the NCAP Wetland Overlay Designation as new wetland delineations are available.
- P22** Protect wetlands, riparian corridors and other critical natural resources through density bonuses, cluster development, transfer of development rights programs, and use of storm water management measures.
- P23** Incorporate new natural resource inventory data (e.g., rare plants, delineated wetlands, etc.) as available into updated NCAP mapping to protect natural resources through the land division and development review processes.
- P24** Develop natural resource benchmarks (e.g., changes in tree canopy, impervious cover, stream hydroperiod, and water quality) to assess existing conditions, monitor changes over time, and guide decision-making with respect to development in the planning area.
- P25** Through Pre-Application conferences and other review processes for land division and development, encourage property owners to integrate the area's natural character and amenities into future development layout and design.
- P26** Identify and protect stream corridors and perennial streams.

North Corvallis Area Plan

Automotive Transportation Network

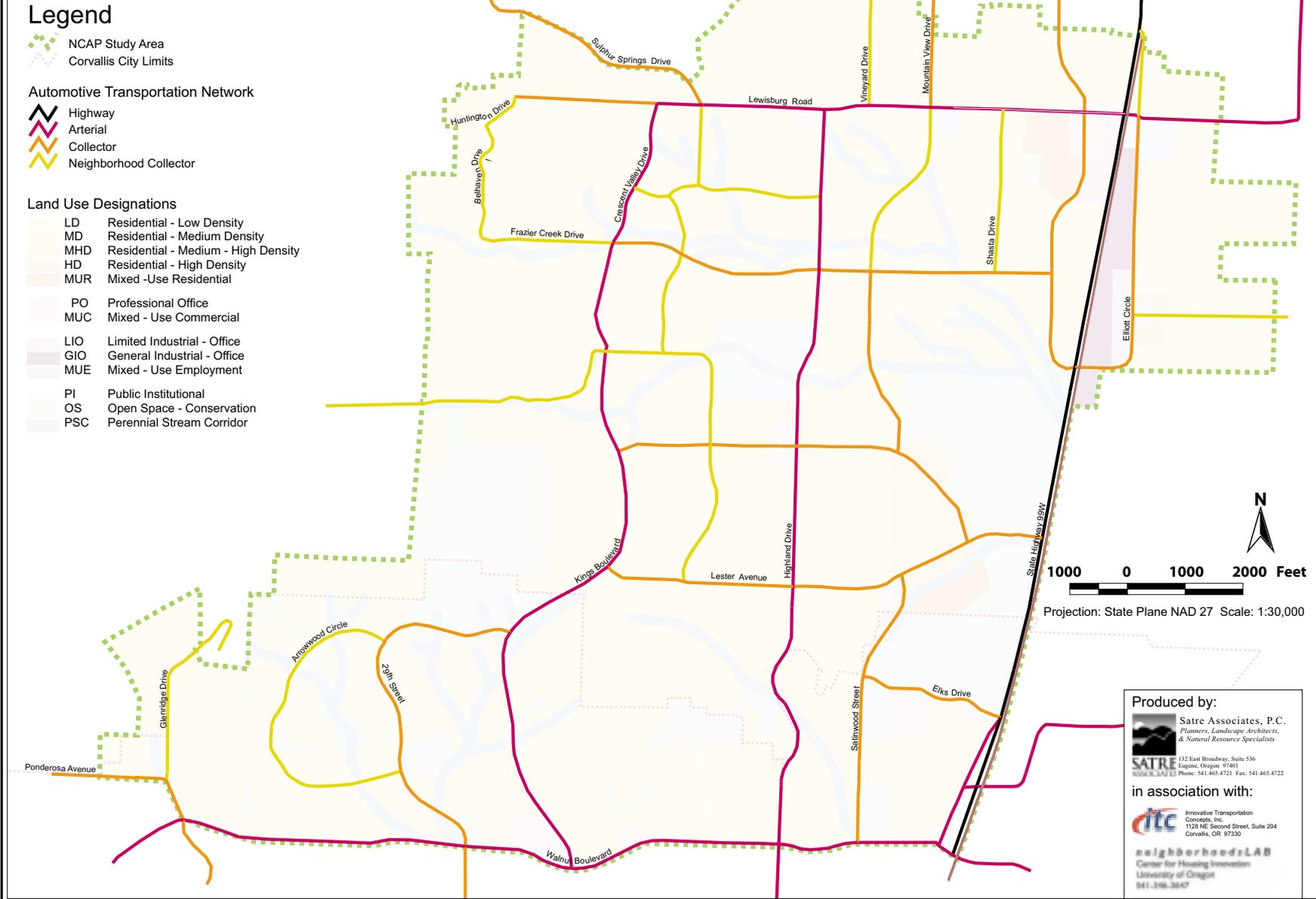


Figure 5.1 The NCAP automotive transportation circulation diagram.

Chapter 5: Transportation

5.1 Overview

Through build-out of the Corvallis UGB, the NCAP area is assumed to grow by approximately 23,700 people, nearly four times the current population of approximately 8,300. While existing roadways suffice to serve existing development within the North Corvallis urban fringe and city limits, the overall circulation system is fragmented due to topographic and natural constraints. The disconnected transportation system and the preeminence of strictly segregated existing land use development are projected to create unacceptable levels of traffic congestion along select road sections and at certain intersections, and burden State Highway 99W with carrying increased traffic volumes to access local destinations. Transportation studies indicate increased trip lengths and shifts toward single-occupant use of automobiles represent greater sources for increased growth in automobile use than population growth. Therefore, the North Corvallis Area Plan seeks to integrate land use and transportation systems to serve future growth and provide an interconnected circulation network for all modes of travel throughout the planning area.

The NCAP transportation analysis, based upon the updated 1996 Corvallis Transportation Plan, uses existing population and development projections and considers currently viable transportation technologies. Because the future will likely hold significant changes in fuel sources and availability, transportation technologies, employment and commuting alternatives, and other factors that will influence consumer behavior, travel patterns, and choices, the NCAP and its transportation analyses will be subject to additional review in the years to come.

5.1.1 Guiding Principles

The Guiding Principles outlined in Chapter 1 provide a basis for the integrated transportation and land use system established in the NCAP and depicted in the Plan Diagram.

Guiding Principle 3 calls for distributed but concentrated development, which can be achieved through:

- Distributed, pedestrian-scaled local service and employment centers within walking distance of most residences;
- Larger scale employment and commercial centers along more heavily trafficked corridors with transit potential.

Guiding Principle 4 calls for creating a development pattern which fits with the landscape character of the North Corvallis planning area. Among the means of achieving this principle includes developing:

- Most streets will parallel contours and fit with existing landforms.

The most directly applicable principle is *Guiding Principle 5*, which calls for establishing a basis for providing transportation alternatives to private automobiles through means such as providing:

- Daily services within walking distance of most residences;
- Safe, direct and convenient bicycle and pedestrian routes, both on-street and off-street, and integrated with the area's open space system;
- Accessible, convenient transit routes and centers.

5.1.2 Assumptions

The NCAP transportation systems are predicated on the following assumptions:

- Development will occur over time and in a sequential, planned fashion, with build-out of the Corvallis UGB assumed to occur in approximately 80 years based upon current development and demographic trends, regulatory factors, and land use planning considerations.
- Statewide planning goals (i.e., Goal 14) require planning for build-out of the Corvallis UGB and it is assumed that the current location of the UGB in the planning area will neither expand nor contract.
- NCAP assumes that the population within the area will grow to a total of approximately 32,000 people through build-out of the Corvallis UGB.
- The Comprehensive Neighborhood concept will be employed in the North Corvallis area.
- The location, quantity, and scale of commercial services proposed in the NCAP Plan will not serve as to draw trips to the planning area but will serve primarily needs of the immediate neighborhoods.
- The NCAP transportation system, including proposed roadway extensions, will be largely development-driven.
- Development will occur in coordination with annexation and the extension of key urban services.
- Development, including transportation systems, will occur in harmony with the protection of significant natural resources to the greatest extent practicable.
- Until and unless annexed into the City of Corvallis (except for lands already owned by the City), areas in the North Corvallis Urban Fringe are assumed to remain under Benton County jurisdiction and subject to intergovernmental agreements between the City and County (as specified in the Urban Fringe Management Agreement), and to provisions in the Benton County development code.

5.2 Objectives

In support of the project's guiding principles, the NCAP's land use and transportation plan has a multi-faceted strategy to achieve the following objectives:

- (1) Develop major and minor neighborhood centers with high residential and employment densities to support efficient transportation options such as mass transit, walking, and bicycle use as alternatives to the automobile;
- (2) Establish a modified grid system of arterial and collector streets to serve local traffic needs and link destinations both inside and outside the NCAP planning area;
- (3) Provide suitable access to move people and goods within and through neighborhood centers in support of employment and mixed use ventures;
- (4) Create designs for streets and off-street trails that offer safe, attractive alternatives for cyclists and pedestrians; and
- (5) Promote street designs that reduce impervious surfaces and provide alternatives to traditional stormwater runoff treatment methods.

The following describes existing traditional and alternative transportation systems, and NCAP's proposals to refine those systems to meet the above objectives consistent with the project's guiding principles.

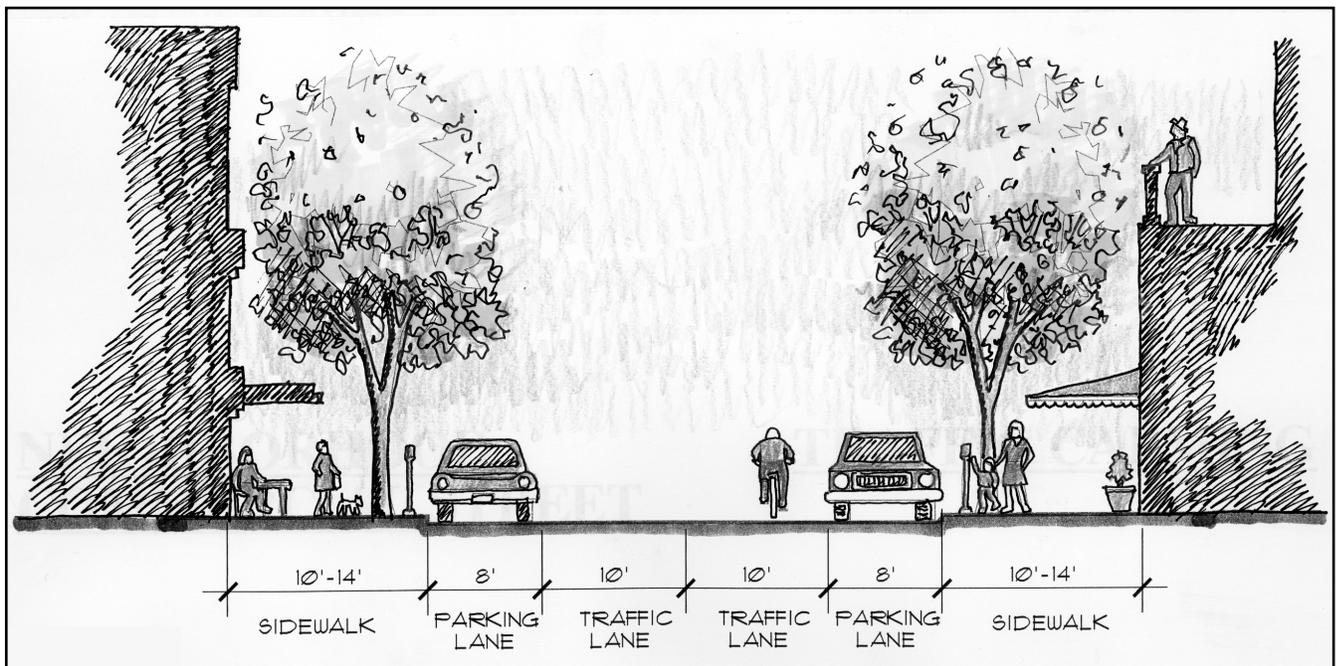


Figure 5.2 Illustrative example section of a neighborhood center street. (illustration Sara Geddes)

5.3 Existing Roadway Network

Primary vehicular transportation facilities in the planning area consist of State Highway 99W to the east, Walnut Boulevard to the south, Lewisburg Road to the north, and Highland Drive extending northward through the center of the Crescent Valley. Currently, Walnut Boulevard and Highway 99W have the highest traffic volumes, each carrying an average of between 12,000 and 15,000 vehicles per day.

Highland Drive and Lewisburg Road are the only other arterial streets spanning the area, with Highland forming the major north-south alternative to Highway 99W between the city limits and the North Corvallis urban fringe and Lewisburg Road forming a major connection eastward to Albany via Highway 20.

While average daily traffic volumes on these arterials are relatively low (between 3,500 and 6,500 on Highland Drive and 2,000 to 3,400 on Lewisburg Road) topography, land uses, and road geometries generate safety and capacity concerns. Collector streets (Crescent Valley Drive, Satinwood Drive, Elliott Circle, Elks Drive) serve existing residents and employees with limited connectivity to the larger community apart from Walnut Boulevard or Highway 99W.

The City's 1996 Transportation Plan (Figure 5.3) identified several street extensions (Crescent Valley Drive, Kings Boulevard, Satinwood Drive, 29th Street), widenings (Highland Drive, Lewisburg Road, Highway 99W), and new streets to provide an interconnected street network.

5.4 Proposed Roadway Network

In conjunction with the alternative land use plans, the NCAP planning process considered various options and combinations of roadway layouts to achieve the above transportation objectives. Some of the alternatives explored placed a premium on traditional street connectivity, others on preserving natural features. The NCAP Plan Diagram incorporates the best elements from these various options in an effort to marry land uses with transportation systems and infrastructure design. The proposed roadways form the skeleton for a comprehensive transportation system serving automobiles and alternative modes of travel. The road network responds to existing topography to the greatest degree possible to minimize street grades and improvement costs, and to allow for development of non-traditional methods of stormwater management within the area's overall circulation system. Special considerations may need to be employed in locating and designing specific roadways (e.g. Kings Boulevard).

Key road connections proposed in the NCAP include the following improvement projects:

Highway Facilities

- H1:** Eventual widening of Highway 99W to four lanes with intersection improvements, dedicated left turn pockets, and a landscaped median.

Arterial Streets

- A1:** Kings Boulevard extension to link with Crescent Valley Drive.
- A2:** Capacity improvements to Lewisburg Road and Highland Drive.

Collector Streets

- C1:** Lester Avenue connection with Kings Boulevard and Satinwood extensions, and eastward to Highway 99W.
- C2:** Establishing 29th Street as a connection to the Kings Boulevard extension.
- C3:** Extending Frazier Creek Drive east to connect with Shasta Drive and the new north-south street through the Lewisburg neighborhood center (West Elliott Circle).
- C4:** Extending Crescent Valley Drive west from its east-west leg south of Crescent Valley High School to connect with the Kings Boulevard extension, and east to connect with the Lester Avenue extension.
- C5:** Satinwood Street extension from Elks Drive to Lester extension.
- C6:** Developing a new north-south collector parallel to, and east of, Highland Drive between the Frazier Creek Drive extension and the extended Crescent Valley Drive.

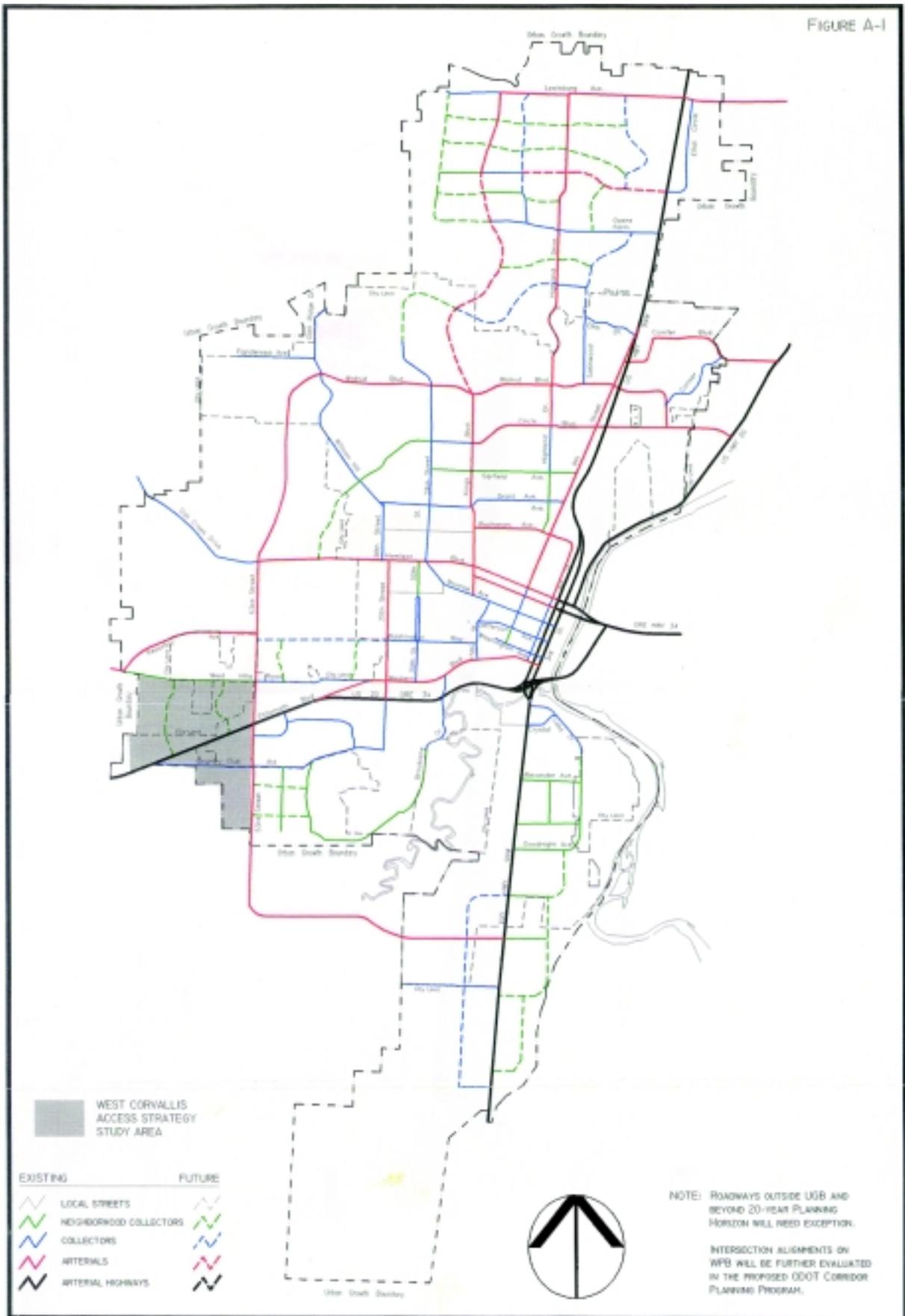


Figure 5.3 Figure A-1 from the 1996 Corvallis Transportation Plan.

Functional Class Standard	Arterial Highway	Arterial	Collector	Neighborhood Collector	Local Collector	Local
Auto lanes (widths)	2-5 (11-14 ft.)	2-5 (12 ft.)	2-3 (11 ft.)	2 (10 ft.)	2 (10 ft.)	Shared surface
Bike lanes (widths)	2 (6 ft.)	2 (6 ft.)	2 (6 ft.)	2 (6 ft.)	Shared surface	Shared surface
Sidewalks (widths)	2 (6 ft.) w/ ped. islands	2 (5 ft.) w/ ped. islands	2 (5 ft.)	2 (5 ft.)	2	2
Transit	Typical	Typical	Typical	Typical	Permissible/not typ.	Permissible/not typ.
Managed speed	20-55 mph	25-45 mph	25-35 mph	25 mph	25 mph	15-20 mph
Street width (two way)						
No on-street parking	34-84 ft.	34-72 ft.	34-45 ft.	32 ft.	20 ft.	20 ft.
Parking one side	42-84 ft.	NA	NA	40 ft.	28 ft.	25 ft.
Parking both sides	50-84 ft.	NA	NA	48 ft.	28-34 ft.	28 ft.
Traffic calming		No	Permissible/ not typ.	Typical	Permissible	Permissible
Pref. adjacent land use	High Intensity	High Intensity	Med-High Intensity	Medium Intensity	Med-Low Intensity	Low Intensity
Access control	Yes	Yes	Some	No	No	No
Turn lanes		Continuous and/or medians/ped. islands	Typical at intersections w/ arterials or collectors	Not typical	Not typical	Not typical
Planting strips (widths)	2 (12 ft.)	2 (12 ft.)	2 (12 ft.)	2 (12 ft.)	2 (6 ft.)	2 (6 ft.)
Through-traffic connectivity		Primary function	Typical function	Typical function	Permissible function	Permissible function

* For additional information on specific requirements and allowances related to the above, see Table 3-5 in the 1996 Corvallis Transportation Plan or Table 4.0-1 in the 2000 Corvallis Land Development Code.

Table 5.1 Functional street classification diagram from the 1996 Corvallis Transportation Plan

Functional Class Standard	Highway Parkway	Arterial Parkway
Auto lanes (widths)	2-4 (12 ft.)	2-5 (12 ft.)
Bike lanes (widths)	2 (6')	2 (6 ft.)
Sidewalks (widths)	None; separate multi-use pathway (12 ft.)	2 (5 ft.)
Transit	Bus transit route, no stops	Primarily transit route
Managed speed	20-55 mph*	25-45 mph
Street width (including medians; no on-street parking)	64 ft.	46 ft.
Traffic calming	No	No
Pref. adjacent land use	High Intensity	Low Intensity/ Open Space
Access control	Yes	Yes
Turn lanes	Dedicated turn lanes at intersections	Dedicated turn lanes at intersection
Planting strips (widths)	2 grassy swales (30 ft. max.), plus vegetated buffer strip (23 ft. max.)	2 (7 ft. min.)
Median (widths)	Planted (16 ft.) w/ ped. islands permitted	Planted (10 ft.) w/ ped. islands permitted
Through-traffic connectivity	Primary function	Primary function
Rail	Includes rail corridor (15 ft.)	No rail

Table 5.2 NCAP proposed additions to existing street standards.

Neighborhood Collector Streets

NC1: Developing new streets south of Lewisburg Road from Sulpher Springs Drive and Belhaven Drive to the extended Frazier Creek Drive, with connections to Crescent Valley Drive.

NC2: Extending Vineyard Mountain Drive to the easterly extension of Crescent Valley Drive.

Roads designated as parkways and local streets with rural densities (i.e. two dwellings/acre) will be designed using green infrastructure principles, employing bio-filtration swales as stormwater runoff mitigation measures integral to street design. Roadways with adjacent development built to urban densities (i.e. greater than two dwellings/acre) will be designed using the City of Corvallis's standard roadway and infrastructure improvement standards outlined in the 1996 Corvallis Transportation Plan and 2000 Corvallis Land Development Code.

Traffic analysis indicates that future widening of Highway 99W will be necessary to provide sufficient highway capacity and levels of service to move people and goods. The NCAP defers this project as long as possible to avoid major capital expense, impacts on urban structure, and impacts to the Jackson-Frazier wetlands and drainage system. The establishment of the minor neighborhood center east of Highway 99W at Elliott Circle is one method the NCAP employs to defer the need for additional highway capacity and lessens the potential for a widened Highway 99W to separate neighborhoods within the planning area. The creation of a comprehensive neighborhood, and linkage via the proposed West Elliott Circle and the major comprehensive neighborhood at Lewisburg, helps span Highway 99W to knit these two neighborhoods rather than having the highway serve to divide communities.

Eventual widening of, or other improvement projects for, Highway 99W offer the ability to alter its look, as well as improve its functional capacity. This corridor forms a major gateway into Corvallis from the north and corridor development of landscaping and parkway design would generate considerable appeal. The gateway design concept is allowed currently by the Corvallis

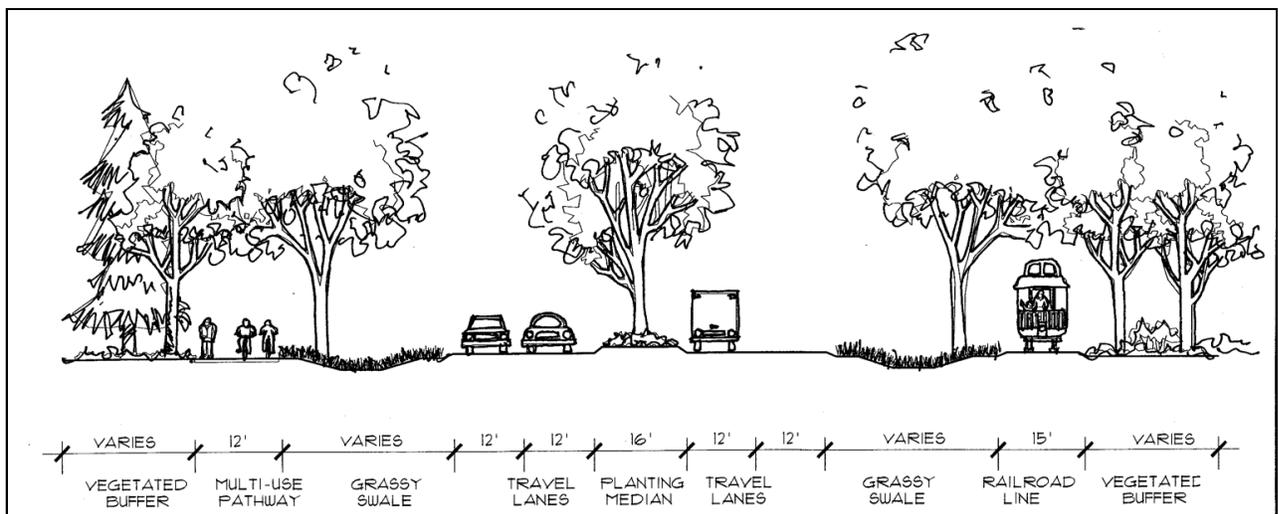


Figure 5.4 Illustrative example of a section of Highway 99W Parkway. (illustration Sara Geddes)

Development Code and works with ODOT designations for this section of Highway 99W as a facility of regional significance. The parkway concept also affords opportunities to: 1) enhance access management to retain highway capacity and restrict the potential for strip development;

2) provide safe and attractive refuges at key intersections for pedestrians and cyclists, and discrete turning pockets for motorists and transit; and 3) incorporate stormwater management mechanisms to treat roadway runoff. Additional right-of-way to incorporate future widening and median treatment should be acquired as soon as possible.

The proposed system of interconnected streets with concentrated, mixed-use development in neighborhood centers provides the following benefits:

- Reduces need to use the automobile by placing multiple destinations within convenient walking and/or biking distance;
- Provides greater opportunity for linked trips;
- Disperses local traffic onto multiple arterial and collector streets to extend the capacity of the local street system and offer travel alternatives;
- Enhances the ability to reach local destinations without using state highway facilities;
- Establishes transit-supportive development densities;
- Minimizes stormwater volumes and flow rates by using “green infrastructure” techniques where practicable (see Chapter 6);
- Conserves the majority of the area’s natural features and character.

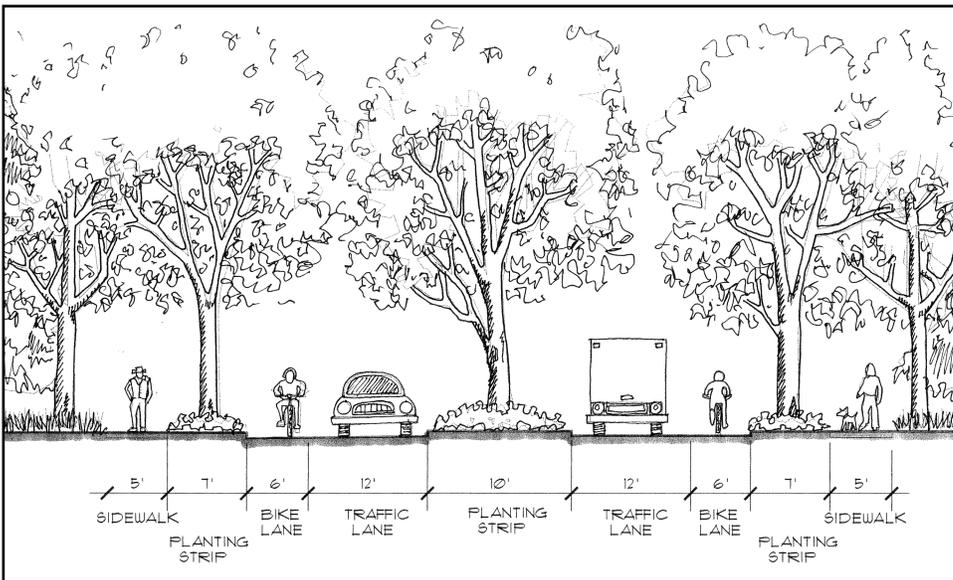


Figure 5.5 Illustrative example section of an arterial parkway using conventional stormwater management in more urbanized areas. (illustration:Sara Geddes)

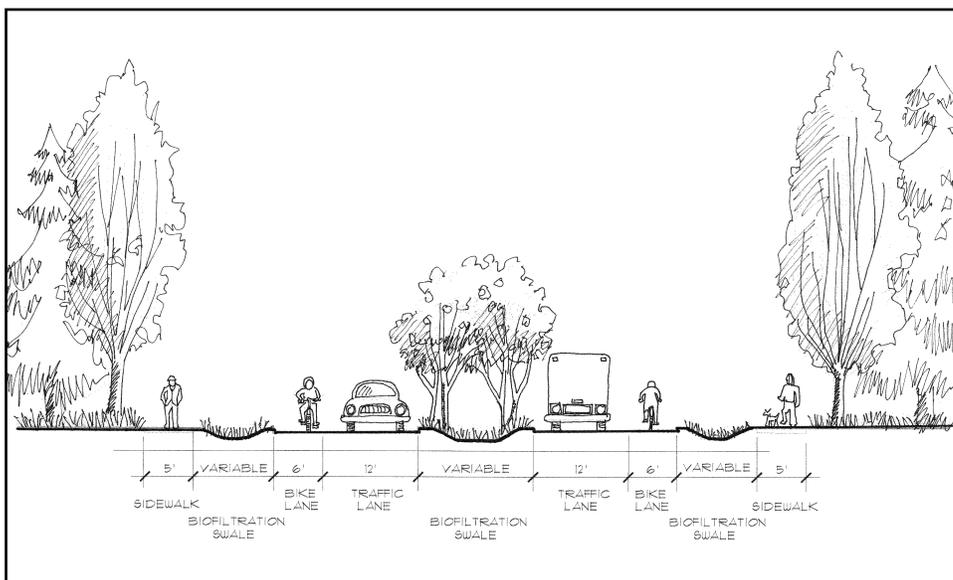


Figure 5.6 Illustrative example section of an arterial parkway using bio-filtration swales for storm water management in less urbanized areas. (illustration:Sara Geddes)

Street designs for arterials and collectors proposed in the NCAP, as well as future local streets, follow established standards, but may be modified to further stormwater management proposals contained in Chapter 6 (Figures 5.5 & 5.6).

5.5 Traffic Impacts and Mitigation Measures

City and state traffic standards require that roadway systems maintain a Level of Service (LOS) of “D” or better, also calculated as a volume to capacity (V/C) ratio, with a standard of no more than 0.80. At LOS “D”, roadway congestion approaches unstable operations with tolerable delays. Under this condition drivers may have to wait through more than one red light at a signalized intersection. If traffic exceeds these LOS or V/C standards, then mitigation is required to avoid or address excessive delays and unstable traffic operations, and corresponding negative effects on air quality, energy consumption, and economic costs in moving people and freight.

The NCAP seeks to address potential level of service deficiencies through build-out by a variety of mitigating measures. Measures are embedded in the NCAP through allocation of land uses to support alternative modes of travel by providing commercial services and employment opportunities in appropriately scaled neighborhood centers within convenient walking distance and in sufficient densities to support transit. Linked to this strategy is the provision of an adequate road network to serve these neighborhood centers and alleviate potential congestion on existing roadways.

For example, the proposed new north-south roadway, “West Elliott Circle”, parallel to and west of Highway 99W, from Lewisburg Road to Elliott Circle, will be the primary access for the Lewisburg Major Neighborhood Center. This center will have highway visibility but direct access will be via Lewisburg Road or the new intersection at Highway 99W at Elliott Circle. This new intersection also forms a connection with the planned Elliott Circle Minor Neighborhood Center east of Highway 99W. This configuration of land uses and road access to the proposed neighborhood centers, in combination with access management controls along Highway 99W, will provide necessary access to support economic activity within the centers while preserving road capacity, particularly along Highway 99W.

Even with an integrated land use and transportation network, projected traffic volumes through build-out will require some additional mitigation measures. These include signalizing intersections, increasing roadway capacity by developing additional through lanes or turn pockets, and developing roundabouts. The NCAP’s traffic analysis also examined mitigation options under two scenarios; one with the Highway 99W remaining a two-lane facility, the other with the highway being widened to four lanes. Tables 5.4 and 5.3 detail LOS with and without mitigation measures under both scenarios at key intersections upon build-out in the planning area.

Roundabouts (Figure 5.9) are an alternative to traffic signals commonly found in Europe and increasingly found in the U.S. They offer smoother flows for increased traffic volumes than standard signalized intersections, and have substantial aesthetic appeal given their potential for significant landscaping and ability to serve as gateway landmarks. Roundabouts tend to require more space than standard signalized intersections, but operate well when traffic volumes on each leg are relatively balanced. Traffic analysis indicates that three arterial/collector intersections may be suitable candidates for roundabouts:

- Kings Boulevard extension/Crescent Valley Drive and the Frazier Creek Road extension
- Elliott Circle east of Highway 99W
- Satinwood Street extension and the new east-west parkway off Highway 99W

Unmitigated Levels of Service

(Highway 99 remains two lanes)

Intersection	Controls	Unmitigated LOS	Proposed Mitigation Improvements	Mitigated LOS
Highway 99W/Walnut	Signal	F	Added thru lane on 99W & NB left turn pocket	C-D
Highway 99W/Conifer	Signal	E	Added thru lane on 99W	D
Walnut/Satinwood	Signal	D-E	No change	-
Walnut/Highland	Signal	E	Added right turn lanes on N, E, S approaches	D
Walnut/9th Street	Signal	D	No change	-
Walnut/Kings	Signal	D	No change	-
Highway 99W/Lewisburg	Signal	F	Added thru lane on 99W, left & right turn lanes on Lewisburg	D
Highway 99W/Crescent Valley	2 Way Stop	F (WB)	Signal w/added thru lane on N, S legs	B
Highway 99W/Elks Drive	2 Way Stop	E	Signal	B
Highway 99W/Elliott Circle	2 Way Stop	F (EB)	Signal w/left turn pockets on E-W approaches, added thru lane on 99W	D
Lewisburg/West Elliott Circle	2 Way Stop	F (NB/SB)	Signal	D
Lewisburg/Elliott Circle	2 Way Stop	E	Signal	A
Lewisburg/Satinwood Ext.	2 Way Stop	E	Signal	B
Lewisburg/Kings Ext.	2 Way Stop	A	No change	-
Satinwood/Crescent Valley	2 Way Stop	B	No change	-
Satinwood/Frazier Creek	2 Way Stop	D	No change	-
Elliott Circle/Frazier Creek	2 Way Stop	C	No change	-
Kings Ext/Lester	2 Way Stop	C	No change	-
Kings Ext/Frazier Creek	2 Way Stop	C	No change	-
Kings Ext/S. Crescent Valley	2 Way Stop	B	No change	-
Highland/Frazier Creek	2 Way Stop	F (WB)	Signal	D
Highland/Lester	2 Way Stop	F (EB)	Signal	C
Highland/Lewisburg	2 Way Stop	C	No change	-
Highland/Crescent Valley	2 Way Stop	E (EB)	Signal w/left turn pockets on all legs	B

Table 5.3 North Corvallis roadway levels of service without mitigation measures; see Figure 5.7 for mapped representation of volume to capacity ratios.

Mitigated Levels of Service

(Highway 99W widens to four lanes)

Intersection	Controls	Unmitigated LOS	Proposed Mitigation Improvements	Mitigated LOS
Highway 99W/Walnut	Signal	D-E	Added right turn lanes to N/S lanes	D
Highway 99W/Conifer	Signal	F	Added right turn lane to N/S legs, added left turn leg on W leg	D
Walnut/Satinwood	Signal	D	No change	-
Walnut/Highland	Signal	D-E	Added right turn lane to N/S legs	D
Walnut/9th Street	Signal	C-D	No change	-
Walnut/Kings	Signal	D	No change	-
Highway 99W/Lewisburg	Signal	F	Added left & right turn lanes to E/W legs, right turn lane to N leg	D
Highway 99W/Crescent Valley	2 Way Stop	F (EB)	Signal	C
Highway 99W/Elks Drive	2 Way Stop	F (EB)	Signal	C-D
Highway 99W/Elliott Circle	2 Way Stop	F (EB/WB)	Added right turn lane to E & W legs, added left turn lanes on S & E legs	D
Lewisburg/West Elliott Circle	2 Way Stop	F (NB/SB)	Signal	D
Lewisburg/Elliott Circle	2 Way Stop	D	No change	-
Lewisburg/Satinwood Ext.	2 Way Stop	B	No change	-
Lewisburg/Kings Ext.	2 Way Stop	A	No change	-
Satinwood/Crescent Valley	2 Way Stop	B	No change	-
Satinwood/Frazier Creek	2 Way Stop	C	No change	-
Elliott Circle/Frazier Creek	2 Way Stop	F	Signal	A
Kings Ext/Lester	2 Way Stop	C	No change	-
Kings Ext/Frazier Creek	2 Way Stop	B	No change	-
Kings Ext/S. Crescent Valley	2 Way Stop	B	No change	-
Highland/Frazier Creek	2 Way Stop	F (WB)	Signal	C
Highland/Lester	2 Way Stop	F (EB)	Signal	B
Highland/Lewisburg	2 Way Stop	B	No change	-
Highland/Crescent Valley	2 Way Stop	D	No change	-

Table 5.4 North Corvallis roadways level of service with mitigation measures; see Figure 5.8 for mapped representation of volume to capacity ratios.

NCAP Preferred Alternative - Unmitigated Volume/Capacity Ratio PM Peak

Volume to Capacity Ratio in Percent

- V/C <80%
- V/C >80% and <100%
- V/C >100%

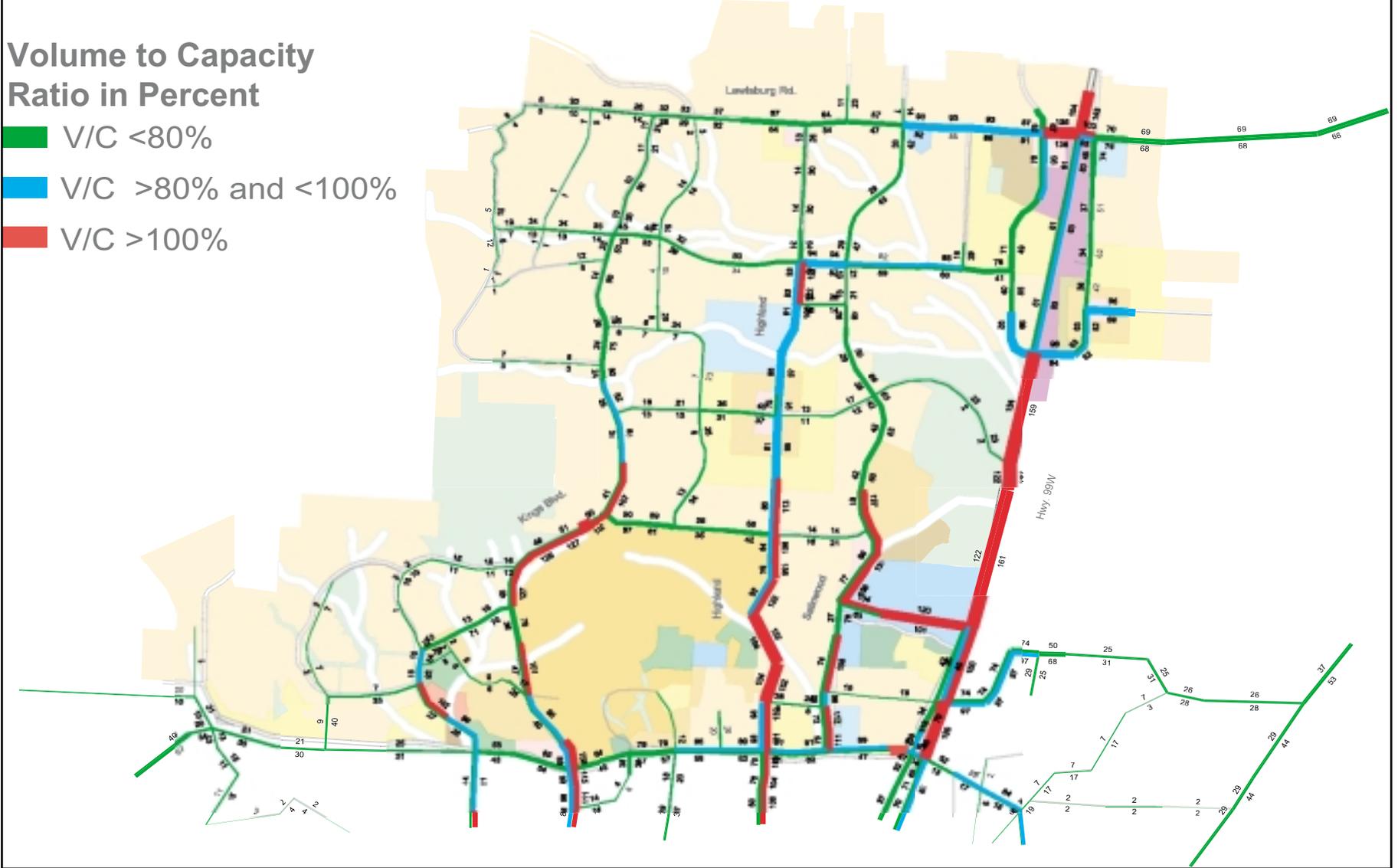


Figure 5.7 Unmitigated volume to capacity ratios under PM peak loads; see also Table 5.3. [Note that road alignments through Owens Farm changed subsequent to the traffic analysis.]

NCAP Preferred Alt - Mitigated Volume/Capacity Ratio

Widened Hwy99 - PM Peak

Volume to Capacity Ratio in Percent

- V/C <80%
- V/C >80% and <100%
- V/C >100%

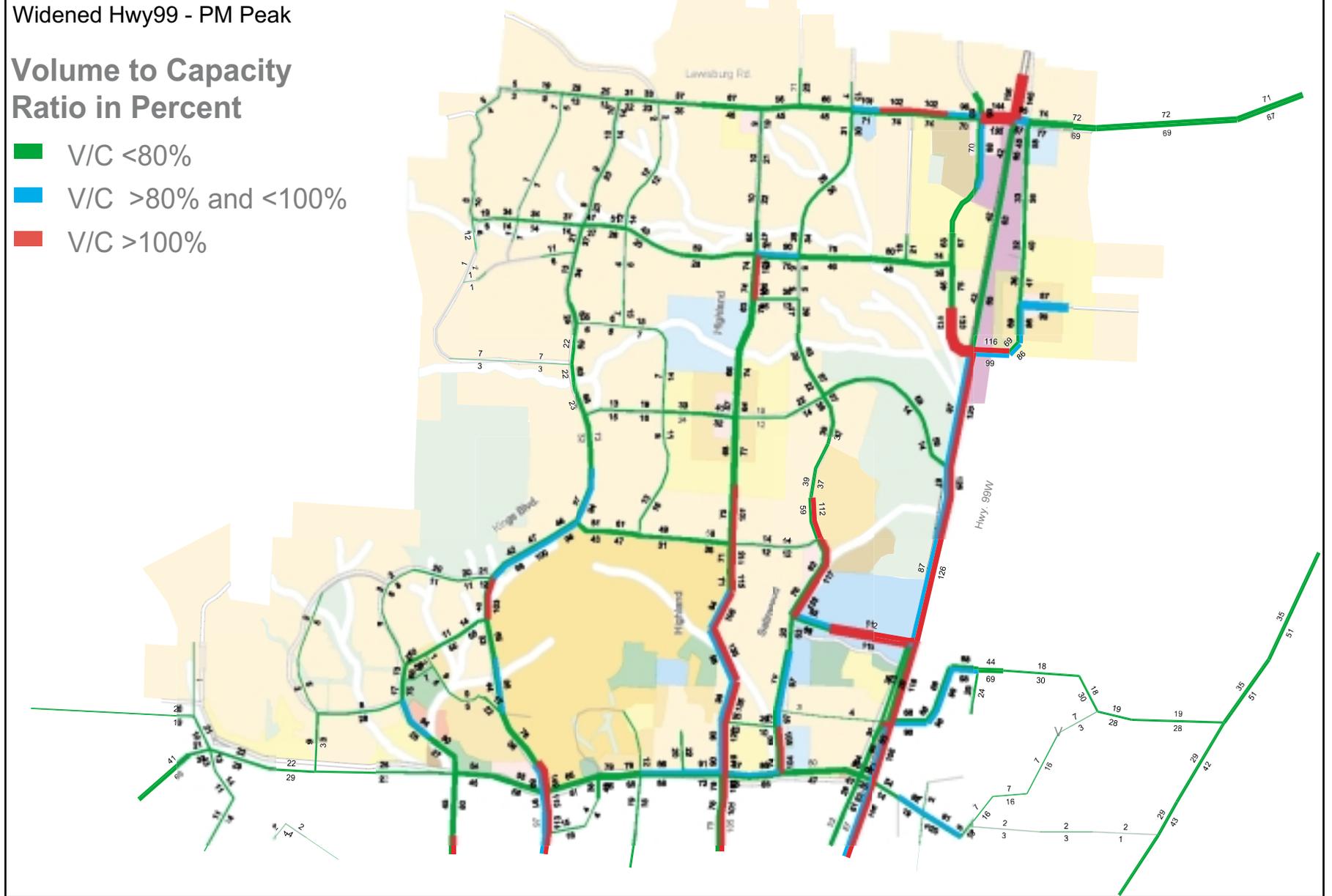


Figure 5.8 Mitigated volume to capacity ratios under PM peak loads; see also table 5.4. [Note that road alignments through Owens Farm changed subsequent to the traffic analysis.]

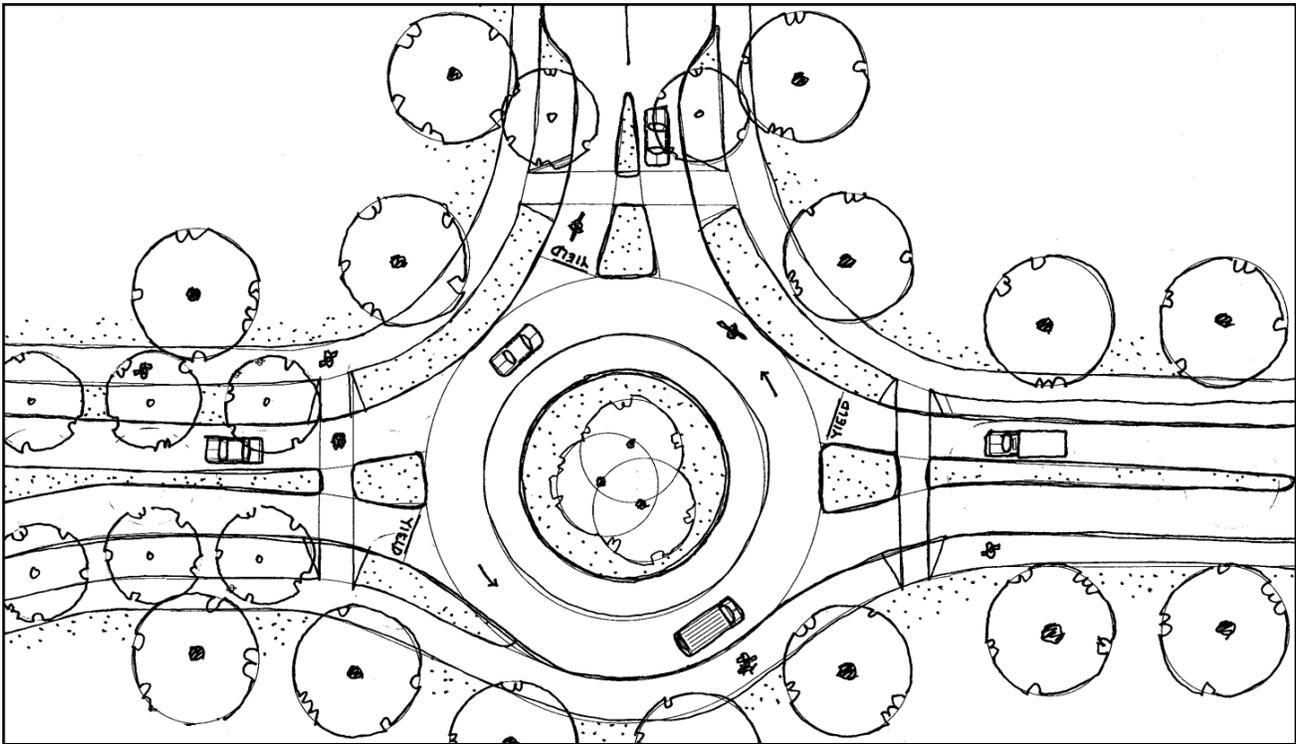


Figure 5.9 Illustrative example plan of an automotive roundabout design. (illustration Sara Geddes)

In addition to roundabouts, other transportation demand management measures include managing traffic by:

- Developing an appropriate mix of uses and densities to provide basic services and daily commercial needs within convenient distance to support walking, biking and transit use as viable transportation options.
- Establishing street and development design standards to provide enhanced pedestrian access, promote an engaging and appealing street scape, limit curb cuts, require shared access and parking, prevent auto-dominated strip development, beautify key gateways to the North Corvallis area, and provide lasting economic value and enhanced livability.
- Developing live/work and neighborhood-based employment opportunities, promoting flex-time, telecommuting and other employment and transportation alternatives to traditional home-to-work commuting.
- Allowing discrete public street access points on Highway 99W and providing internal street systems in new development to conserve highway capacity for regional access and freight movement needs rather than local trips.

5.6 Public Transit and Rail

Establishing higher densities of urban development at neighborhood centers supports the potential for extending transit service into the area to link multiple residential, commercial, and employment destinations. Transit stations (Figure 5.10) should be provided at each of the neighborhood centers, with the size of the station and frequency and number of routes being contingent upon the intensity and type of development within the center.

Increasing the frequency of buses on a given route from every 30 minutes to every 15 minutes is projected to more than double ridership, but concentrating service to selected routes and major destinations allows for greater bus frequencies (headways) without significantly expanding the required number of buses. Therefore, the proposed routing in the NCAP is intended to link future neighborhood centers and other major destinations (e.g., Good Samaritan Hospital) while incorporating existing service routes, minimizing route lengths and avoiding steep slopes to maintain and improve headways as much as possible. Comfortable and attractive transit stops with shelters, bench seating, and other amenities should be incorporated as significant design features within all neighborhood centers.

The Corvallis Transportation Plan identifies existing transit service extending along Walnut Boulevard, Satinwood Street, Elks Drive, and Highway 99W. The proposed NCAP transit plan extends service by developing a new route to connect the four neighborhood centers in the existing urban fringe. The new route extends along Highway 99W; east along Elliott Circle through the planned minor neighborhood center to Lewisburg Road; west along Lewisburg Road with stops at the major and minor neighborhood centers (Lewisburg and Highland, respectively); south along Highland Drive to the Crescent Valley major neighborhood center; then loops back to Highway 99W. Existing transit service to Good Samaritan Hospital is proposed to continue, with connections to or using the existing service at Good Samaritan Hospital added based upon future street improvements and as other development warrants.

In addition to bus service, the existing rail line east of, and parallel to, Highway 99W offers potential for connections to planned high-speed rail service through the Willamette Valley and the Albany train depot. Until direct rail connections to Albany and/or downtown Corvallis can be made, the NCAP proposes a multi-modal station near the Elliott Circle and Lewisburg east of Highway 99W to accommodate not only bus passengers within the area but also park-and-ride for

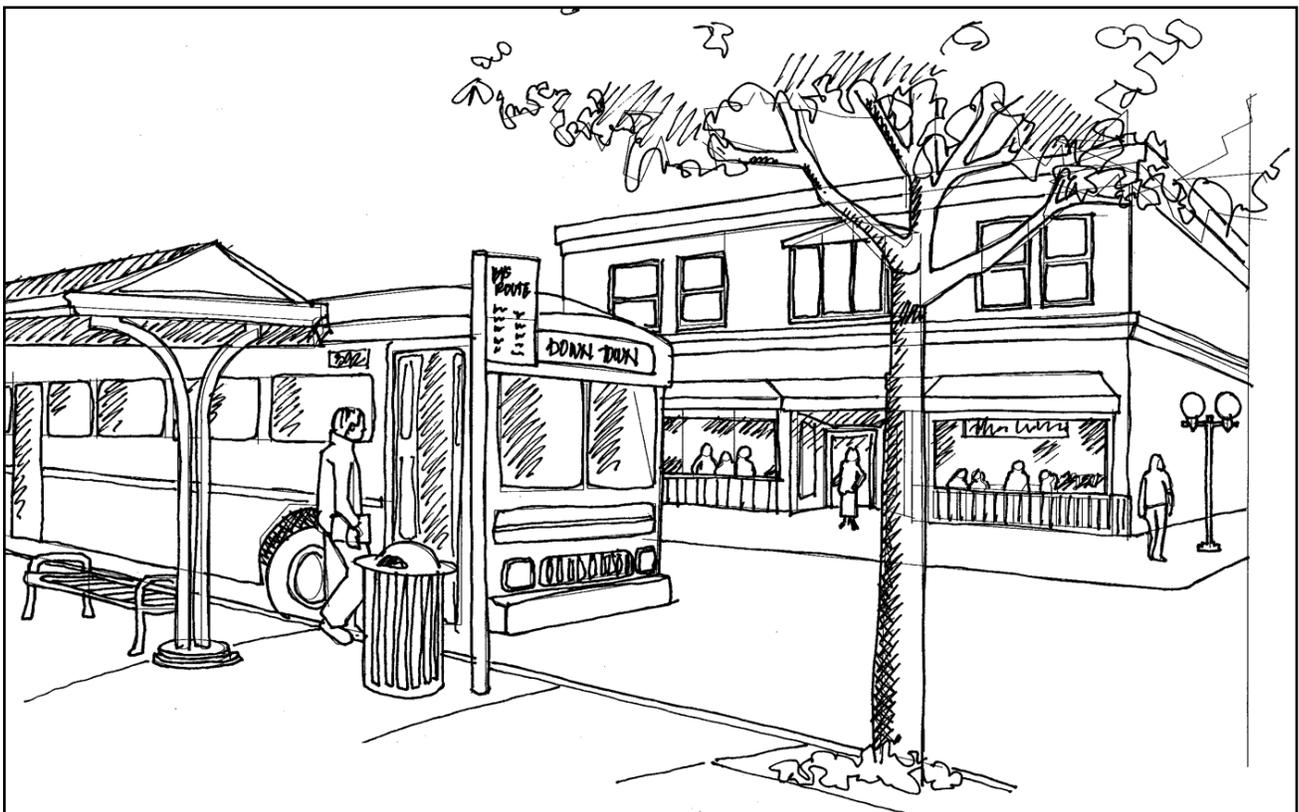


Figure 5.10 Illustrative example of a neighborhood center public transit station. (illustration: Sara Geddes)

transit users. The multi-modal station could also accommodate future shuttle service to connect residents with existing rail service in Albany, or future commuter rail or streetcar service linking the NCAP area with Corvallis and Albany downtowns.

5.7 Bicycle and Pedestrian Circulation

Established bicycle and pedestrian circulation routes create a balanced, multi-modal transportation system that both augments as well as offers alternatives to automotive or mass transit options. As illustrated in figure 5.11, the proposed system of arterial and collector roadways provides an opportunity to provide on-street bike lanes and set back sidewalks for enhanced bicycle and pedestrian travel options. This shared circulation network is enhanced by and integrated with planned multi-use trails, establishing a bicycle and pedestrian network to serving the entire area.

Trails shown on the NCAP Alternative Transportation Diagram (Figure 5.11) are consistent with and refine those included in the 2000 Parks and Recreation Facilities Master Plan, but function as both a recreational amenity and as alternative transportation corridors. Although trail systems often follow drainage corridors, they are proposed to be located at the outer edge of buffer areas to minimize potential impacts to riparian vegetation and stream hydrology. Trail surfacing should be able to withstand the weight of maintenance and emergency access vehicles and be consistent with ODOT and City of Corvallis multi-use trail design standards (e.g., minimum 10-foot wide). Standard paved trail materials may be altered to pervious surfaces as needed to minimize impacts to the natural environment, provided that accessibility standards are still met.

Pedestrian circulation, through off-street trails and on-street sidewalks, is an integral component of successful implementation of the NCAP. To encourage an inviting, walkable environment, set back sidewalks are proposed in all cases except to preserve significant existing trees or natural features, or due to substantial slope constraints. Standard 5-foot wide sidewalks with planting strips are proposed for all street frontages outside of neighborhood centers. Within major and minor neighborhood centers, sidewalks are proposed to be at least 10 feet wide with a planter strip and/or street trees.

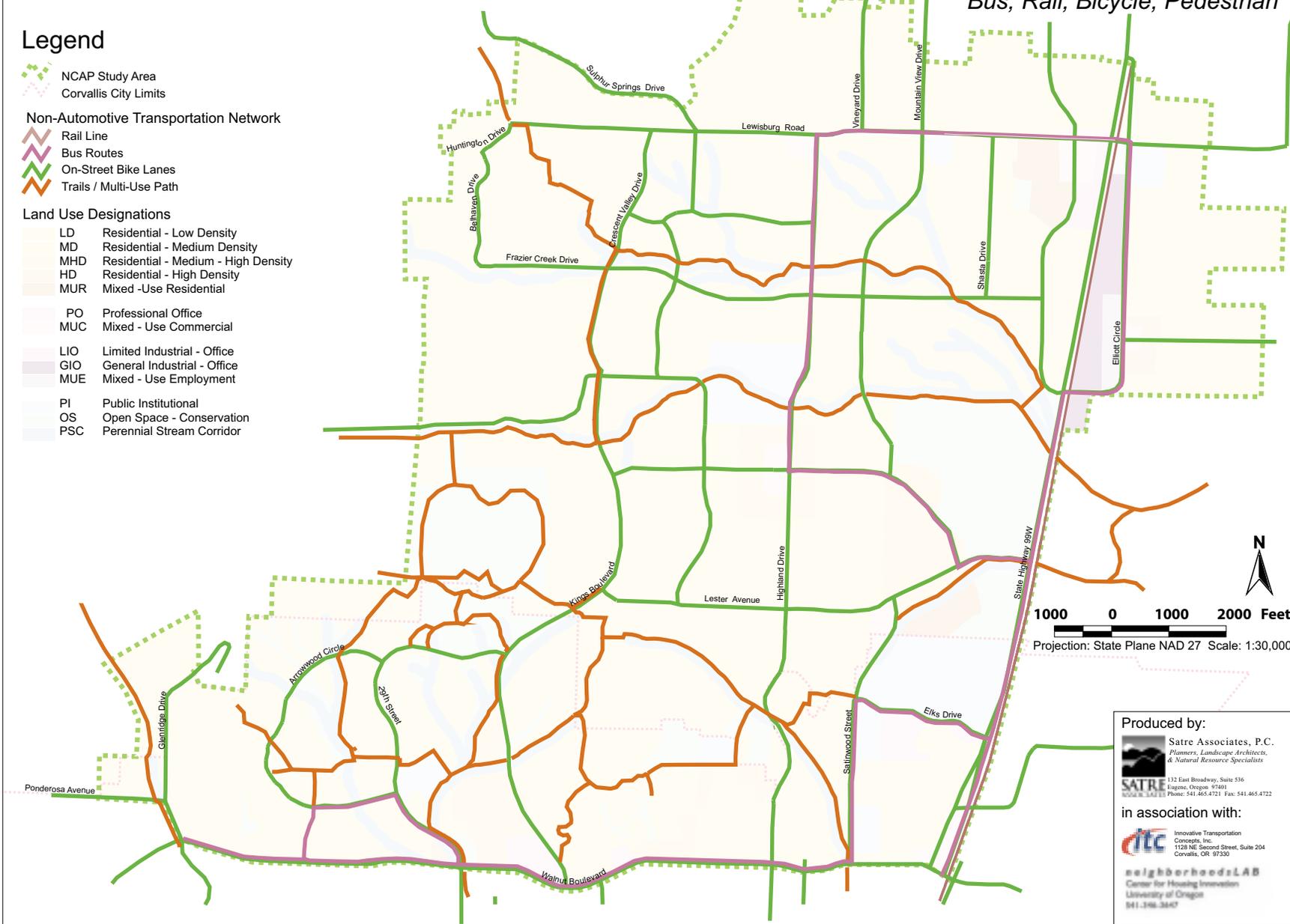
Providing convenient pedestrian access should also be incorporated into street design standards by providing maximum block lengths of no more than 350 feet, minimizing curb cuts (e.g. encouraging shared driveway access), and establishing smart growth development standards (e.g., minimized setbacks, building articulation, window and façade treatments, appropriately scaled lighting, awnings or arcades for rain protection, benches and other pedestrian amenities). On major street intersections and in neighborhood centers, the use of bulb-outs and pedestrian islands provide refuge and safer crossing. These standards assure that walkable routes are direct, safe, visually appealing, and integral to the streetscape.

North Corvallis Area Plan

Alternative Transportation Network Bus, Rail, Bicycle, Pedestrian

Legend

-  NCAP Study Area
-  Corvallis City Limits
- Non-Automotive Transportation Network**
-  Rail Line
-  Bus Routes
-  On-Street Bike Lanes
-  Trails / Multi-Use Path
- Land Use Designations**
-  LD Residential - Low Density
-  MD Residential - Medium Density
-  MHD Residential - Medium - High Density
-  HD Residential - High Density
-  MUR Mixed -Use Residential
-  PO Professional Office
-  MUC Mixed - Use Commercial
-  LIO Limited Industrial - Office
-  GIO General Industrial - Office
-  MUE Mixed - Use Employment
-  PI Public Institutional
-  OS Open Space - Conservation
-  PSC Perennial Stream Corridor



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Figure 5.11 The NCAP alternative transportation (i.e. bus, rail, bicycle, or pedestrian) plan diagram.

5.8 Recommendations

Readers and users of this plan are encouraged to review this entire chapter as well as the following recommended actions, and to develop additional actions, as means to achieve the planning and design objectives presented in this chapter and in the NCAP document as a whole.

5.8.1 Roadway Network

- T1.** Amend the 1998 Corvallis Transportation Plan to incorporate the proposed arterial and collector street network and designations, including the proposed system of on-street bicycle lanes;
- T2.** Ensure through the land division and development review processes that future development proposals within the planning area incorporate necessary road and trail rights-of-way as proposed. Development proposals should provide street designs consistent with this plan and demonstrate how development will occur to ensure that it will not preclude future urban development or access;
- T3.** Allow for modification of precise roadway alignments to account for preservation of significant natural features (such as significant trees, significant tree canopy, wetlands, and drainageways) and topography, while providing a substantial equivalent to the transportation network proposed;
- T4.** Through the land division and development review processes, ensure that development proposals provide for extension of roadways to and through developing parcels, aligning along parcel boundaries where possible, to allow for subsequent development of adjoining properties;
- T5.** Consider opportunities for alternative street standards outlined in Chapter 6 to allow for designs that minimize impervious surfaces and enhance stormwater management objectives;
- T6.** Consider securing additional right-of-way to support roundabout designs at recommended intersections before the area is fully developed;
- T7.** Develop benchmarks to enable transportation systems (those developed to conventional and alternative standards) to be monitored for stormwater and wetlands impacts over time;
- T8.** Establish warrants for triggering highway widening in the future, but seek right-of-way dedications through the development process now;

Local Street System

- T9.** Apply block length standards contained in the 2000 Corvallis Land Development Code to all new residential developments and neighborhood centers;
- T10.** Allow periodic use of pedestrian paths in lieu of local streets to enhance the bicycle and pedestrian circulation network and reduce the amount of paved surface areas;
- T11.** Enforce existing policies that allow cul-de-sacs within residential areas only if topography, natural features, or existing road patterns preclude street connectivity;
- T12.** Encourage the use of skinny streets and alternative local street designs to provide safe and effective traffic movement, avoid the need for retrofit traffic calming

measures, and meet storm water management objectives;

Public Transit and Rail

- T13.** Extend bus service into the planning area and consider route modifications as roadway connections and neighborhood centers are developed. Assure that transit stations are developed as centerpieces in future neighborhood center designs;
- T14.** Explore the potential for developing a shuttle, park-and-ride facilities, or rail station near the Elliott Circle or Lewisburg neighborhood centers to make connections between the NCAP area, downtown Corvallis, and Willamette Valley train service in Albany;

Bicycle and Pedestrian Circulation

- T15.** Amend the Corvallis Transportation Plan to incorporate the proposed system of off-street multi-use trails providing a better connection than the facilities provided with the street system alone;
- T16.** Enforce existing policies requiring set back sidewalks as part of all future street improvements. Allow curbside sidewalks in select cases to preserve significant natural features or existing significant trees, or due to topographic constraints;
- T17.** Ensure that trail rights-of-way are secured through the land division and development approval processes. Locate trails at the edge of riparian buffer zones to reduce potential vegetative and hydrologic impacts;

North Corvallis Area Plan

Infrastructure (Sanitary Sewer and Water)

Legend

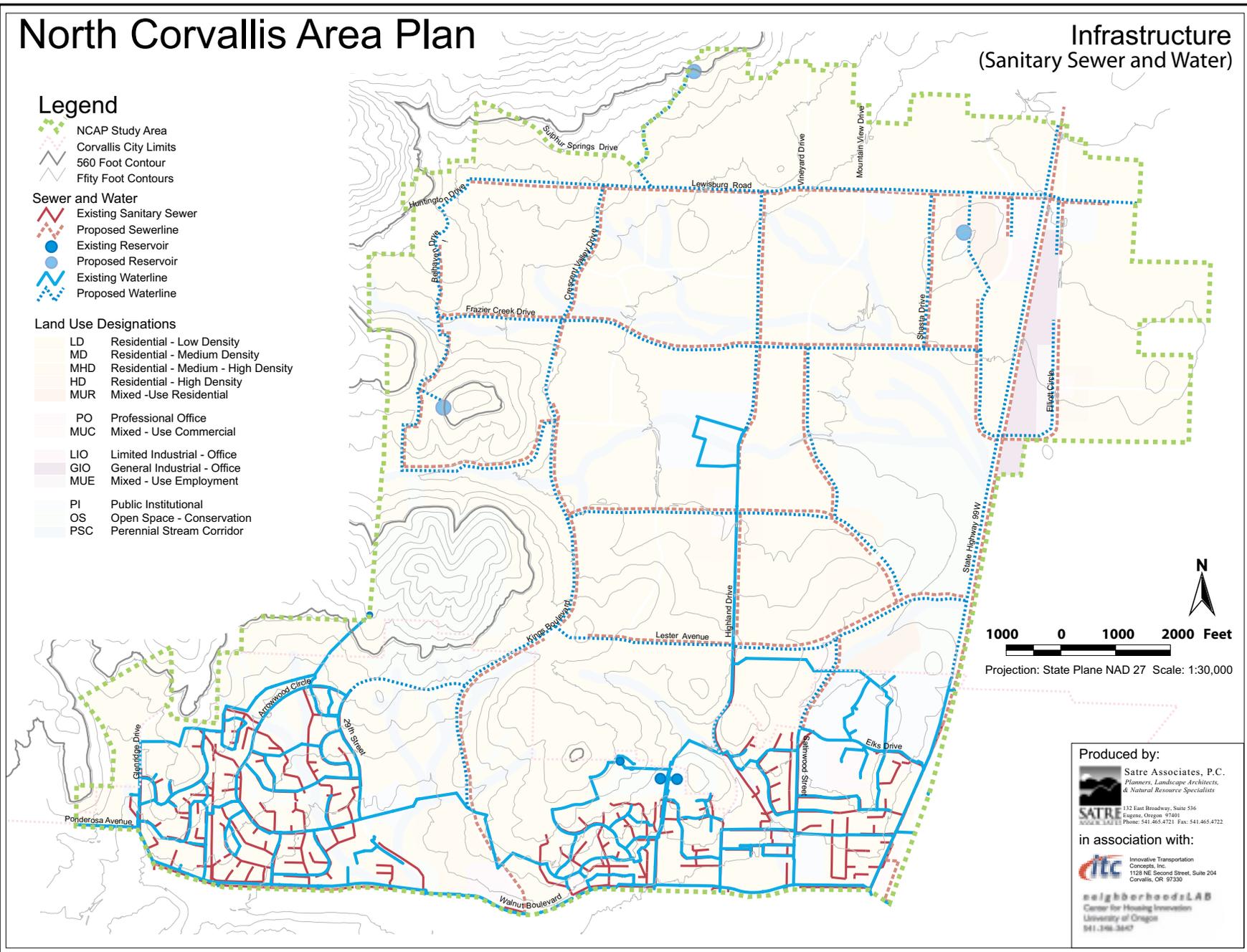
- NCAP Study Area
- Corvallis City Limits
- 560 Foot Contour
- Fifty Foot Contours

Sewer and Water

- Existing Sanitary Sewer
- Proposed Sewerline
- Existing Reservoir
- Proposed Reservoir
- Existing Waterline
- Proposed Waterline

Land Use Designations

- LD Residential - Low Density
- MD Residential - Medium Density
- MHD Residential - Medium - High Density
- HD Residential - High Density
- MUR Mixed - Use Residential
- PO Professional Office
- MUC Mixed - Use Commercial
- LIO Limited Industrial - Office
- GIO General Industrial - Office
- MUE Mixed - Use Employment
- PI Public Institutional
- OS Open Space - Conservation
- PSC Perennial Stream Corridor



1000 0 1000 2000 Feet

Projection: State Plane NAD 27 Scale: 1:30,000

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Figure 6.1 NCAP proposed expansion to the sanitary sewer and potable water distribution system.

Chapter 6: Infrastructure

6.1 Overview

As part of a commitment to integrating land use and transportation systems with natural resource conservation, the NCAP seeks to establish new stormwater infrastructure standards as part of the project's overall approach to providing necessary public infrastructure for future urban development. In the "green infrastructure" approach proposed, the NCAP incorporates open storm drainage systems and Best Management Practices in all urban development, as a possible alternative to traditional piped drainage. These open drainages more closely emulate natural hydrologic regimes to mitigate the deleterious effects of urbanization on receiving streams and maintain the integrity of existing watersheds and habitats.

Water, wastewater, electric and gas utilities will still be extended to serve future development in the planning area through traditional means. But the proposed model for stormwater drainage, termed "green infrastructure," reduces impervious surfaces and retains existing vegetation as much as practicable. Studies have linked higher impervious surfaces to changes in stream geometry, water quality, water temperature and the health of aquatic species and wildlife that rely upon natural waterways and riparian vegetation.

6.1.1 Guiding Principles

Guiding principles for the NCAP project outlined in Chapter 1 provide fundamental considerations relating to the provision and timing of infrastructure extension. Of greatest relevance are Guiding Principles 3 and 4, which respectively call for, among other things, concentrated and properly sequenced development and development patterns that fit within the area's landscape.

Under the auspices of the project's guiding principles, NCAP infrastructure proposals are predicated on the direction established in the City's adopted 1998 Water Distribution Facility Plan, 1998 Wastewater Utility Master Plan, and 1982 Corvallis Drainage Master Plan. The City is in the process of developing an updated stormwater master plan, and direction provided by this project's TAC and CAC was critical in the development of the NCAP's infrastructure recommendations.

6.1.2 Assumptions

NCAP strategies relative to the development, extension, and timing of public infrastructure are based upon the following assumptions:

- Statewide planning Goals 11 and 14 require planning for infrastructure systems and future development through build-out of the Corvallis UGB; it is assumed that the current location of the UGB in the NCAP area will neither expand nor contract.
- Development will occur over time and in a sequential, planned fashion, with build-out of the Corvallis UGB assumed to occur in approximately 80 years based upon current development and demographic trends, regulatory factors, and land use planning considerations.
- Until and unless annexed into the City of Corvallis, areas in the North Corvallis Urban Fringe will remain under Benton County jurisdictional control and subject to intergovernmental agreements between the City and County under the Urban Fringe Management Agreement, and to provisions in the Benton County Code.
- Due to high capital and ongoing maintenance costs, future wastewater systems will use gravity flow and avoid the use of lift and pump stations where practical.
- Extension of urban services, including sanitary sewer service, will continue to be development driven, responding to specific development proposals and successful contiguous annexation to the City of Corvallis.

6.2 Stormwater Management and Green Infrastructure

The NCAP's use of "green infrastructure" (Figure 6.2) intends to achieve several objectives:

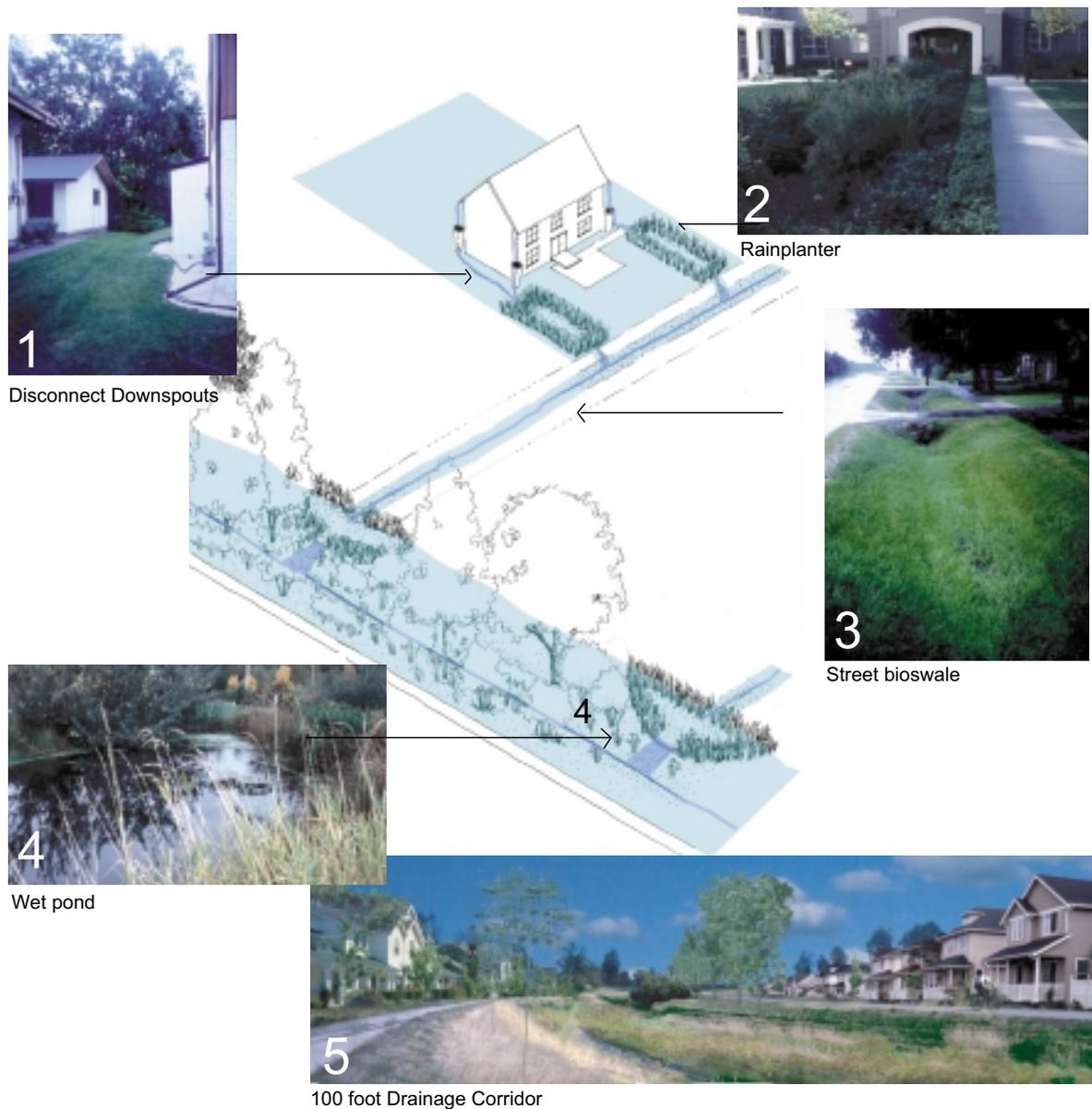
- Protect or improve the functions and values of the Jackson-Frazier wetlands and other perennial streams and wetlands in North Corvallis;
- Protect or improve the area's current watershed hydrology;
- Conserve and manage floodplains for natural storage and conveyance functions; and
- Manage stormwater from future development in the area to minimize change in surface and groundwater hydrology and to maintain or enhance water quality.

6.2.1 Conventional Stormwater Management

Conventional stormwater systems collect runoff and move it and associated pollutants through piped systems to receiving streams. The City of Corvallis has an extensive program to manage stormwater and mitigate the effects of urban development through operational means and physical improvements. These include, but are not limited to:

- Regular street sweeping of all improved public streets in the City;
- Ongoing maintenance of catch basins and other components of the City's public stormwater system;
- Leaf collection;
- Public education programs; and
- Requirements for oil/water separators and other catch basin designs in parking lot development.

GREEN INFRASTRUCTURE CONCEPT



Surface Stormwater Systems naturally filter and convey runoff from development as illustrated in the above **Stormwater Treatment Train**. **(1)** Disconnected Downspouts direct water away from the house using a 2% grade. Water is then directed to **(2)** a Rain planter where vegetation and soil absorbs excess runoff and nutrients. Water from impervious street surfaces are directed to **(3)** a Street Bioswale, that allows runoff to infiltrate. Vegetation and soil absorb excess nutrients. During large storm events (greater than 10-year storm) runoff

enters the piped system and directed to **(4)** a Wet Pond which is planted with wetland vegetation. Sediment, excess nutrients and other constituents of runoff are settled out in these areas before entering **(5)** the Drainage Corridor. These are but a few examples. In addition to those illustrated, many other storm water treatment concepts can be adapted to achieve similar ends.

Figure 6.2 *Green infrastructure concepts for mitigating the impact of storm water runoff. (photos & original diagram: CHI)*

While the NCAP proposes exploring innovative stormwater management methods, consideration should be given to fiscal impacts from added or lessened management and maintenance requirements beyond those assumed through conventional practices incurred by the City.

6.2.2 Green Infrastructure Stormwater Management

The green infrastructure concept first protects riparian corridors, wetlands, floodplains, and associated vegetative communities to the greatest extent possible. As part of urban development, practices are employed such as the use of bio-filtration swales and detention/filtration basins, reduction in impervious coverage, use of open drainages and constructed wetlands rather than piped systems, maximizing tree cover, use of pervious paving materials, etc. (Figure 6.3). While green infrastructure is intended to maintain water quality and stormwater runoff volumes at pre-development levels, there is a need to develop additional data to establish base line conditions to chart existing hydrologic conditions as well as monitor development impacts over time. Given the quality of the existing wetland system in the NCAP area and the importance of preserving downstream water quality as part of the City's overall strategy to protect endangered Willamette River salmonids, the benefits of the green infrastructure approach are manifest.

In addition to considering the fiscal implications for public works noted above, practical application of the green infrastructure concept must accommodate site-specific conditions such as slope and soil character in selecting appropriate Best Management Practices (BMP's) proposed here. Given these concerns, the NCAP proposes to apply the use of bio-swales to roadways designated as parkways where no adjacent development is anticipated. (e.g., less than 2 dwellings/acre). Bio-swales may also be implemented along other roadways dependent upon specific site conditions.



(a)



(b)

Figure 6.3 Existing examples of green infrastructure storm water treatment systems: (a) a bio-filtration swale in Waluga Park parking lot, Lake Oswego, OR; (b) a storm water treatment marsh at Brookhaven, Beaverton, OR. (photos: CHI)

6.3 Water, Sanitary Sewer, and Other Utilities

With limited exceptions, water and sanitary sewer utilities are currently located only within the portions of the planning area in the Corvallis city limits. Exceptions include water lines extending west of Good Samaritan Hospital and north along Highland Drive to serve Crescent Valley High School (a second level water line). Existing sanitary sewer service also extends north to the high school using a force main; the existing lift station and force main are sized for use by Crescent Valley High School and are not be able to serve additional development.

The sanitary sewer system is based on gravity flow and extends from developable areas in North Corvallis to the municipal wastewater treatment facility without the use of pump or lift stations. Pump and lift stations are not only expensive to initially develop, but carry substantial long-term costs for operation and maintenance. Although lift stations are not desirable, the City's sanitary

North Corvallis Area Plan

Land Use Development Sequencing

Legend

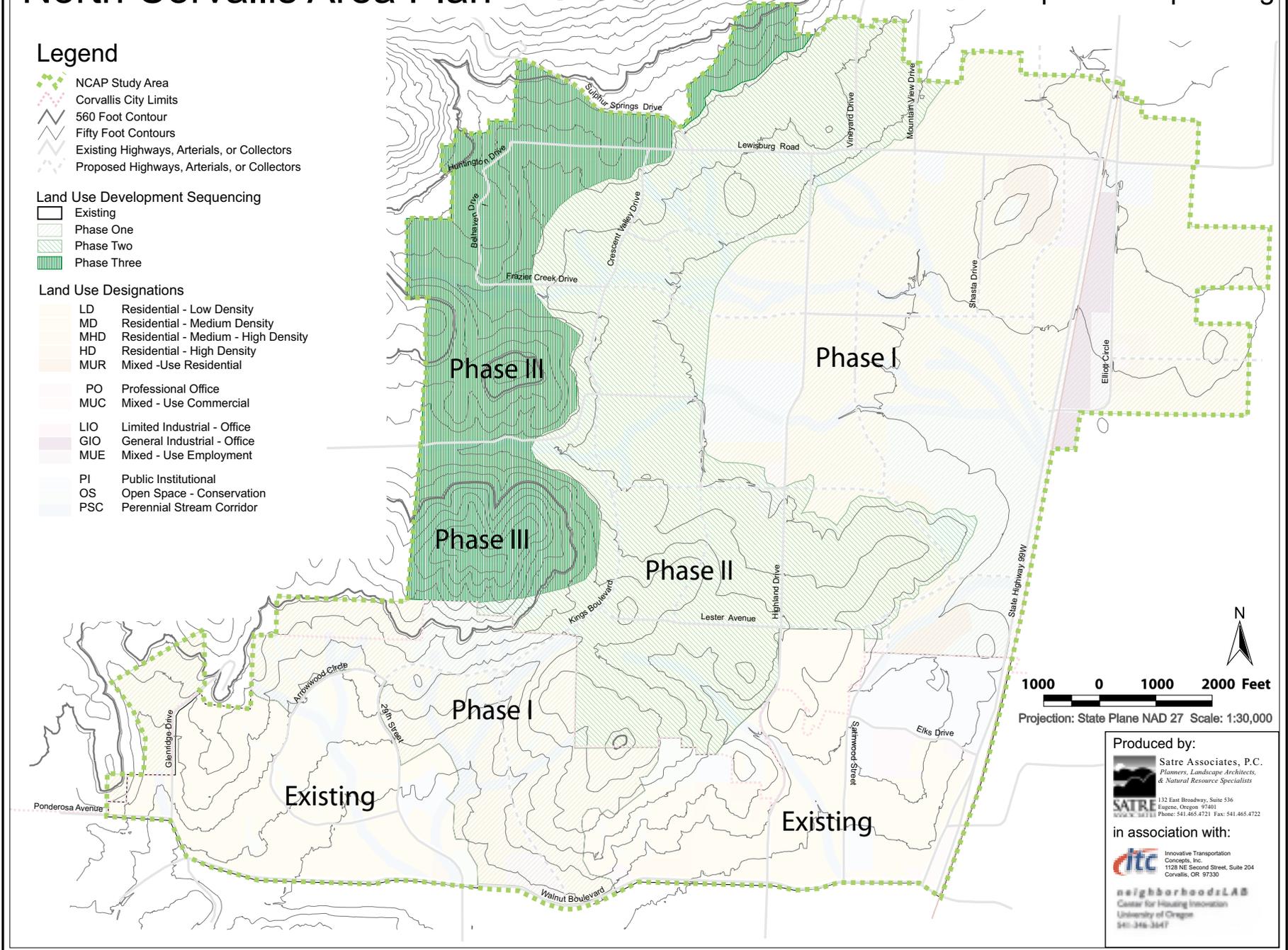
- NCAP Study Area
- Corvallis City Limits
- 560 Foot Contour
- Fifty Foot Contours
- Existing Highways, Arterials, or Collectors
- Proposed Highways, Arterials, or Collectors

Land Use Development Sequencing

- Existing
- Phase One
- Phase Two
- Phase Three

Land Use Designations

- LD Residential - Low Density
- MD Residential - Medium Density
- MHD Residential - Medium - High Density
- HD Residential - High Density
- MUR Mixed - Use Residential
- PO Professional Office
- MUC Mixed - Use Commercial
- LIO Limited Industrial - Office
- GIO General Industrial - Office
- MUE Mixed - Use Employment
- PI Public Institutional
- OS Open Space - Conservation
- PSC Perennial Stream Corridor



Satre Associates, P.C.

Figure 6.4 NCAP land use development sequencing diagram

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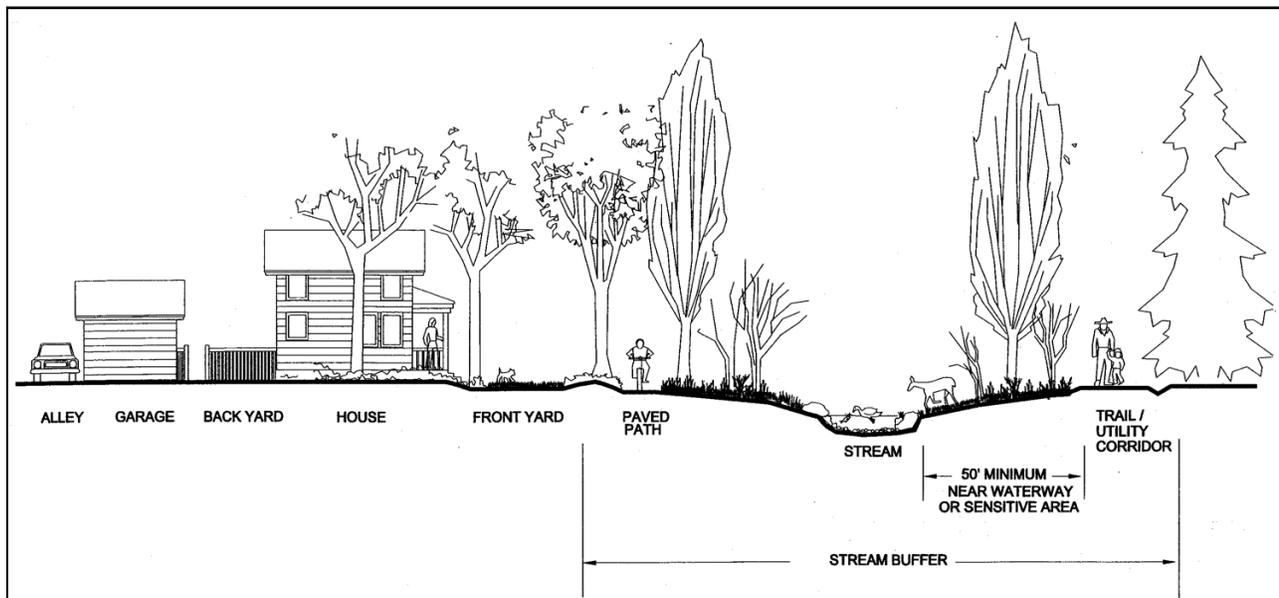


Figure 6.5 Utility corridor integrated with a multi-use trail. (illustration by Sara Geddes)

sewer master plan identifies the need for at least one (i.e., in the Lewisburg area) to provide necessary service upon annexation.

Sanitary sewer services are proposed in the NCAP to be extended concurrent with approved annexations and development plans primarily along a future street rights-of-way within major drainage basins. Future extension of sanitary sewer facilities into the NCAP area to serve urban development is intended to follow the locations described in the City's adopted water and wastewater master plans (Figure 6.4). Sanitary sewer trunk lines would be extended along future extension of Kings Boulevard to serve undeveloped areas in the Timberhill area and north along the Satinwood Street extension to serve future development west of Good Samaritan Hospital. Extension of sanitary sewer trunk lines north along Highway 99W and west through the Jackson and Frazier Creek drainage basins would serve future development north and south of the Crescent Valley High School area. Additional capacity beyond that provided currently would also need to be added along Highland Drive.

While providing gravity sanitary sewer facilities along the Jackson and Frazier Creek basins may warrant extending trunk lines along stream corridors, the NCAP proposes minimizing impacts to natural habitats and waterways. Sewer utility lines should be incorporated into east-west trending streets paralleling the Jackson and Frazier Creek drainages and/or with trail systems in easements located at the edge of drainage buffers to serve multiple uses (Figure 6.5). This would require trails to be developed to support maintenance vehicles as well as meeting standard trail design parameters, and could pose issues of occasional user inconvenience associated with system maintenance activities.

Other utilities are not as constrained as to location. The NCAP proposes extending water service, where possible, along street rights-of-way in locations generally consistent with the City's water master plan, and assumes that other utilities (natural gas, underground electric service, telephone and TV/data cabling) would follow water services in utility easements and rights-of-way. The Water Plan also proposes three future water storage reservoirs located in the higher elevations of the planning area. Also consistent with the adopted Corvallis water system master plan, the NCAP identifies that extension of water service will be developed through a phased approach based upon population demand for services, and service area elevations tied to topographic elevations in the area.

Like sanitary sewer service, extension of these utilities is development-driven and contingent upon being contiguous to the Corvallis city limits and subject to voter-approved annexation for areas in the Corvallis urban fringe.

6.4 School Facilities

Apart from the more traditionally considered urban infrastructure systems (i.e., water, electric, gas sanitary sewer, and stormwater management services), NCAP also factored in the need for another key service necessary for comprehensive urban development: public schools. With additional population growth over time, it is anticipated that additional school facilities may need to be developed. The NCAP proposes to locate a new school site near both the existing high school and a proposed community park to: 1) maximize the use of scarce resources for land acquisition; 2) allow for shared maintenance costs by sharing land for active park and recreation areas, and school play space; and 3) incorporate natural features into the program for school development, curriculum and instruction. The precise location of future schools may differ from the generalized location shown on the NCAP Plan Diagram based upon facility demands, land costs and configuration, and other issues that will be addressed more fully as the area develops. (See Figures 3.1 & 3.6)

6.5 Recommendations

Readers and users of this plan are encouraged to review this entire chapter as well as the following recommended actions, and to develop additional actions, as means to achieve the planning and design objectives presented in this chapter and in the NCAP document as a whole.

6.5.1 Stormwater Management

- I1. Employ on-site stormwater management practices for detention and filtration of stormwater on development sites, appropriate roadways and parkways, and public lands to minimize post-development change in the quality and quantity of off-site runoff. Work to retain pre-development water quality and quantity by using the 1998 Corvallis Comprehensive Plan's "Significant Degradation" policy regarding water quality.
- I2. Encourage multiple on-site, small-scale interventions and treatment opportunities to meet the City's current standards for stormwater detention where feasible. Two examples are:
 - Water "harvesting" for irrigation use, and
 - On-site filtration, detention basins.
- I3. Establish code requiring filtration of stormwater runoff produced by two-year or smaller storm events.
- I4. Encourage stormwater management practices such as the use of surface drainage and the following natural Best Management Practices (BMPs) where feasible considering localized soil conditions (Figure 6.6).
 - Bio-filtration swales
 - Eco-roofs
 - Compost filters
 - French drains
 - Disconnected roof drains
 - Pervious pavement



Figure 6.6 Existing examples of green infrastructure storm water mitigation concepts: (a) an eco-roof at the Hamilton Building, Portland, OR; (b) a grass swale in Village Homes, Davis, CA; (c) pervious paving. (photos: CHI)

- Rain planters
 - Vegetated filter strips
 - Wet ponds
 - Stormwater treatment marshes
 - Use structural BMPs only as necessary in higher density areas,
 - consider modifying code standards to allow for pervious paving in alleys where feasible.
- I5.** Maintain or increase tree canopy cover in the NCAP area by establishing tree replacement based on percentage of canopy cover removed rather than number of trees.
 - I6.** Set standards for tree canopy cover in commercial, office, public, and industrial applications.
 - I7.** Encourage reductions of overall street area, particularly paved areas, by employing standards for narrow local street widths (as defined in the Transportation Master Plan), designing street networks that provide adequate levels of connectivity, and maintaining high levels of pedestrian and bicycle connectivity. Target an overall maximum of 15% effective impervious surface area within the NCAP planning area.
 - I8.** Keep the frequency of roadway stream crossings to a minimum, and where unavoidable use structures designed for free movement of flood waters.
 - I9.** Enforce state regulations for erosion control regarding stormwater management plans for sites five acres or larger; consider developing more stringent local standards.
 - I10.** Explore means to provide incentives for floodplain enhancement and restoration through the development process.
 - I11.** Manage protected natural areas and natural stormwater facilities for multiple uses where possible (e.g., for habitat protection as well as stormwater management) and allow trails and interpretive facilities proximate to ponds, wetlands, stream corridors, drainage channels and swales so long as those facilities do not degrade natural resources or their functions.
 - I12.** Provide only limited exceptions for development within the 100-year floodplain (e.g., demonstration that development does not significantly restrict or alter flow patterns or flood storage, or degrade water quality.)
 - I13.** Coordinate with local agencies, such as the area watershed council, Benton Soil and Water Conservation District, and others to develop a system of resource benchmarks for water quality, surface water hydrology, and other measures. Develop protocols for long-term monitoring to assess baseline conditions and guide decision making in the planning area.

- I14.** Provide an aggressive community education program that encourages water-quality sensitive landscape, building, and site management practices.
- I15.** Secure dedications for development in the City or easements for development in the County along drainage ways for stormwater management and utility access through the land division and development review processes.
- I16.** Use the development review process to ensure that development proposals plan stormwater facilities “to and through” proposed development areas to extend stormwater connections to adjacent properties.
- I17.** Recommend further, detailed hydrologic studies in the NCAP area to better understand natural drainage systems.

6.5.2 Water, Sanitary Sewer, and Other Utilities

- I18.** Ensure through the development review process that new water and sewer utilities are extended “to and through” development areas and are available to serve future development on adjoining parcels.
- I19.** Have development submittals include plans for future utility extension sized and located consistent with the potential for future development outlined in the NCAP and City master plans.
- I20.** Where not able to be located in street rights-of-way, have sanitary sewer lines align with trail corridors for multiple-use and minimize riparian impacts; seek to develop and locate utility lines to minimize vegetative disturbance and environmental impact, and ensure that multi-use trails are designed and surfaced to support the weight of maintenance vehicles.
- I21.** Secure dedications in the City limits or easements within the County for development along drainage ways for wastewater extension and utility access through the land division and development review processes.
- I22.** Provide future sanitary sewer extensions based upon use of gravity systems; avoid service extension that requires pump stations due to increased long-term operational and maintenance costs.
- I23.** Locate necessary utility lines (e.g., water, gas, power, cable) within street rights-of-way unless demonstrated to be infeasible.

6.5.3 School Facilities

- I24.** Locate future school facilities proximate to Crescent Valley High School and/or to a park land to take advantage of shared use of facilities, and economies of scale for land acquisition and maintenance.
- I25.** Establish a minimum 200-foot setback for new school structures from fault lines identified in the Advisory Constraints Map.

Chapter 7: Implementation

7.1 Overview

The North Corvallis Area Plan and Diagram represent generalized future land uses and densities, parks and open spaces, transportation and infrastructure systems in the planning area at full build-out. Overall implementation of the NCAP is predicated on several critical assumptions. Readers and users of this plan are encouraged to review this entire chapter as well as the following recommended actions, and to develop additional actions, as means to achieve the planning and design objectives presented in this chapter and in the NCAP document as a whole.

7.1.1 Assumptions

Since the majority of the NCAP planning area is within the Corvallis Urban Fringe (i.e., outside the city limits, but inside the Urban Growth Boundary), it is anticipated that development will occur somewhat sporadically in the urban fringe area prior to annexation. Interim development under Benton County jurisdiction must comply with the cluster development provisions in the Chapter 100 of the Benton County Development Code. These provisions require development to be clustered in an effort to preserve natural resources and preserve the ability to develop at urban densities in the future. The County code also allows for density bonuses and transfers to further assist in achieving these and other ends (e.g., a 25% density bonus may be approved if a park or trail linkage consistent with adopted plans is provided as part of a cluster development). Within this context, implementation of the NCAP is predicated on the following assumptions outlined in Chapter 1:

- Development will occur over time and in a sequential, planned fashion, with build-out of the Corvallis UGB assumed to occur in approximately 80 years based upon current development and demographic trends, regulatory factors, and land use planning considerations.
- Statewide planning Goals 11 and 14 require planning for build-out of the Corvallis UGB, and it is assumed that the current location of the UGB in the planning area will neither expand nor contract.
- NCAP assumes that approximately 14,000 dwellings (approximately 10,400 new units) will be developed within the planning area, to serve an assumed future population of approximately 32,000 people.

- The Comprehensive Neighborhood concept will be employed in the North Corvallis area, but the specific configuration of land use designations for comprehensive neighborhoods illustrated on the NCAP Plan Diagram may be modified through the development review process for individualized development proposals following annexation.
- Until and unless annexed into the City of Corvallis, areas in the North Corvallis Urban Fringe are assumed to remain under Benton County jurisdiction and subject to intergovernmental agreements between the City and County (as specified in the Urban Fringe Management Agreement), and to provisions in the Benton County development code. In order to carry out this plan, parts of the Corvallis and Benton County development codes may need to be revised and the Urban Fringe Management Agreement updated.
- Extension of urban services, including sanitary sewer service, will continue to be development driven, responding to specific development proposals and successful contiguous annexation to the City of Corvallis.
- Due to high capital and ongoing maintenance costs of lift and pump stations, future wastewater systems will use gravity flow to the greatest extent practicable.
- The location, quantity, and scale of commercial services proposed in the NCAP Plan will not serve to draw trips into the planning area but will serve primarily the needs of the immediate neighborhoods.
- NCAP transportation system modifications, including proposed roadway extensions, will be largely development-driven.
- Statewide planning Goal 5, existing federal and state laws and regulations, and City and County goals and policies will be applied to natural resource areas identified subsequent to NCAP approval.
- Development, including transportation systems, will occur in harmony with the protection of significant natural resources to the greatest extent practicable.
- Future parks, recreational facilities, and trails in the Urban Fringe will be developed consistent with design parameters, standards, and policies (e.g., street frontage for neighborhood parks, trail width and surfacing, etc.) established by the City of Corvallis.
- Generalized future park sites identified in NCAP may be altered as necessary to be compatible with surrounding development, natural resources, and park service area standards. Park land acquisition methods (i.e., whether part of a proposed subdivision or not) and timing may also change the specific location for park acquisition.

Changes to any of these assumptions (e.g., modification of the UGB, alterations of the Urban Fringe Management Agreement, other changes through periodic review or subsequent studies and planning efforts), may warrant modifications to NCAP policies, projects, or implementation measures.

Because full build-out of the Corvallis UGB and NCAP planning area may not occur for some 80 years or more, implementation strategies are organized within major topics (e.g., parks and open space, infrastructure) into near-term and long-term recommendations needed to implement the NCAP in a manner consistent with the project's guiding principles. Near term implementation measures may occur immediately as a part of the NCAP adoption process through a 20 year planning horizon, corresponding to that in the Corvallis 2020 Vision Statement. Long term implementation strategies are considered those that may be implemented during the period from 2020 through build-out (although it should be noted that any of the long-term strategies could be implemented at any time should the community choose to do so). Recommendations are alphanumeric, with the letter corresponding to the issue being addressed (e.g., Land Use implementation recommendations are numbered L1, L2, etc.).

7.2 Land Use

The NCAP Plan Diagram illustrates an arrangement of land uses with proposed major and minor neighborhood centers designed to achieve Corvallis Comprehensive Plan policies and the NCAP project's guiding principles. Means to implement this configuration of land uses are recommended below.

7.2.1 Near-term Implementation Strategies

- L1.** Amend the adopted Corvallis and Benton County Comprehensive Plan diagrams to reflect the changes in land uses proposed in the NCAP. Concurrently adopt any associated changes to zoning within the existing city limits on a parcel-specific basis, and rezone other parcels upon annexation to correspond with the proposed Plan designations.
- L2.** Establish new land use designations of Perennial Stream Corridor and Wetland Overlay as mapped on the NCAP Plan Diagram.
- L3.** Apply the General Industrial - Office (GI-O) designation for properties east of Highway 99W with existing industrial designations. This designation provides gateway amenities along Highway 99W, enables existing uses to continue as legal conforming uses, and allows for expanded uses consistent with adjacent Mixed Use Employment designations east of Highway 99W, and with the Limited Industrial-Office designation in the Lewisburg center west of Highway 99W.
- L4.** After annexation, apply building and site design guidelines and development standards recommended in the NCAP and promulgated through the Corvallis Development Code to new development within proposed major and minor neighborhood centers.
- L5.** Establish a Transferable Development Rights (TDR) program with Sending Areas composed of land within the Wetland Overlay, Open Space-Conservation, or Perennial Stream Corridor designations on the NCAP Plan Diagram and areas within the Significant Hillside Overlay on the NCAP Parks, Open Spaces, and Natural Resources Diagram; and Receiving Areas comprised of land within major or minor neighborhood centers identified on the NCAP Plan Diagram.
- L6.** Consider developing incentives or other planning tools encouraging affordable housing, public amenities, or recommended stormwater BMPs that also help achieve NCAP planning objectives.
- L7.** Establish natural resource benchmarks on which performance standards will be developed to evaluate the cumulative impacts of development projects (e.g., relative to changes in tree canopy, stormwater management, impervious cover, stream hydroperiod and water quality) and for purposes of guiding phased development within the NCAP planning area.
- L8.** Encourage designs that promote energy efficiency and the use of renewable energy resources.
- L9.** Examine the existing Urban Fringe Management Agreement between the City of Corvallis and Benton County and determine if changes are needed to implement the NCAP.

7.2.2 Long-term Implementation Strategies

- L10.** Explore the feasibility of developing an Urban Renewal District within major or minor neighborhood centers identified on the NCAP Plan Diagram to allow for Tax Increment Financing as a tool to stimulate development.

- L11.** Review SDC program assumptions regarding the costs of providing new types of facilities and the impacts of development on public facilities, particularly with regard to trip reductions associated with comprehensive neighborhoods and the water quality implications of the green infrastructure system. Modify the charges imposed on development accordingly.
- L12.** Consider public/private partnerships to provide essential public services (e.g., transit or roadway improvements) to effect targeted development within identified neighborhood centers.

7.3 Parks, Open Spaces and Natural Resources

Consistent with the 2000 Corvallis Park & Recreation Facilities Plan, the NCAP proposes development of seven neighborhood parks and one community park, as well as open spaces and off-street trails within the planning area. Trail systems are integral to hillsides, open spaces, and stream corridors identified as significant natural resources in the NCAP area, and help form a comprehensive network of trails for alternative transportation, educational and interpretive opportunities, and recreational access.

7.3.1 Near-term Implementation Strategies

Parks and Open Spaces

- P1.** Acquire suitable land for future neighborhood and community parks identified in the NCAP through the land division and development review processes in advance of need.
- P2.** Assure that future neighborhood and community park sites meet the recommended standards for configuration, frontage, and size outlined in the 2000 Corvallis Parks & Recreation Plan.
- P3.** Secure dedications for applicable development in the City limits, and easements for applicable development in Benton County's NCAP Urban Fringe for off-street multi-use trails consistent with the NCAP through the land division and development review processes.
- P4.** Accept dedication of land suitable for open space, passive recreational use, and environmental education as part of undevelopable wetland and natural resource areas.

Natural Resources

- P5.** Locate multi-use trails at the outside edge of stream corridor buffers and modify trail alignments to minimize potential impacts to riparian vegetation, stream hydrology and adjacent land uses.
- P6.** Modify the NCAP Wetland Overlay Designation as new wetland delineations are available.
- P7.** Protect wetlands, floodplains, riparian corridors and other critical natural resources through appropriate practices (e.g., density bonuses, cluster development, and transfer of development rights programs) and through use of stormwater management measures.
- P8.** Incorporate new natural resource inventory data (e.g., rare plants, delineated wetlands, etc.) as available into updated NCAP mapping to protect natural resources through the land division and development review processes.

7.4 Transportation and Circulation

The NCAP integrates proposed land uses with a network of traditional collector and arterial roadways and means of alternative transportation. The timing of proposed major street extensions will primarily be a function of proposed development and Corvallis' annexation process. Within this context, the following implementation strategies are offered.

7.4.1 Near-term Implementation Strategies

- T1.** Amend the Corvallis Transportation System Plan to incorporate the arterial and collector roadway network, on-street bicycle transportation system, off-street trail network, and alternative street cross-sections established in the NCAP.
- T2.** Upon adoption of the Corvallis Transit Master Plan and/or a regional transit plan, incorporate the transit routing and station concept (i.e., multi-modal station/park-and-ride facility near the Lewisburg and Elliott Circle neighborhood centers) established in the NCAP. Modify transit routing according to development of major and minor neighborhood centers over time.
- T3.** Require through the land development process that sufficient transit facilities be incorporated into development designs. Proposals for development within identified neighborhood centers should integrate transit facilities as key design street scape features and as public amenities.
- T4.** Provide local street connections consistent with the NCAP and City's adopted Transportation Plan and Land Development Code standards for local streets which allow for reduced street pavement width, and promote reduced impervious cover and enhanced stormwater management, where practical.
- T5.** Require through the land division and development review processes that all development proposals include right-of-way dedications and/or reservations for street extensions proposed in the NCAP and street connections to and through proposed development areas to facilitate development on adjoining parcels. Allow for street and sidewalk alignment and design modifications as necessary to preserve significant natural resources and/or to minimize topographic alterations.
- T6.** Correlate street extensions proposed in the NCAP with extension of other utility infrastructure.
- T7.** Through the land division and development review processes secure dedication and/or reservation for future road right-of-way to incorporate traffic calming designs at locations identified in the NCAP and at other local street locations subsequently identified.
- T8.** Work with ODOT through the land division and development review process to limit the number of curb cuts and direct access driveways onto Highway 99W.
- T9.** Upon annexation, require development within major and minor neighborhood centers through the land division and development review processes to meet building, orientation, and design standards proposed in the NCAP and promulgated through the Corvallis Development Code.

7.4.2 Long-term Implementation Strategies

- T10.** Optimize the arterial, collector, and local street network to facilitate intra-city trips to reserve capacity on Highway 99W.
- T11.** Monitor transportation conditions at key roadways and apply mitigation and transportation system management measures identified in the NCAP as necessary to restore adequate levels of service.

7.5 Infrastructure

As outlined in Chapter 6, the NCAP proposes alternative methods of managing stormwater runoff to minimize impacts to wetlands, waterways, and riparian systems in watersheds within the NCAP planning area.

Extension of other public utilities to undeveloped areas within the city limits and into the urban fringe is a function of approved development and, in the latter instance, annexation proposals.

Fundamental to the provision of sanitary sewer utilities to serve future development in the NCAP area is the assumption that the sanitary sewer system will be based on gravity flow and extended from developable areas in North Corvallis without the use of pump or lift stations where practical.

7.5.1 Near-term Implementation Strategies

Stormwater Management

- I1. Establish through the Stormwater Master Plan currently being updated:
 - goals to use on-site stormwater management practices that minimize change in the quality and quantity of post-development off-site runoff;
 - objectives to encourage small-scale, on-site interventions and treatment opportunities while meeting City standards for stormwater detention;
 - specific goals to filter stormwater runoff during certain storm events (e.g., 2-year or smaller storm);
 - an expanded menu of allowable Best Management Practices (BMPs); and
 - modify existing land development codes as necessary to allow “green infrastructure” stormwater management concept to be incorporated into new development proposals.
- I2. Adopt as part of the Corvallis and Benton County Transportation Plans and land development codes additional street design cross-sections that may be allowed to achieve stormwater management objectives.
- I3. Establish new standards in the Corvallis development code requiring tree preservation and installation after annexation to be based upon a tree canopy cover basis (e.g., percent of tree canopy cover preserved on a given development site) rather than on a numbers of individual trees basis.
- I4. Secure stormwater management and utility access dedications for development within the City limits, or easements for development within the NCAP Urban Fringe consistent with the NCAP through the land division and development review processes.

Water, Sanitary Sewer, and Other Utilities

- I5. Modify the County development code to require that through the land division and development review processes all new utilities be extended to and through proposed development areas and are available to serve future development on adjoining parcels.
- I6. Secure utility easements in conjunction with trail and road right-of-way dedications or easements to minimize potential impacts on surrounding areas.
- I7. Urban conversion plans presented to Benton County through the land division and development review process shall identify public infrastructure relative to the NCAP (including roads, storm sewer, water supply, and sanitary sewer) conceptual layouts for sanitary sewer extensions for development in the NCAP area will use gravity systems unless demonstrated to be infeasible.

7.5.2 Long-term Implementation Strategies

- I8. Work with the Corvallis School District to secure land as needed for school development as a school-park and/or multi-school complex, integrate new school development with surrounding residential development, and protect any on-site natural resource features through school site design.

7.6 Recommendations for Further Study

To keep the Plan current and effectively respond to changes applicable to the planning area

through build-out, the NCAP should be reviewed periodically for consistency with the Corvallis and Benton County Comprehensive Plans, statewide planning goals, and other applicable plans and policies. The following scheduled projects and recommended additional projects may warrant further review and Plan revision depending upon the timing of these projects.

7.6.1 Scheduled Projects

Several planning projects are underway or will be conducted as part of periodic review for the City of Corvallis. These projects largely concern analysis of and considerations to natural resources within the Corvallis UGB, including natural features within the NCAP planning area. Scheduled projects include:

Endangered Species Act Response Plan

The City and the County have each been developing a comprehensive program to comply with the requirements in Section 4(d) of the federal ESA.

Corvallis Natural Features Scoping Project

This project establishes a method to inventory and assess natural features and natural hazards, and determine “significance” for future inventory purposes.

Corvallis Open Space Management Plan

This project is to be facilitated by the Parks Department.

Stormwater Master Plan

This Plan updates the 1982 Corvallis Drainage Master Plan and is underway.

These projects will be carried out to further policies in the City’s 1998 Comprehensive Plan, to meet requirements and objectives associated with statewide planning Goal 5, and the City’s programs and policies responding to the federal Clean Water and Endangered Species Acts.

7.6.2 Additional Projects

To assure that the guiding principles established in the NCAP are met (to protect and enhance natural resources, wetlands and waterways, and open spaces), the Citizens Advisory Committee recommended the following additional projects:

- Conduct assessments of watershed hydrology and dynamics, water quality and water quantity both within the NCAP area and upstream.
- Develop a program to establish natural resource benchmarks (e.g. waterways, wetlands, riparian corridors, impervious surfaces, etc.) within the planning area to determine baseline conditions and set thresholds for non-degradation of natural resources or other means of mitigating impacts from development.
- Develop performance standards or other objective measures to gauge the efficacy and approval of development proposals in meeting the benchmarks through the land division or development review processes.
- Collaborate with allied organizations and agencies (e.g., City, County, Jackson-Frazier-Sequoia Creek Watershed Council, Benton County Soil and Water Conservation District, Jackson-Frazier Wetland Advisory Committee, Oregon State University, other local schools, etc.) to establish and/or expand monitoring processes and protocols to gauge the effects of development over time relative to established benchmarks.

- Generate a specific area plan for the Lewisburg Center Major Comprehensive Neighborhood to illustrate how the NCAP could be successfully employed. Include the Lewisburg/ 99W intersection and 99W corridor to Elliot Drive to provide illustrations of gateway standards and green infrastructure.

Appendix A: Glossary of Terms & Phrases

ALLEYS: ± 20' ROW

BEST MANAGEMENT PRACTICES (BMP): Methods, measures, and practices designed to prevent or reduce water pollution. Ideally BMP's are applied as a system of practices rather than a single practice.

COMPACT DEVELOPMENT: If the distance between housing and daily activities is too great and the safety and quality of routes poor, walking becomes less desirable. Most jurisdictions consider a walk of 5 to 10 minutes (1/4 to 1/2 mile) pedestrian friendly.

COMPATIBLE SCALE: The texture, scale, mass and orientation of buildings and related uses are compatible with each other. For example a "big box" store is not located adjacent to houses.

COMPREHENSIVE NEIGHBORHOODS: Primarily residential areas that offer a range of uses to provide for the daily needs and activities of residents within easy walking distance of residences.

COMMUNITY PARKS: Provide active and structured recreation, sports fields and family activities.

CUL-DE-SACS: Small dead-end local street. Provides access to fewer than 18 dwellings -48' ROW

COLLECTOR STREET: Interconnects neighborhoods and arterials -70 - 78' right of way (ROW)

DENSITY: Number of dwelling units per acre of land. The density is measured as the gross land area, unless otherwise calculated to protect significant natural resources.

DIVERSE, DISTRIBUTED OPEN SPACES: A variety of types and sizes of public parks and open spaces that structure and distinguish neighborhoods.

EFFECTIVE IMPERVIOUS AREA (EIA): is the portion of the total impervious area within a basin that is directly connected to the storm water drainage collection system. EIA typically includes street surfaces, paved driveways connecting to the street, sidewalks adjacent to curbed streets, and rooftops and parking lots which are hydraulically connected to the curb or storm sewer system. EIA is usually reported as a percentage of the total basin or sub-basin area. (Source: Technical Note #58 from Watershed Protection Techniques. 2(1): 282-284, Fall 1995.)

GREEN INFRASTRUCTURE: These open drainages and other BMP's which more closely emulate natural hydrologic regimes to mitigate the deleterious effects of urbanization on receiv-

ing streams and maintain the integrity of existing watersheds and habitats.

GREEN STREETS: Streets with planting strips and appropriately selected, sized and spaced street trees within the public rights of way.

HIGH DENSITY HOUSING: 20 dwellings per acre and greater

HOUSEHOLD MIX: A variety of densities, sizes and types of housing. This encourages neighborhood diversity.

IMPERVIOUS SURFACES: ground surfaces such as paving and roofs that do not allow the water to percolate into the soil, but direct it to the storm water system. When impervious surfaces exceed 15% of a watershed, stream structure and habitat quality is impacted.

LEGIBILITY: Plans and layouts that are easy to understand and navigate with prominently sited public, civic and cultural buildings and roughly rectilinear street patterns. Frequent views and connections to larger landscape and natural features also contributes to legibility.

LINEAR PARKS: Developed landscape areas that follow linear corridors.

LOCAL STREET: Provides access to houses and local uses -50' ROW

LOW DENSITY HOUSING: 2 - 6 dwellings per acre

MEDIUM DENSITY HOUSING: 6 - 12 dwellings per acre

MEDIUM-HIGH DENSITY HOUSING: 12 - 20 dwellings per acre

MINI-PARKS: Small, single purpose play lots primarily for small children.

MIXED USE RESIDENTIAL: A residential area with some compatible civic, commercial and perhaps industrial uses.

NARROW LOCAL STREETS: This street type is intended to slow traffic speeds and give a sense of enclosure and improved pedestrian scale.

NATURAL DRAINAGE: Significant drainage ways shall be kept in a natural state and natural or biological means are used to mitigate runoff quantities and filter runoff.

NEIGHBORHOOD CENTER: A primarily commercial area at the heart of the neighborhood that supports the daily needs and activities such as a public open space, shops, civic functions and public transportation, within walking distance of most homes.

NEIGHBORHOOD COLLECTOR STREET: Interconnects local streets and collectors or arterials - 70 - 78' ROW

NEIGHBORHOOD PARKS: A combination playground and park for primarily non-supervised, non-organized recreation and activities.

OPEN SPACE AREA: Undeveloped land in a primarily natural state where the primary objective is natural resource conservation. Recreation use is a secondary objective.

OPEN SPACE CONNECTIVITY: Land uses connect to neighborhood parks, to community parks, and via linear parks, to open space areas.

NO PEAK FLOW RATE INCREASES: Stormwater runoff after development should be managed to produce no significant increase in the timing and volumes of stormwater reaching natural streams than prior to development.

PEDESTRIAN ORIENTATION: Development patterns that give priority consideration to pedestrian-scaled uses and experiences.

PEDESTRIAN SCALED STREETS: Reduce the negative impacts of automobiles and parking. Parking lots and structures are at the rear or sides of commercial buildings, garages are behind, beside or set back from the street, and there are limited curb cuts and potential points of conflict with pedestrians.

PERENNIAL STREAM CORRIDOR/DRAINAGE BUFFER: This designation is applied to perennial streams included in the Open Space - Conservation designation on the existing Corvallis Comprehensive Plan. The Perennial Stream Corridor designation is intended to protect water quality in perennial streams identified as “waters of the state” subject to public jurisdiction. For graphic purposes only, the area designated is 175’ wide (82.5’ from stream center line). Individual development applications will be considered relative to drainageway dedication provisions in Chapter 4.5 of the 2000 Corvallis Land Development Code (for affected parcels within the Corvallis city limits), or Sensitive Lands development standards in Chapter 99.205 of the Benton County Development Code (for affected parcels within the urban fringe).

STREET CONNECTIVITY: Small blocks and connective networks that distribute traffic and provide frequent and convenient direct routes for pedestrians and cyclists especially.

TRANSPORTATION NETWORKS: Transportation networks include routes for transit, vehicles, bicycles (on and off street) and pedestrians (on and off street).

WETLAND OVERLAY: The designation in NCAP is an overlay to underlying base land use designations, and notifies property owners of the likelihood that any development proposal must consider potential jurisdictional wetlands. Development proposals on parcels within the Wetland Overlay designation must include site-specific wetlands determinations and delineations prepared by qualified professionals to avoid wetland impacts, and where unavoidable mitigate those impacts pursuant to applicable local, state, and federal regulations and policies.

Appendix B: CHI Land Use Measuring Methodology

B.1 Methodology for measuring the Base Case and two alternative plans

The Base Case (Alternative 1) and Alternatives 2 and 3 were generated out of the public workshops held in Corvallis in December 2000 (entitled for this project Community Meeting Set #1). These plans demonstrated three alternative layouts for the study area for a projected population of about 22,500 new residents. Land uses were assigned to every area of the site. These layouts also included street layouts for all roads from arterials and collectors to locals and alleys. The plans were measured using what has been termed in this project the CHI Measuring Methodology.

For each of the three plan alternatives, case studies were assigned to roughly block-sized areas of the plans in concurrence with the land uses as illustrated above. Case assignments were selected from the CHI Elements of Neighborhood database (Figure B.1), which for this project, included a total of 85 cases— 12 cases of parks and open space, 31 cases of housing, 9 cases of commercial, 9 cases of mixed use, 6 cases of industrial, 5 cases of civic and 13 cases of streets and paths.

Each case is a field-measured built example of the elements of a neighborhood, such as housing sites at many scales, commercial sites of many types and scales, parks and open spaces, etc. A housing case, for example, includes data about the area of the site, the number and size of dwelling units, its density, lot coverage, off-street parking spaces, floor area, bedrooms, bathrooms, and outdoor land cover such as trees and pervious surfaces. Based on these case assignments, whole study area quantities were extrapolated by pro-rating data associated with each case to the full area to which it was assigned. For example, one case of a 5000 square foot lot

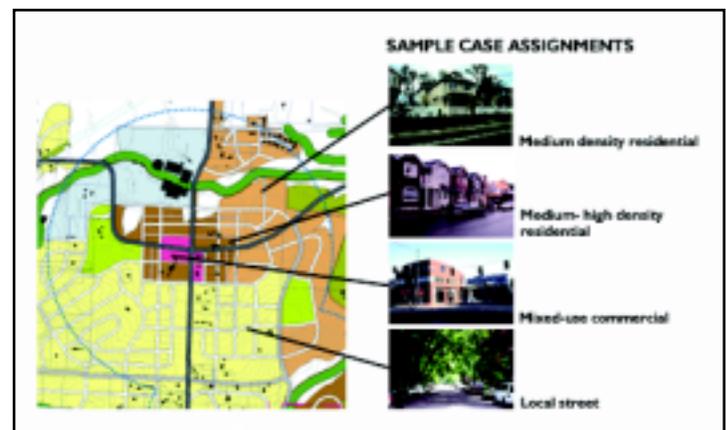


Figure B.1 Illustrative examples of Elements of a Neighborhood Case assignments. (Image: CHI)

may be assigned to several blocks. If the total area of that assignment was 50,000 square feet, most of the data about that case would be multiplied by 10 and reported accordingly. By a similar process, quantities of other attributes were derived and reported, such as areas of pervious and impervious surfaces for the whole site.

Comparative measures of the three plans presented to the public at the February 2001 Open House included: acres and percentages of the site allocated to different land uses, numbers of dwelling units broken out by dwelling type, areas and lengths of streets broken out by type, areas of open spaces broken out by type, areas of pervious and impervious surfaces.

B.2 Methodology for measuring the Preferred Alternative

The Preferred Alternative plan, generated after the public open house in February did not include local street layouts, thus a unique methodology was developed to create measures for this plan.

For purposes of completing a transportation analysis of the three alternative plans, these plans were subdivided into Transportation Analysis Zones (TAZs). The TAZs were situated between arterial and collector roads and many TAZs consisted of one of the major land uses on the Preferred Alternative plan, such as Mixed Use Commercial (MUC) or Medium Density Residential (MDR). Making up any TAZ would be a selection of cases intended to represent a likely cross-section of types and densities. For example, two different commercial cases and two street cases made up the MUC land use. Local roads were accounted for because they had been laid out in detail on the three alternatives. Representative TAZs were selected from Alternatives 2 and 3 and their areas of lands uses and roads as well as building areas and numbers of dwellings were used as the basis for creating the measures for the Preferred Alternative Plan. As with the methodology explained in #1 above, all measures used were based upon field measured cases from the CHI Elements of Neighborhood database. Because elements such as stream corridor buffers, existing parkland, proposed parks were accounted for using the GIS tabular area data directly, all parks and open spaces land uses were first removed from the areas of the selected sample TAZs. The data from the TAZs selected to represent Mixed Use Commercial (MUC), Mixed Use Residential (MUR), Medium-high Density Residential (MHDR), Medium Density Residential (MDR), and Low Density Residential (LDR) was then pro-rated to comparable land uses on the Preferred Alternative Plan. Mixed Use Commercial, Mixed Use Residential, Medium-high Density Residential, Medium Density Residential land uses were separated out by Comprehensive Neighborhood (CN) so that some of the information, such as areas of MUC, MUR, MHDR, MDR and numbers of dwellings, was retrievable by CN. Data reported to the public for the Preferred Alternative Plan is included on pages 31 and 32, Tables 3.1 and 3.2 of this plan.

Appendix C: Implementation Strategy

NCAP Implementation Strategy			
Plan Section	Imp. by City?	Imp. by County?	Comment
Section 7.1.1 Assumptions	Y	Y	Restate assumptions from Chapter 1. Clarify that little development will occur prior to annexation. Describe the County's cluster requirements. The City and County will amend its Comp. Plans by adopting the NCAP.
L1	Y	Y	The City amends Comp. Plan Map and appropriate LDC Map changes in the City Limits. County may make some zoning changes over time, but not required.
L2	Y	N	The Comp. Plan designations are on the City's Comp. Plan Map only?
L3	Y	N	Change to GI-O, not MUT. "Apply the General Industrial-Office industrial designation for properties east of Highway 99W with existing industrial designation. This designation provides gateway amenities along HWY 99W, enables existing uses to continue as legal conforming uses, and allows for expanded uses consistent with adjacent Mixed Use Employment designations east of Highway 99W, and with the Limited Industrial-Office designation in the Lewisburg center west of Highway 99W."
L4	Y	N	Recommended action for City. Post-annexation actions with regard to specific properties.
L5	Y	N	Recommended action for City. Post-annexation actions with regard to specific properties.
L6	Y	N	Recommended action for City. Post-annexation actions with regard to specific properties.
L7	Y	Y	City and County both have ESA and wetlands requirements that are in place or will need to be in the near term. These are at least a first step in this process.
L8	Y	N	Actually, the energy conservation requirements in the LDC are outdated, as the Building Code currently meets or exceeds them.
L9	Y	N	Generally these are aimed at eliminating blight. Not certain how they fit here.
L10	Y	N	The City currently administers an SDC program to cover the costs of facilities within the UGB. These charges must be based on "measures of impact." There may be additional costs associated with swales, etc. Perhaps re-wording to something like: "Review SDC program assumptions regarding the impacts of development on public facilities, particularly with regard to trip reductions associated with comprehensive neighborhoods and the construction and water quality implications of the green infrastructure system, and modify the charges imposed on development accordingly."
L11	Y	N	Major development will only occur following annexatio

P1	Y	Y	In terms of the City's Parks Plan, it is not anticipated that the County would require park acquisition through its development review process; however, the County is willing to assist in such efforts if such opportunities arise. It may be that a small park could be the result of a cluster development, as Chapter 100, in the County Development Code, allows a 25% density bonus if a park or trail linkage that is consistent with the County or the City's Comprehensive Plans or other adopted plans is provided.
P2	Y	Y	Generally to occur after annexation; however, Chapter 100 of the BC Code applies prior to annexation.
P3 P4 P5 P6	Y Y Y	Y Y Y	In terms of the City's Parks and Trails Plan, it is not anticipated that the County would require trail <u>dedication</u> through its development review process; however, the County is willing to acquire public easements or similar instruments for these facilities, provided the County does not have to maintain them. Chapter 100, in the County Development Code, allows a 25% density bonus if a park or trail linkage that is consistent with the County or the City's Comprehensive Plans or other adopted plans is provided.
P7	Y	Y	The Wetland Overlay (WO) designation is on the City's Comp. Plan Map, but as development occurs in the County, wetland delineations will be required. This is because the WO area is the result of an Offsite Wetland Inventory that has been accepted by the Division of State Lands. Actual wetland delineations can be shared with the City for WO boundary adjustments
P8	Y	Y	These types of programs will be City driven and primarily take effect on properties upon annexation. Stormwater management techniques will play a role in the County, however, and the City and County ESA programs will effect this.
P9	Y	Y	Although the bulk of this effort will occur with development activities after annexation, some of this information will become available through development in the County.
T1	Y	Y	The City will amend its TSP based on the final Functional Classification system contained in the NCAP. The County refers to City requirements in its development review process. Change "profiles" to "cross-sections."
T2	Y	N	The City's transit system is currently funded to a great extent by in-City property taxes. As a result, service is focused within the city limits. Also, the draft Transit Master Plan recognizes that high level transit out in the CV area will be expensive to provide. This is why the service will need to be based on densities associated with the Comprehensive Neighborhoods following annexation.
T3	Y	N	See T2
T4	Y	Y	This coordination is already done where street connections are shown. Reduced pavement widths are already allowed by our standards (20-ft for local streets through the PD process), so this statement suggests we should allow narrower. Instead, acknowledge the current standards.

T5	Y	Y	This will require the County to adopt a “to and through” standard in its Development Code. Likely will require a “reservation for future right-of-way” as opposed to a dedication. City already requires this within the City Limits.
T6	Y	Y	The examples should be dropped, as they are not consistent with the potential phasing scenario . There could be development in Phase 1 north of Jackson and Frazier Creeks prior to the extension of Kings Blvd.
T7	Y	Y	Likely will require a “reservation for future right-of-way” as opposed to a dedication. City already requires this within the City limits. Add “or other transportation management features” after “traffic calming designs,” and add “or the adopted Transportation Plan” after “identified in the NCAP.”
T8	N	N	ODOT rep. John DeTar points out that this is inconsistent with our access limitations along 99W, and that ODOT would not allow such a designation along this leg of 99W. Remove policy.
T9	Y	Y	This would require that, as development is proposed, options for consolidating or redirecting accesses to local streets (such as Elliott Circle West) be identified and preserved.
T10	Y	N	This will happen only after annexation.
T11	Y	N	See the suggestions from John DeTar. Highway modifications will be based on whether Oregon State Highway Plan “warrants” are met. City and County staff suggest the following language to replace this policy: “Optimize the arterial, collector, and local street network to facilitate intra city trips to reserve capacity on HWY 99W.”
T12	Y	Y	This is currently done by both the City and the County.
I1	Y	Y	Generally, this is a post-annexation effort, as that is when potential impacts are most likely to occur. The County has in the past identified detention facility locations on development proposals, and reservations for this purpose will continue to be needed.
I2	Y	Y	The adoption would be into the Corvallis TSP and LDC, which are reference by the County in its development review. Change “profiles” to “cross-sections.”
I3	Y	N	Post-annexation Policy
I6 I7	Y Y	N Y	These are currently done. I7 should say “easements or similar mechanisms.”
I8	Y	Y	This is required by the City now. Staff suggests the following: “Modify the County development code to require through the land division and development review processes that all needed utility corridors be extended to and through proposed development areas and are available to serve future development on adjoining parcels.
I9 I10	Y	Y	Needs to be clarified.

I11	Y	Y	City already does this. For submissions to the County, "conceptual layouts" rather than "plans" should be submitted.
I12	Y	Y	Add, "...require 'plans or conceptual layouts for sanitary sewer...."
I14	Y	N	This sort of effort will likely occur following annexation.
I15	Y	N	This sort of effort will likely occur following annexation.

North Corvallis Area Plan

1998 Comprehensive Plan Designations

July 27, 2001

Legend

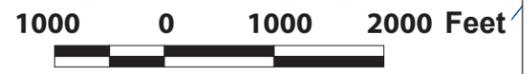
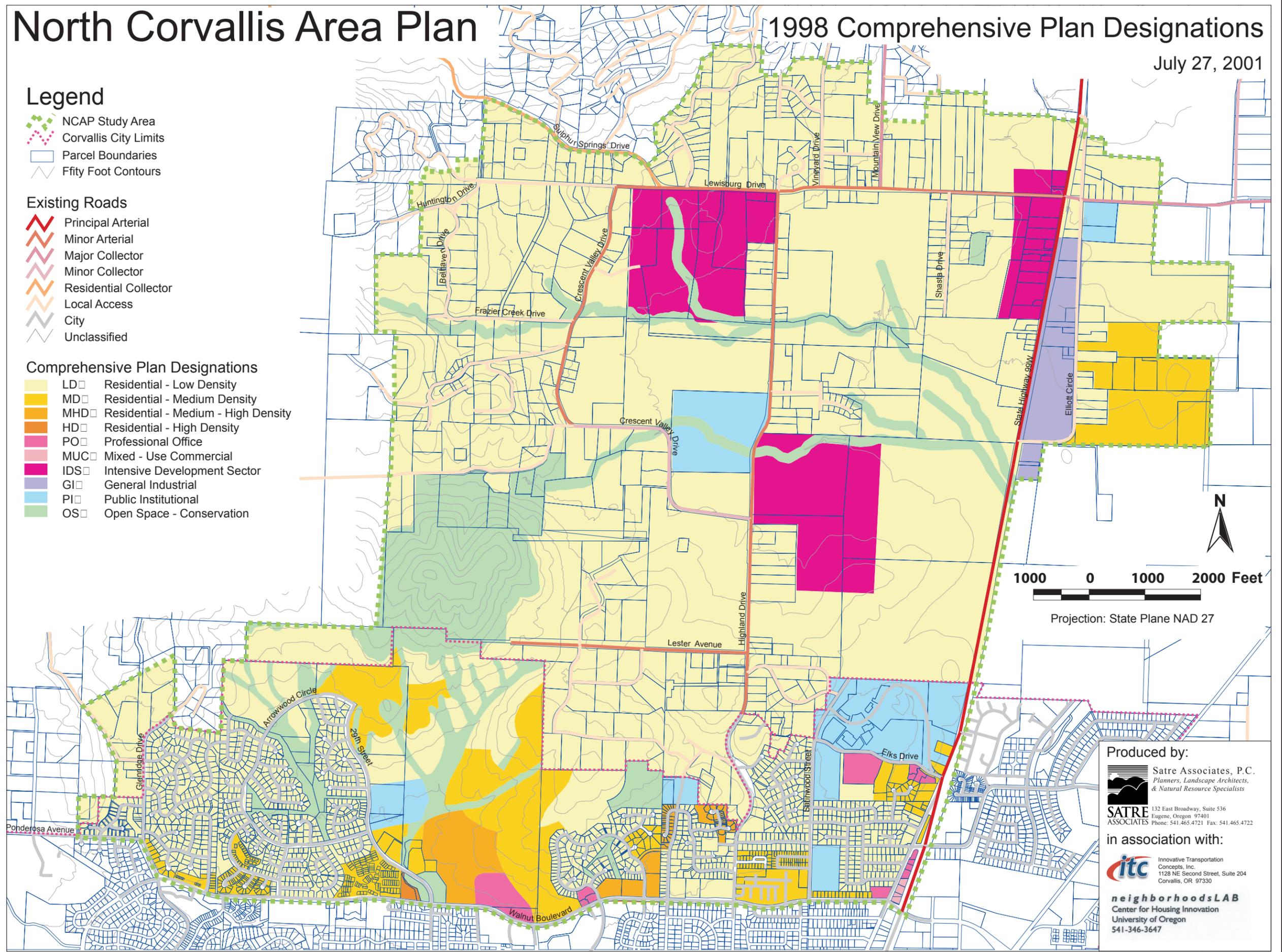
-  NCAP Study Area
-  Corvallis City Limits
-  Parcel Boundaries
-  Fifty Foot Contours

Existing Roads

-  Principal Arterial
-  Minor Arterial
-  Major Collector
-  Minor Collector
-  Residential Collector
-  Local Access
-  City
-  Unclassified

Comprehensive Plan Designations

-  LD Residential - Low Density
-  MD Residential - Medium Density
-  MHD Residential - Medium - High Density
-  HD Residential - High Density
-  PO Professional Office
-  MUC Mixed - Use Commercial
-  IDS Intensive Development Sector
-  GI General Industrial
-  PI Public Institutional
-  OS Open Space - Conservation



Projection: State Plane NAD 27

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North Corvallis Area Plan

2000 Zoning Designations

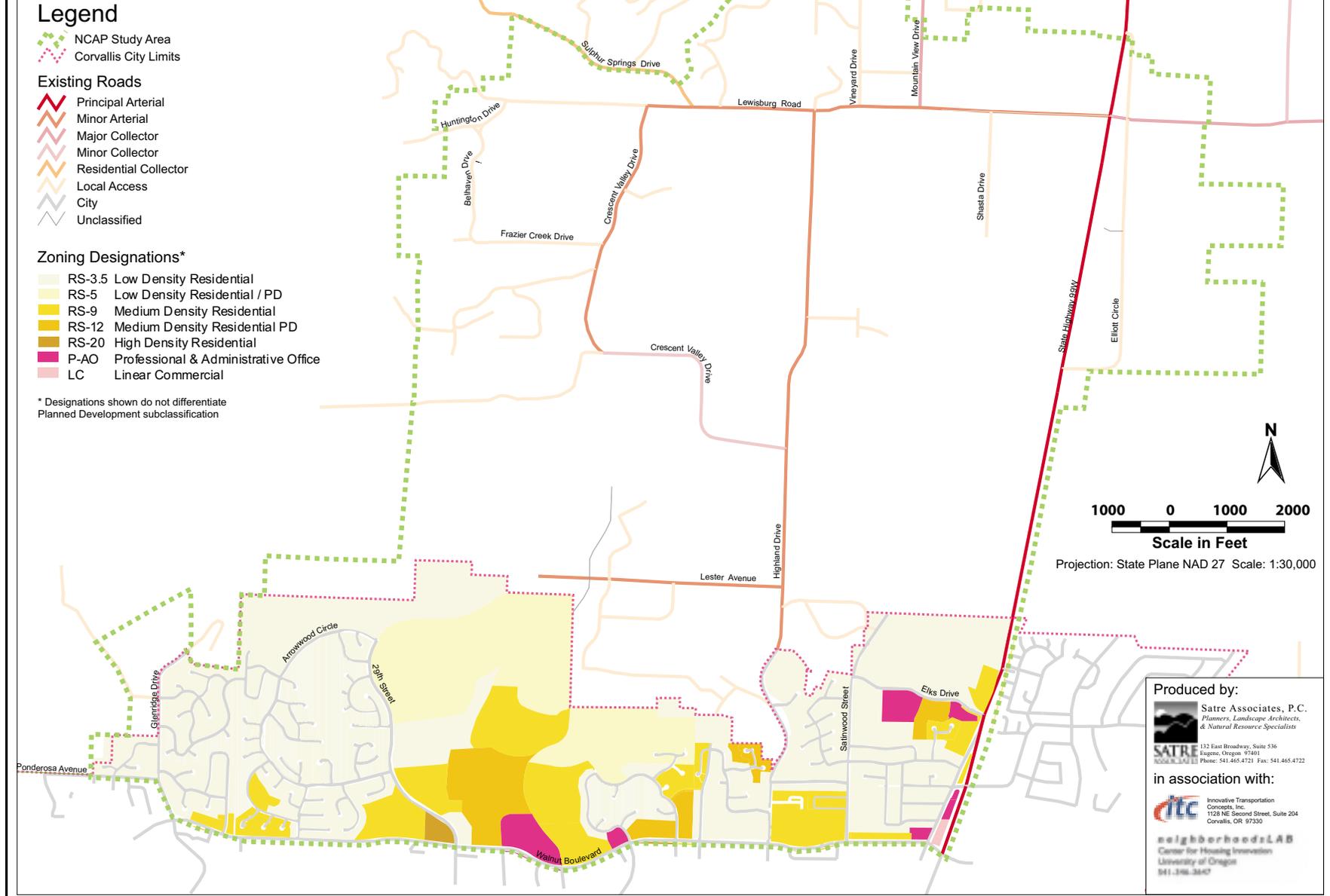


Figure 2.3 2000 City of Corvallis zoning designations within the NCAP study area

North Corvallis Area Plan

Advisory Constraints

July 27, 2001

Legend

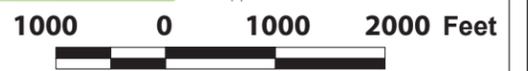
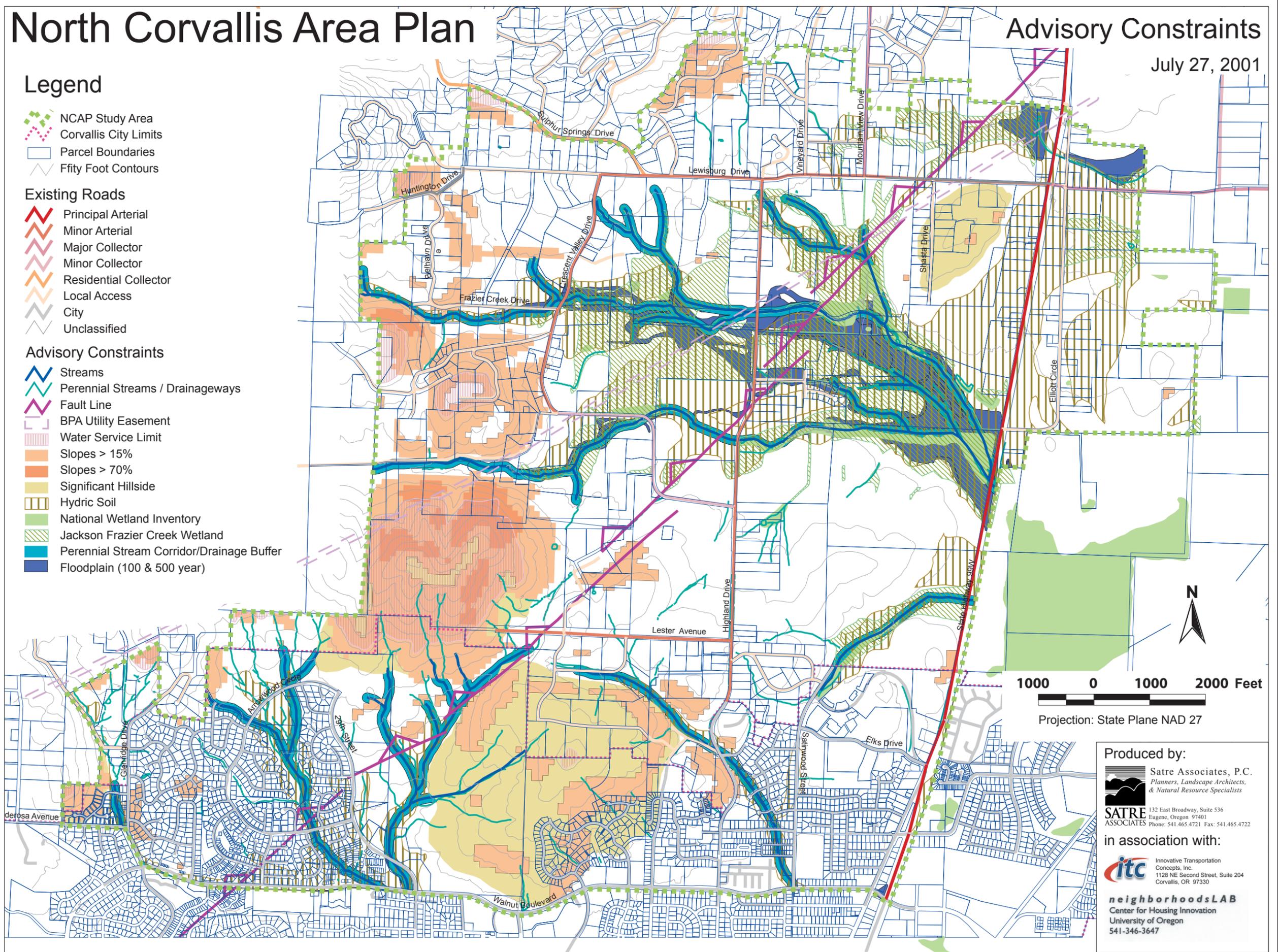
-  NCAP Study Area
-  Corvallis City Limits
-  Parcel Boundaries
-  Fifty Foot Contours

Existing Roads

-  Principal Arterial
-  Minor Arterial
-  Major Collector
-  Minor Collector
-  Residential Collector
-  Local Access
-  City
-  Unclassified

Advisory Constraints

-  Streams
-  Perennial Streams / Drainageways
-  Fault Line
-  BPA Utility Easement
-  Water Service Limit
-  Slopes > 15%
-  Slopes > 70%
-  Significant Hillside
-  Hydric Soil
-  National Wetland Inventory
-  Jackson Frazier Creek Wetland
-  Perennial Stream Corridor/Drainage Buffer
-  Floodplain (100 & 500 year)



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North Corvallis Area Plan

Preferred Alternative

July 27, 2001

Legend

-  NCAP Study Area
-  Corvallis City Limits
-  Parcel Boundaries
-  Buildings
-  560 Foot Contour
-  Ten Foot Contours
-  Rail Line
-  Existing Highways, Arterials, or Collectors
-  Proposed Highways, Arterials, or Collectors
-  Proposed Park (approximate location)
-  Proposed School (approximate location)
-  Proposed Major Neighborhood Center
-  Proposed Minor Neighborhood Center

Land Use Designations

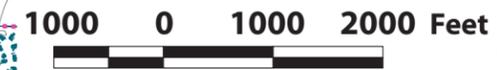
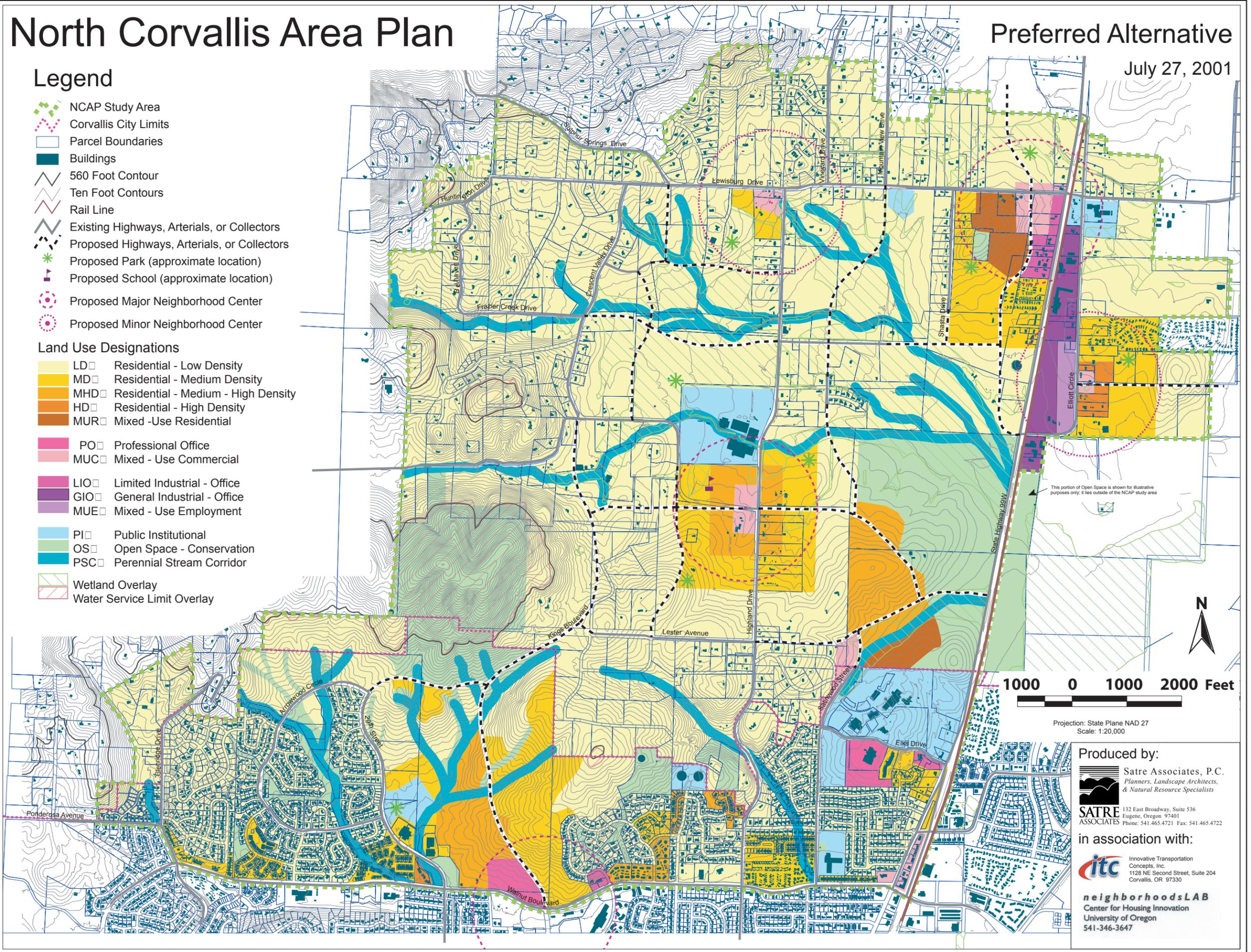
-  LD Residential - Low Density
-  MD Residential - Medium Density
-  MHD Residential - Medium - High Density
-  HD Residential - High Density
-  MUR Mixed -Use Residential

-  PO Professional Office
-  MUC Mixed - Use Commercial

-  LIO Limited Industrial - Office
-  GIO General Industrial - Office
-  MUE Mixed - Use Employment

-  PI Public Institutional
-  OS Open Space - Conservation
-  PSC Perennial Stream Corridor

-  Wetland Overlay
-  Water Service Limit Overlay



Projection: State Plane NAD 27
Scale: 1:20,000



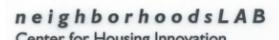
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This portion of Open Space is shown for illustrative purposes only; it lies outside of the NCAP study area

North Corvallis Area Plan

Parks, Open Space, & Natural Resources

July 27, 2001

Legend

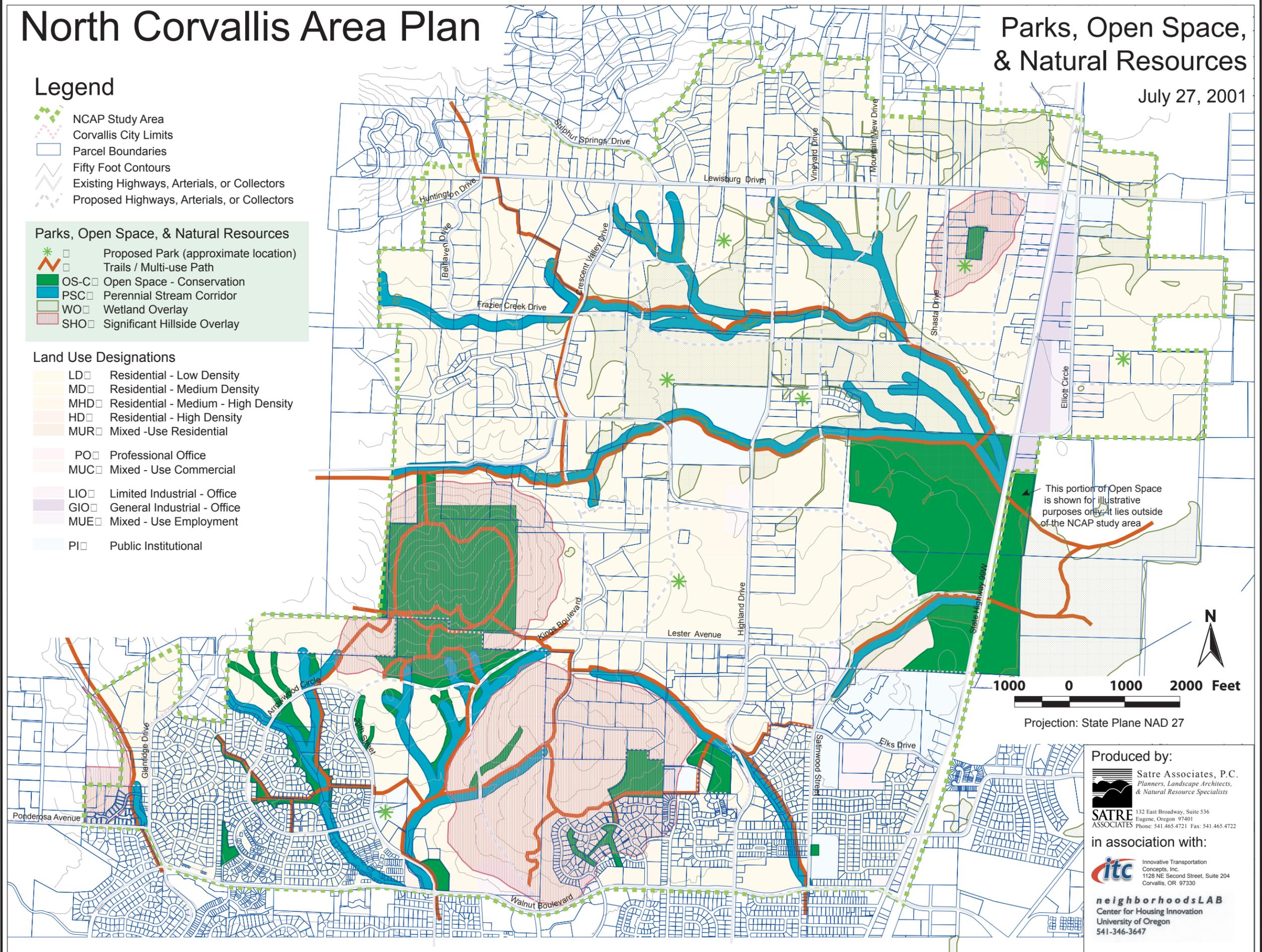
- NCAP Study Area
- Corvallis City Limits
- Parcel Boundaries
- Fifty Foot Contours
- Existing Highways, Arterials, or Collectors
- Proposed Highways, Arterials, or Collectors

Parks, Open Space, & Natural Resources

- Proposed Park (approximate location)
- Trails / Multi-use Path
- OS-C Open Space - Conservation
- PSC Perennial Stream Corridor
- WO Wetland Overlay
- SHO Significant Hillside Overlay

Land Use Designations

- LD Residential - Low Density
- MD Residential - Medium Density
- MHD Residential - Medium - High Density
- HD Residential - High Density
- MUR Mixed -Use Residential
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- LIO Limited Industrial - Office
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- MUE Mixed - Use Employment
- PI Public Institutional



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North Corvallis Area Plan

Automotive Transportation Network

July 27, 2001

Legend

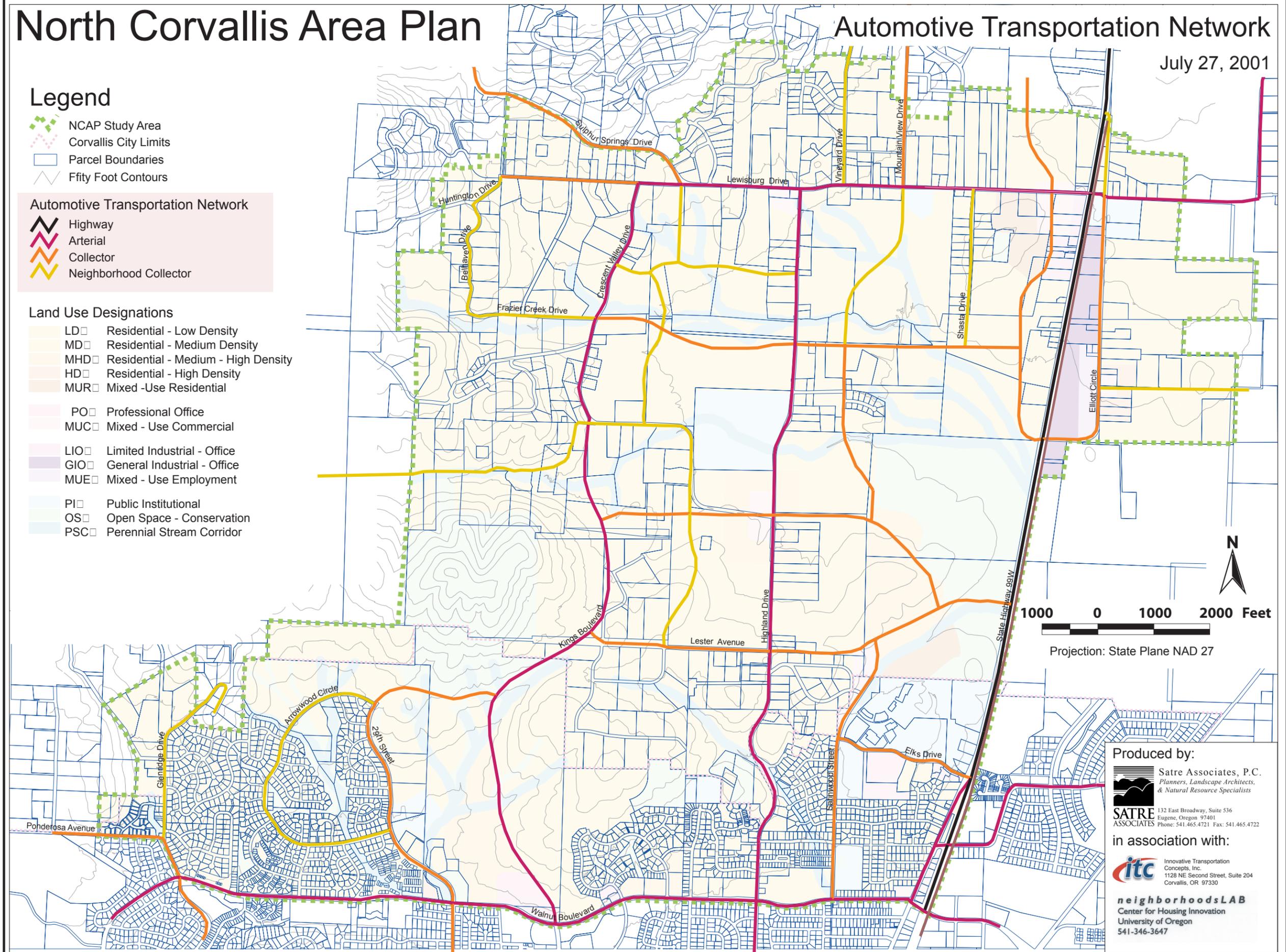
-  NCAP Study Area
-  Corvallis City Limits
-  Parcel Boundaries
-  Fifty Foot Contours

Automotive Transportation Network

-  Highway
-  Arterial
-  Collector
-  Neighborhood Collector

Land Use Designations

-  LD Residential - Low Density
-  MD Residential - Medium Density
-  MHD Residential - Medium - High Density
-  HD Residential - High Density
-  MUR Mixed -Use Residential
-  PO Professional Office
-  MUC Mixed - Use Commercial
-  LIO Limited Industrial - Office
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North Corvallis Area Plan

Alternative Transportation Network

Bus, Rail, Bicycle, Pedestrian

July 27, 2001

Legend

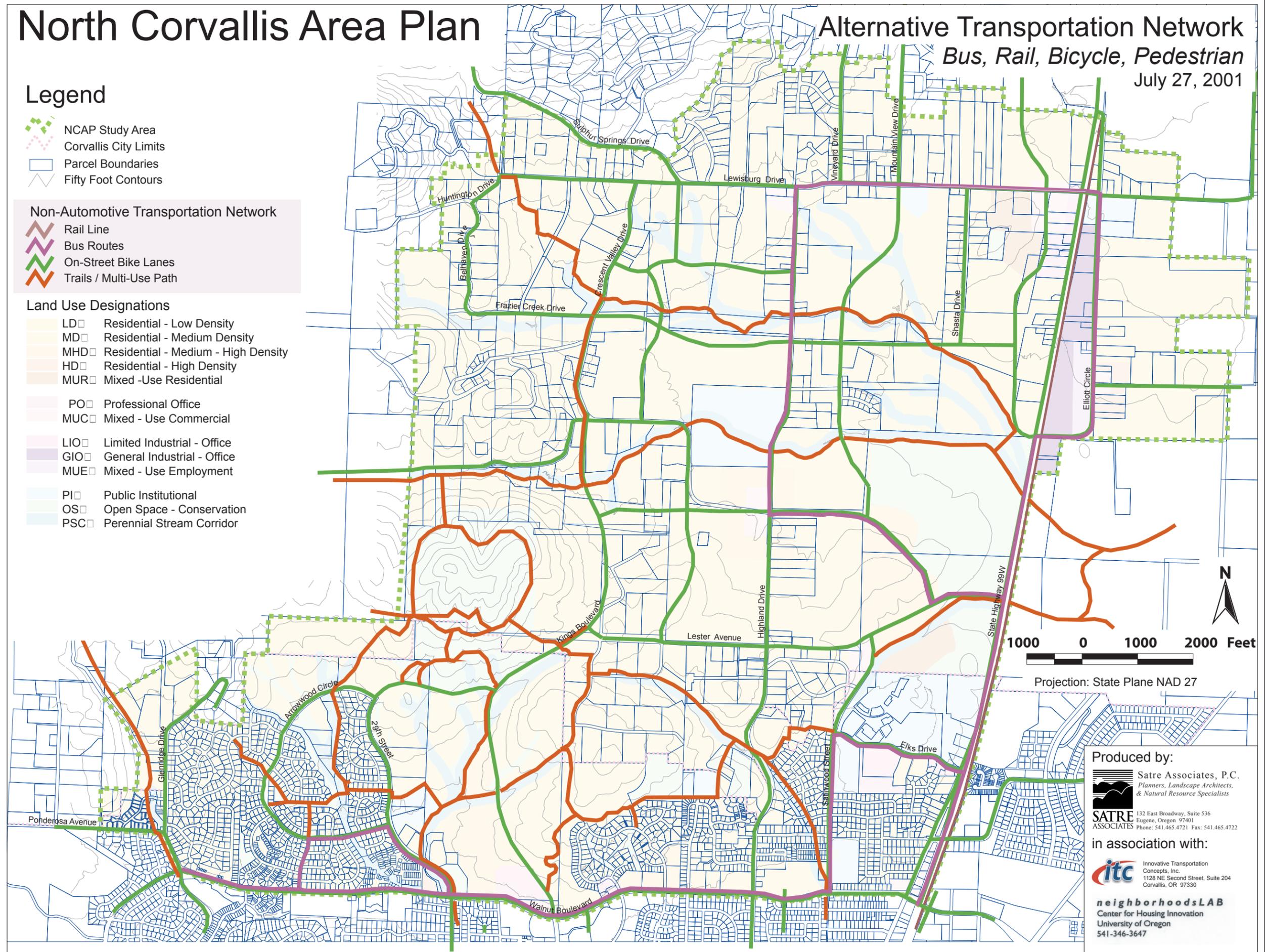
-  NCAP Study Area
-  Corvallis City Limits
-  Parcel Boundaries
-  Fifty Foot Contours

Non-Automotive Transportation Network

-  Rail Line
-  Bus Routes
-  On-Street Bike Lanes
-  Trails / Multi-Use Path

Land Use Designations

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-  MD Residential - Medium Density
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North Corvallis Area Plan

Infrastructure (Sanitary Sewer and Water)

July 27, 2001

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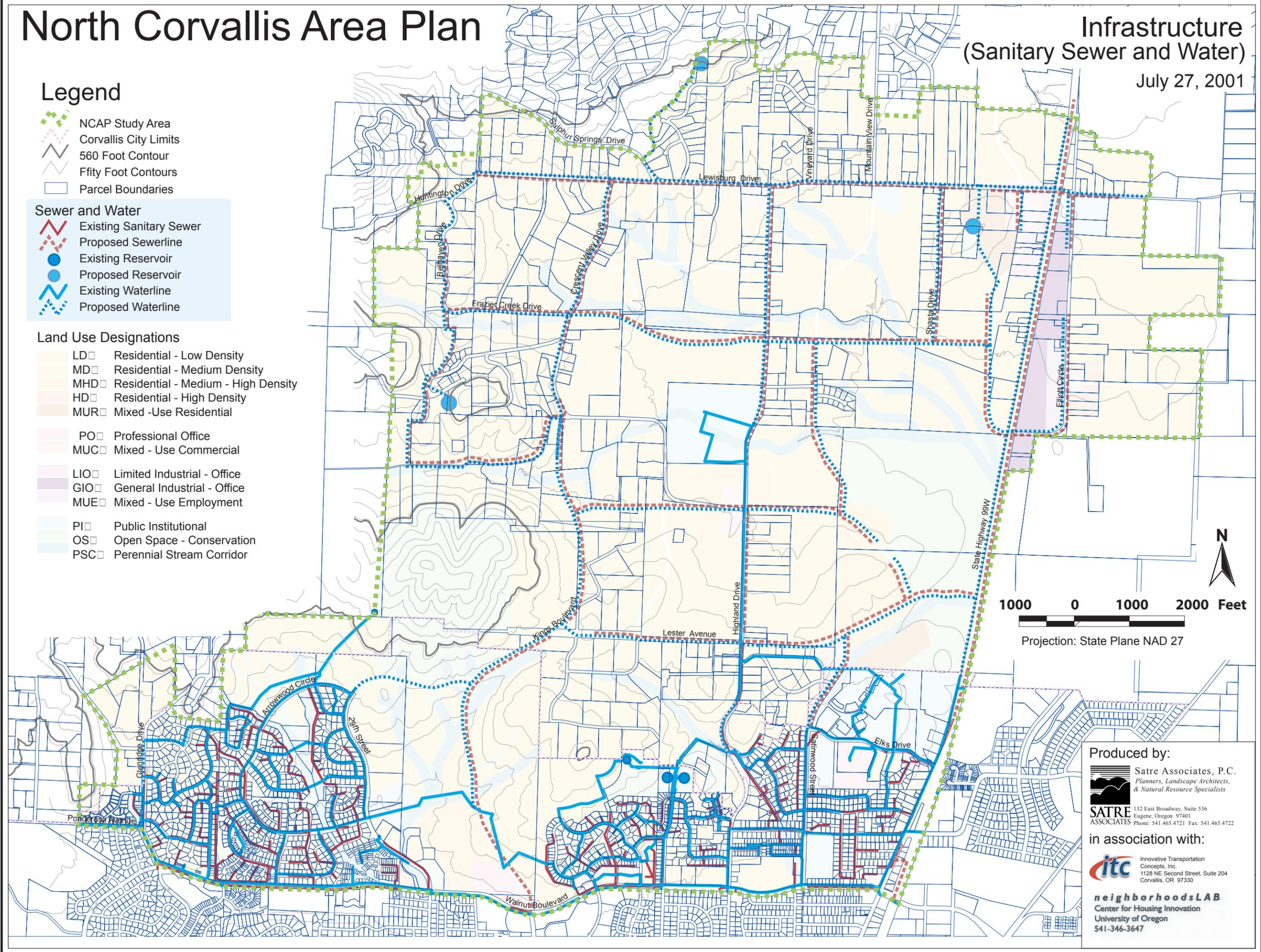
-  NCAP Study Area
-  Corvallis City Limits
-  560 Foot Contour
-  560 Foot Contours
-  Parcel Boundaries

Sewer and Water

-  Existing Sanitary Sewer
-  Proposed Sewerline
-  Existing Reservoir
-  Proposed Reservoir
-  Existing Waterline
-  Proposed Waterline

Land Use Designations

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North Corvallis Area Plan

Land Use Development Sequencing

July 27, 2001

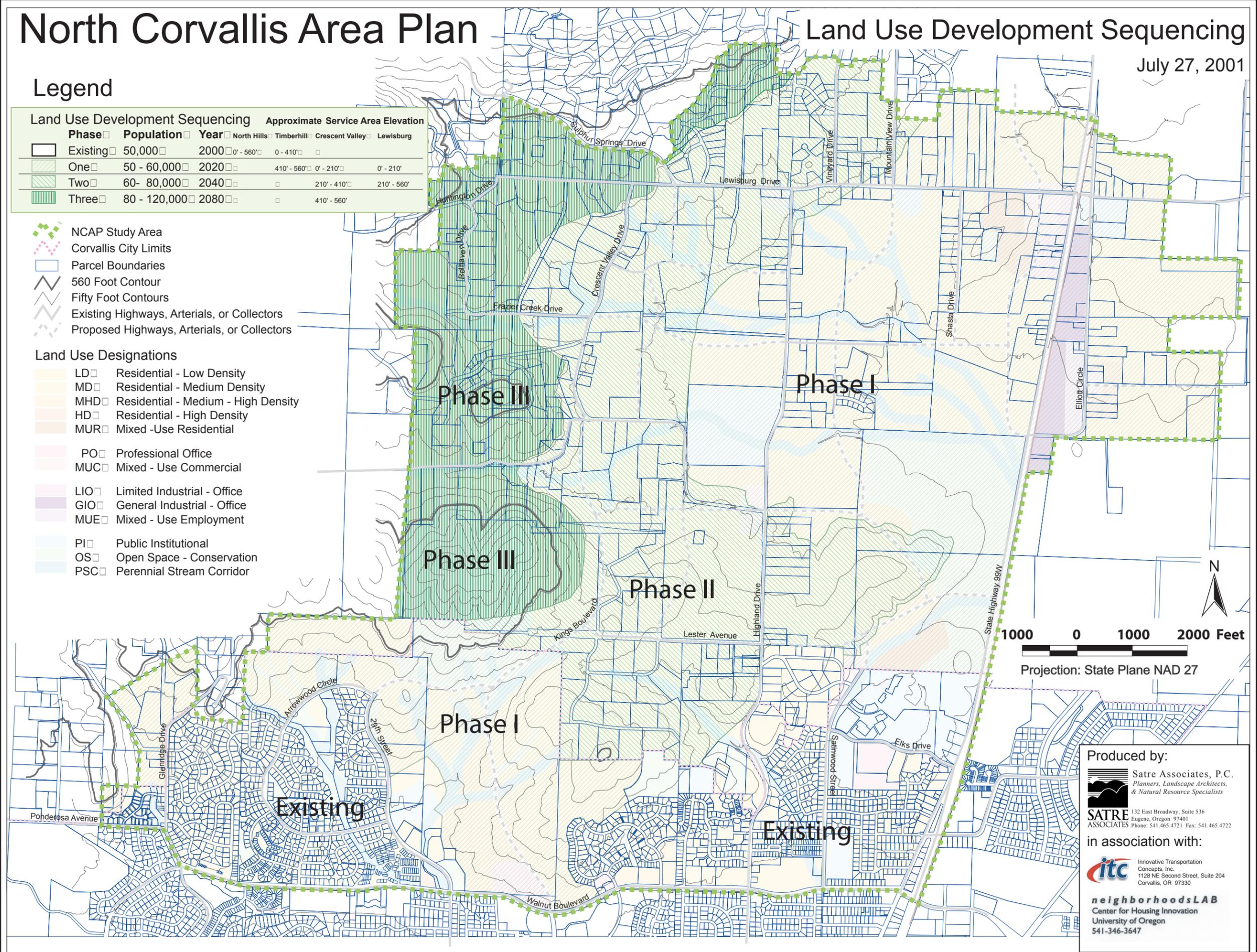
Legend

Land Use Development Sequencing		Approximate Service Area Elevation				
Phase	Population	Year	North Hills	Timberhill	Crescent Valley	Lewisburg
Existing	50,000	2000	0' - 560'	0 - 410'		
One	50 - 60,000	2020		410' - 560'	0' - 210'	
Two	60 - 80,000	2040			210' - 410'	210' - 560'
Three	80 - 120,000	2080				410' - 560'

- NCAP Study Area
- Corvallis City Limits
- Parcel Boundaries
- 560 Foot Contour
- Fifty Foot Contours
- Existing Highways, Arterials, or Collectors
- Proposed Highways, Arterials, or Collectors

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Adopted North Corvallis Area Plan

