



City of Hillsboro

Transportation System Plan Update



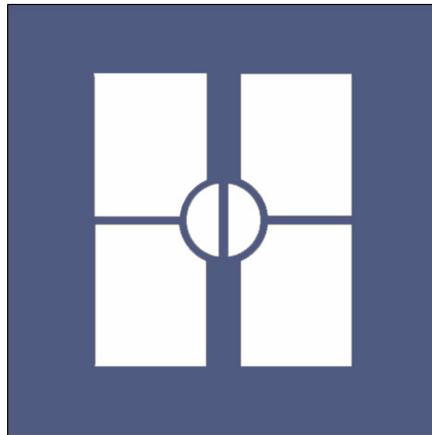
Prepared for
City of Hillsboro

Prepared by
DKS Associates
TRANSPORTATION SOLUTIONS

January 2004

City of Hillsboro

TRANSPORTATION SYSTEM PLAN UPDATE



Prepared by

DKS Associates

January 2004



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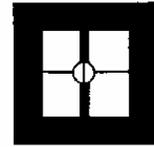
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Chapter 1

Summary

INTRODUCTION

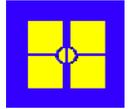
The current transportation system plan (TSP) for the City of Hillsboro was developed from 1996 through 1998 and adopted in 1999. Since that time, the intensity of development within the City has continued to change in response to the adopted Metro 2040 Urban Growth Management Concept Plan and the Tri-Met Westside Light Rail extension. The City of Hillsboro's population has grown to approximately 74,840 with a population density of 3,400 people per square-mile.¹

The TSP provides specific information regarding transportation needs to guide future transportation investment in the City and to determine how land use and transportation decisions can be coordinated beneficially for the City. Extensive research and plan analysis was conducted through 1999 to 2003. An update to the current Hillsboro TSP was undertaken to incorporate a modified study area to include additional key intersections, recently annexed land and neighborhoods within the Hillsboro School District boundaries and to incorporate recently completed transportation projects for the City based on a 2020 planning horizon. The revised TSP study area is shown in Figure 1-1.

The TSP planning objective is to achieve optimal efficiency for each travel mode (motor vehicle, pedestrian, bicycle, transit) within Hillsboro. The following sections summarize the findings of the Transportation System Plan technical studies. Specific chapters of this report address:

- Summary report including Modal plans (Chapter 1)
- TSP Goals and Policies (Chapter 2)
- Existing Conditions (Chapter 3)
- Future Demand and Land Use (Chapter 4)

¹ *Annual Oregon Population Report*, Center for Population Research and Census, Portland State University, July 1, 2002.



Source:
-Metro (Regional Land Information System)
-City of Hillsboro

 Study Area Boundary

0 5000 10000 Feet



Figure 1-1
STUDY AREA

Regional Process

Concurrent planning efforts were being undertaken both regionally and locally during the development of the Hillsboro TSP update that influences the city transportation system. The Urban and Rural Washington County Transportation Plans were developed from 2000 to 2001, adopted in October 2002 and became effective in November 2002. The adjacent City of Beaverton TSP was updated in 2001 and 2002 and formally adopted June 2003.

Additionally, Metro annexed 308 acres of exception land located south of Hillsboro into the Urban Growth Boundary. This section of land, referred to as Site 55, is included within the study area for this Plan update. In 2002, the City began a community planning process² for this area called Witch Hazel Village.

RECOMMENDATIONS

Transportation master plans have been developed for each travel mode in Hillsboro, including pedestrians, bicycles, public transit motor vehicles, trucks and other modes. The master plans in the adopted TSP have been updated to include the modified study area and recommendations based on the 2020 planning horizon. The proposed master plan updates are summarized in the following sections.

PEDESTRIANS

Sidewalks are provided on many of the arterial and collector roadways and are required on all newly constructed streets and roadways including local streets in the City of Hillsboro. The most important existing pedestrian needs in Hillsboro are connectivity of a system of walkways with a quarter mile grid that provides access to key activity centers such as parks, schools, retail, and transit. A pedestrian system should include safe, convenient crossings of arterial streets which typically act as barriers to pedestrian movement. In the future, pedestrian needs will be similar, but there will be additional activity centers that will need to be considered and connected to the pedestrian system.

Pedestrian projects were identified and prioritized by the Hillsboro Bicycle and Pedestrian Task Force using seven criteria that were designed to provide pedestrians with system-wide connectivity to key destinations in a safe, convenient manner (see Chapter 4 for more detail). Projects on streets that were more likely to have high potential usage scored well. Additional emphasis was also placed on identifying streets which if improved, would provide safe routes to school.

The Pedestrian Master Plan project list is provided in Table 1-1. Cost estimates are based on additional sidewalk, curb and gutter, drainage, driveway adjustments and landscaping as required. Right-of-way costs and additional roadway pavement costs, if known, are included in the estimates. The cost estimates are conceptual and subject to refinement upon further study. The Pedestrian Master Plan is shown in Figure 1-2.

² Witch Hazel Village Community Plan, Kittelson & Associates, May 28, 2003.

**Table 1-1
Pedestrian Master Plan Priority Projects**

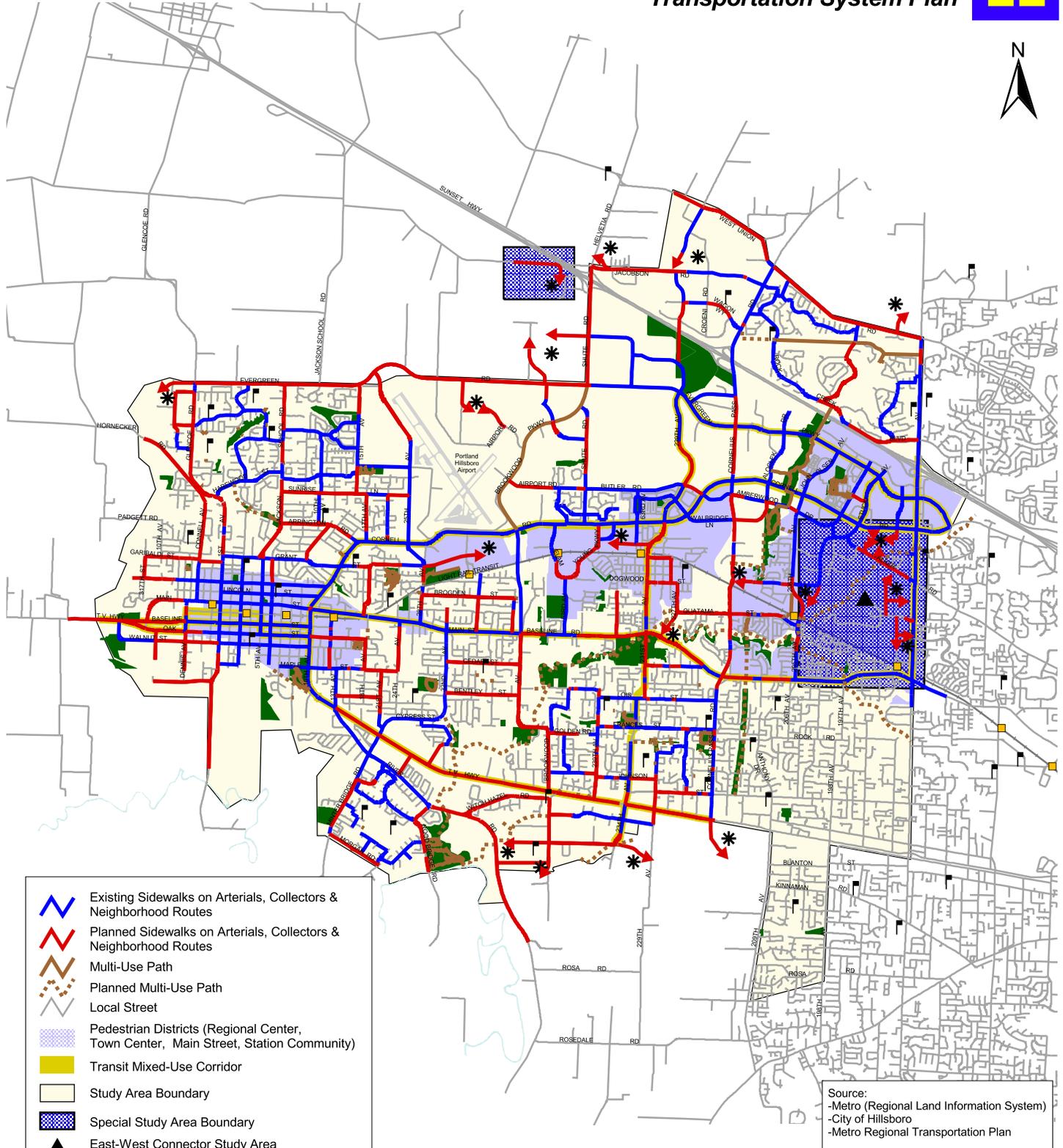
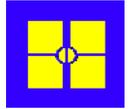
Project	From	To	Stand-alone Project	Roadway Improvement Project	Lead Agency	Cost*
N 1 st Ave	603 N 1 st Ave	1283 N 1 st Ave		✓	Washington County	Check with Wash. Co.
NE 6 th Ave	NE Jackson St	NE Grant St	✓		Hillsboro	\$126,000
NE 15 th Ave	2955 NE 15 th Ave (just north of)	NW Evergreen Rd		✓	Hillsboro	\$1,210,000
NE 17 th Ave	NE Barberty Dr (mostly west-side, with east-side gaps)	NE Sunrise Ln		✓	Hillsboro	TBD
NE 18 th Ave	E Main St	NE Grant St	✓		Hillsboro	\$295,000
SE 18 th Ave	SE Maple St	SE Oak St		✓	Hillsboro	TBD
SW 205 th Ave	SW Marsuda Way (east-side) 46 SW 206 th Ave (west-side)	NW Anzalone Dr (crosses Beaverton Creek)		✓	Washington County	\$462,000
NW 206 th Ave	Light rail tracks	NW Wilkins St		✓	Hillsboro	TBD
SE 21 st Ave	SE Cypress St	SE Maple St		✓	Hillsboro	\$543,000
NW 231 st Ave	6501 NE Deer Run St (east-side only)	NW Alder St		✓	Hillsboro	\$939,000
NW 231 st Ave	NW Alder St	NW Cornell Rd		✓	Hillsboro	\$1,175,000
SW 231 st Ave/ SW Century Blvd	SW Lois St	W Baseline Rd		✓	Hillsboro	\$19,300,000
SW 239 th Ave	Tualatin Valley Hwy	SE Blossom St		✓	Hillsboro	\$1,549,000 for total project cost
SW 239 th Ave	SW Frances St (east-side, County island)	1330 SW 239 th Ave		✓	Hillsboro	
SE 24 th Ave	SE Maple St	SE Washington Ct		✓	Hillsboro	\$4,885,000
SE 24 th Ave	1233 SE 24 th Ave	SE Maple St	✓		Hillsboro	\$228,000
NE 28 th Ave	E Main St	NE Grant St		✓	Hillsboro	\$1,100,000
SE 39 th Ave	SE Walnut St	E Main St	✓		Hillsboro	\$87,000
NE Airport Rd	NE Brookwood Pkwy	Just east of 4882 NE Airport Rd (south-side); Just past TriQuint (north-side)		✓	Hillsboro	\$3,245,000

Project	From	To	Stand-alone Project	Roadway Improvement Project	Lead Agency	Cost*
NW Aloclek Dr	NW Cornelius Pass Rd (north-side); From end of existing sidewalks at road end (south-side)	NW Amberwood Dr		✓	Hillsboro	\$2,300,000
NW Amberwood Dr	NW Cornelius Pass Rd	21480 NW Amberwood Dr (south-side); Just past 21480 (north-side)		✓	Hillsboro	\$603,000
NW Amberwood Dr	21180 NW Amberwood Dr	21000 NW Amberwood Dr (south-side only)		✓	Hillsboro	\$338,000
NW Amberwood Dr	20600 NW Amberwood Dr	NW 206 th Ave (north-side only)		✓	Hillsboro	\$186,000
NE Arrington Rd	NE Jackson School Rd	NE Cornell Rd	✓		Hillsboro	\$554,550
SE Bentley St	SE 32 nd Ave	SW Brookwood Ave		✓	Hillsboro	\$1,286,000
NE Brogden St	NE 28 th Ave	NE 43 rd Ave		✓	Hillsboro	\$1,135,000
SE Brookwood Ave	SE Alexander St	Tualatin Valley Hwy		✓	Washington County/ Hillsboro	\$10,000,000
SW Brookwood Ave	Tualatin Valley Hwy	W Baseline Rd		✓	Washington County	\$12,500,000
SE Cedar St	SE 32 nd Ave	SW Brookwood Ave		✓	Hillsboro	\$1,000,000
NW Century Blvd	NW Bennett St	NW Wagon Way		✓	Hillsboro	Part of a cost estimate for extending Century Blvd to West Union Rd (\$9,500,000)
NW Connell Ave	NW Garibaldi St	NW Cory St		✓	Hillsboro	\$1,260,000
SW Cornelius Pass Rd	SW Lois St	South of NW Aloclek Dr		✓	Washington County	TBD
SW Cornelius Pass Rd	SW Augusta Ln	SW Frances St		✓	Washington County	\$6,150,000
SW Davis Rd	SW River Rd	SW 229 th Ave		✓	Hillsboro	Cost estimate to be determined with development of Witch Hazel Village
NE Delsey Rd	NE Grant St	NE Arrington Rd	✓		Hillsboro	\$296,000
NW Dennis Ave	NW Jackson St	NW Garibaldi St (east-side only)	✓		Hillsboro	\$182,000

Project	From	To	Stand-alone Project	Roadway Improvement Project	Lead Agency	Cost*
NW Ebberts Ave	NW Jackson St	NW Garibaldi St (west-side only)		✓	Hillsboro	\$296,000
NE Edison St	NE 5 th Ave	NE 6 th Ave	✓		Hillsboro	\$26,000
NW Forest St	NW Freeman Ave (includes intersection correction)	NW Connell Ave		✓	Hillsboro	\$458,000
SW Frances St	239 th Ave	23615 SW Frances St		✓	Hillsboro	\$258,000
SW Frances St	SE 7 th Ave	22135 SW Frances St		✓	Hillsboro	\$308,000
NW Garibaldi St	NW Ebberts Ave	NW Connell Ave		✓	Hillsboro	\$265,000
NW Garibaldi St	NW Adams Ave	NW Connell Ave (south-side only)		✓	Hillsboro	\$228,000
NW Glencoe Rd	1283 N 1 st Ave	NE Milne Rd (mostly west-side)		✓	Washington County	TBD
SE Golden Rd	SW Brookwood Ave	5580 SE Golden St		✓	Hillsboro	\$956,000
NE Grant St	NE 17 th Ave (just west of)	NE 24 th Ave (just east of)	✓		Hillsboro	\$301,000
NE Grant St Extension	NE 28 th Ave	NE Brookwood Pkwy		✓	Hillsboro	\$8,100,000
NE Jackson School Rd/NE 5 th Ave	NE Grant St	NW Evergreen Rd		✓	Hillsboro	\$2,800,000
NE Jackson School Rd/NE 5 th Ave	NE Grant St	NE Kathryn St		✓	Hillsboro	(one section of improvement)
NE Jackson School Rd	NE Josephine St	NE Estate Dr		✓	Hillsboro	(one section of improvement)
NE Jackson School Rd	NE Roghan St	NW Evergreen Rd		✓	Hillsboro	(one section of improvement)
SW Johnson St	SW 239 th Ave	SW Cornelius Pass Rd		✓	Hillsboro	\$2,001,000
NE Lincoln St	NE 18 th Ave	2100 NE Lincoln St	✓		Hillsboro	\$33,000
W Main St	SW Baseline St	NW Dennis Ave (north-side only)		✓	Hillsboro	\$427,000
W Main St	SW Baseline St	N 1 st Ave		✓	Hillsboro	\$1,600,000
SE Maple St	SE 18 th Ave	SE 24 th Ave		✓	Hillsboro	\$422,000
SE Minter Bridge Rd	SE Morgan Rd	SE Meadowlark Dr		✓	Washington County/ Hillsboro	\$1,500,000
SE Minter Bridge Rd	SE Anthony St	SE Meadowlark Dr (east-side only)		✓	Washington County/ Hillsboro	\$391,061
SE Oak St	SE 12 th Ave	SE 18 th Ave		✓	Hillsboro	\$488,000

Project	From	To	Stand-alone Project	Roadway Improvement Project	Lead Agency	Cost*
SE Rood Bridge Rd	SE River Rd	SE Rood Bridge Dr		✓	Hillsboro	\$399,000
SE Rood Bridge Rd	SE Rood Bridge Dr	South City Limits		✓	Hillsboro	\$1,000,000
NE Shute Rd	About 600' north of NE Butler Rd	3100 NE Shute Rd, second driveway (east-side only)	✓		Hillsboro	\$588,000
NW Shute Rd	NW Evergreen Rd	US 26/Sunset Hwy	✓		Washington County	TBD
SE Spruce St	SE 21 st Ave	SE 28 th Ave	✓		Hillsboro	\$257,000
NE Sunrise Ln	NE Jackson School Rd	NE 17 th Ave		✓	Hillsboro	\$1,876,000
NW Walker Rd	NW Von Neumann Dr	1725 NW Walker Rd		✓	Washington County	\$8,600,000
SE Witch Hazel Rd	SE River Rd	Tualatin Valley Hwy		✓	Washington County	TBD

* Project cost estimates represent 2003 dollars. All cost estimates are conceptual. For roadway improvement projects, the cost estimate represents the whole street improvement necessary for a multi-modal street including sidewalks. For stand-alone projects, the cost estimate represents the cost for retrofitting the existing street cross section to add sidewalks and landscape strips and associated costs.



- Existing Sidewalks on Arterials, Collectors & Neighborhood Routes
- Planned Sidewalks on Arterials, Collectors & Neighborhood Routes
- Multi-Use Path
- Planned Multi-Use Path
- Local Street
- Pedestrian Districts (Regional Center, Town Center, Main Street, Station Community)
- Transit Mixed-Use Corridor
- Study Area Boundary
- Special Study Area Boundary
- East-West Connector Study Area
- Alignment subject to UGB expansion and/or future refinement or study in these areas.
- Light Rail Transit Stop
- Light Rail Transit Line
- Parks and Open Space
- Schools

Source:
 -Metro (Regional Land Information System)
 -City of Hillsboro
 -Metro Regional Transportation Plan

Figure 1-2
PEDESTRIAN MASTER PLAN

0 5000 10000 Feet

BICYCLES

Bikeways are currently provided on several arterials and collectors within the City, forming a basic bikeway network. Bikeways generally consist of designated bike lanes and roadway segments where specific accommodations (additional lane widths) have been made. However, there are many gaps in the bikeway network where bikeways do not exist along arterial and collector roadways, causing significant problems for bicyclists. Bikeway connectivity throughout the City is needed.

To address these gaps in the bikeway network, the Hillsboro Bicycle and Pedestrian Task Force used guidelines developed by the City of Portland for determining under which circumstances bike lanes are appropriate for all new or reconstructed streets (see Chapter 4 for more detail). As a result of application of these guidelines, many collector streets not previously designated for bike lanes were designated as appropriate for bike lanes.

The Task Force also added a new type of bikeway treatment to the bikeway network -- a bicycle boulevard (see Chapter 4 for more detail). There are three bicycle boulevard streets in Hillsboro (see Figure 1-3). They include Connell Avenue from W. Main Street to NW Cory Street, Grant Street from N. 1st Avenue to NE 28th Avenue and Walnut Street from S. 1st Avenue to SE 18th Avenue.

Bicycle projects were identified and prioritized by the Hillsboro Bicycle and Pedestrian Task Force using the same seven criteria used to identify and prioritize pedestrian projects. All multi-use trail projects which consist of off-street facilities were also included on the Bicycle Master Plan project list as they supplement the bikeway network by providing additional connectivity to key destinations and recreational opportunities.

The Bicycle Master Plan project list is provided in Table 1-2. Cost estimates are based on additional pavement, curb and gutter, drainage, driveway adjustments and landscaping as required. Right-of-way costs and additional pavement costs, if known are included in the estimates. The cost estimates are conceptual and subject to refinement upon further study. The Bicycle Master Plan is shown in Figure 1-3.

**Table 1-2
Bicycle Master Plan Priority Projects**

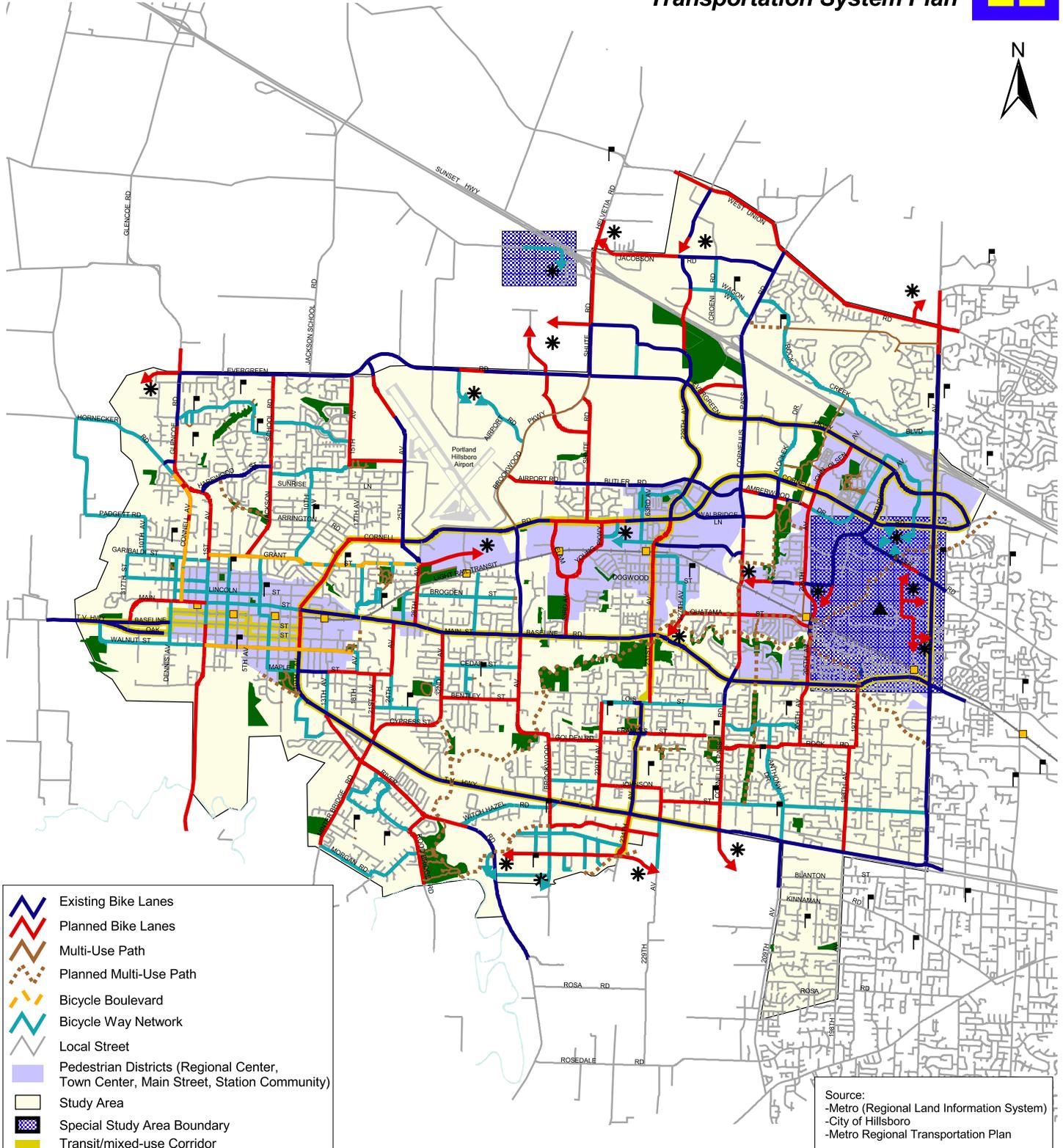
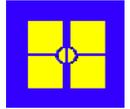
Project	From	To	Stand-alone Project	Roadway Improvement Project	Lead Agency	Cost*
SE 10 th Ave	SE Baseline St	E Main St		✓	ODOT/Hillsboro	\$1,600,000
SE 10 th Ave	SE Walnut St	SE Baseline St	✓		ODOT	\$157,000
NE 15 th Ave	NE Kathryn St	NW Evergreen Rd		✓	Hillsboro	\$1,210,000
SW 205 th Ave	SW Baseline Rd	NW Quatama Rd		✓	Washington County	\$6,800,000
NW 206 th Ave	Light rail tracks	NW Wilkins St	✓		Hillsboro	\$276,000
NW 206 th Ave	NW Wilkins St	NW Amberwood Dr	✓		Hillsboro	\$322,000
NW 206 th Ave/ NW John Olsen Ave	NW Amberwood Dr	NW Evergreen Pkwy	✓		Hillsboro	\$288,000
SE 21 st Ave	SE Cypress St	SE Maple St		✓	Hillsboro	\$543,000
NW 231 st Ave	W Baseline Rd	NW Alder St		✓	Hillsboro	\$706,000
NW 231 st Ave	NW Alder St	NW Cornell Rd		✓	Hillsboro	\$1,175,000
SW 231 st Ave/ SW Century Blvd	SW Lois St	W Baseline Rd		✓	Hillsboro	\$19,300,000
SW 234 th Ave/ SW Century Blvd	Tualatin Valley Hwy	SW Davis Rd		✓	Hillsboro	Design/cost estimates to be determined with development of Witch Hazel Village
SW 239 th Ave	Tualatin Valley Hwy	SW Lois St		✓	Hillsboro	\$1,549,000
SE 24 th Ave	SE Maple St	E Main St		✓	Hillsboro	\$4,885,000
NE 25 th Ave	NW Intel driveway	Old Evergreen Rd		✓	Hillsboro	TBD
NE 28 th Ave	E Main St	NE Grant St		✓	Hillsboro	\$1,100,000
SE 32 nd Ave/ SE Cypress St	SE 21 st Ave	E Main St	✓		Hillsboro	\$210,000
NE Airport Rd	NE Brookwood Pkwy	NE 51 st Ave		✓	Hillsboro	\$3,245,000
NW Aloclek Dr	NW Cornelius Pass Rd	NW Amberwood Dr		✓	Hillsboro	\$2,300,000
NW Amberwood Dr	NW Cornelius Pass Rd	21480 NW Amberwood Dr		✓	Hillsboro	\$603,000
NW Amberwood Dr	21180 NW Amberwood Dr	21000 NW Amberwood Dr		✓	Hillsboro	\$338,000
NW Amberwood Dr	20600 NW Amberwood Dr	NW 206 th Ave		✓	Hillsboro	\$186,000

Project	From	To	Stand-alone Project	Roadway Improvement Project	Lead Agency	Cost*
SE Bentley St	SE 32 nd Ave	SW Brookwood Ave		✓	Hillsboro	\$1,286,000
SW Brookwood Ave	Tualatin Valley Hwy	W Baseline Rd		✓	Washington County	\$12,500,000
SE Brookwood Ave	SE Alexander St	Tualatin Valley Hwy		✓	Washington County/ Hillsboro	\$10,000,000
NW Century Blvd	NW Bennett St	NW Wagon Way		✓	Hillsboro	\$9,500,000
NW Century Blvd	NW Jacobson Rd	North to existing bike lanes		✓	Hillsboro	(Both pieces are within cost estimates for 229 th Ave to West Union Rd)
NW Cornell Ave (bike boulevard)	W Main St	NW Cory St	✓		Hillsboro	N/A
NW Cornell Ave	NW Garibaldi St	NW Cory St		✓	Hillsboro	\$1,260,000
SW Cornelius Pass Rd	SW Johnson St	SW Francis St		✓	Washington County	\$6,150,000
SW Cornelius Pass Rd	NE Shaleen St	South of NW Alocek Dr		✓	Washington County	TBD
NE Cornell Rd	West of NE Elam Young Pkwy (W)	East of NE Ray Circle	✓		Hillsboro	\$565,000
SE Cypress St	Tualatin Valley Hwy	SE 21 st Ave	✓		Hillsboro	\$97,000
SW Davis Rd	SW River Rd	SW 229 th Ave		✓	Hillsboro	Cost estimate to be determined with development of Witch Hazel Village
SW Frances St	SW 239 th Ave	SE 71 st Ave		✓	Hillsboro	\$156,000
SW Frances St	SE 71 st Ave	22135 SW Frances St		✓	Hillsboro	\$308,000
NW Glencoe Rd	NE Jackson St	NW Evergreen Rd		✓	Washington County	\$14,800,000
SE Golden Rd	SW Brookwood Ave	SW 239 th Ave		✓	Hillsboro	\$955,000
NE Grant St (bike boulevard)	N 1 st Ave	NE 28 th Ave	✓		Hillsboro	N/A
NE Grant St	NE Cornell Rd	NE 28 th Ave	✓		Hillsboro	\$7,200
NE Grant St Extension	NE 28 th Ave	NE Brookwood Pkwy		✓	Hillsboro	\$8,100,000
NE Griffin Oaks St	NE 15 th Ave	NE 25 th Ave	✓		Hillsboro	\$33,000

Project	From	To	Stand-alone Project	Roadway Improvement Project	Lead Agency	Cost*
NW Imbrie Dr	NW Evergreen Pkwy	NW Cornelius Pass Rd	✓		Hillsboro	\$284,000
NE Jackson School Rd	NE Grant St	NE Evergreen Rd		✓	Hillsboro	\$2,800,000
SW Johnson St	SW 239 th Ave	SW Cornelius Pass Rd		✓	Hillsboro	\$2,001,000
W Main St	SW Baseline St	NW Dennis St		✓	Hillsboro	\$270,000
W Main St	SW Baseline St	N 1 st Ave		✓	Hillsboro	\$1,600,000
SE Maple St	SE 13 th Ave	SE 18 th Ave	✓		Hillsboro	\$3,500
SE Maple St	SE 18 th Ave	SE 24 th Ave		✓	Hillsboro	\$435,000
SE Minter Bridge Rd	SE Morgan Rd	Tualatin Valley Hwy		✓	Washington County/ Hillsboro	\$1,500,000
SE Minter Bridge Rd	SE Anthony St	SE Meadowlark Dr		✓	Washington County/ Hillsboro	\$391,000
NW Quatama Rd	NW 227 th Ave	NW 206 th Ave		✓	Washington County	\$4,368,000
SE River Rd	Tualatin Valley Hwy	SE Witch Hazel Rd		✓	Washington County	Check with Wash. County
SE Rood Bridge Rd	SE River Rd	SE Rood Bridge Dr		✓	Hillsboro	\$399,000
SE Rood Bridge Rd	SE River Rd	South City Limits		✓	Hillsboro	\$1,000,000
NW Shute Rd	NW Evergreen Rd	US 26/Sunset Hwy	✓		Washington County	\$888,000
NW Walker Rd	NW Amberglen Pkwy	NW 185 th Ave		✓	Washington County	\$8,600,000
SE Walnut St (bike boulevard)	S 1 st Ave	SE 18 th Ave	✓		Hillsboro	N/A
Multi-Use Trails						
Beaverton Creek Trail	NW Cornelius Pass Rd	SW 206 th Ave	✓		Hillsboro	\$370,600
Beaverton Crk Trail Under-crossing	SW 206 th Ave	SW 206 th Ave	✓		Hillsboro	\$39,000
Bethany Pond Trail	NW Cornelius Pass Rd	NW Rock Creek Blvd	✓		Hillsboro	\$58,000
Bronson Creek Trail	NW 206 th Ave	NW Walker Rd	✓		Hillsboro	\$172,000
Bronson Creek Trail Under-crossing	NW Walker Rd	NW Walker Rd	✓		Hillsboro	\$39,000
Bronson Creek Trail	NW Walker Rd	NW Eider Ct	✓		Hillsboro	\$35,000
Rock Creek Trail	Rood Bridge Park	SE River Rd	✓		Hillsboro	\$29,000

Project	From	To	Stand-alone Project	Roadway Improvement Project	Lead Agency	Cost*
Rock Creek Trail includes pedestrian crossing of River Rd	SE River Rd	Tualatin Valley Hwy	✓		Hillsboro	\$211,000
Rock Creek Trail incl. ped. crossing of TV Hwy	Tualatin Valley Hwy	SW Brookwood Ave	✓		Hillsboro	\$765,000
Rock Creek Trail incl. ped. crossing of Brookwood Ave	SW Brookwood Ave	W Baseline Rd	✓		Hillsboro	\$784,000
Rock Creek Trail Under-crossing of Baseline Rd	East of SW 231 st Ave/W Baseline Rd	W Baseline Rd	✓		Hillsboro	\$39,000
Rock Creek Trail incl. a ped. crossing at NW 227 th Ave	NW 227 th Ave/ NW Quatama Rd	NW Cornelius Pass Rd		✓	Hillsboro	\$1,110,000
Rock Creek Trail includes under-crossing of Cornelius Pass Rd	NW Cornelius Pass Rd/NW Wilkins St	Orchard Park	✓		Hillsboro	\$581,000
Rock Creek Trail crossing at NW Cornell Rd	Mid-block crossing east of NW Aloclek PI	West of NW John Olsen Ave	✓		Hillsboro/ Washington County	\$285,000
Rock Creek Trail crossing at NW Evergreen Pkwy	Mid-block crossing east of NW Aloclek PI	West of NW John Olsen Ave	✓		Hillsboro/ Washington County	\$255,000
Witch Hazel Creek Trail	Rood Bridge Park/ Rock Creek Confluence	SE River Rd	✓		Hillsboro	\$59,000
Witch Hazel Creek Trail	SE River Rd	SW 247 th Ave/ SW Brookwood Ave	✓		Hillsboro	Design/cost estimates to be determined with development of Witch Hazel Village

* Project cost estimates represent 2003 dollars. All cost estimates are conceptual. For roadway improvement projects, the cost estimate represents the whole street improvement necessary for a multi-modal street including bicycle lanes. For stand-alone projects, the cost estimate represents the cost for retrofitting the existing street cross section to add bicycle lanes and associated costs.



- Existing Bike Lanes
- Planned Bike Lanes
- Multi-Use Path
- Planned Multi-Use Path
- Bicycle Boulevard
- Bicycle Way Network
- Local Street
- Pedestrian Districts (Regional Center, Town Center, Main Street, Station Community)
- Study Area
- Special Study Area Boundary
- Transit/mixed-use Corridor
- East-West Connector Study Area
- Alignment subject to UGB expansion and/or future refinement or study in these areas.
- Light Rail Transit Stop
- Light Rail Transit Line
- Parks and Open Space
- School

Source:
-Metro (Regional Land Information System)
-City of Hillsboro
-Metro Regional Transportation Plan

Figure 1-3
BICYCLE MASTER PLAN

0 5000 10000 Feet



TRANSIT

Tri-Met provides transit service along many arterial and a few collector roadways in the City of Hillsboro. The most important existing transit need in Hillsboro is to increase transit coverage. In the future, transit needs will be similar, but there will be additional residential and employment developments that will need to be considered and connected based on ridership demand. The Transit Master Plan is shown in Figure 1-4.

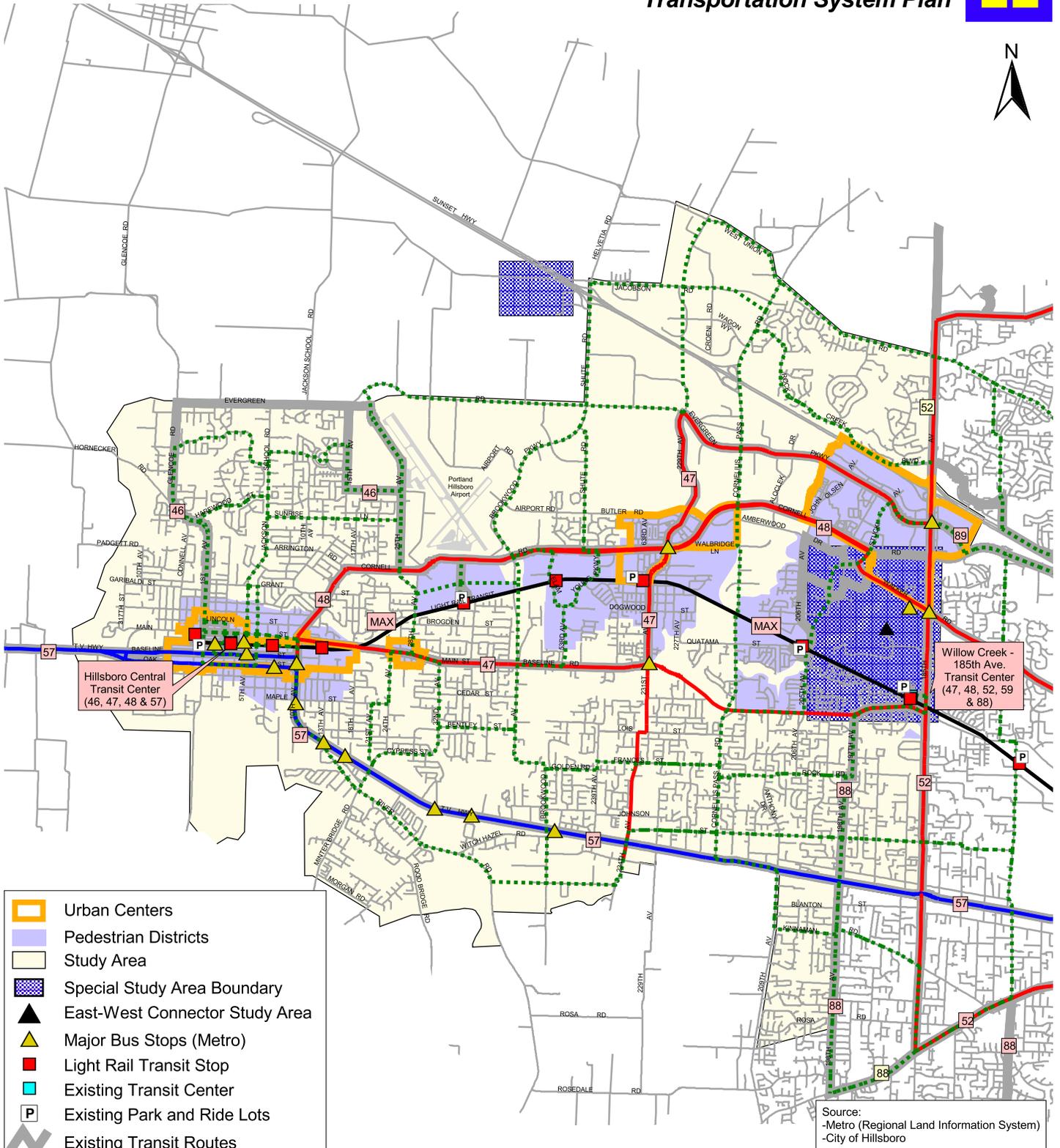
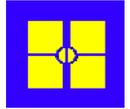
In addition to light rail transit, Metro's RTP includes bus transit route designations along corridors defined as follows³:

- Frequent Bus – Frequent Bus service provides more recurrent service than rapid bus along selected transit corridors. This service runs at least every 10 minutes and includes transit preferential treatments such as reserved bus lanes and signal preemption.
- Regional Bus – Regional bus service is provided on Hillsboro's primary urban streets, including Cornell Road, 185th Avenue, 229th/231st Avenue, and Evergreen Parkway (eastern half). This type of service operates with varied frequencies and provides conventional stop spacing along the route. Transit preferential treatments and passenger amenities such as covered bus shelters, special lighting, signal preemption and curb extensions are appropriate at high ridership locations.
- Community Bus – Community bus lines provide coverage and access to primary and secondary land use components. This type of service runs as often as every 30 minutes on weekdays. Weekend service is provided as demand warrants.

The RTP has identified several roadways within Hillsboro for regional bus service including 185th Avenue, Cornell Road, Evergreen Parkway, 229th/231st/234th Avenue and Baseline Road. High quality regional transit service on corridors can link many high employment, regional center, and town center areas.

There is a future need to improve local transit service coverage, especially within the areas south of Tualatin Valley Highway, between Baseline Road and Tualatin Valley Highway and north of US 26. The RTP has designated Community Bus service on several roadways in Hillsboro including West Union, Rock Creek, Cornelius Pass, River Road and Brookwood. The community bus designations are shown in the Transit Master Plan.

³ Based on the 2000 *Regional Transportation Plan*, Metro, August 12, 2000.



- Urban Centers
- Pedestrian Districts
- Study Area
- Special Study Area Boundary
- East-West Connector Study Area
- Major Bus Stops (Metro)
- Light Rail Transit Stop
- Existing Transit Center
- Existing Park and Ride Lots
- Existing Transit Routes
- Light Rail Transit Line
- Streets
- RTP Designations**
- Frequent Bus
- Regional Bus
- Community Bus

Source:
-Metro (Regional Land Information System)
-City of Hillsboro

Figure 1-4
TRANSIT MASTER PLAN

0 5000 10000 Feet

MOTOR VEHICLES

Motor vehicle needs were analyzed in terms of existing conditions and future 2020 forecasts. Based upon the evaluation of intersection level of service, 38 of the study intersections operate at or worse than Level of Service E in the 2020 evening peak hour with no improvements. This compares with seven intersections operating at these levels today. The impact of future growth (caused by nearly 47,000 additional trips in the evening peak hour in 2020 as compared to today) would be severe without significant investment in transportation improvements. Poor performance on freeways and arterials would result in substantial impacts (added through traffic) to neighborhood and collector routes.

Figure 1-5 outlines the locations where major improvements are identified. Figure 1-6 summarizes the Hillsboro streets anticipated within the TSP planning horizon to require right-of-way for more than two lanes. Figure 1-7 identifies substandard study intersection locations based on 2020 conditions. A summary list of roadway improvement projects is provided in Table 1-3. A summary list of intersection improvement projects is provided in Table 1-4.

Predictably, increased traffic volumes necessitate the need for additional traffic control devices. The Hillsboro Traffic Signal Master Plan, displayed in Figure 1-8, proposes 25 new traffic signals located throughout the TSP study area.

Table 1-3

Motor Vehicle Project List

(All projects include sidewalks, bicycle lanes and transit accommodations as required)

Location		Description	Planning Status*	Lead Agency	Cost**
Highest Priority Projects					
Baseline Road: Lisa to Brookwood	Widen to 5 Lanes	RTP 3103	Wash. County	\$6,800,000	
Baseline Road: Brookwood to 231 st	Widen to 3 Lanes	RTP 3102	Wash. County	\$22,700,000	
Brookwood Pkwy: Baseline Rd. to TV Hwy	Widen to 3 Lanes	RTP 3137	Wash. County	\$8,700,000	
Cornelius Pass Road: Aloclek to Baseline	Widen to 5 Lanes	RTP 3135	Wash. County	\$17,000,000	
Cornelius Pass Road: Baseline to TV Hwy	Widen to 5 Lanes	RTP 3134/3126	Wash. County	\$16,170,000	
Evergreen: 25 th to 253 rd	Widen to 5 Lanes	RTP 3131	Wash. County	\$4,680,000	
185 th : TV Highway to Bany	Widen to 3 Lanes	Planned	Wash. County	\$4,100,000	
Cornell: 185 th to 25 th	Interconnect Traffic Signals	RTP 3150	Wash. County	\$1,000,000	
TV Highway: 209 th to 10 th	Interconnect Traffic Signals	RTP 3124	ODOT	\$1,730,000	
TV Highway Boulevard	Complete Boulevard Improvements	RTP 3119	ODOT	\$2,300,000	
Aloclek: Amberwood to Cornelius Pass	Extend 3 lane road	RTP 3104	Hillsboro	\$2,950,000	
231st Avenue Extension	Extend south of Baseline to Lois Street 3 Lane roadway	RTP 3106	Wash. County	\$19,300,000	
231 st /234 th Avenue: Dogwood to Baseline	Widen to 3 Lanes	RTP 3106	Wash. County	\$5,000,000	
Brookwood Extension s/o TV Hwy	Extend 3 Lanes, realign Witch Hazel	RTP 3118	Wash. County	\$10,000,000	
River Rd/Davis Rd	Construct Roundabout	Not in Plans	Wash. County	\$402,700	
Alexander Rd	Extend west of 247 th Ave to Davis Rd	Not in Plans	Wash. County	\$2,084,000	
Davis Rd	Extend to River Rd	Not in Plans	Wash. County	\$640,600	
Witch Hazel Village	Construct three roundabouts (two on Davis Rd, one at Alexander/247 th Ave)	Not in Plans	Wash. County	\$922,300	
Huffman Road	Extend west of Shute Rd to 253 rd Ave	Not in Plans	Wash. County	\$1,200,000	
253 rd Avenue	Improvements north of Evergreen Road; add southbound right turn lane	Not in Plans	Wash. County	\$690,000	
Dawson Creek Drive	Realign to connect with 253 rd Ave	Not in Plans	Hillsboro	\$1,000,000	
Subtotal				\$129,369,600	

Location		Description	Planning Status*	Lead Agency	Cost**
Second Highest Priority Projects					
Amberwood: 206th to Cornelius Pass	Widen to 3 Lanes	Not in Plans	Hillsboro	\$1,700,000	
Butler Road: 63rd to Brookwood/Airport	Widen and extend to 3 lane road	Not in Plans	Hillsboro	\$1,400,000	
Cornell: Arrington to Main	Widen to 5 Lanes	RTP 3128	Wash. County	\$6,800,000	
Glencoe: Lincoln to Evergreen	Widen to 3 Lanes	RTP 3099	Wash. County	\$4,467,000	
Amberglen Parkway: Walker to 206 th ***	Extend 3 Lane roadway	Not in Plans	Hillsboro	\$2,400,000	
Jackson School Road: Evergreen to Grant	Widen to 3 Lanes	RTP 3101	Hillsboro	\$5,162,850	
Jacobson Road at Helvetia	Realign intersection north of US 26	Not in Plans	Hillsboro	\$1,900,000	
Quatama Street: LRT to Cornelius Pass	Widen/improve 2/3 lane road	RTP 3091	Hillsboro	\$2,400,000	
Salix Extension: LRT to Walker ***	Extend 2/3 Lane roadway	Not in Plans	Hillsboro	\$4,900,000	
Walker Road: Amberglen to 185 th	Widen to 5 Lanes	RTP 3144	Wash. County	\$3,850,000	
10 th Avenue: Walnut to Washington	Widening and turn lanes	RTP 3113/3114/3115	ODOT/Wash. County	\$5,700,000	
2 nd /3 rd /4 th /5 th Avenues downtown	Convert to two-way operation	Not in Plans	Hillsboro	\$2,000,000	
East-West Collector: Cornelius Pass to Salix ***	Extend 2/3 lane road	RTP 3105	Hillsboro	\$4,400,000	
Johnson: 185 th to 234 th	Widen to 3 lanes	WACO 122	Wash. County	\$13,500,000	
185th Avenue: Westview to Springville	Widen to 5 Lanes	RTP 3067	Wash. County	\$5,700,000	
206th Avenue: Amberwood to LRT	Widen to 3 Lanes	Not in Plans	Hillsboro	\$3,500,000	
Other Collector Reconstruction	Multiple Locations	Not in Plans	Wash. County/ Hillsboro	\$43,300,000	
Intersection Improvements	Multiple Locations (see Table 1-5)	Not in Plans	ODOT/Wash. County/ Hillsboro	\$31,800,000	
Other Traffic Signals (16)	City/County operational enhancement	Not in Plans	Wash. County/ Hillsboro	\$4,500,000	
US 26/Cornelius Pass Road	Build new diagonal ramps in NE & SE quadrants. Add ramp meter storage.	RTP 3133 OTIA	ODOT/Wash. County	\$5,700,000	
US 26/Shute Road	New loop ramp and interchange modifications	RTP 3149	ODOT/Wash. County	\$6,400,000	
US 26/229th Overcrossing	Extend 229th from Evergreen to West Union as 3 Lane roadway	RTP 3139/3140	Hillsboro	\$9,500,000	

Location	Description	Planning Status*	Lead Agency	Cost**
197 th /198 th : Baseline to TV Highway	Widen to 3 lanes	WACO 123	Wash. County	\$13,900,000
US 26/Jackson School Road	Construct new interchange	RTP 3003	ODOT	\$18,480,000
209 th : TV Highway to Rosedale	Realign and widen to 3 lanes	WACO 12	Wash. County	\$21,000,000
			Subtotal	\$224,359,850
Third Highest Priority Projects				
Airport Road: Evergreen to Brookwood	Realign and widen to 2/3 lanes	Not in Plans	Hillsboro	\$3,200,000
Baseline Road/185 th Intersection	Upgrade Capacity/Grade Separation	Not in Plans	Wash. County	\$17,000,000
Cornelius Pass Road Extension	Extend 3 lane road south of TV Hwy to 209 th with grade separation over/under TV Hwy	Not in Plans	Wash. County	\$15,900,000
Heritage: 185 th to Salix	Extend 2 lane road	Not in Plans	Wash. County	\$2,200,000
Parr: 185 th to Salix	Connect 3 lane road	Not in Plans	Wash. County	\$2,200,000
Quatama Street: Cornelius Pass to 227 th	Widen/improve 2/3 lane road	RTP 3091	Hillsboro	\$3,800,000
Quatama Street: 227 th to Baseline	Extend 2/3 lane road	RTP 3091	Hillsboro	\$3,200,000
TV Highway: Access Control	Driveway/Turn Lane modifications	RTP 3060	ODOT/Wash. County	\$17,300,000
East-West Collector: Brookwood to 28 th	Extend Grant Street with a new 3 lane road n/o LRT	RTP 3117	Hillsboro	\$9,000,000
East-West Collector: River to 209 th	Extend and widen to 3 lane road	Not in Plans	Wash. County	\$20,700,000
28th Avenue: Cornell to Baseline	Widen to 3 lanes	RTP 3114	Hillsboro	\$3,200,000
185th Avenue: Cornell to Walker	Widen to 7 Lanes	Not in Plans	Wash. County	\$3,600,000
Alexander: 185 th to 209 th	Widen to 3 lanes	WACO 121	Wash. County	\$10,900,000
Kinnaman: 209 th to 198 th	Widen to 3 lanes	WACO 200	Wash. County	\$4,600,000
188th Extension: Cornell to Walker	Extend 3 lane road	Not in Plans	Hillsboro	\$2,700,000
205th Avenue: LRT to Baseline	Widen to 5 Lanes	RTP 3107	Wash. County/ Hillsboro	\$7,100,000
US 26 Auxiliary Lanes: Shute to 185 th	Add Auxiliary Lanes	Not in Plans	ODOT	\$22,700,000
US 26/Glencoe Road	Interchange improvement/modernization	STIP safety projects	ODOT	\$13,600,000
Evergreen: Glencoe to 25 th	Widen to 5 Lanes	Not in Plans	Wash. County	\$4,000,000

Location	Description	Planning Status*	Lead Agency	Cost**
TV Highway: 185 th to Cornelius Pass	Widen to 7 lanes ⁴	Not in Plans	ODOT/Wash. County	\$50,000,000
Evergreen extension: Glencoe to Homecker	New 3 lane roadway	Not in Plans	Wash. County	\$9,200,000
Springville extension: West Union to 185 th	New 3 lane roadway	Not in Plans	Wash. County	\$5,900,000
West Union: Springville extension to 185 th	Widen to 3 lanes	WACO 93	Wash. County	\$1,000,000
West Union: Springville extension to Cornelius Pass	Widen to 5 lanes	WACO 104	Wash. County	\$12,400,000
Subtotal			\$245,400,000	
MOTOR VEHICLE STREET IMPROVEMENT TOTAL				\$599,129,450

* RTP = Regional Transportation Plan, financially constrained and priority system improvements, August 2000
WACO = Washington County 2020 Transportation Plan A-Engrossed Ordinance 588, adopted October 29, 2002.

LRT = Light Rail Transit facility

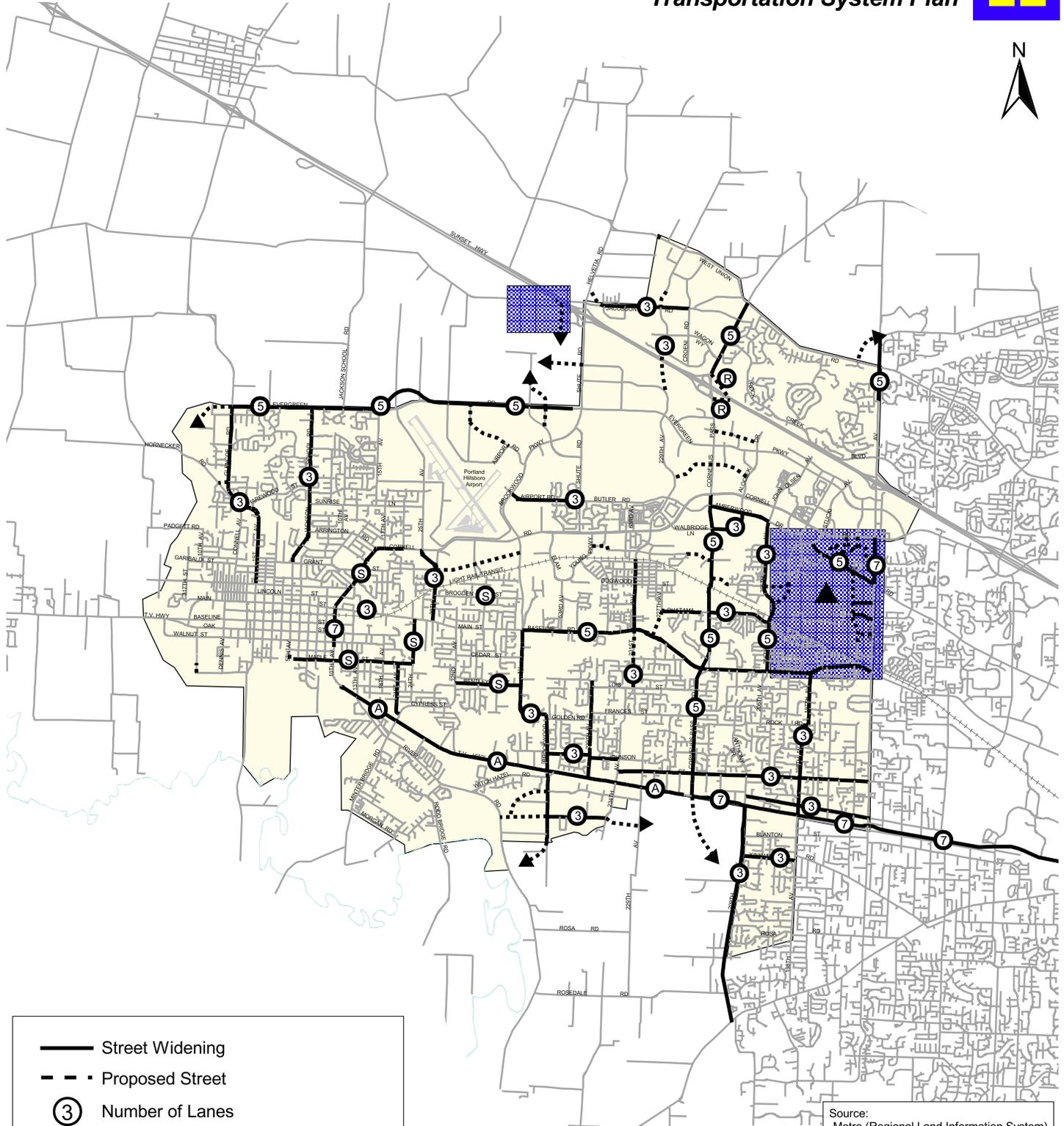
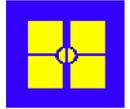
Planned = projects included in the MSTIP, STIP, CIP or approved RTP funding programs.

Not in Plans = projects not previously addressed in one of the local or regional transportation improvement plans.

**Cost estimate represents current 2003 dollars.

***Road alignment is subject to East-West Connector Study Area

⁴ Due to potential encroachment on the railroad right-of-way to the south of TV Highway, future widening will likely be concentrated mostly on the north side of the highway corridor.



- Street Widening
- - - Proposed Street
- ③ Number of Lanes
- Ⓐ Access Control Strategy
- Ⓡ New Ramps
- Ⓢ Multi-modal Street Reconstruction
- ▨ Special Study Area Boundary
- ▲ East-West Connector Study Area

Source:
-Metro (Regional Land Information System)
-City of Hillsboro

Figure 1-5
STREET IMPROVEMENT PLAN

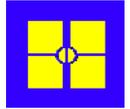
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Table 1-4
Study Intersection Project List

No.	Study Intersection	Proposed Improvements
1	1 st Avenue/Main Street	Add WB right turn lane
2	Shute Road/US 26 WB ramps	Add SB through lane, construct interchange improvements
3	Shute Road/US 26 EB ramps	Install traffic signal, construct interchange improvements
4	Cornelius Pass/US 26 WB ramps	Construct WB off ramp
5	Cornelius Pass/US 26 EB ramps	Construct NB to SB diamond ramp as a free movement
6	Evergreen Parkway/229 th Avenue	Add NB/SB right turn lanes, protected-permitted N/S signal, protected E/W signal
7	Evergreen Road/Cornelius Pass	Add 2 nd left turn lane on NB/SB/EB approaches, EB and WB right turn lanes, protected E/W signal
8	1 st Avenue/Grant Street/Glencoe	Install traffic signal: Glencoe 3 lanes (add turn lanes on Grant)
9	Cornell Road/Brookwood Parkway	Add SB right turn lane
10	Cornell Road/229 th -231 st Avenue	Add EB and SB right turn lanes, add WB 2 nd left turn lane
11	Cornell Road/Cornelius Pass *	Add WB and SB right turn lanes, 2 nd EB left turn lane, protected E/W signal
12	185 th Avenue/Walker Road *	Add 2 nd SB and EB left turn lanes, WB right turn lane: 185 th
13	Baseline Road/185 th Avenue *	Add 2 nd SB left turn lane
14	10 th Avenue/Baseline Road	Add SB right turn lane, NB 2 nd left turn lane, restripe for 2 nd WB lane
15	13 th Avenue/River Road/TV Hwy	Add EB right turn lane and NB left turn lane
16	Brookwood Parkway/TV Hwy	Extend Brookwood south, 2 nd SB left turn lane
17	239 th Avenue/TV Hwy	Traffic signal
18	Cornelius Pass/TV Hwy *	Add 2 nd NB/SB/EB left turn lanes
19	Bentley Street/Brookwood Avenue	EB left turn lane
20	Harewood Street/Jackson School	Add EB right turn lane
21	185 th Avenue/TV Hwy *	Add EB right turn lane
22	Cornell Road/Stucki Avenue	Add EB right turn lane
23	Shute Road/Evergreen Road	Add 2 nd EB left turn lane, EB and WB right turn lanes
24	Witch Hazel Road/River Road	Traffic signal
25	Minter Bridge Road/TV Hwy	Convert NB through-left lane to a separate left turn lane and change N/S signal phasing to protected
26	10 th Avenue/Oak Street	Third NB through lane
27	Grant Street/25 th -28 th Avenue	Add EB left turn lane
28	Evergreen Road/185 th Avenue *	Add SB right turn lane, NB 2 nd left turn lane
29	Cornell Road/Grant Street	EB/WB left turn lane
30	Cornell Road/10 th Avenue/Main	Add through NB and SB lanes

No.	Study Intersection	Proposed Improvements
31	Cornell Road/185 th Avenue *	Add NB and SB double left turn lanes, add NB right turn lane: 185 th Avenue 7 lanes
32	Baseline Road/Cornelius Pass	Add NB and SB right turn lanes: Baseline 5 lanes, Cornelius Pass 5 lanes
33	229 th Avenue/Alexander Street	Install traffic signal
34	234 th Avenue/Alexander Street	Install traffic signal
35	River Road/Rood Bridge Road	Add an eastbound right-turn lane
36	229 th Avenue/TV Hwy	Add a northbound right-turn lane
37	209 th Avenue/TV Hwy	Add northbound and southbound right turn lanes
38	253 rd Avenue/Evergreen Road	Install traffic signal

* Potential grade separation candidate Washington County 2020 Transportation Plan

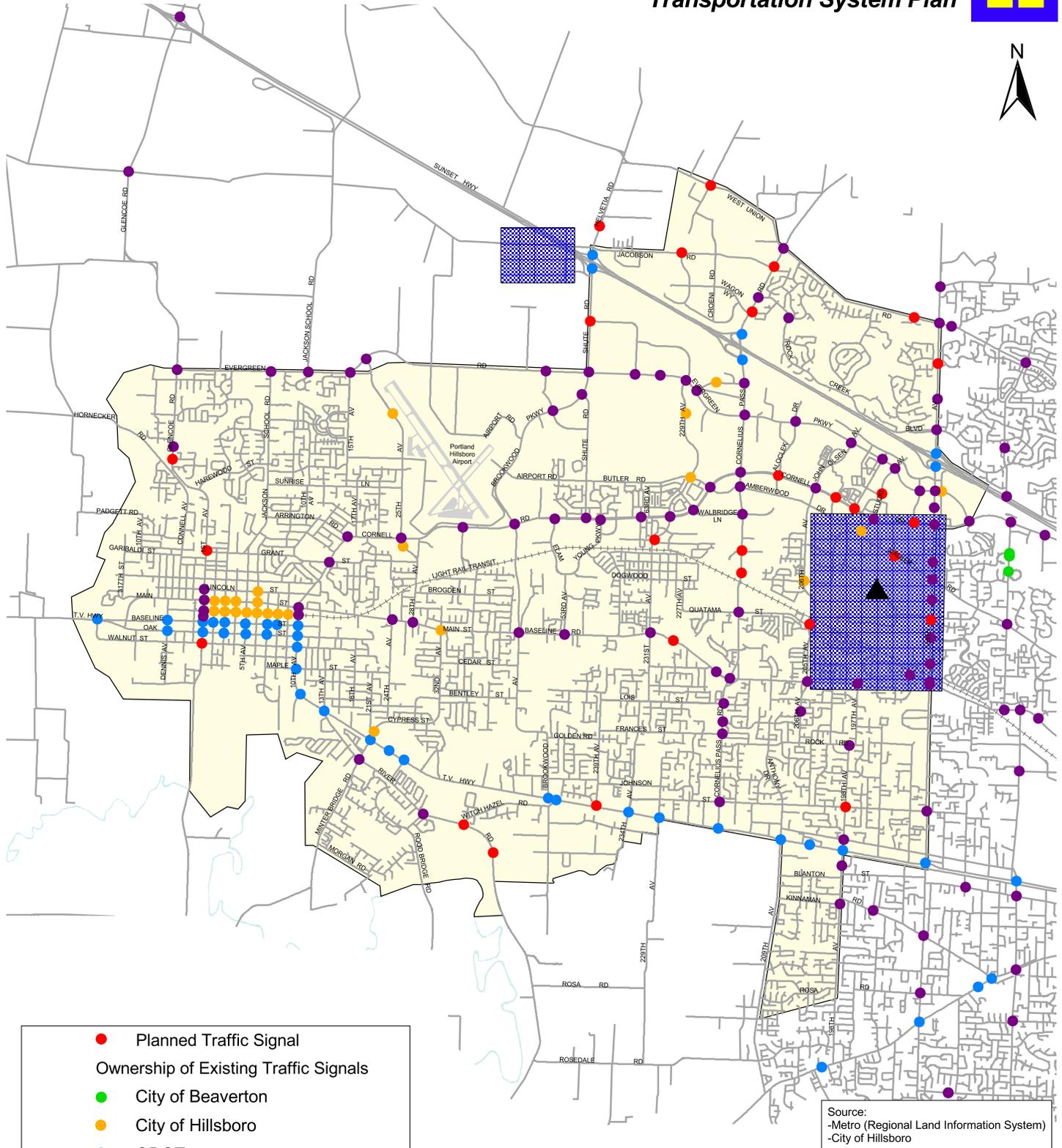
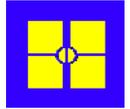


Source:
-Metro (Regional Land Information System)
-City of Hillsboro

- Study Intersection
- Intersection Required Identified Mitigation
- Study Area Boundary
- Special Study Area Boundary
- East-West Connector Study Area

Figure 1-7
2020 SUBSTANDARD INTERSECTIONS
AND IMPROVEMENT LOCATIONS

0 5000 10000 Feet



- Planned Traffic Signal
- Ownership of Existing Traffic Signals**
- City of Beaverton
- City of Hillsboro
- ODOT
- Washington County
- Study Area Boundary
- Special Study Area Boundary
- ▲ East-West Connector Study Area

Source:
-Metro (Regional Land Information System)
-City of Hillsboro

Figure 1-8
TRAFFIC SIGNAL MASTER PLAN

0 5000 10000 Feet



Functional Classification

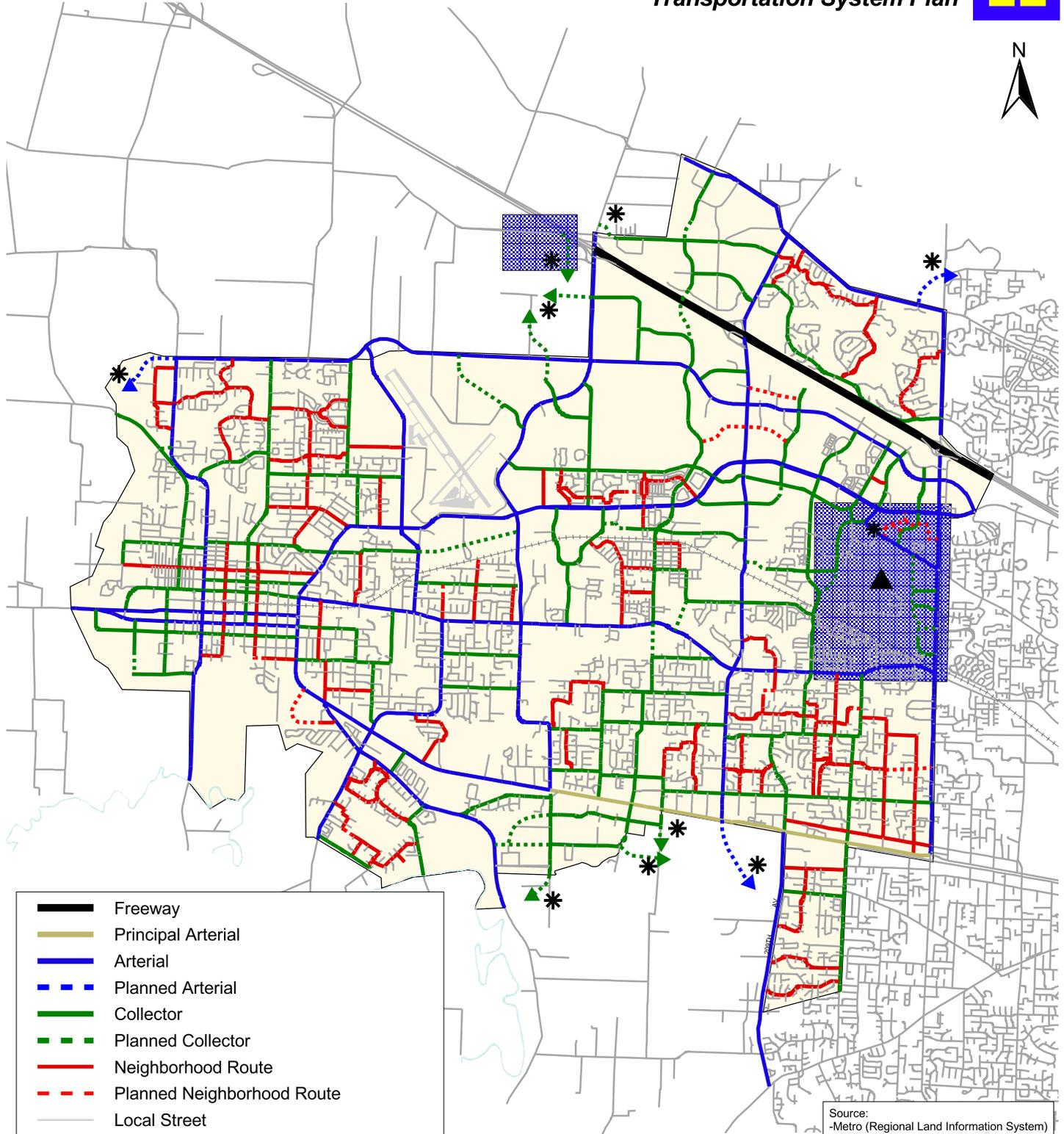
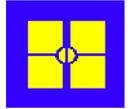
The current functional classification of streets in Hillsboro was updated to reflect regional planning and the local needs of Hillsboro. Classifications of principal arterial, arterial, collector, neighborhood routes and local streets have been developed based upon connectivity, which is the best indicator of function. Figure 1-9 summarizes the functional classification recommendations.

Connectivity/Local Street Plan

The current connectivity plans for Hillsboro were updated to reflect recent changes land use, the expanded study area and recently constructed projects since the 1999 TSP. Recommended local connections for vehicles and pedestrians/bicycles are shown on Figures 1-10 to 1-17 (representing the City of Hillsboro neighborhood districts). The arrows represent potential connections and the general direction for the placement of the connection. In each case, the specific alignments and design will be better determined upon development review. The criteria used for providing connections are as follows:

- 300 to 500 foot grid for pedestrians and bicycles
- 530 foot grid for automobiles

To protect existing neighborhoods from potential traffic impacts of extending stub end streets, it may be appropriate to incorporate neighborhood traffic management into their design and construction of connector roadways. The arrows shown on the local connectivity figures indicate priority connections only. Other stub end streets in the City's road network may become cul-de-sacs, extended cul-de-sacs or provide local connections. Connections from these stub end streets could be deemed appropriate and beneficial to the public, as future development occurs. The goal is to continually improve city connectivity for all modes of transportation.

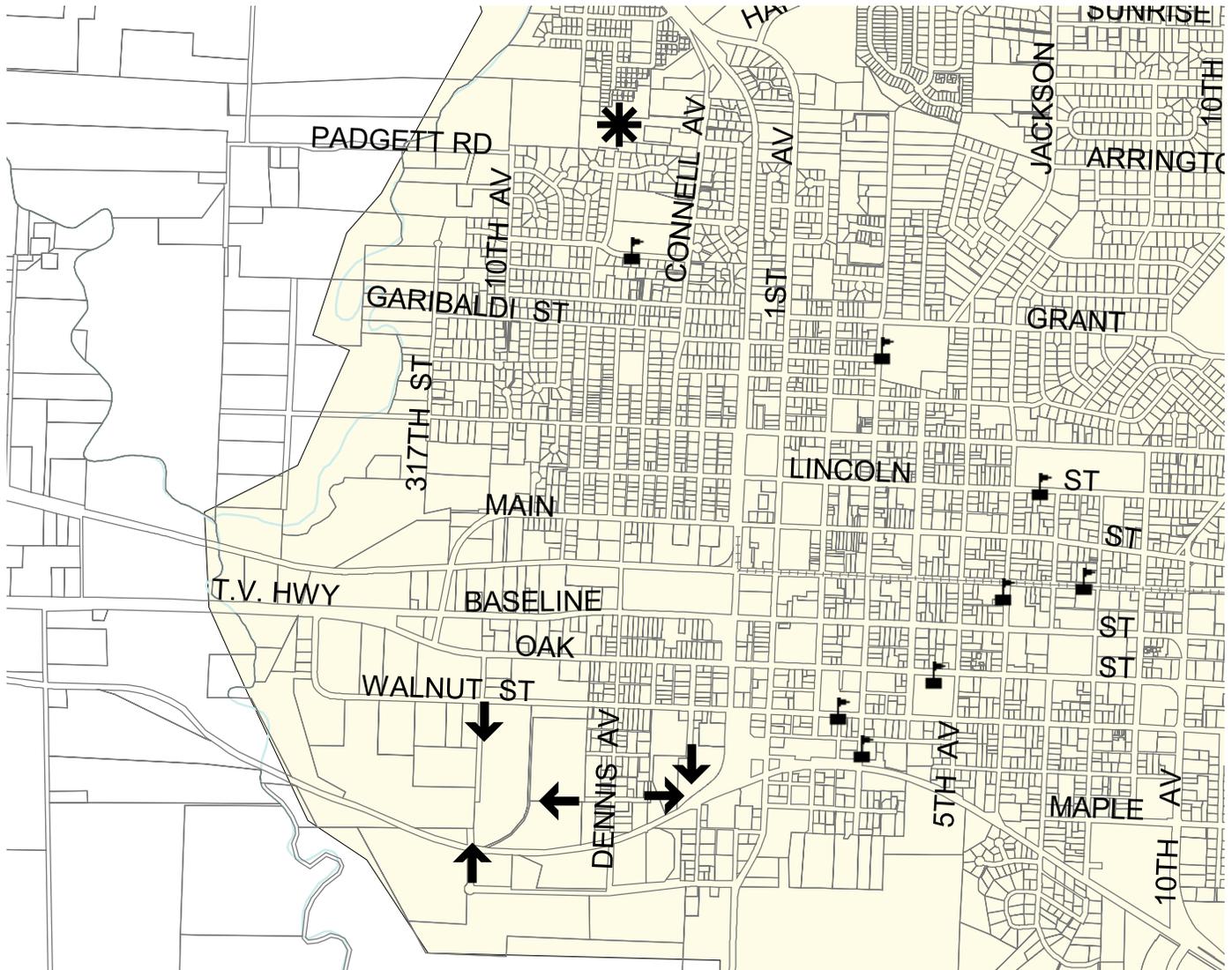
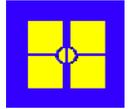


Source:
-Metro (Regional Land Information System)
-City of Hillsboro

- Freeway
- Principal Arterial
- Arterial
- Planned Arterial
- Collector
- Planned Collector
- Neighborhood Route
- Planned Neighborhood Route
- Local Street
- Study Area Boundary
- Special Study Area Boundary
- East-West Connector Study Area
- Alignment subject to UGB expansion and/or future refinement or study in these areas.

Figure 1-9
FUNCTIONAL CLASSIFICATION PLAN

0 5000 10000 Feet

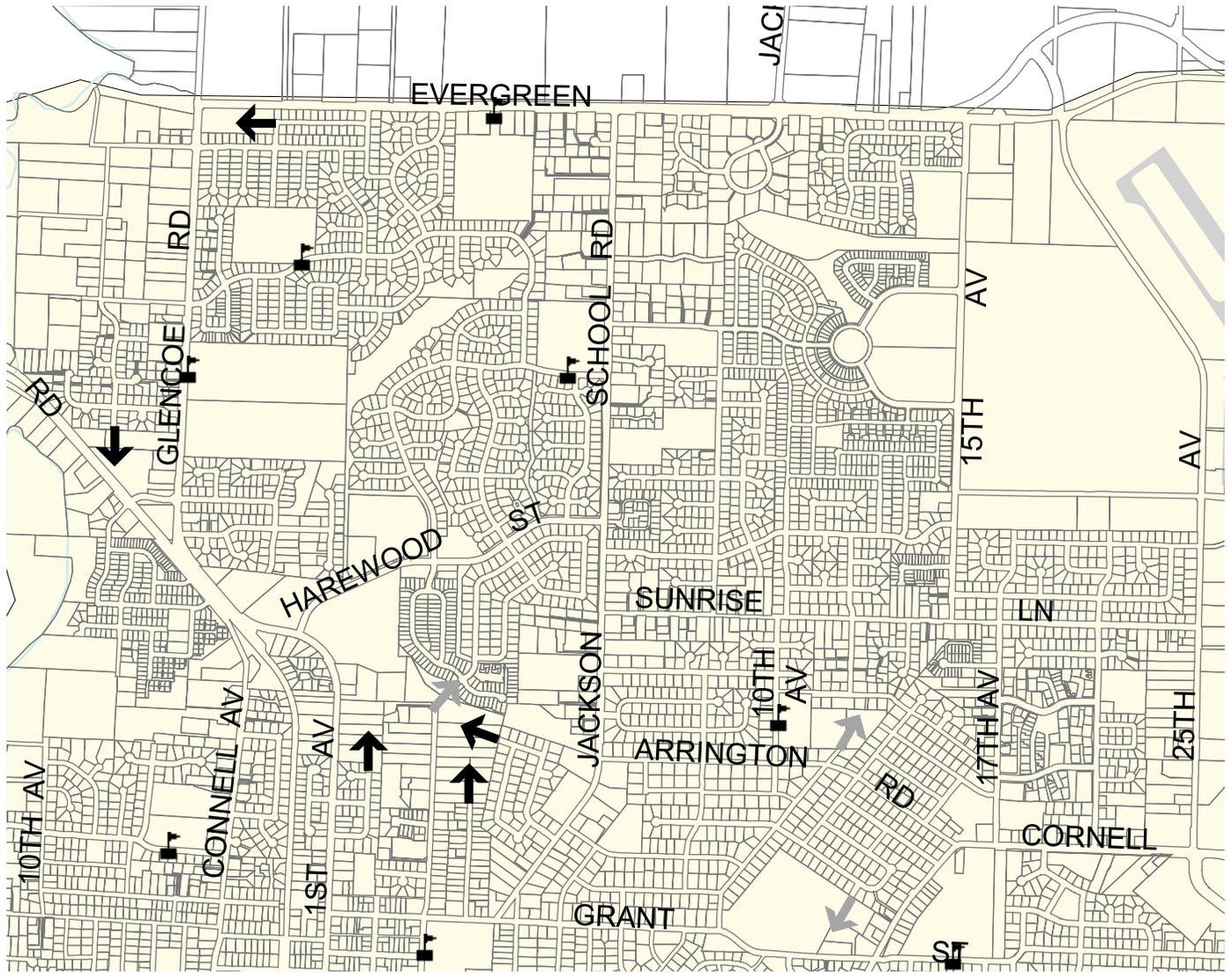
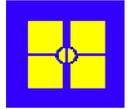


-  School
-  Planned Local Street Connection
-  Study Boundary
-  Requires further study of connections in development review

Source:
-Metro (Regional Land Information System)
-City of Hillsboro

Figure 1-10
LOCAL STREET CONNECTIVITY
WEST HILLSBORO

0 1000 2000 Feet

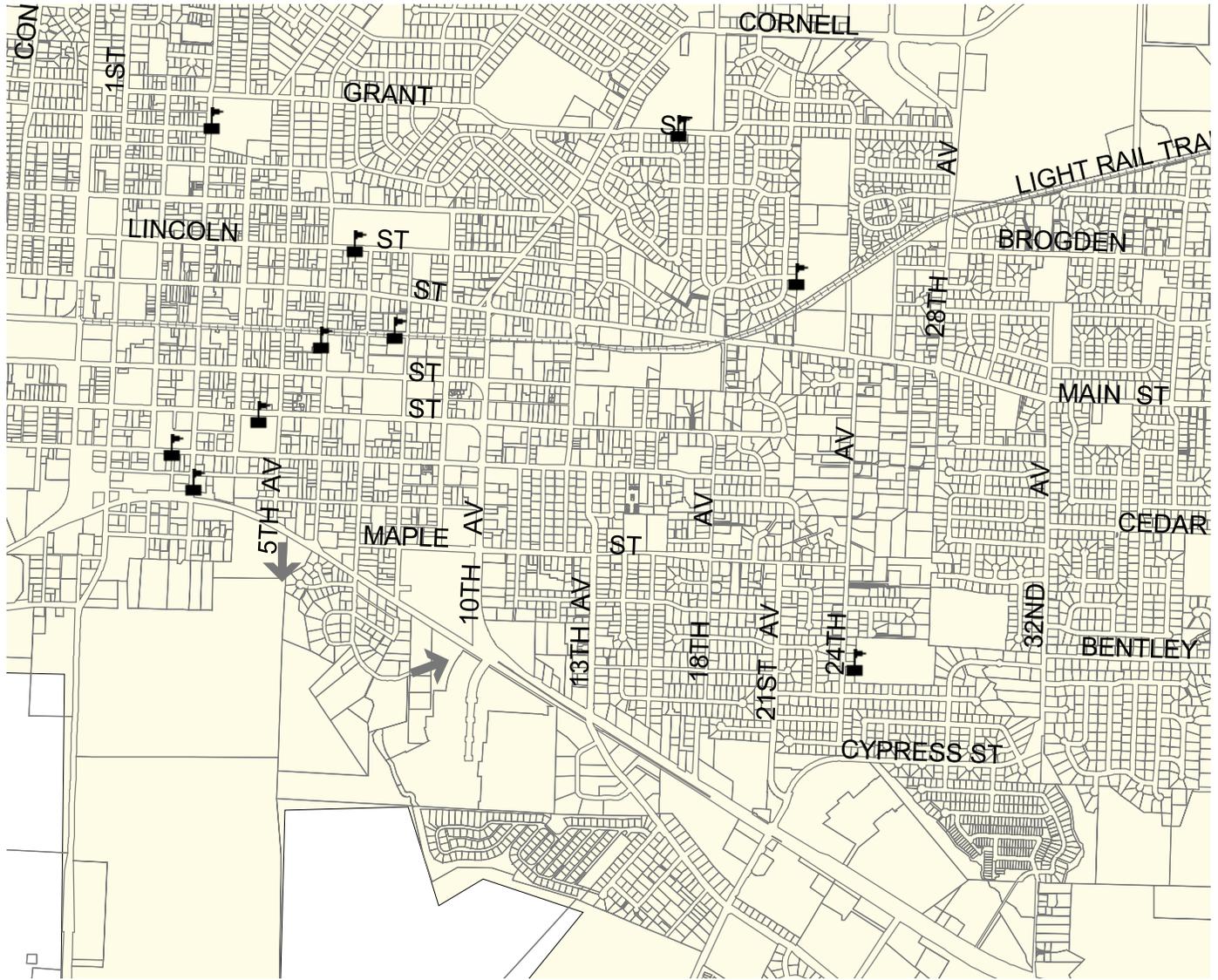
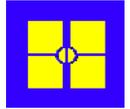


	School
	Planned Local Street Connection
	Planned Pedestrian Connection
	Study Boundary

Source:
-Metro (Regional Land Information System)
-City of Hillsboro

Figure 1-11
LOCAL STREET CONNECTIVITY
NORTHWEST HILLSBORO

0 1000 2000 Feet

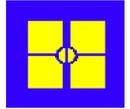


Source:
-Metro (Regional Land Information System)
-City of Hillsboro

	School
	Planned Pedestrian/Bicycle Connection
	Study Boundary

Figure 1-12
LOCAL STREET CONNECTIVITY
CENTRAL HILLSBORO

0 2000 4000 Feet

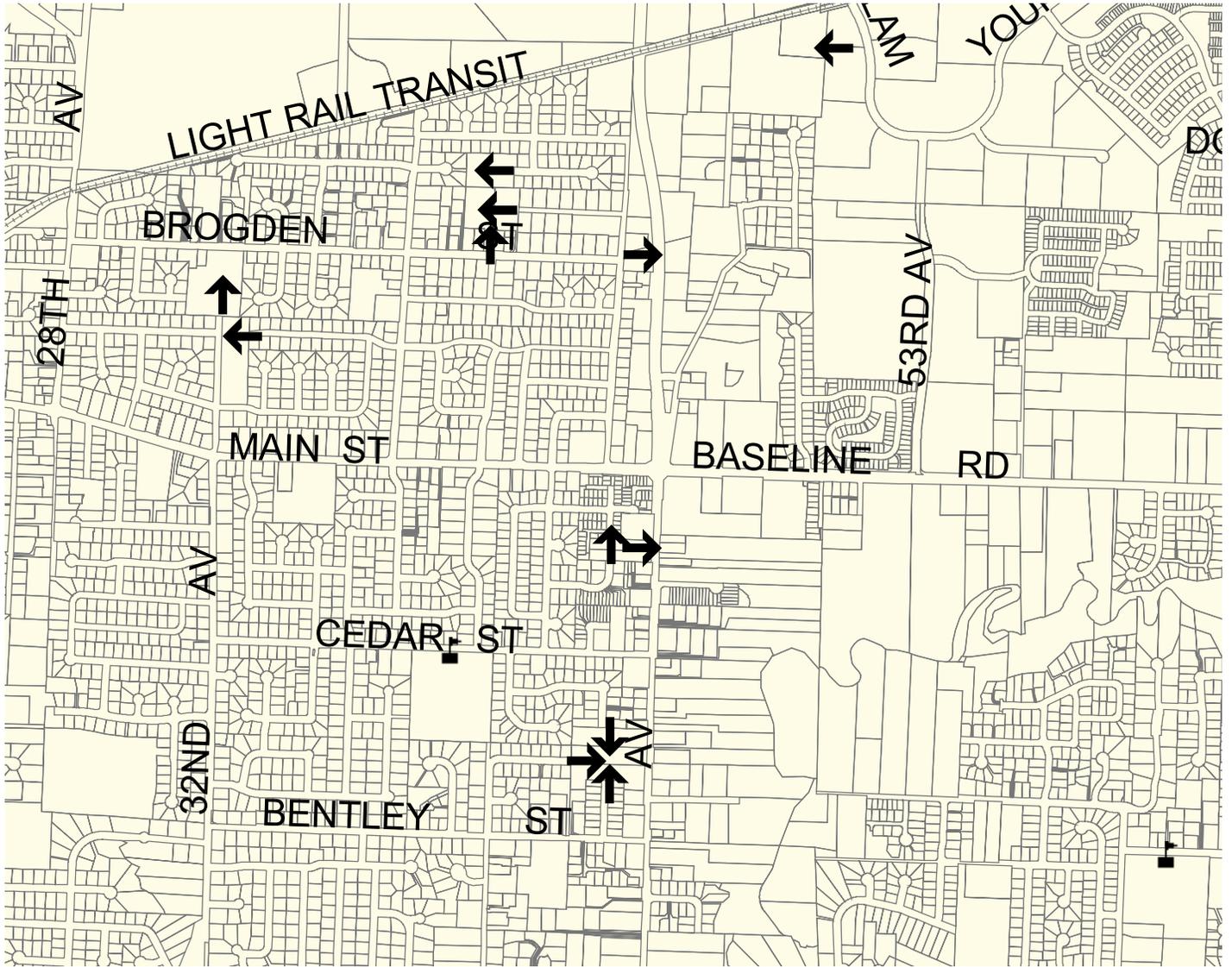
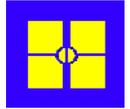


Source:
-Metro (Regional Land Information System)
-City of Hillsboro

	School
	Planned Local Street Connection
	Planned Pedestrian Connection
	Study Boundary

Figure 1-13
LOCAL STREET CONNECTIVITY
SOUTH HILLSBORO

0 1000 2000 Feet

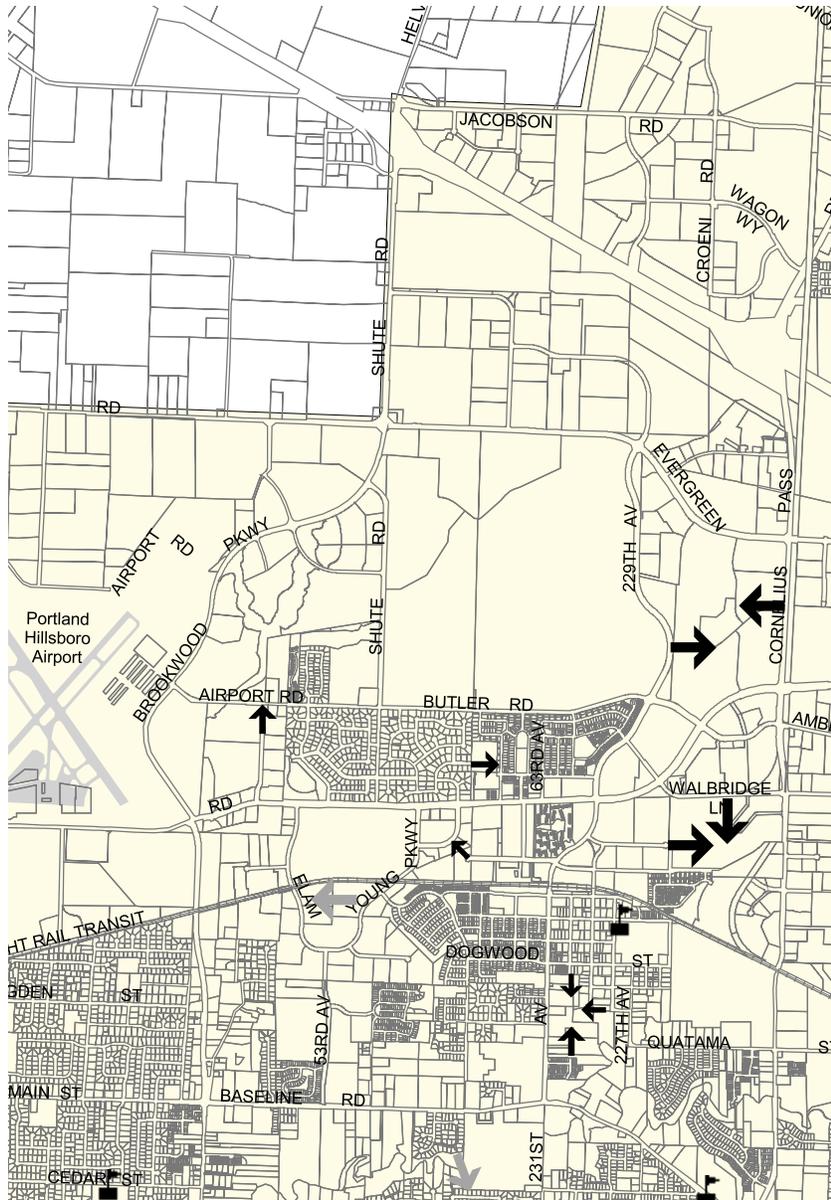


Source:
-Metro (Regional Land Information System)
-City of Hillsboro

	School
	Planned Local Street Connection
	Study Boundary

Figure 1-14
LOCAL STREET CONNECTIVITY
BROOKWOOD

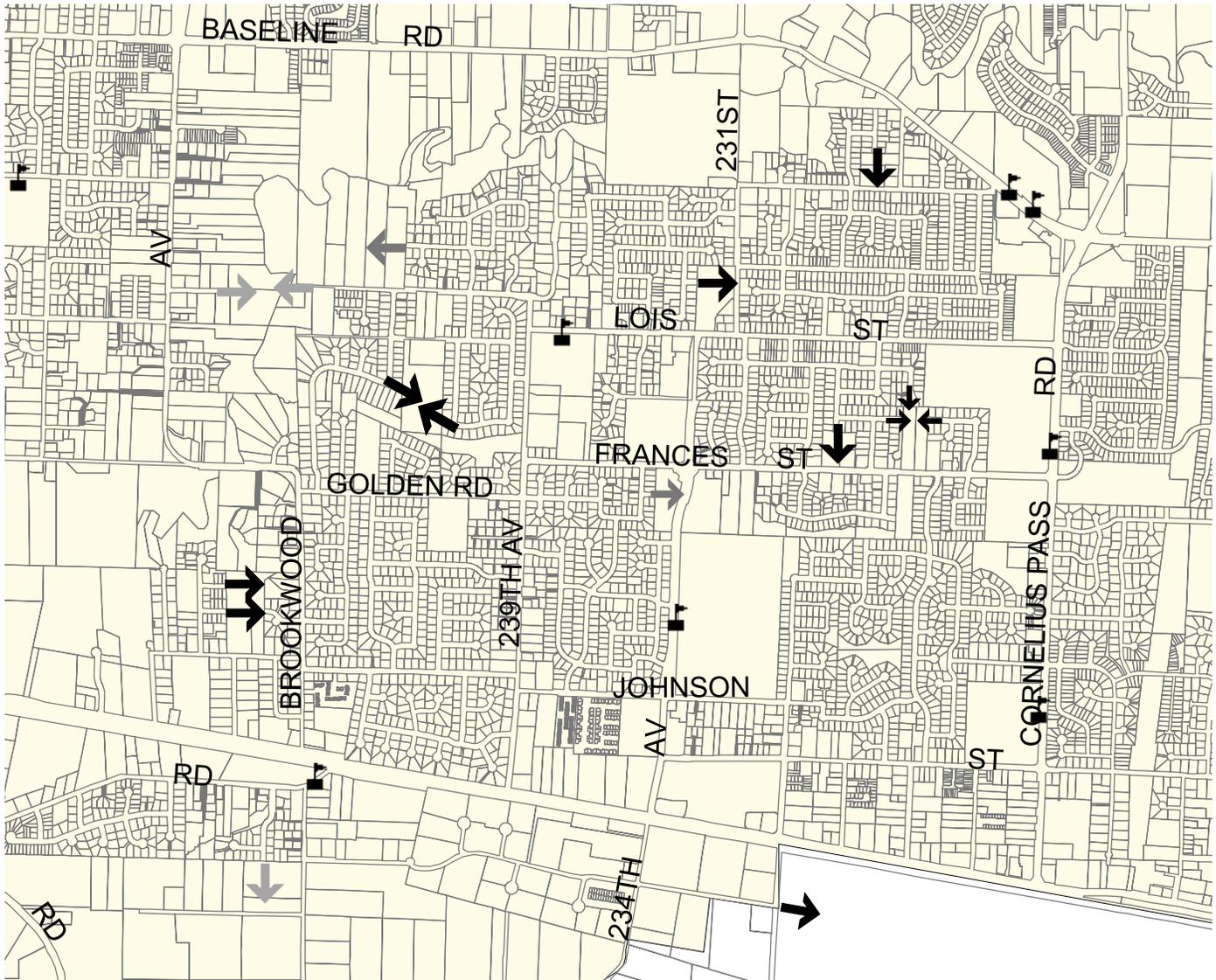
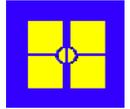
0 900 1800 Feet



Source:
-Metro (Regional Land Information System)
-City of Hillsboro

	School
	Planned Local Street Connection
	Planned Pedestrian Connection
	Study Boundary

Figure 1-15
LOCAL STREET CONNECTIVITY
NORTHEAST HILLSBORO

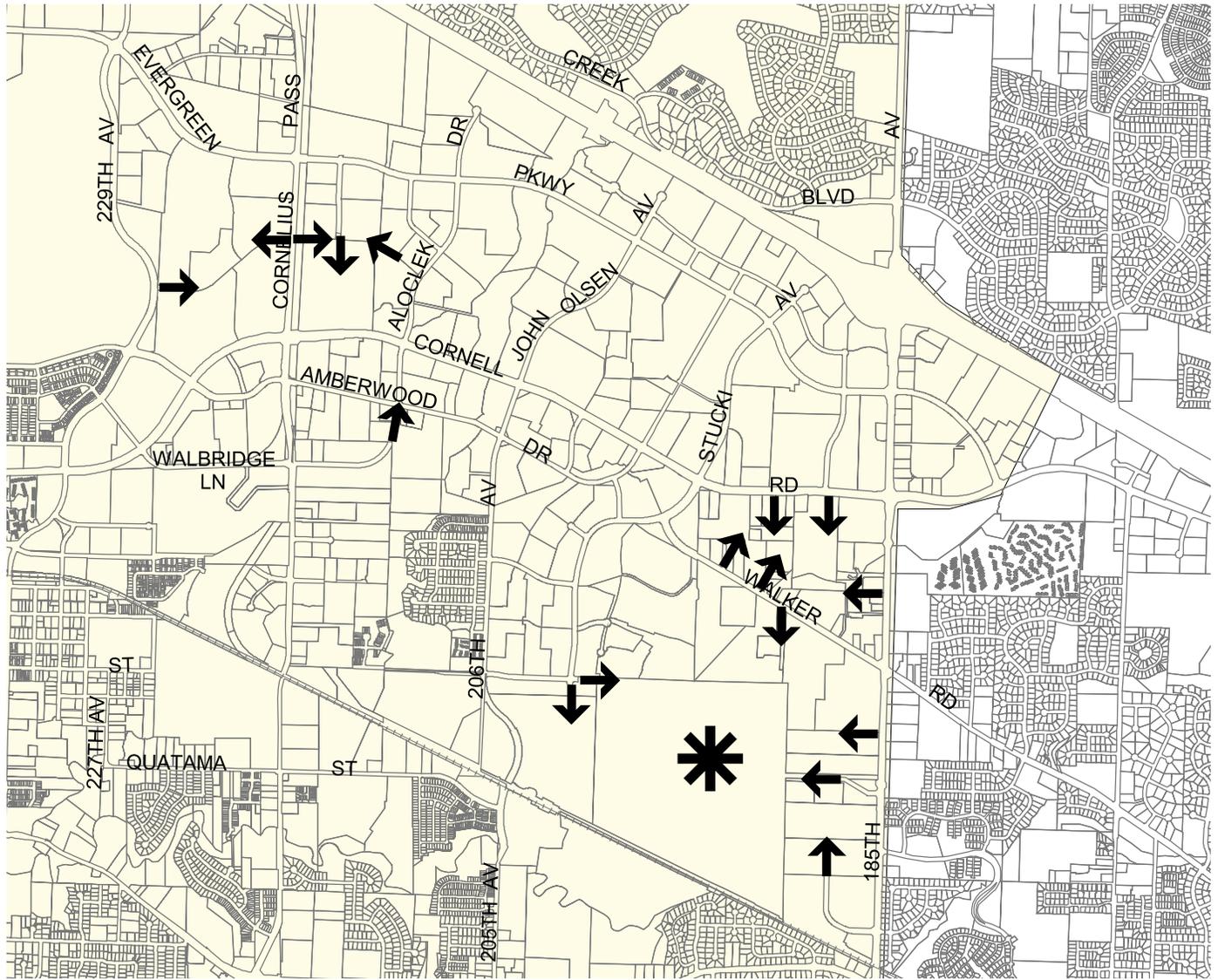
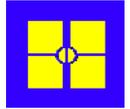


Source:
-Metro (Regional Land Information System)
-City of Hillsboro

	School
	Planned Local Street Connection
	Planned Pedestrian Connection
	Study Boundary

Figure 1-16
LOCAL STREET CONNECTIVITY
SOUTHEAST HILLSBORO

0 1000 2000 Feet



-  School
-  Planned Local Street Connection
-  Study Boundary
-  The OHSU West Campus Master Plan includes an east-west connection. However, final determination of this connector and alignment(s) will require further study.

Source:
-Metro (Regional Land Information System)
-City of Hillsboro

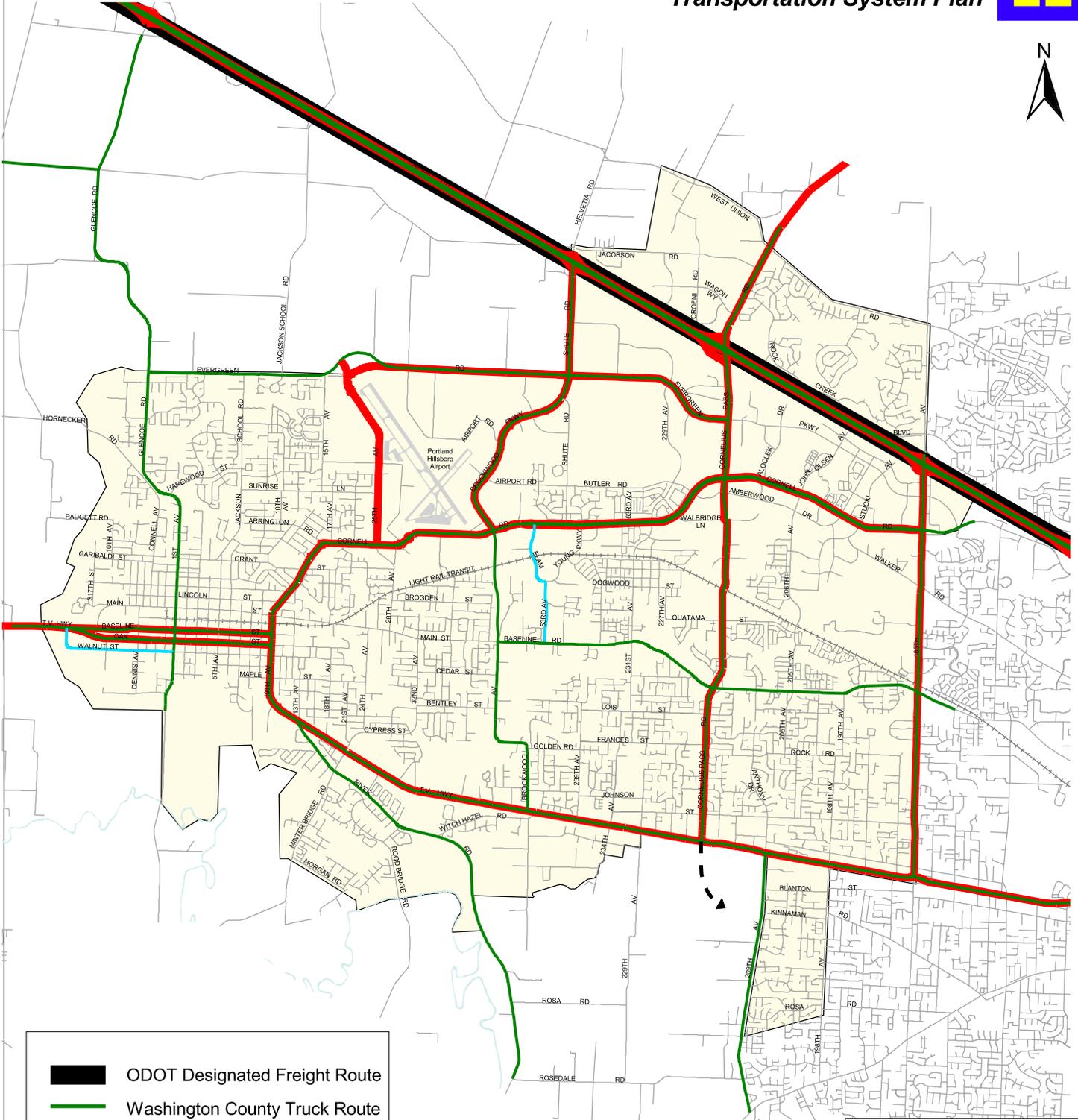
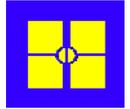
Figure 1-17
LOCAL STREET CONNECTIVITY
EAST HILLSBORO

0 2000 4000 Feet



TRUCKS/FREIGHT MOVEMENT

Efficient truck and freight transport plays a vital role in the economy via the movement of raw materials and finished products. The establishment of through truck routes provides for this movement while at the same time maintaining neighborhood livability, public safety and minimizing maintenance costs of the roadway system. To accomplish this, a map of through truck routes in Hillsboro has been developed (Figure 1-18). This is intended to address the movement of trucks through the study area with regional destinations, not local deliveries. The objective of this route designation is to allow these routes to focus on design criteria that is “truck friendly”, i.e. 12 foot travel lanes, greater access spacing, 35 foot (or larger) curb returns and pavement design that accommodates a larger share of trucks. The truck master plan is shown in Figure 1-18.

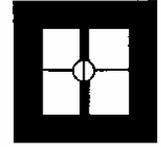


-  ODOT Designated Freight Route
-  Washington County Truck Route
-  City Truck Route
-  Metro Regional Freight System
-  Future Truck Route
-  Study Area Boundary

Source:
-Metro (Regional Land Information System)
-City of Hillsboro

Figure 1-18
TRUCK/FREIGHT ROUTE MASTER PLAN

0 5000 10000 Feet



Chapter 2

Goals and Policies

The 1999 Hillsboro TSP established goals and policies to guide the City's 20 year vision of transportation system needs. The 1999 TSP consists of seven goals with related policies organized under each goal. The goals are simple, brief guiding statements, which describe a desired result. The policies focus on how goals will be met by describing the types of actions that will contribute to achieving the goal. Many of these goals and policies pertain specifically to motor vehicles. These goals and policies represent the criteria that all motor vehicle improvements or changes in Hillsboro should be measured against to determine if they conform to the intended direction of the City.

No changes to the overall goals are recommended with this TSP update. Goal statements have been modified in order to better articulate their purpose. Several policies discussed in the 1999 TSP have been updated to reflect current regional and local needs. The proposed goals and policies are summarized below.

GOALS AND POLICIES

Goal 1: Promote Safety. Develop and Maintain a Safe Transportation System that Conforms to the Manual on Uniform Traffic Control Devices (MUTCD) and American Association of State Highway and Transportation Officials (AASHTO) Guidelines.

Key Elements: Accident Reduction, Maintenance, Access Management

- Policy 1. Build and maintain a well-defined and safe transportation system within the City for pedestrian, bicycle, transit, motor vehicles, air and rail travel.
- Policy 2. Establish a City monitoring system that regularly evaluates, prioritizes and mitigates high accident locations within the City.
- Policy 3. Promote transportation system safety through education and law enforcement.
- Policy 4. Implement access management standards for arterial and collector roadways consistent with City, County and State requirements.

(i) The City of Hillsboro shall coordinate with ODOT in the evaluation of any action (such as a comprehensive plan amendment) that would affect the function of the Cornelius Pass Road interchange. (ii) The function of the Cornelius Pass Road interchange is to provide safe and efficient access for long-distance, regional trips (e.g. between Hillsboro and the Portland metropolitan area) as well as for local traffic that originates and terminates within Hillsboro. The interchange has been designed to provide capacity and

safe operations to accommodate this function over the 15-year planning period.

- Policy 5. Provide adequate access to properties for emergency services vehicles throughout the City through the City land use planning and development review procedures.
- Policy 6. Do not permit land uses within airport noise corridors that are not noise compatible, and avoid the establishment of uses that are physical hazards to air traffic at the Hillsboro Airport.
- Policy 7. Coordinate, when applicable and appropriate, federal, state and local safety and compliance standards in the operation, construction and maintenance of the rail and pipeline systems in Hillsboro.
- Policy 8. Encourage grade separations or gate controls at primary railroad crossings of streets.

Goal 2: Support Multi-modal Travel. Provide a Balanced Transportation System that Serves the Many Modes of Travel.

Key Elements: Pedestrians, Bicycles, Motor Vehicles, Transit, Other modes

- Policy 1. Design transportation facilities within Hillsboro that accommodate multiple modes of travel within transportation corridors, where appropriate, and encourage their use to move people, goods and services within these corridors. Encourage and coordinate efforts to provide convenient linkages between various modes of travel.
- Policy 2. Construct bikeways and pedestrians facilities on major, new or reconstructed arterial and collector streets within Hillsboro (with roadway construction or reconstruction projects.) Coordinate (or require where appropriate) convenient access to existing or planned bike and pedestrian facilities from nearby schools, parks, transit, public facilities and retail areas.
- Policy 3. Connect gaps in the sidewalk system according to the Hillsboro Pedestrian System Plan.
- Policy 4. Link the regional trails network to Hillsboro's bicycle and pedestrian systems.
- Policy 5. Encourage and work with Tri-Met to improve local bus transit service.

Goal 3: Support Trip Reduction. Develop a Transportation System that Reduces the Rate of Increase of Motor Vehicle Trips and Contributes to Regional Goals to Reduce Per Capita Vehicle Miles of Travel.

Key Elements: Land Use/ Development Code, Transportation Demand Management, Parking

- Policy 1. Participate in trip reduction strategies developed locally and regionally, including employment, tourist and recreational trip programs.
- Policy 2. Ensure that nearby commercial, community service and high employment industrial land uses are developed in a manner that provides convenient access to pedestrians, bicyclists and transit riders. Support compact, mixed-use development including infill and redevelopment in appropriate areas of the City.
- Policy 3. Implement City Light Rail Station Community Planning Areas in ways that encourage the location of the highest land use densities and mixed uses near the best transit services.
- Policy 4. Limit the provision of parking to meet regional and state standards.

Goal 4: Performance. Fund Projects that Promote an Efficient, Economic Transportation System That Maximizes the Movement of Vehicles, Pedestrians, Cyclists, Etc.

Key Elements: Level of service (LOS) standards, Transportation System Management

Policy 1. Maintain a level of service consistent with regional goals and reduce traffic congestion.

The current Regional Transportation Plan¹ and Washington County Transportation System Plan² provide motor vehicle performance measures. The RTP defines deficiency thresholds and operating standards for Town Centers, Main Streets, Regional Centers and Station Communities. The Washington County TSP expands the motor vehicle performance measures to apply to county roadways. ODOT's Oregon Highway Plan³ expands the performance thresholds to apply to state facilities including Highway 219 (1st Avenue), Highway 8 (TV Highway) and US 26 in Hillsboro. These motor vehicle performance measures should be considered for performance thresholds.

Policy 2. Work with Washington County, Beaverton, Metro and ODOT to develop, operate and maintain intelligent transportation systems including coordination of traffic signals.

Policy 3. Provide a cost-effective transportation system where the public, land use development and users pay their respective share of the system's costs proportional to their respective demands placed upon the multi-modal system.

Goal 5: Goods Movement. Provide for Timely and Efficient Movement of Goods and Services.

Key Elements: Freight, Rail, Air Freight, Hazardous Materials, Other Goods and Services

Policy 1. Design arterial routes, highway access and adjacent land uses in ways that facilitate the efficient movement of goods and services.

Policy 2. Coordinate with the Port of Portland in planning for the Hillsboro Airport.

Policy 3. Encourage continued use and development of rail and air transportation facilities.

Policy 4. Require safe routing of hazardous materials consistent with federal and state guidelines.

Goal 6: Livability. Transportation Facilities shall be Designed and Constructed in a Manner Which Enhances the Livability of Hillsboro.

Key Elements: Aesthetics/Neighborhood Traffic Management, Regional Facilities, Environment, Managing Growth

Policy 1. Design and build local and neighborhood streets to minimize speeding.

Policy 2. Relate the design of street capacity and improvements to their intended use.

Policy 3. Construct transportation facilities to comply with applicable City landscape and design standards.

Policy 4. Avoid potential adverse environmental impacts associated with traffic and transportation system development through facility design and system management.

¹ 2000 Regional Transportation Plan, Metro, August 10, 2000, page 1-31, Table 1.2.

² Washington County 2020 Transportation Plan A-Engrossed Ordinance 588, adopted October 29, 2002., page 3, Table 5.

³ Amendment to 1999 Oregon Highway Plan, Alternate Highway Mobility Standards, December 13, 2000, Table 7.

Policy 5. New or improved transportation facilities shall be subject to City land use type approval procedures including identification of potential impacts.

Goal 7: Accessibility. Develop Transportation Facilities which are Accessible to All Members of the Community and Minimizes out of Direction Travel.

Key Elements: American Disabilities Act (ADA), Connectivity

Policy 1. Construct transportation facilities which conform to the requirements of the Americans with Disabilities Act.

Policy 2. Locate transit dependent land uses close to transit stations.

Policy 3. Design the local street network to facilitate street connectivity and limit out-of-direction travel. Provide connectivity to and from activity centers and destinations, giving priority to pedestrian and bicycle connections.

Policy 4. Develop an efficient arterial grid system that provides access within the City, and serves through City traffic.

OTHER PLANS

The relationship of the TSP to other regional planning documents can be puzzle of acronyms, activities and plans. Many of the most common planning initiatives and terms are summarized below:

TPR - Transportation Planning Rule, Statewide Planning Goal 12 developed by Department of Land Conservation and Development (DLCD) to guide transportation planning in Oregon.

OTP - Oregon Transportation Plan, a federally mandated plan developed by Oregon Department of Transportation (ODOT) to guide statewide transportation development.

RTP - Regional Transportation Plan, developed by metropolitan planning organizations (MPO) to guide regional transportation investment, required to secure federal funding. In Portland this task is performed by Metro (Metropolitan Service District).

TSP - Transportation System Plan, a TPR required document developed by cities and counties in Oregon to guide local transportation decisions and investments.

Corridor Plan - ODOT transportation plans which focus on state transportation corridors to specifically outline needs, modes, strategies and effective investment.

Access Management - Methods to address improved safety and performance of state highways through control of access commensurate with facility needs.

ITS - Intelligent Transportation Systems. Use of advancing technology to improve movement of people and goods safely.

TDM - Transportation Demand Management. A series of actions to reduce transportation demand during peak periods.

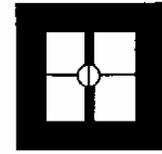
ECO - Employee Commute Options. An urban area TDM program required by Department of Environmental Quality (DEQ) of employers of 50 or more persons to reduce vehicle trips.

LIGHT RAIL TRANSIT (LRT) - Light Rail Transit. Planned by Metro, designed and operated by Tri-Met, providing a high capacity transit option linking key centers in the region.

Functional Plan -Metro's recently adopted plan which outlines mandatory criteria for evaluating transportation systems and land use, translating state and regional policy to local requirements necessary to implement the 2040 planning effort.

2040 - A long range effort directed by Metro to explore the choices for growth in the next 50 years and defining performance standards for local government to implement the regional growth concept. It defines several development types which will create higher density population and employment centers in the region. They are as follows:

- **Regional Center:** Compact centers of employment and housing served by high quality transit. They will become the focus of transit and highway improvements.
- **Town Center:** Provides for localized services within a 2-3 mile radius, with a community identity.
- **Station Areas:** Development centered on light rail transit (LRT) or high capacity transit, accessible by all modes.
- **Main Street:** Similar to town centers, an area with a traditional commercial identity, but smaller in scale, along a street with good transit services.
- **Corridors:** Development along a primary and frequent transit corridor that encourages mixed use and pedestrian access to transit.



Chapter 3

Existing Conditions

Existing transportation conditions were evaluated as part of the City of Hillsboro Transportation System Plan. An analysis of current conditions provides an understanding of facility development, service and performance. This chapter summarizes existing conditions relating to traffic and transportation in Hillsboro. It considers vehicle, transit, pedestrian, bicycle, truck/freight and other modes such as rail, pipeline and airport facilities.

To understand existing travel patterns and conditions, multiple aspects of the city's transportation system were evaluated. An inventory of traffic conditions in Hillsboro was completed in 2001 and 2002 to establish a base year for all subsequent analysis. Much of this data provides a benchmark (basis of comparison) for future assessment of transportation system and travel mode performance in Hillsboro relative to desired goals and policies.

The following sections briefly describe existing roadway functions, circulation, traffic speeds and volumes and levels of service in the Hillsboro transportation system. The study area includes 119 intersections that were selected¹ to evaluate traffic conditions in Hillsboro.

STREET NETWORK

The Transportation Planning Rule requires that classification of streets within the City be provided.² The classification must be consistent with state and regional transportation plans for continuity between adjacent jurisdictions. The City of Hillsboro has an existing street classification system within a designated study area as part of the current Transportation System Plan.³ With the adoption of the TSP Update, that study area has been expanded to incorporate areas south of TV Hwy between 198th and 209th Avenues and other areas within the Hillsboro School District that could be considered for eventual City annexation.

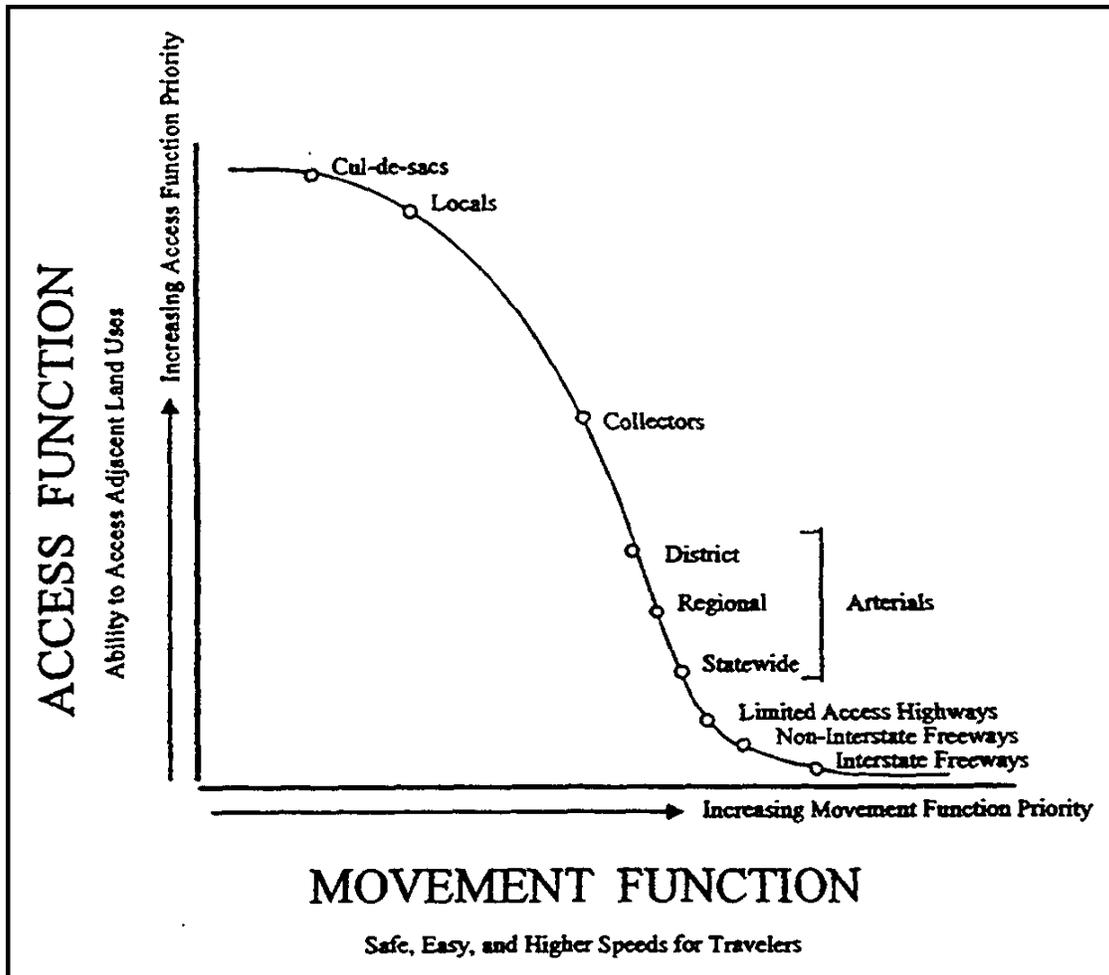
¹ Following discussion with City of Hillsboro staff.

² *Transportation Planning Rule*, State of Oregon, Department of Land Conservation and Development, Section 660-12-020(2)(b), April, 1995.

³ Transportation System Plan, City of Hillsboro, prepared by DKS Associates, 1999.

Functional Classification

Roadways have two functions; to provide mobility and to provide access. From a design perspective, these functions can be incompatible since high or continuous speeds are desirable for mobility, while low speeds are more desirable for land access. Arterials emphasize a high level of mobility for through movement; local facilities emphasize the land access function; and collectors offer a balance of both functions.



Arterial streets serve to interconnect and support the principal arterial highway system. These streets link major commercial, residential, industrial and institutional areas. Arterial streets are typically spaced about one mile apart to assure accessibility and reduce the incidence of traffic using collectors or local streets in lieu of a well placed arterial street. Many of these routes connect to cities surrounding Hillsboro.

Collector streets provide both access and circulation within residential and commercial/industrial areas. Collectors differ from arterials in that they provide more of a citywide circulation function, do not require as extensive control of access and penetrate residential neighborhoods, distributing trips from the neighborhood and local street system.

Neighborhood Routes are usually long relative to local streets and provide connectivity to collectors or arterials. Because neighborhood routes have greater connectivity, they generally have more traffic than local streets and are used by residents in the area to get out of the neighborhood, but do not serve citywide/large area circulation. Traffic from cul-de-sacs and other local streets may drain onto neighborhood routes to gain access to collectors or arterials.

Local Streets provide access to adjacent land and deliberately discourage by design through traffic movement.

Under the existing Hillsboro functional classification plan is provide in the current TSP. In that plan, any street not designated as either an arterial, collector or neighborhood route is considered a local street. The current roadway functional classification system was reviewed as part of this TSP update and presented in Chapter 1.

A comparison of functional classification of adjacent jurisdictions for streets in Hillsboro is summarized below.

City of Beaverton roadway classifications are generally consistent with City of Hillsboro at the adjacent city limits. A comparison of the City of Hillsboro and City of Beaverton functional classification plans found that designations differ on Fieldstone Way, Holly Street, Heritage Parkway, Jay Street and Augusta Lane just east of 185th Avenue. These roadways are designated neighborhood routes by the City of Beaverton.

Washington County roadway classifications⁴ are generally consistent with City of Hillsboro designations. A comparison of the City of Hillsboro and Washington County functional classifications was conducted. The major inconsistencies are summarized in Table 3-1.

Table 3-1
Functional Classification Comparison to Washington County

Roadway	City of Hillsboro Designation	Washington County Designation
Lois Street – west of Cornelius Pass	Collector	Neighborhood Route
Cedar Street – Brookwood to 32nd	Collector	Neighborhood Route
Bentley Street – Brookwood to 32nd	Collector	Neighborhood Route
Wagon Way – west of Cornelius Pass	Collector	Neighborhood Route
Orengo Station Pkwy – Cornell to Butler	Neighborhood Route	Collector

⁴ Washington County Transportation System Plan, Ordinance 588, adopted October 29, 2002, page 3, Table 5.

ODOT and Metro only classify roads that are considered to be of statewide or regional significance, respectively. These classifications are compatible with Hillsboro classifications, although the specific classification names may differ. ODOT and Metro classifications can be found in the Roadway Functional Classification According to Jurisdiction table in the appendix of this report. Figure 3-1 shows the roadway jurisdiction for operating and maintenance purposes. Because of their more regional or area wide significance, the designation of arterials and collectors by ODOT, Metro and Washington County guides the City in its functional classification.

EXISTING CIRCULATION

The following sections review the performance of various key routes in Hillsboro in terms of traffic volumes, capacity, accidents, adjacent land uses, intersection Level of Service, arterial Level of Service and general observations.

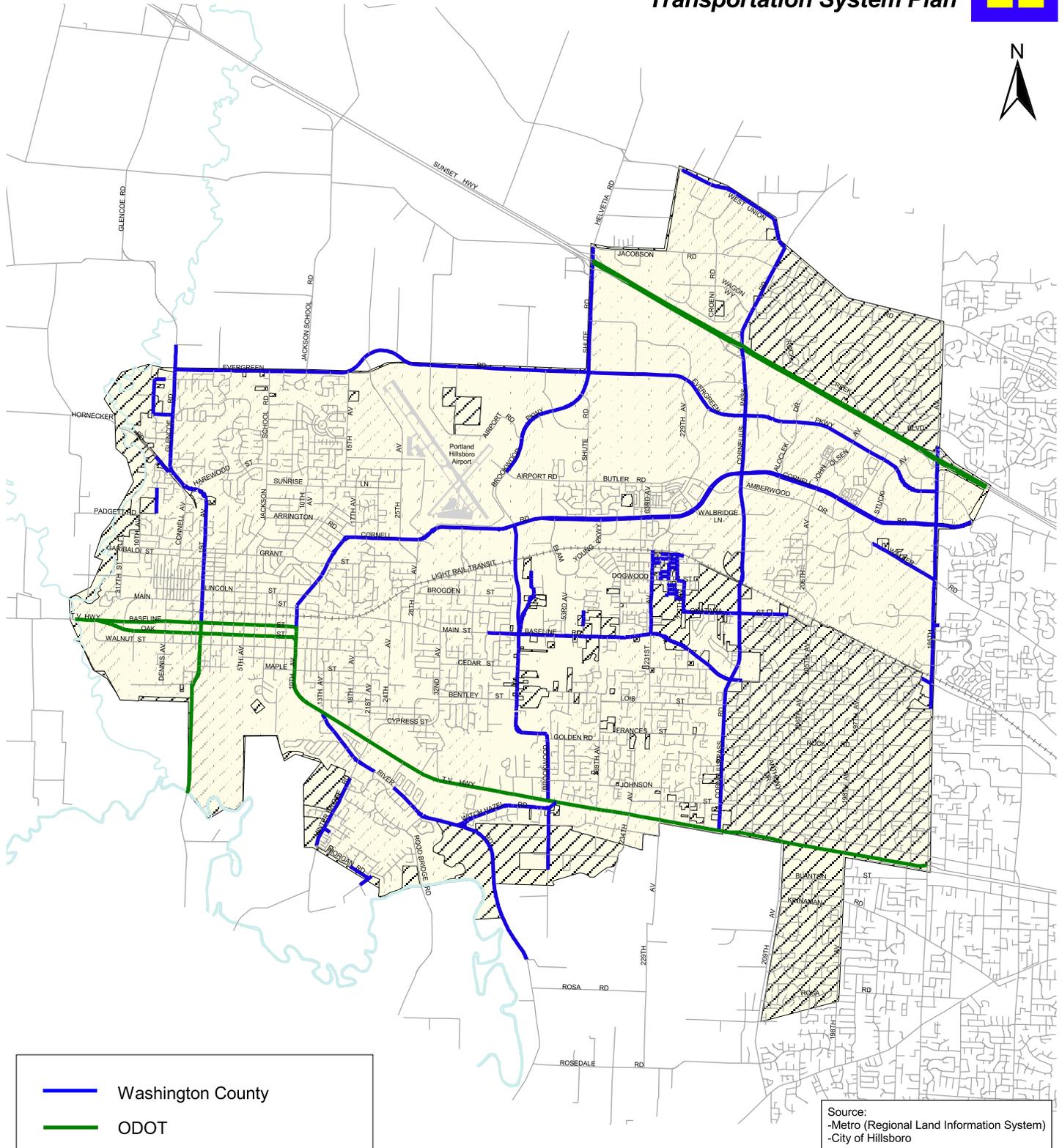
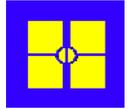
The key routes include US 26 (Sunset Highway), ORE 8 (TV Highway), Cornell Road, Cornelius Pass Road, 185th Avenue, Baseline Road, Evergreen Road, Glencoe Road-1st Avenue (ORE 219), Brookwood Parkway-Shute Road-Helvetia Road, Walker Road, Jackson School Road, River Road, Minter Bridge Road, Cypress Street-32nd Avenue, 28th Avenue, 25th Avenue and West Union Road. The state highway routes are summarized below to provide a description in terms of functional classification, connectivity and roadway volumes.

State Highways

Sunset Highway (US 26) is classified by ODOT as a Statewide Highway/Expressway and as a freeway by adjacent jurisdictions. It serves vehicles traveling between Portland (I-405 to the east) and various destinations in western Oregon to the Oregon coast. US 26 also provides travel between cities in the Portland Metropolitan area. It is used as a commuter route between Washington County and Portland. Lastly, US 26 serves some local travel which may occur within Hillsboro or between Hillsboro and a neighboring city such as Beaverton or Portland. The Oregon Highway Plan has established access management interchange spacing standards for state highways.

Tualatin Valley Highway (ORE 8) is classified by ODOT as a District Highway. The City of Hillsboro and Washington County classify TV Highway as a Principal Arterial (east of Brookwood Avenue) and Arterial (west of Brookwood Avenue). Metro classifies TV Highway as a Principal Arterial (Highway) east of Brookwood Avenue and as a Major Arterial west of Brookwood Avenue. TV Highway provides direct access from Hillsboro to Beaverton, Aloha, Forest Grove and Portland.

Glencoe Road/1st Avenue (ORE 219) is classified by ODOT as a District Highway south of Baseline. The City of Hillsboro classifies Glencoe Road/1st Avenue as a Major Arterial (interim classification). Washington County classifies Glencoe Road/1st Avenue as a Minor Arterial and Metro classifies Glencoe Road-1st Avenue as a Minor Arterial south of Evergreen Road and as a Rural Arterial north of Evergreen Road. Glencoe Road - 1st Avenue provides direct access to the Sunset Highway and North Plains.



Source:
-Metro (Regional Land Information System)
-City of Hillsboro

- Washington County
- ODOT
- City of Hillsboro
- Study Area Boundary
- Unincorporated Areas

Figure 3-1
ROADWAY MAINTENANCE
JURISDICTION

0 5000 10000 Feet

PAVEMENT CONDITIONS

A visual inspection of Hillsboro’s surface street system is prepared annually by the City of Hillsboro Engineering Department. This inspection, basically a “report card” of pavement condition rates each roadway in Hillsboro. Actual roadway ratings prepared by the City of Hillsboro are provided in the appendix. Table 3-2 summarizes the roadway maintenance funding history for the last four fiscal years. For the year 2002, Hillsboro had 200 total miles of roadways with 3.2 miles of roadway overlaid. Figure 3-2 summarizes the roadway maintenance completed in fiscal year 1999-2000.

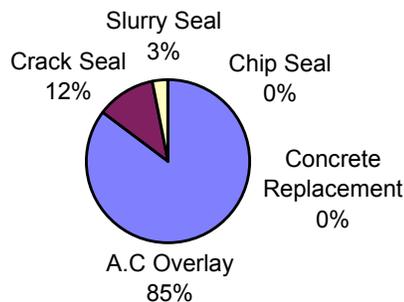
Table 3-2
City of Hillsboro Street Maintenance Funding History

	FY 99-00	FY 00-01	FY 01-02	FY 02-03
A.C Overlay	\$438,273	\$402,131	\$392,253	\$574,661
Crack Seal	\$112,755	\$80,595	\$80,595	\$78,429
Slurry Seal	\$0	\$0	\$0	\$21,458
Chip Seal	\$0	\$0	\$0	\$0
Concrete Replacement	\$0	\$169,738	\$0	\$0
Total	\$551,028	\$652,464	\$472,848	\$674,548

FY = Fiscal Year

Figure 3-2
Street Maintenance Completed in Fiscal Year 1999-2000

Fiscal Year 2002-2003



TRAFFIC SPEED AND VOLUME

Speed

Speed zones on arterials and collectors within the City of Hillsboro are summarized in Figure 3-3. Speed zones are set by the Oregon Department of Transportation and the local road authority. ODOT has the responsibility to investigate roads for establishing new speed zones or changing posted speeds of existing speed zones. ODOT conducts engineering studies and considers many factors such as roadway width, surface, lanes, shoulders, signals, intersections, roadside development, parking, accidents and 85th percentile speed. The 85th percentile speed is commonly used to establish speed zones for arterial and collector roadways. Typically, the 85th percentile represents the speeds that are reasonable and prudent for prevailing conditions⁵. These investigations are performed at the request of the local road authority. If mutual agreement cannot be reached, the speed zone decision is referred to Oregon's Speed Zone Review Panel. The panel reviews contested speed zone cases and makes the final recommendation. A decision made by the Speed Zone Review Panel is not arbitrary or political, and is based on the considerations described above.⁶

Traffic Volume

An inventory of daily traffic conditions was performed in Spring 2001 as part of the TSP update. Overall, the daily two-way traffic volumes in the study area have grown from 1996 (prior TSP data) to 2001 with increases ranging from 2 to 40 percent. Traffic data collected over the course of this study illustrates the typical fluctuations of traffic over the course of a day. Average daily traffic (ADT) volumes and PM peak hour volumes for various roadways in Hillsboro are shown in Figure 3-4 Profiles of daily traffic volumes indicate the period when traffic is greatest (Figures 3-5 to 3-7).

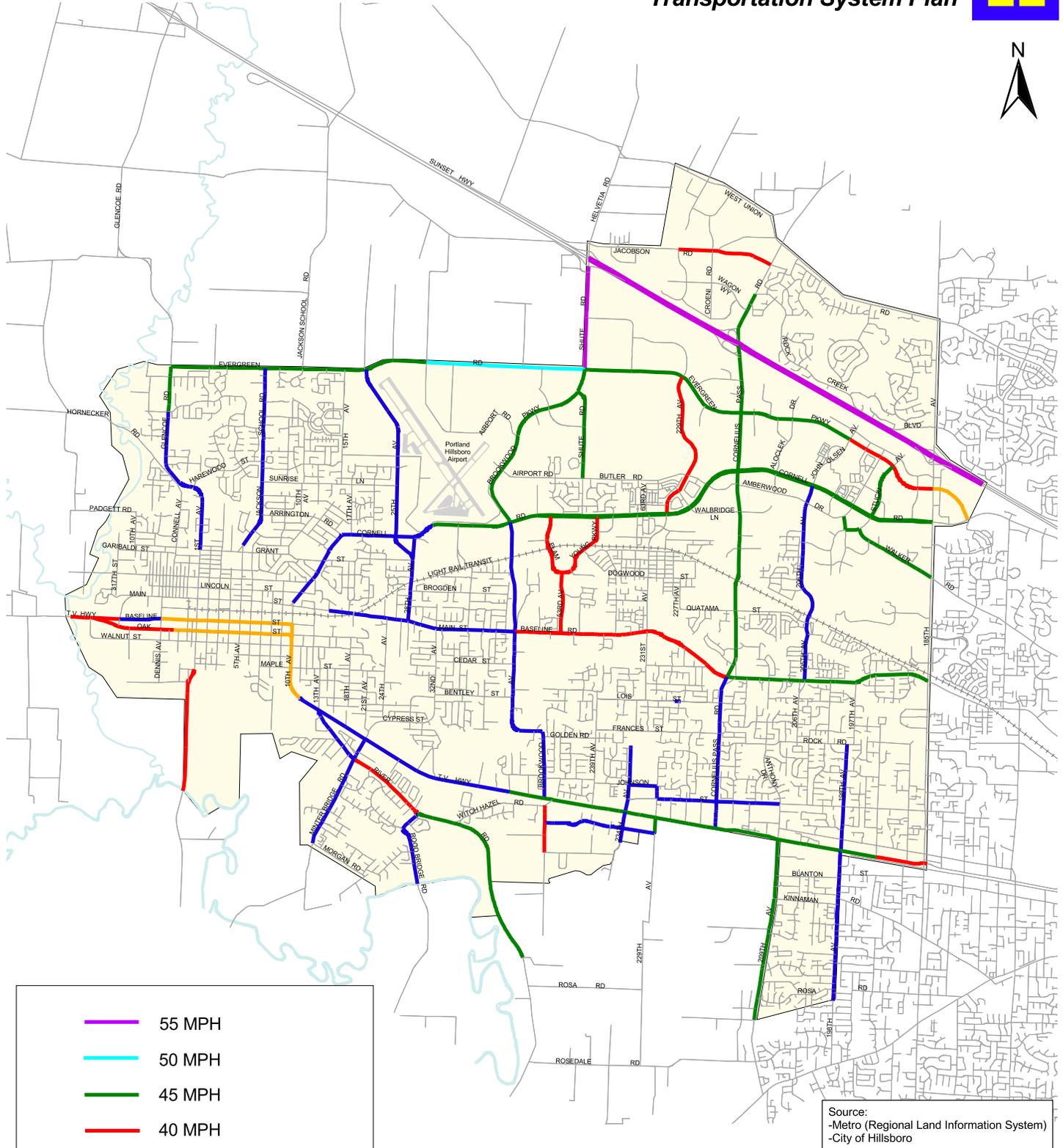
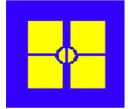
Based on 2001 data, 185th Avenue carries approximately 53,000 vehicles per day (two-way) near Evergreen Parkway. As a comparison, daily traffic on US 26 (Sunset Highway) is about 61,700 vehicles per day (two-way) west of the 185th Avenue interchange.⁷ The most significant increase in traffic volumes from 1996 to 2001 occurred on Evergreen Parkway (volumes to the west of Shute Road have increased by approximately 40 percent). South of US 26, daily volumes on Shute Road have increased by approximately 20 percent from 1996 to 2001. These volume increases can be attributed to growth around the Intel campus area as well as the residential and commercial areas near MAX transit stations.

Daily two-way traffic volumes on Cornell Road west of Brookwood and Cornelius Pass south of US 26 have experienced moderate growth since the previous study period. Traffic volumes on these roadways have increased approximately five percent between 1996 and 2001. Daily two-way traffic volumes on TV Highway west of Brookwood Avenue have remained fairly constant between 1996 and 2001 with two percent growth since the previous study period. Typically as roadways approach capacity they have limited ability to serve growth in traffic.

⁵ Traffic Engineering Handbook, 5th Edition, Institute of Transportation Engineers, 1999, pg 348.

⁶ *Speed Zoning: Who Decides?*, State Speed Control Board, April, 1992.

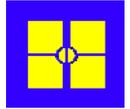
⁷ *1998 Transportation Volume Tables*, Oregon Department of Transportation, Transportation Development Branch, Published June 1999.



Source:
-Metro (Regional Land Information System)
-City of Hillsboro

Figure 3-3
POSTED SPEED ZONES





Source:
-Metro (Regional Land Information System)
-City of Hillsboro

12,200 Existing Average Daily Traffic
 Study Area Boundary

Figure 3-4
EXISTING AVERAGE DAILY TRAFFIC
(Spring 2001)



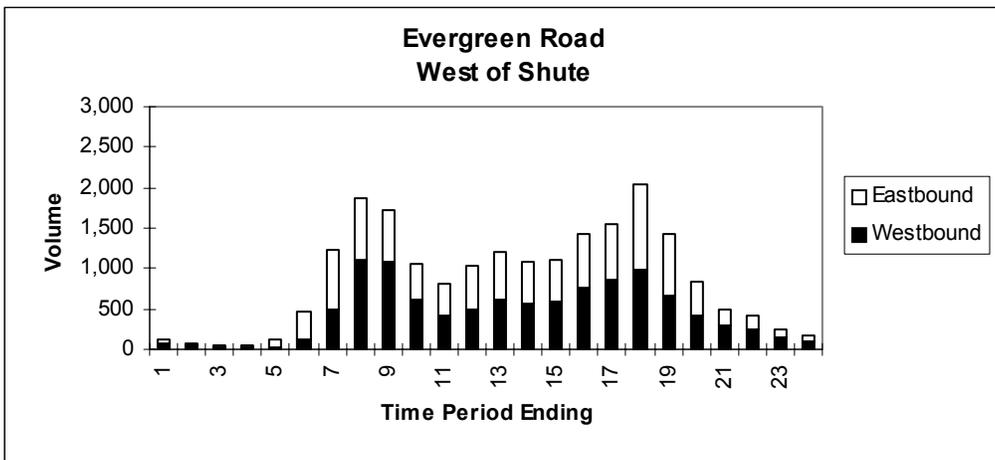
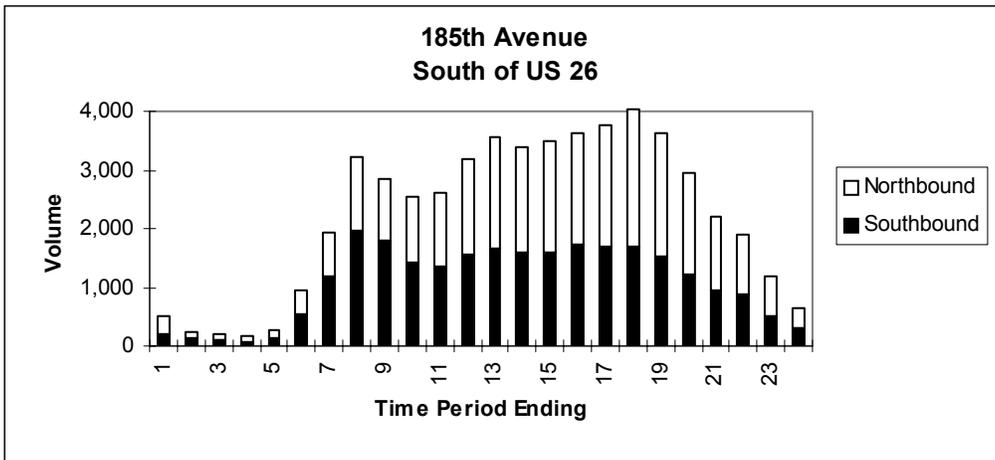
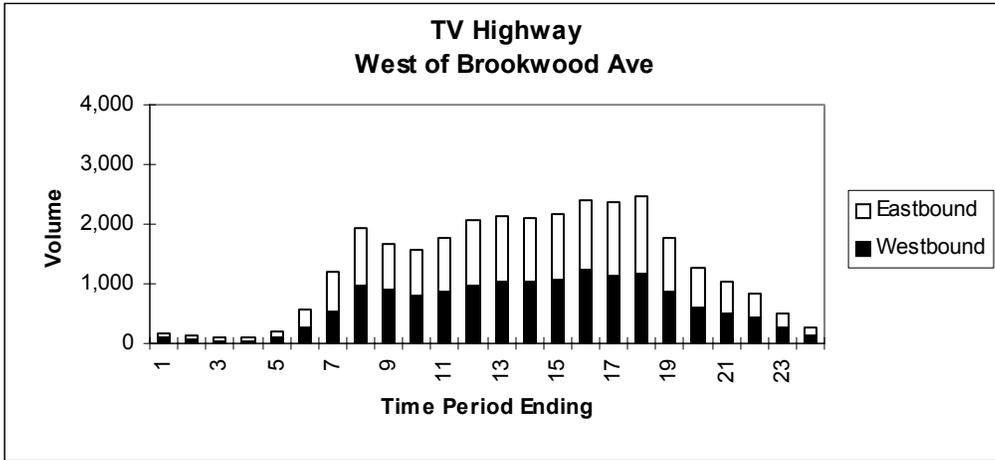


Figure 3-5 Hourly Traffic Variations

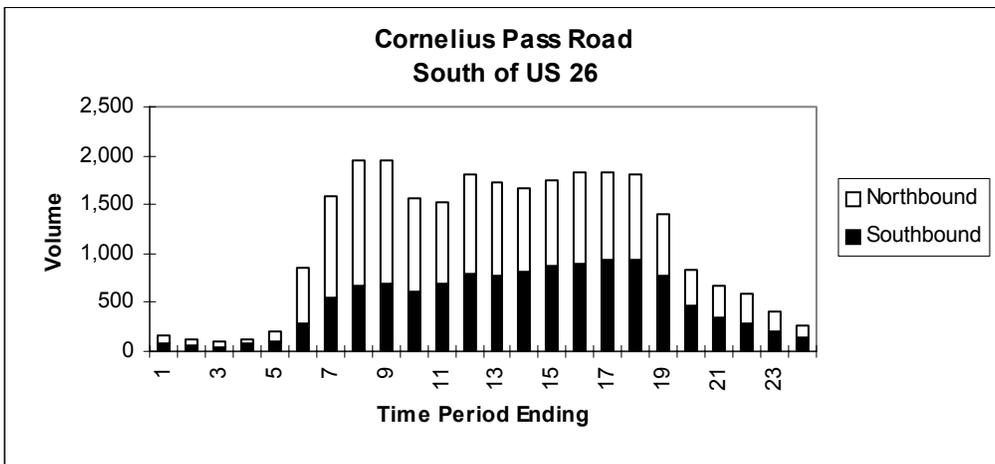
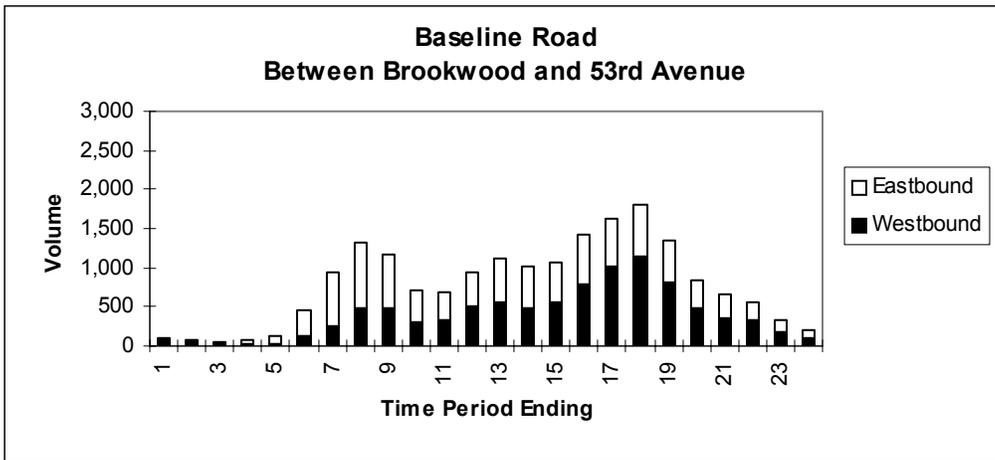
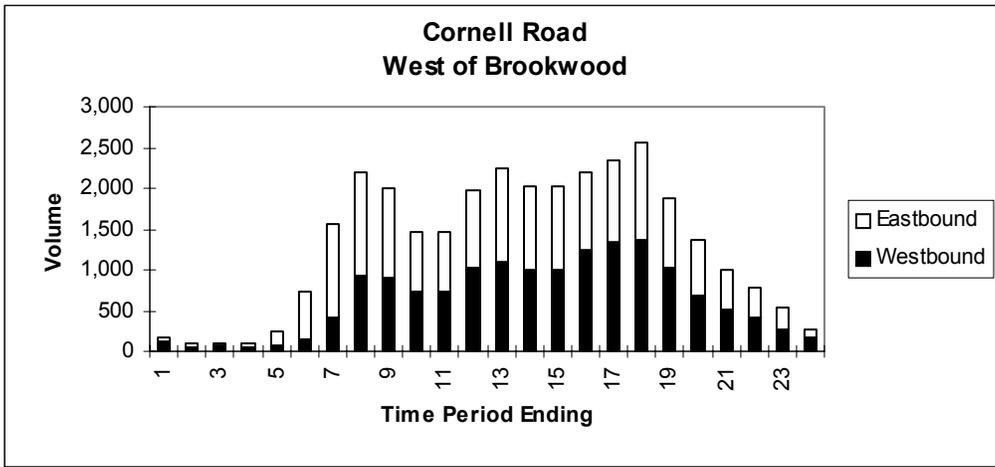


Figure 3-6 Traffic Variations

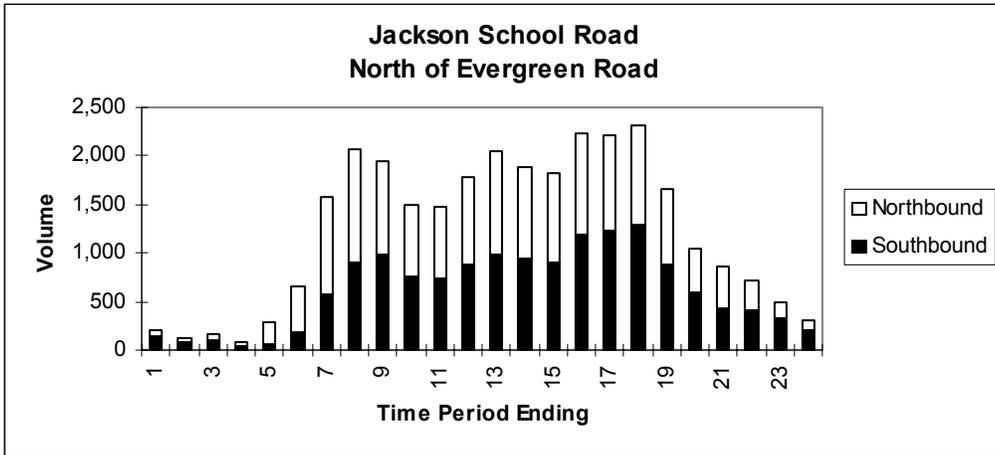
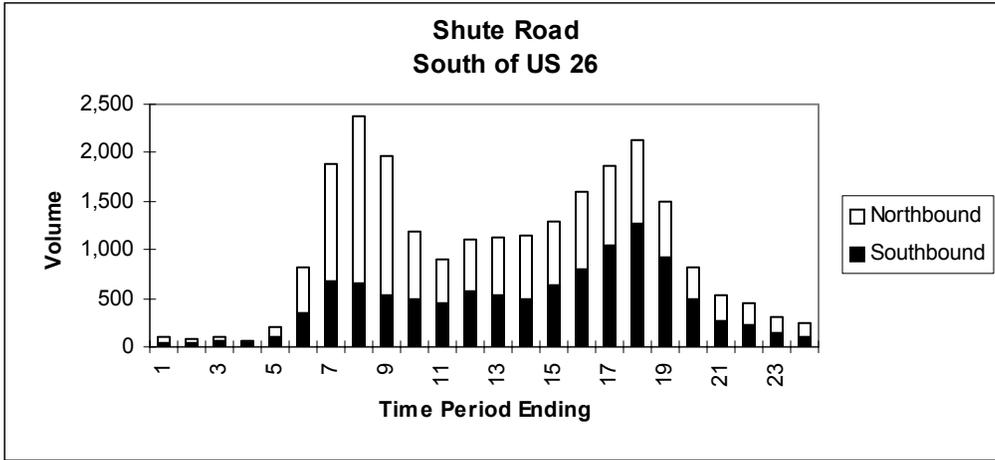


Figure 3-7 Traffic Variations

TRAVEL TIME RUNS

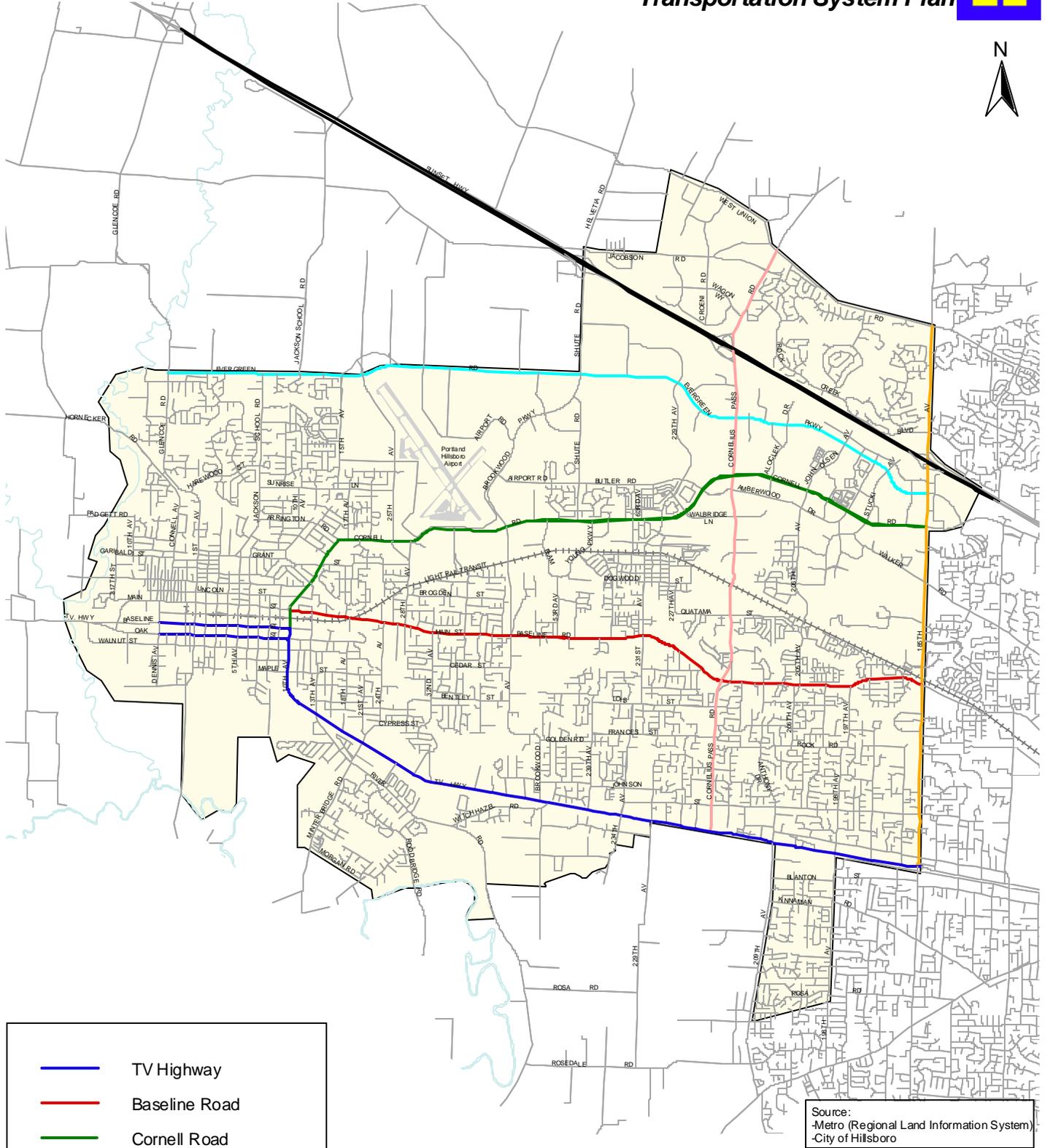
Travel time is a key measure of transportation service and accessibility in a city. It provides a common reference for comparison between travel modes and a historical reference in future years. Travel time runs were conducted on several key routes in Hillsboro. These travel time runs measured the length of time it took to travel across key routes during the weekday PM peak period (4:00 PM to 6:00 PM). Seven key routes were surveyed to provide a profile of travel times in Hillsboro:

- TV Highway from 185th Avenue to Dennis Avenue
- Cornell Road from 185th Avenue to Baseline Road
- Evergreen Road from 185th Avenue to Glencoe Road
- Baseline Road from 185th Avenue to Cornell Road
- Cornelius Pass Road from West Union to TV Highway
- 185th Avenue from West Union Road to TV Highway
- US 26 from Jackson School Road interchange to 185th Avenue interchange

Figure 3-8 shows the locations of the weekday evening peak period travel time runs. The results of these travel time runs are shown in Table 3-3 and in Figures 3-9 and 3-10. In general, it is possible to get across the city (either north/south or east/west) in approximately 15 to 25 minutes. This translates to average speeds of approximately 25 miles per hour, including delays at traffic signals and stop signs. Today during the PM peak period, the routes surveyed would relate to Level of Service (LOS) D or better conditions.

Travel time along urban arterials can also be used as a measure of Level of Service.⁸ Compared to capacity analysis, the average travel speed can help identify congested areas. TV Highway, Cornell Road, Evergreen Road, Cornelius Pass Road and 185th Avenue were surveyed in both 1996 and 2000. On the average, average travel speeds on these corridors have decreased by 4 to 8 mph over the 4-year period. These deteriorations correspond to increases in traffic on cross streets as well as the corridors themselves.

⁸ *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2000.



- TV Highway
- Baseline Road
- Cornell Road
- Evergreen Road
- Cornelius Pass Road
- 185th Avenue
- US 26

Source:
Metro (Regional Land Information System)
City of Hillsboro

Figure 3-8
TRAVEL TIME SURVEY LOCATIONS

0 5000 10000 Feet

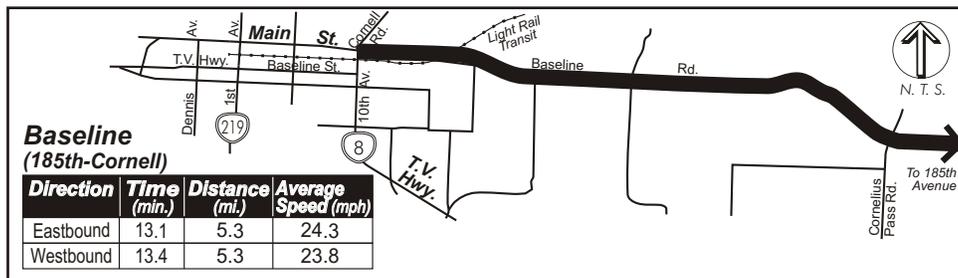
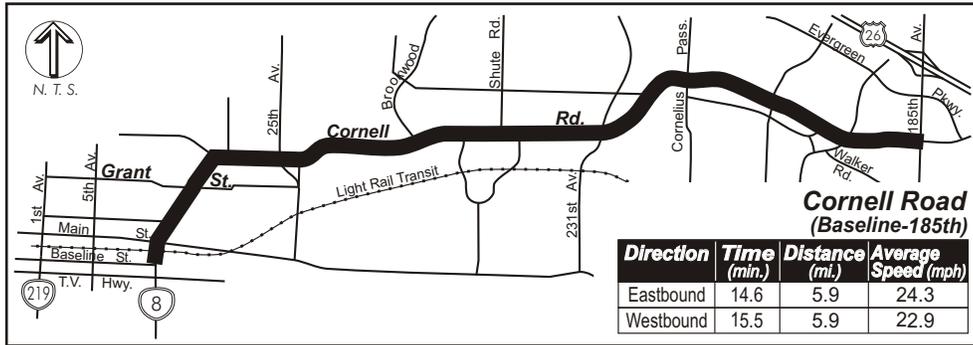
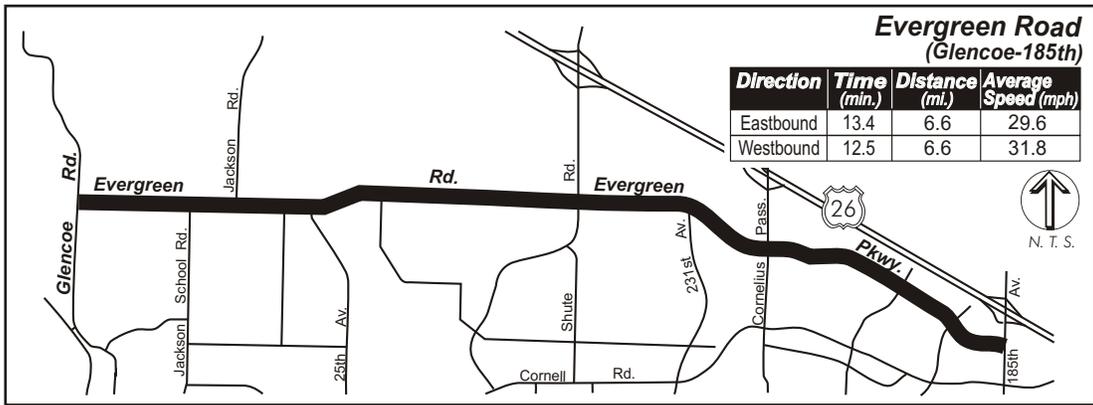
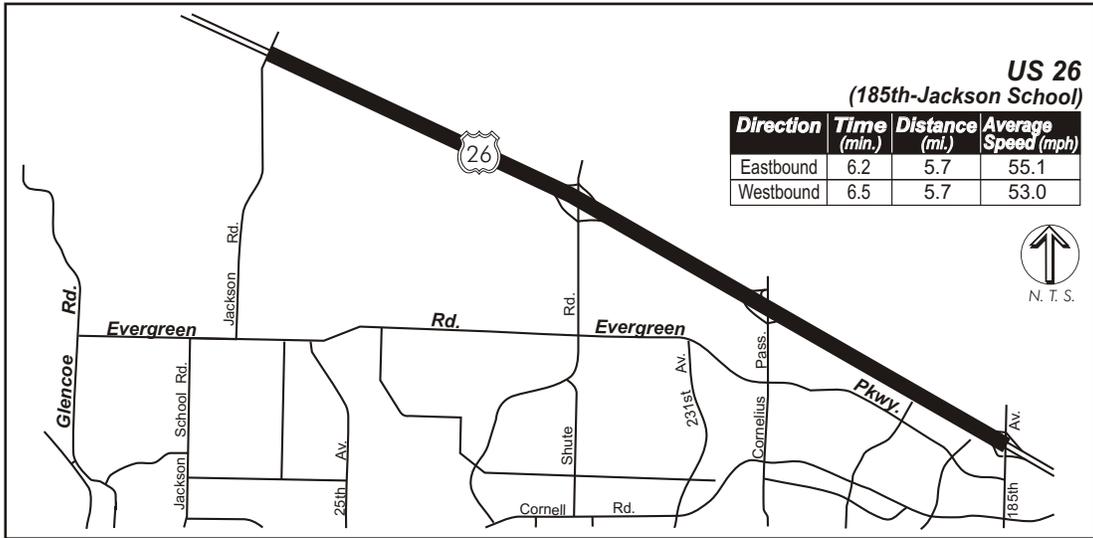
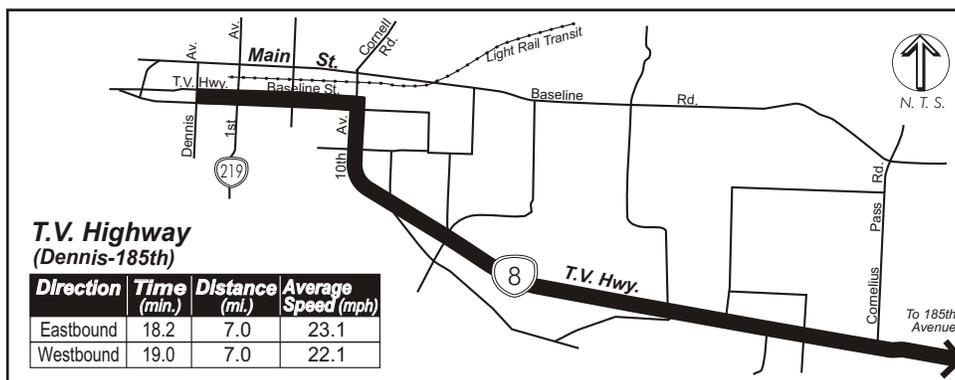
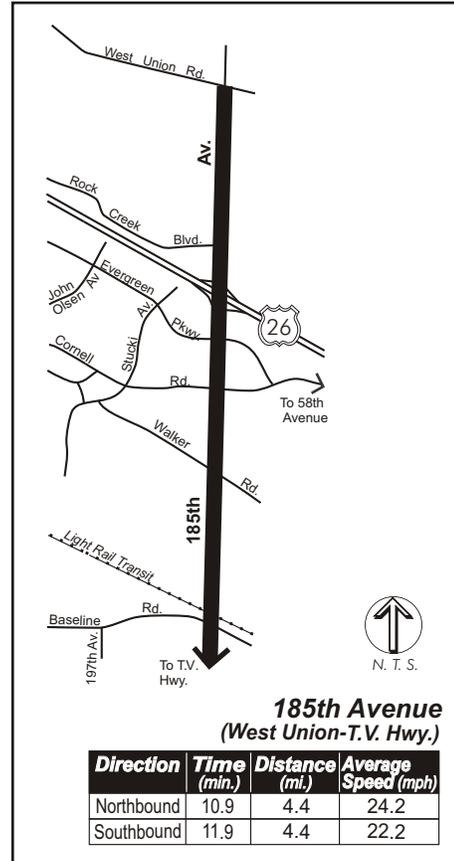
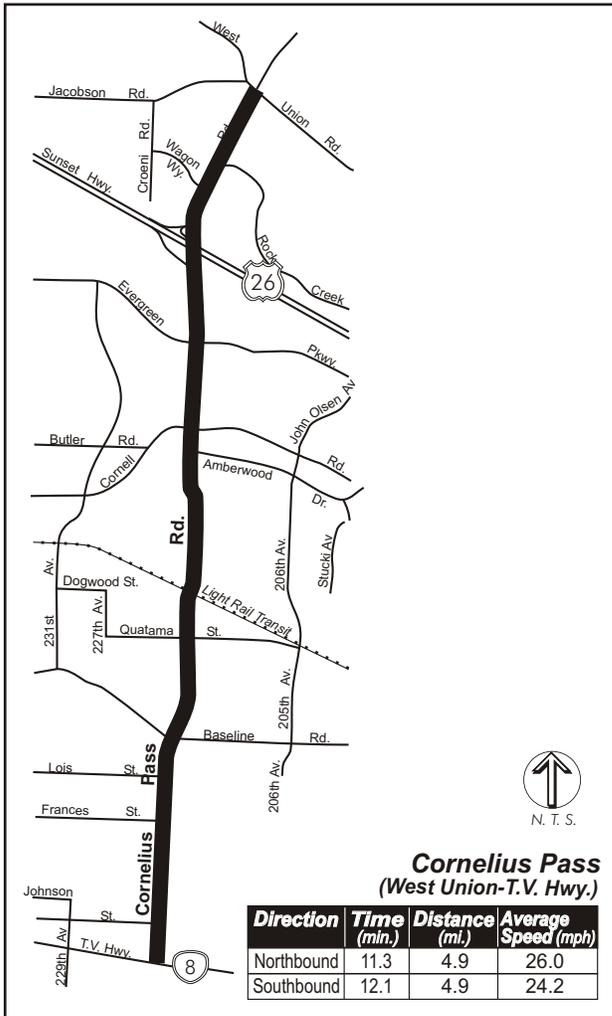


Figure 3-9
TRAVEL TIME DATA PM PEAK PERIOD
Nov./Dec. 2000



**Figure 3-10
TRAVEL TIME DATA PM PEAK PERIOD
Nov./Dec. 2000**

Table 3-3
2001 PM Peak Period Travel Time Surveys

Route	Direction	Time (min.)	Distance (miles)	2001 Average Speed (mph)	1996 Average Speed (mph)
Evergreen Road (from Glencoe Road to 185 th Avenue)	Eastbound	13.4	6.6	29.6	38.2
	Westbound	12.5	6.6	31.8	35.0
Cornell Road (from Baseline Road to 185 th Avenue)	Eastbound	14.6	5.9	24.3	28.9
	Westbound	15.5	5.9	22.9	27.7
Baseline Road (from Cornell Road to 185 th Avenue)	Eastbound	13.1	5.3	24.3	--
	Westbound	13.4	5.3	23.8	--
TV Highway (from 185 th Avenue to Dennis Avenue)	Eastbound	18.2	7.0	23.1	25.9
	Westbound	19.0	7.0	22.1	27.5
US 26 (from Jackson School Road to 185 th Ave)	Eastbound	6.2	5.7	55.1	--
	Westbound	6.5	5.7	53.0	--
Cornelius Pass Road (from West Union to TV Highway)	Northbound	11.3	4.9	26.0	30.6
	Southbound	12.1	4.9	24.2	28.4
185th Avenue (from West Union to TV Highway)	Northbound	10.9	4.4	24.2	27.0
	Southbound	11.9	4.4	22.2	25.4

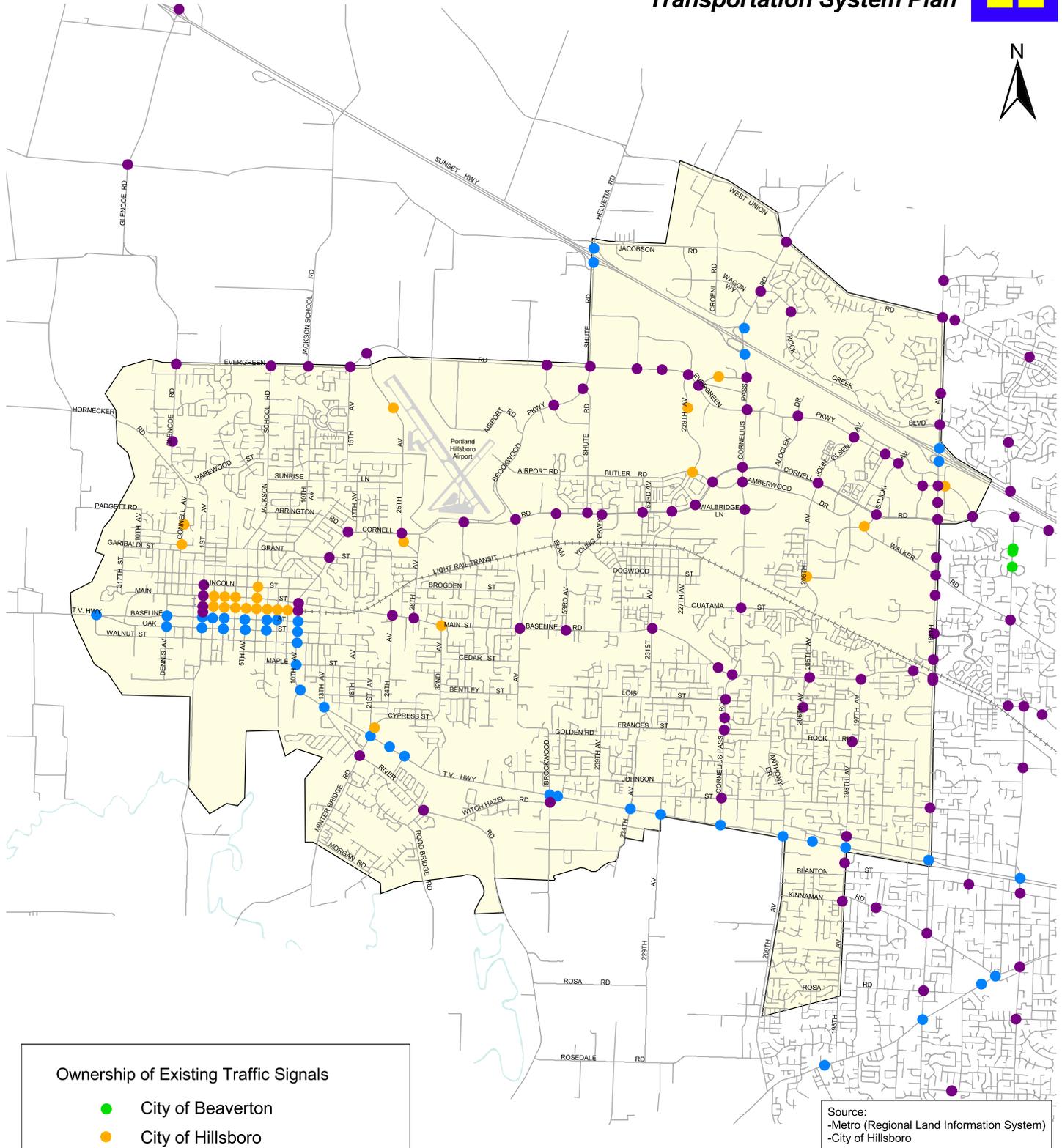
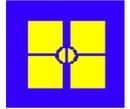
Note: Arterial LOS D (for a class II arterial) is less than 17 mph.

TRAFFIC CONTROL

The existing traffic signals in the Hillsboro Transportation System Plan study area were updated with information provided by the City of Hillsboro. The TSP study area has over 100 signalized intersections with the majority on arterial streets. As of 2002, ten new traffic signals were added to the transportation system since 1996. Three of the new signals are not study intersections (Lois Street/Cornelius Pass Road, Bickering Place/Imbrie Drive and 229th Avenue/Intel North Entrance). Figure 3-11 shows the existing signalized intersection locations.

Traffic signals are valuable devices for the control of vehicle and pedestrian traffic. Traffic control signals, properly located and operated can have one or more of the following advantages:

- They provide for the orderly movement of traffic.
- On larger roadways where proper physical layouts and control measures are used, they can increase the traffic handling capacity of the intersection.
- They reduce the frequency of certain types of accidents, especially the right angle type.
- Under favorable conditions, they can be coordinated to provide continuous or nearly continuous movement of traffic at a definite speed along a given route.
- They permit minor street traffic, vehicular or pedestrian, to enter or cross continuous traffic on the major street.



Ownership of Existing Traffic Signals

- City of Beaverton
- City of Hillsboro
- ODOT
- Washington County

Study Area Boundary

Source:
-Metro (Regional Land Information System)
-City of Hillsboro

Figure 3-11
EXISTING TRAFFIC SIGNALS

0 5000 10000 Feet

Improper or unwarranted signal installations may cause:

- Excessive delay
- Disregard of signal indications
- Circuitous travel of alternative routes
- Increase fuel use and wear and tear on vehicles, especially trucks
- Increased accident frequency, particularly rear-end type

Consequently, it is important that the consideration of a signal installation and the selection of equipment be preceded by a thorough study and based on consistent criteria. These studies identify the need for left turn phasing, lanes and phase type. The justification for the installation of a traffic signal at an intersection for ODOT, Washington County and Hillsboro is based upon the warrants stated in the Manual on Uniform Traffic Control Devices⁹ (MUTCD). The MUTCD has been adopted by the state of Oregon and is used throughout the nation. The Oregon Administrative Rule¹⁰ (OAR) has established criteria for consideration of new traffic signals on state facilities in addition to MUTCD warrants. The OAR requires an engineering investigation of traffic conditions and physical characteristics (including type of highway, grades, sight distance, existing Level of Service, conflicting accesses, signal spacing and the effect on existing or future traffic signal systems) for the proposed traffic signal location. In general, traffic signals should be considered on public street connections but not for private access that does not provide through connections to public right-of-way.

The same conditions hold true for installation of stop sign traffic controls. Specific warrants identify conditions which may warrant two-way or multi-way stop sign installations. A stop sign is not a cure-all and is not a substitute for other traffic control devices. Guidelines and warrants for stop sign installations are outlined in the MUTCD.

TRAFFIC OPERATING CONDITIONS

While analysis of traffic flows and functional classifications are useful in attempting to reach an understanding of the general nature of traffic in an area, traffic volume alone indicates neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of Level of Service has been developed to correlate traffic volume data to subjective descriptions of traffic performance at intersections. Level of Service is used as a measure of effectiveness for intersection operation. It is similar to a “report card” rating based upon average vehicle delay. Level of Service A, B and C indicates conditions where traffic moves without significant delays over periods of peak travel demand. Level of Service D and E represent progressively worse peak hour operating conditions. Level of Service F represents conditions where the average vehicle delay exceeds 80 seconds per vehicle entering a signalized intersection and demand has exceeded the capacity. This delay represents jammed conditions and any additional vehicle traffic would require mitigation. This condition is typically evident where long queues and delays exist. Level of Service D or better has generally been the accepted standard for signalized intersections in urban conditions.

Unsignalized intersections provide levels of service for major and minor street turning movements. For this reason, LOS E and even LOS F can occur for a specific turning movement; however, the majority of traffic may not be delayed (in cases where major street traffic is not required to stop). LOS E or F

⁹ *Manual on Uniform Traffic Control Devices for Streets and Highways*, US Department of Transportation, Federal Highway Administration, 2000.

¹⁰ *Oregon Administrative Rule*, Department of Transportation, Transportation Operations, Section 734-020-0300, 2001.

conditions at unsignalized intersections generally provide a basis to study the intersections further and to determine availability of acceptable gaps, safety and traffic signal warrants. A summary of the descriptions of Level of Service for signalized and unsignalized intersections in the City is provided in the appendix.

The volume to capacity ratio is also used as a measure of effectiveness for intersection operation. It compares the amount of traffic volume entering an intersection to the available capacity of the intersection over a specific time period. The following section outlines the volume to capacity ranges provided in the Highway Capacity Manual¹¹.

- 0.00-0.60 **Free Flow/Insignificant Delays:** No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Most vehicles do not stop at all. Progression is extremely favorable and most vehicles arrive during the green phase.
- 0.61-0.70 **Stable Operation/Minimal Delays:** An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles. This level generally occurs with good progression, short cycle lengths, or both.
- 0.71-0.80 **Stable Operation/Acceptable Delays:** Major approach phases fully utilized. Most drivers feel somewhat restricted. Higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, and the number of vehicles stopping is significant.
- 0.81-0.90 **Approaching Unstable/Tolerable Delays:** The influence of congestion becomes more noticeable. Drivers may have to wait through more than one red signal indication. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. The proportion of vehicles not stopping declines, and individual cycle failures are noticeable.
- 0.91-1.0 **Unstable Operation/Significant Delays:** Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are a frequent occurrence.
- ≥1.00 **Forced Flow/Excessive Delays:** Represents jammed conditions. Queues may block upstream intersections. This level occurs when arrival flow rates exceed intersection capacity, and is considered to be unacceptable to most drivers. Poor progression, long cycle lengths, and v/c ratios approaching 1.0 may contribute to these high delay levels.

Intersection turn movement counts were conducted at 119 study intersections shown in Figure 3-12 during the evening peak periods to determine existing LOS based on the Highway Capacity Manual¹² methodology for signalized and unsignalized intersections. These intersections were chosen in coordination with the City of Hillsboro staff in order to update the existing conditions, incorporate the new revised study area, and address areas of noted concern. Traffic counts, Level of Service calculation sheets and descriptions of Level of Service for signalized, unsignalized and all-way-stop controlled intersections can be found in the appendix of this report.

¹¹ *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2000.

¹² *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2000.

The following sections describe the updated existing PM peak hour levels of service conditions for study intersections along several key corridors in Hillsboro. Figure 3-13 provides a summary of PM peak hour levels of service for the study intersections in Hillsboro. Most signalized intersections in Hillsboro operate at LOS D or better, with some exceptions.

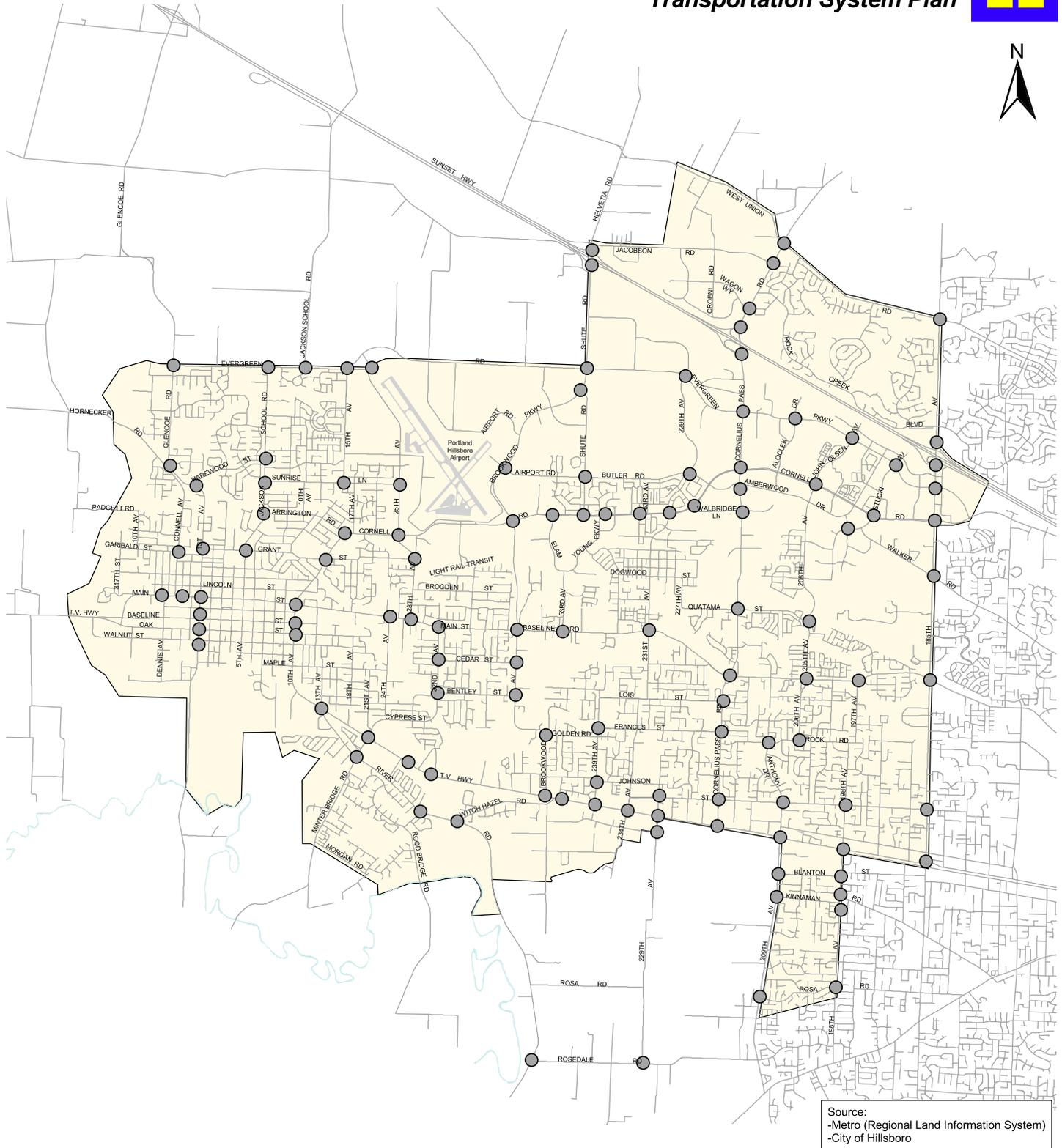
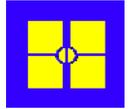
185th Avenue

Nine intersections were analyzed along the 185th Avenue corridor. All of the intersections are signalized and operate at a LOS of D or better except TV Highway at 185th Avenue which operates at maximum capacity with LOS E. The 1996 existing conditions showed similar results. Significant Level of Service changes over the last six years were observed at the West Union Road intersection, which improved from LOS F in 1996 to LOS D as a result of intersection improvements provided by an adjacent private development. Table 3-4 summarizes operating conditions along 185th Avenue.

Table 3-4
185th Avenue PM Peak Hour Intersection Level of Service

Intersection	2002			1996
	Average Delay	Volume/Capacity	Level of Service	Level of Service
TV Highway/185 th Avenue	67.1	0.99	E	D
Johnson Street/185 th Avenue	22.7	0.78	C	-
Baseline Road/185 th Avenue	33.5	0.82	C	D
Walker Road/185 th Avenue	36.3	0.85	D	D
Cornell Road/185 th Avenue	34.4	0.87	C	D
Evergreen Parkway/185 th Avenue	38.0	0.83	D	C
US 26 Eastbound Ramps/185 th Avenue	4.1	0.53	A	A
US 26 Westbound Ramps/185 th Avenue	24.9	0.80	C	C
West Union Road/185 th Avenue	50.1	0.93	D	F

Note: 1996 Level of Service based on 1994 Highway Capacity Manual methodology.



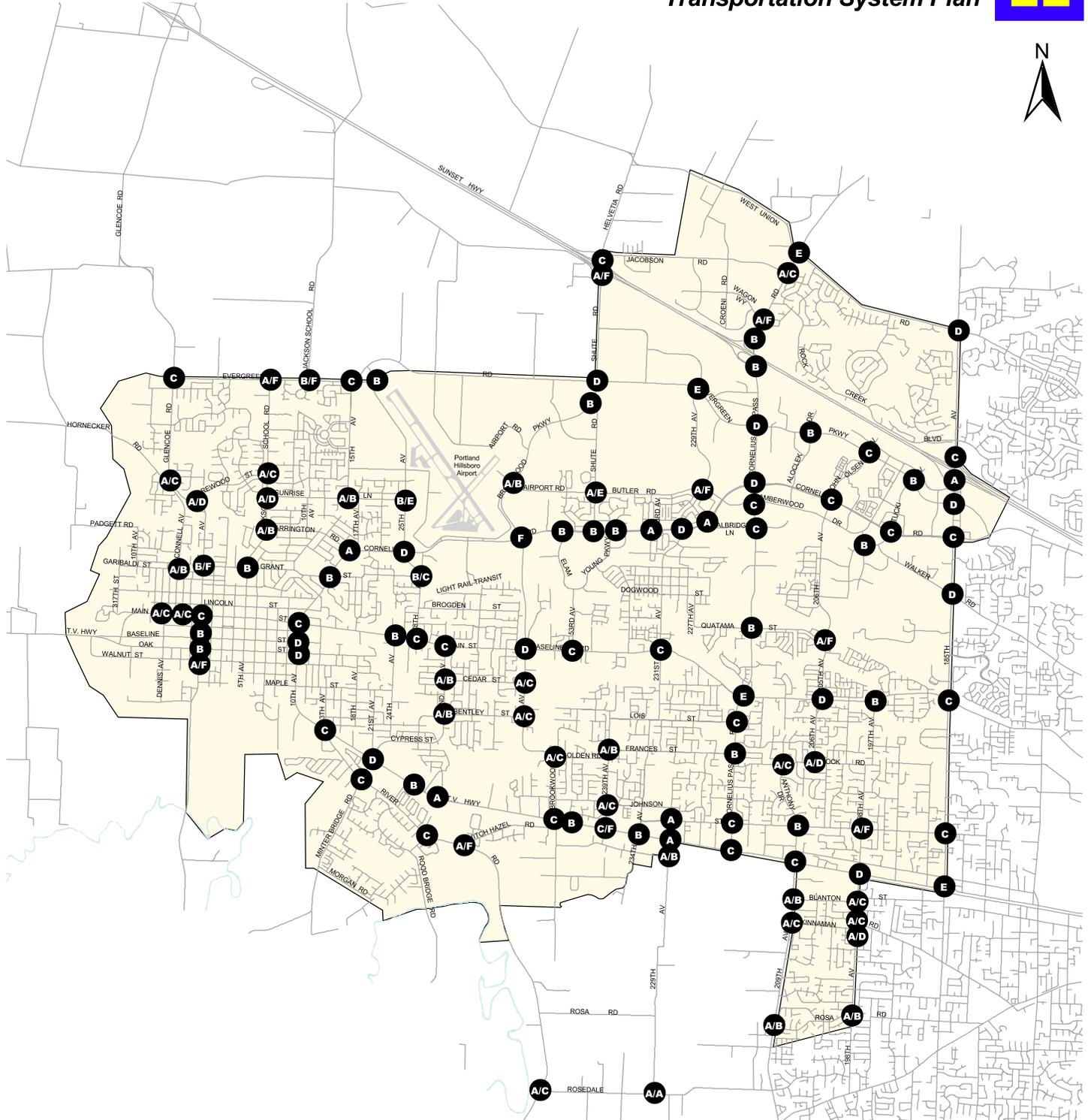
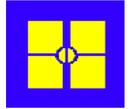
Source:
-Metro (Regional Land Information System)
-City of Hillsboro

● Study Intersections

▭ Study Area Boundary

Figure 3-12
STUDY INTERSECTIONS
2001/2002

0 5000 10000 Feet



Source:
-Metro (Regional Land Information System)
-City of Hillsboro

A Level of Service - PM Peak Hour

Study Area Boundary

Figure 3-13
STUDY INTERSECTION EXISTING
LEVEL OF SERVICE PM PEAK HOUR
2001/2002

0 5000 10000 Feet

TV Highway

Thirteen intersections were analyzed along the TV Highway corridor. All of the signalized intersections operate at a LOS of D or better except TV Highway at 185th Avenue which operates at maximum capacity with LOS E. The unsignalized 239th Avenue/TV Highway intersection operates at LOS F for the minor street approach. The 1996 existing conditions showed similar results. Table 3-5 shows the operating conditions along the TV Highway corridor.

**Table 3-5
TV Highway PM Peak Hour Intersection Level of Service**

Intersection	2002			1996
	Average Delay	Volume/Capacity	Level of Service	Level of Service
13 th Avenue/River Road/TV Highway	25.9	0.91	C	B
Minter Bridge Road/TV Highway	39.5	0.80	D	D
Sunset Esplanade West/TV Highway	11.2	0.65	B	-
Sunset Esplanade East/TV Highway	9.0	0.62	A	-
Brookwood Avenue/TV Highway	21.9	0.81	C	B
Witch Hazel Road/TV Highway	13.1	0.80	B	C
239 th Avenue/TV Highway ☻	>80.0	--	C/F	C/F
234 th Avenue/TV Highway	19.2	0.82	B	B
229 th Avenue/TV Highway	7.9	0.65	A	B
Cornelius Pass Road/TV Highway	20.2	0.84	C	C
209 th Avenue/TV Highway	29.1	0.94	C	-
198 th Avenue/TV Highway	37.1	0.84	D	-
185 th Avenue/TV Highway	67.1	0.99	E	-

☻ indicates unsignalized intersection

Note: 1996 Level of Service based on 1994 Highway Capacity Manual methodology.

Cornell Road

Fifteen intersections were analyzed along the Cornell Road corridor. All of the intersections are signalized and operate at a LOS of D or better. The 1996 existing conditions showed similar results. Table 3-6 shows the operating conditions along the Cornell Road corridor.

**Table 3-6
Cornell Road PM Peak Hour Intersection Level of Service**

Intersection	2002			1996
	Average Delay	Volume/Capacity	Level of Service	Level of Service
10 th Avenue/Main Street/Cornell Road	33.1	0.78	C	D
Grant Street/Cornell Road	20.0	0.66	B	C
Arrington Road/Cornell Road	8.1	0.62	A	-
25 th Avenue/Cornell Road	40.2	0.80	D	D
Brookwood Parkway/Cornell Road	41.8	0.86	D	B
Elam Young West/Cornell Road	13.0	0.56	B	B
Shute Road/Cornell Road	14.8	0.72	B	B
Elam Young East/Cornell Road	16.1	0.69	B	B
Orenco Parkway/Cornell Road	2.7	0.57	A	-
229 th Avenue/Cornell Road	38.3	0.86	D	C
Walbridge Lane/Cornell Road	8.0	0.62	A	-
Cornelius Pass Road/Cornell Road	50.4	0.89	D	C
John Olsen Avenue/Cornell Road	20.4	0.64	C	B
Stucki Avenue/Cornell Road	23.5	0.77	C	C
185 th Avenue/Cornell Road	34.4	0.83	C	D

Note: 1996 Level of Service based on 1994 Highway Capacity Manual methodology.

Cornelius Pass Road

Fifteen intersections were analyzed along the Cornelius Pass Road corridor. All of the signalized intersections operate at a LOS of D or better except the Baseline Road/Cornelius Pass Road intersection which operates at LOS E. Several of the study intersections operate with a volume to capacity ratio above 0.80. The Wagon Way/Cornelius Pass Road unsignalized intersection operates at LOS F for the minor street approach. The West Union Road/Cornelius Pass Road intersection improved to LOS C with the installation of a traffic signal. The 1996 existing conditions showed similar results. Table 3-7 shows the operating conditions along the Cornelius Pass corridor.

**Table 3-7
Cornelius Pass Road PM Peak Hour Intersection Level of Service**

Intersection	2002			1996
	Average Delay	Volume/Capacity	Level of Service	Level of Service
TV Highway/Cornelius Pass Road	20.2	0.84	C	C
Johnson Street/Cornelius Pass Road	20.8	0.74	C	A/C
Frances Street/Cornelius Pass Road	11.0	0.80	B	B/D
Lois Street/Cornelius Pass Road	24.4	0.93	C	-
Baseline Road/Cornelius Pass Road	61.8	0.95	E	D
Quatama Street/Cornelius Pass Road	11.0	0.78	B	B/E
Walbridge Lane/Cornelius Pass Road	21.3	0.53	C	-
Amberwood Drive/Cornelius Pass Road	26.7	0.81	C	-
Cornell Road/Cornelius Pass Road	50.4	0.89	D	C
Evergreen Parkway/Cornelius Pass Road	49.9	0.88	D	C
US 26 Eastbound Ramps/Cornelius Pass Rd	16.9	0.75	B	C
US 26 Westbound Ramps/Cornelius Pass Rd	12.0	0.70	B	B
Wagon Way/Cornelius Pass Road ☼	>80.0	--	C/F	A/D
Jacobson Road/Cornelius Pass Road ☼	19.8	--	A/C	-
West Union Road/Cornelius Pass Road	23.5	0.74	C	D

☼ indicates unsignalized intersection

Note: 1996 Level of Service based on 1994 Highway Capacity Manual methodology.

The remaining study intersection operations are listed in Table 3-8. Currently, thirteen of these intersections operate with LOS E or F. All of these intersections are unsignalized with high delays on the minor street approach. An exception is Evergreen Parkway at 229th Avenue which is signalized and operates at LOS E. Compared to the 1996 existing conditions, significant LOS changes have occurred at River Road/Witch Hazel Road (LOS A/D to LOS A/F), Evergreen Road/229th Avenue (LOS B to LOS E), Grant Street/1st Avenue (LOS A/D to LOS B/F), Evergreen Road/Jackson School Road (west) (LOS A/C to A/F), Evergreen Road/Jackson School Road (east) (LOS B/D to LOS A/F) and Hornecker Road/Glencoe Road (LOS A/D to LOS A/F).

Table 3-8
Study Intersection PM Peak Hour Intersection Level of Service

Intersection	2002			1996	
	Average Delay	Volume/Capacity	Level of Service	Level of Service	
1 st Avenue/Baseline Street	15.5	0.69	B	B	
10 th Avenue/Baseline Street	39.6	0.86	D	C	
10 th Avenue/Oak Street	43.6	0.98	D	C	
1 st Avenue/Main Street	34.1	0.83	C	C	
1 st Avenue/Oak Street	15.4	0.80	B	B	
1 st Avenue/Walnut Street	☼	>80.0	--	A/F	-
River Road/Minter Bridge Road	28.4	0.77	C	C	
River Road/Rood Bridge Road	25.1	0.73	C	B	
River Road/Witch Hazel Road	☼	56.1	--	A/F	A/D
Main Street/24 th Avenue	12.5	0.66	B	-	
Main Street/28 th Avenue	24.8	0.77	C	B/F	
Main Street/Baseline Road/32 nd Avenue	22.7	0.78	C	D	
Cedar Street/32 nd Avenue	☼	14.9	--	A/B	-
Bentley Street/32 nd Avenue	☼	14.2	--	A/C	-
Cedar Street/Brookwood Avenue	☼	20.8	--	A/C	-
Bentley Street/Brookwood Avenue	☼	21.0	--	A/C	-
Baseline Road/Brookwood Avenue	50.7	0.90	D	B	
Golden Road/Brookwood Avenue	☼	20.1	--	A/C	-
Frances Street/ 239 th Avenue	☼	11.9	--	A/B	A/B
Johnson Street/239 th Avenue	☼	19.3	--	A/C	-
Johnson Street/229 th Avenue	1.6	0.15	A	A	
Baseline Road/53 rd Avenue	21.2	0.79	C	C	
Baseline Road/231 st Avenue	24.6	0.76	C	C	
Baseline Road/206 th Avenue	43.0	0.84	D	C	
Baseline Road/197 th Avenue	12.2	0.69	B	-	
Johnson Street/185 th Avenue	22.7	0.78	C	-	
Quatama Street/205 th Avenue	☼	71.8	--	A/F	-
Amber Glen Parkway/Walker Road	14.9	0.46	B	B	
Stucki Avenue/Evergreen Parkway	10.9	0.51	B	B/D	
Evergreen Parkway/John Olsen Avenue	20.4	0.64	C	B/D	
Evergreen Parkway/Aloclek Drive	12.5	0.38	B	-	
Butler Road/Shute Road	☼	46.4	--	A/E	-
Butler Road/229 th Avenue	☼	>80.0	--	A/F	-
Evergreen Road/229 th Avenue	61.4	0.99	E	B	
Brookwood Parkway/Shute Road	16.4	0.52	B	-	
Evergreen Road/Shute Road	33.1	0.78	C	C	

Intersection	2002			1996	
	Average Delay	Volume/Capacity	Level of Service	Level of Service	
Airport Road/Brookwood Parkway	✱	13.1	--	A/B	-
Grant Street/28 th Avenue	✱	23.2	--	B/C	B/C
Grant Street/5 th Avenue		14.4	0.63	B	A
Grant Street/1 st Avenue	✱	54.8	--	B/F	A/D
Garibaldi Street/Connel Avenue	✱	13.8	--	A/B	-
Sunrise Lane/25 th Avenue	✱	41.3	--	B/E	-
Sunrise Lane/15 th Avenue	✱	13.5	--	A/B	-
Arrington Road/Jackson School Road	✱	14.4	--	A/B	-
Sunrise Lane/Jackson School Road	✱	25.2	--	A/D	-
Harewood Street/Jackson School Road	✱	16.6	--	A/C	-
Harewood Street/1 st Avenue/Glencoe Road	✱	25.5	--	A/D	-
Hornecker Road/Glencoe Road	✱	33.8	--	A/D	A/F
Evergreen Road/Glencoe Road		23.2	0.78	C	B
Evergreen Road/Jackson School Road (west)	✱	>80.0	--	A/F	A/C
Evergreen Road/Jackson School Road (east)	✱	>80.0	--	A/F	B/D
Evergreen Road/15 th Avenue		22.0	0.47	B	A/C
Evergreen Road/25 th Avenue		13.7	0.51	C	C
US 26/Shute Road Eastbound Ramps	✱	>80.0	--	A/F	A/D
US 26/Shute Road Westbound Ramps		22.0	0.80	C	B
US 26/Jackson School Road	✱	>80.0	--	B/F	C/F
Anthony Drive/209 th Avenue/Johnson Street		14.6	0.67	B	-
206 th Avenue/Rock Road	✱	34.0	--	A/D	-
Anthony Drive/Rock Road	✱	17.9	--	A/C	-
198 th Avenue/Johnson Street	✱	51.6	--	A/F	-
Blanton Street/209 th Avenue	✱	13.6	--	A/B	-
Blanton Street/198 th Avenue	✱	20.6	--	A/C	-
Kinnaman Road/209 th Avenue	✱	16.0	--	A/C	-
Kinnaman Road/198 th Avenue (south)	✱	20.5	--	A/C	-
Kinnaman Road/198 th Avenue (north)	✱	34.1	--	A/D	-
Rosa Road/209 th Avenue	✱	12.1	--	A/B	-
Rosa Road/198 th Avenue	✱	13.2	--	A/B	-
Connel Avenue/Main Street	✱	18.0	--	A/C	-
Dennis Avenue/Main Street	✱	16.2	--	A/C	-
Rosedale Road/229 th Avenue	✱	11.3	--	A/B	-
Rosedale Road/River Road	✱	19.6	--	A/C	-
Alexander Street/229 th Avenue	✱	9.9	--	A/A	-

✱ indicates unsignalized intersection

Note: 1996 Level of Service based on 1994 Highway Capacity Manual methodology.

The majority of the study intersections are currently operating at acceptable capacity levels. Table 3-9 provides a list of the intersections currently operating above a V/C ratio of 0.90 or Level of Service F and how the capacity problem was planned to be addressed in the previous TSP. The status of improvements is also noted, indicating what recent improvements have been made since the adoption of the prior TSP.

**Table 3-9
Intersections Operating at Capacity under Existing Conditions**

Intersection	Capacity Improvement Action From Prior TSP	Improvement Status
Evergreen Road/229 th Avenue	Add NB and EB right-turn lanes, protected/permitted phasing north-south	NB right-turn lane added
Evergreen Road/Jackson School Road (east)	Install a traffic signal, add SB right-turn lane, widen Evergreen to 5-lanes	SB right-turn lane added
Baseline Road/Cornelius Pass Rd	Add NB, SB and WB right-turn lanes	SB right-turn lane added
West Union Road/Cornelius Pass Rd	Install a traffic signal, add SB, EB and WB left-turn lanes, add NB and EB right-turn lanes	Not completed
Baseline Road/53 rd Avenue	Widen Baseline Road to 5 lanes	Not completed
Baseline Road/206 th Avenue	Add EB and WB right-turn lanes	Not completed
US 26/Shute Road EB & WB Ramps	Add 2 nd NB thru lane, new loop ramp and interchange modifications	Not completed
239 th Avenue/TV Highway	Add a traffic signal	Not completed
229 th Avenue/Cornell Road	Add EB and SB right-turn lanes, add WB 2 nd left turn-lane	Not completed
US 26/Jackson School Road	Channelization and safety improvements	Completed
198 th Avenue/Johnson Street	Install a traffic signal	Not completed
TV Highway/River Rd/13 th Avenue	Add EB right-turn lane	Not completed
Grant Street/1 st Avenue	No improvements listed in prior TSP	--
TV Highway/185 th Avenue	Not studied in prior TSP	--
198 th Avenue/TV Highway	Not studied in prior TSP	--
Connel Avenue/Main Street	Not studied in prior TSP	--
1 st Avenue/Walnut Street	Not studied in prior TSP	Planned
Butler Road/229 th Avenue	Not studied in 1999 TSP	--

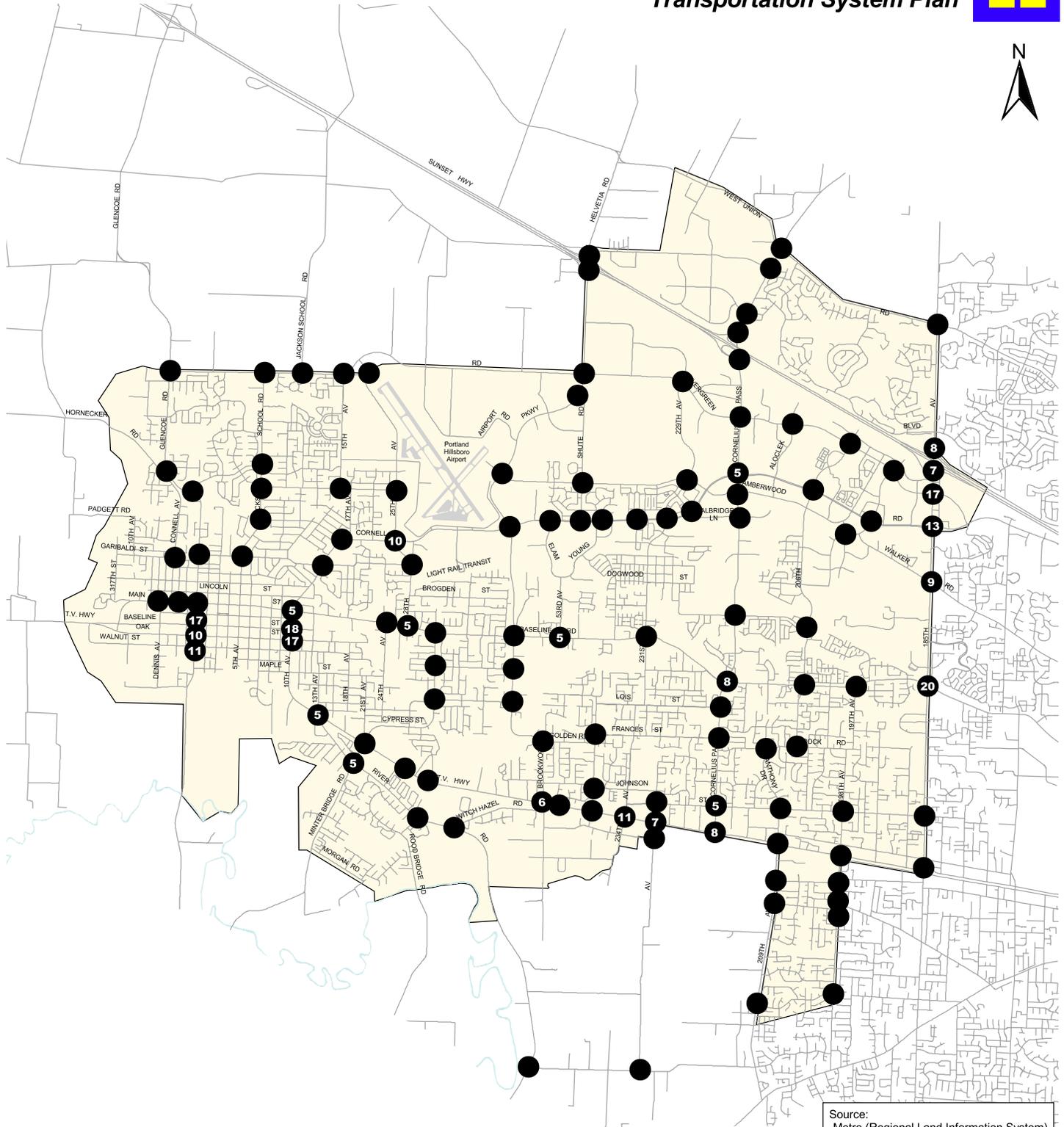
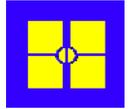
COLLISIONS

Collision data was obtained from the City of Hillsboro Engineering Department for 2002. The data was used to update the high collision intersection list from the previous TSP, with only one location (185th Avenue/Sunset Highway) remaining in the top ten of the current list. In general, intersections that dropped off of the list continue to experience approximately the same number of accidents in 2002 as in 1996. However, other intersections within Hillsboro have had an increase in accident frequency over the last four years. Intersections that have been added to the list since the prior TSP could have an increase in collision numbers due to an increase in volume and congestion, which can create more conflicts and aggressive driving behavior, or are intersections that are included in this study as part of the new study area. Table 3-10 shows the ten highest reported accident locations and number of reported accidents for 2002. Figure 3-14 shows the study intersections in Hillsboro with five or more reported accidents in 2002.

Table 3-10
Ten Highest Reported Accident Locations in Hillsboro for 2002

Ranking	Roadway	Location	Number of Accidents
1	185 th Avenue	Baseline Road	20
2	10 th Avenue	Baseline Road	18
3	185 th Avenue	Evergreen Parkway	17
4	10 th Avenue	Maple Street	17
5	10 th Avenue	Oak Street	17
6	1 st Avenue	Baseline Road	17
7	185 th Avenue	Sunset Highway (US 26)	15
8	185 th Avenue	Cornell Road	13
9	10 th Avenue	Cedar Street	12
10	1 st Avenue	Walnut Street	11

Based on accident data provided by the City of Hillsboro for 2002.



Source:
-Metro (Regional Land Information System)
-City of Hillsboro

● Accident Frequency During 2002

Study Area Boundary

Figure 3-14
2002 ACCIDENT DATA
AT STUDY INTERSECTIONS

0 5000 10000 Feet

Accident data was also obtained from Washington County for the period between 1998 through 2000. Washington County takes data collected by the State of Oregon and converts it to a Safety Priority Index System (SPIS) number. SPIS represents the combination of accident rates, frequency, severity and volumes. The SPIS number associated with a given intersection represents only those accidents that took place within or very near that intersection. The SPIS system of accident reporting does not necessarily identify broad areas (i.e. a one-half mile segment) where a number of accidents may take place. The SPIS numbers for each intersection in Washington County where accidents have occurred were then ranked from highest to lowest. Table 3-11 summarizes the ten highest accident intersections within Hillsboro in the Washington County ranking (data for 1998-2000). The 2000 data includes over 50 intersections within Hillsboro, which were identified on the Washington County SPIS list out of 245 on the overall listings.

**Table 3-11
Ten Highest SPIS Ranked Intersections in Hillsboro from Washington County Data (1998-2000)**

SPIS List Ranking	Street	Cross Street	Number of Accidents	SPIS Number
1	Baseline Road	185 th Avenue	109	172.49
4	Evergreen Parkway	185 th Avenue	80	107.83
10	TV Highway	185 th Avenue	91	94.19
11	Highway 26	Jackson School Road	37	91.76
14	TV Highway	Brookwood Avenue	29	86.43
16	TV Highway	River Road/13 th Avenue	46	84.15
17	Evergreen Parkway	Shute Road	29	82.80
27	TV Highway	Cornelius Pass Road	45	70.00
32	TV Highway	Witch Hazel Road	32	65.88
37	TV Highway	209 th Avenue	35	64.47

In comparison, Table 3-12 summarizes the ten highest accident intersections in Hillsboro in the Washington County ranking (data for 1994-1996) presented in the prior TSP and the current (data for 1998-2000) SPIS ranking for the intersections. Several of the locations have experienced a drop in SPIS ranking over the last six years. The Evergreen Parkway/188th Avenue intersection traffic signal was modified in 1997, which dropped its SPIS list ranking from #10 to #241. The Quatama Road/Cornelius Pass Road SPIS list ranking dropped from #28 to off the list with a traffic signal modification and the addition of separate northbound/southbound left-turn lanes. Several additional intersections have dropped off the SPIS list completely.

Several of the locations have experienced a rise in SPIS ranking over the last six years. The SPIS ranking for the 185th Avenue/Baseline Road intersection has increased from #17 to #1 over the last six years. Recent improvements at the intersection (including the replacement of the eastbound left turn lane with a right-turn jughandle in 1998) has not reduced the SPIS number for the intersection as expected. The 185th Avenue/Evergreen Parkway intersection rose to make the SPIS top ten list for Hillsboro with its ranking increasing from #40 to #4.

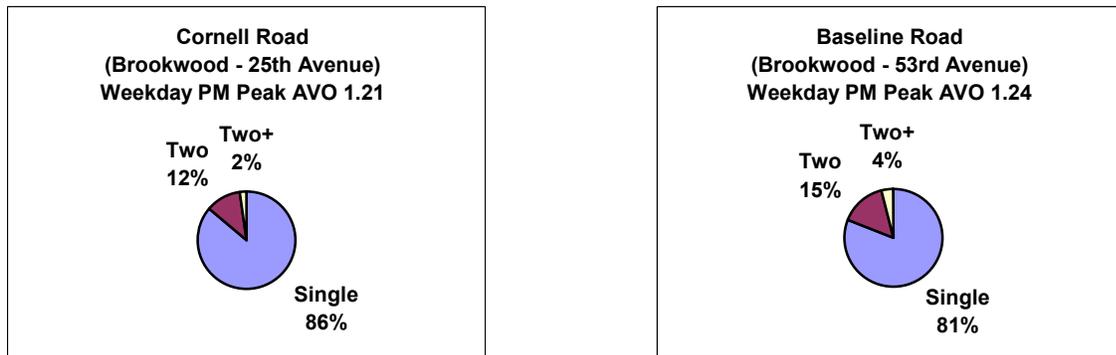
Table 3-12
Comparison to Prior TSP SPIS Rankings

Old SPIS List Ranking (1994-1996)	Current SPIS List Ranking (1998-2000)	Street	Cross Street	Old Number of Accidents (1994-1996)	Old SPIS Number (1994-1996)
9	19	Evergreen Road	Jackson School Road	16	58.81
10	241	Evergreen Parkway	188 th Avenue	13	56.88
13	10	TV Highway	185 th Avenue	75	56.02
17	1	Baseline Road	185 th Avenue	47	53.60
24	NA	Baseline Street	1 st Avenue	30	50.47
26	NA	Oelrich Road	231 st Avenue	4	50.09
28	NA	Quatama Road	Cornelius Pass Road	15	49.68
31	230	Evergreen Parkway	John Olsen Road	12	49.17
36	37	TV Highway	209 th Avenue	37	47.78
40	4	Evergreen Parkway	185 th Avenue	33	46.95

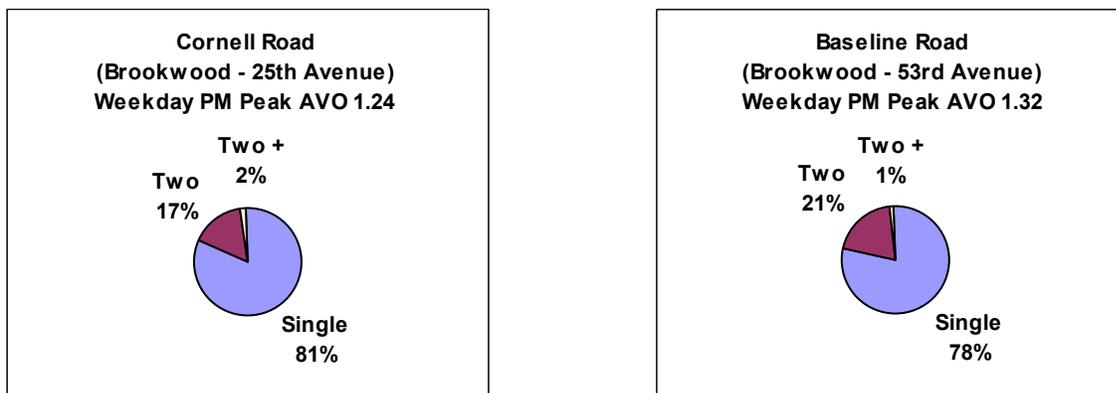
AVERAGE VEHICLE OCCUPANCY

Average vehicle occupancy is a measure of the movement of people on key routes. For Hillsboro, the locations of Cornell Road between Brookwood Avenue and 25th Avenue and Baseline Road between Brookwood Avenue and 53rd Avenue were selected as representative monitoring points for Hillsboro vehicle activity. Average vehicle occupancy (AVO) was measured during March and June 2001 for the PM peak hour (4:00 PM to 6:00 PM) on Baseline Road to be 1.32 persons per vehicle and on Cornell Road to be 1.24 persons per vehicle. The rate observed on Cornell Road is slightly lower than typical ranges for auto occupancy (over all time periods and trip purposes) which range from about 1.31 to 1.54 persons per vehicle.¹³ Figure 3-15 shows the percentage of vehicles with one, two or greater than two occupants at each survey site for 2001 and 1996 for the prior TSP. The 2001 AVO rates are similar to the 1996 AVO data with Baseline Road showing a 7% increase in average vehicle occupancy over the last four years.

Figure 3-15
2001 Average Vehicle Occupancy



1996 Average Vehicle Occupancy



¹³ *Calibration and Adjustment of System Planning Models*, U.S. Department of Transportation and Federal Highway Administration, December, 1990 and *Quick Response Urban Travel Estimation Techniques and Transferable Parameters: User's Guide*, NCHRB Report 187, Transportation Research Board, Washington, D.C., 1978.

TRANSIT

Transit service is provided in Hillsboro by the Tri-County Metropolitan Transportation District of Oregon (Tri-Met). Since the previous TSP, the use of transit as an alternative mode has risen¹⁴ due to an increase in frequency and coverage throughout the city and the Westside Light Rail Project. Bus route service in Hillsboro has changed significantly due to new light rail service. Bus routes were removed from areas serviced by MAX light rail to eliminate redundant service. A weekday shuttle route that operates during peak periods was added to increase connections to MAX transit stations. New bus routes were added to extend transit coverage to North Hillsboro. Currently, there are nine Tri-Met bus routes and nine MAX Light Rail stations which serve Hillsboro (see Figure 3-16):

Bus Routes

- 46: North Hillsboro
- 47: Baseline – Evergreen
- 48: Cornell
- 49S: Quatama MAX Shuttle
- 52: Farmington – 185th
- 57: TV Highway – Forest Grove
- 59: Walker – Park Way
- 88: Hart – 198th
- 89: Tanasbourne

MAX Light Rail Stations

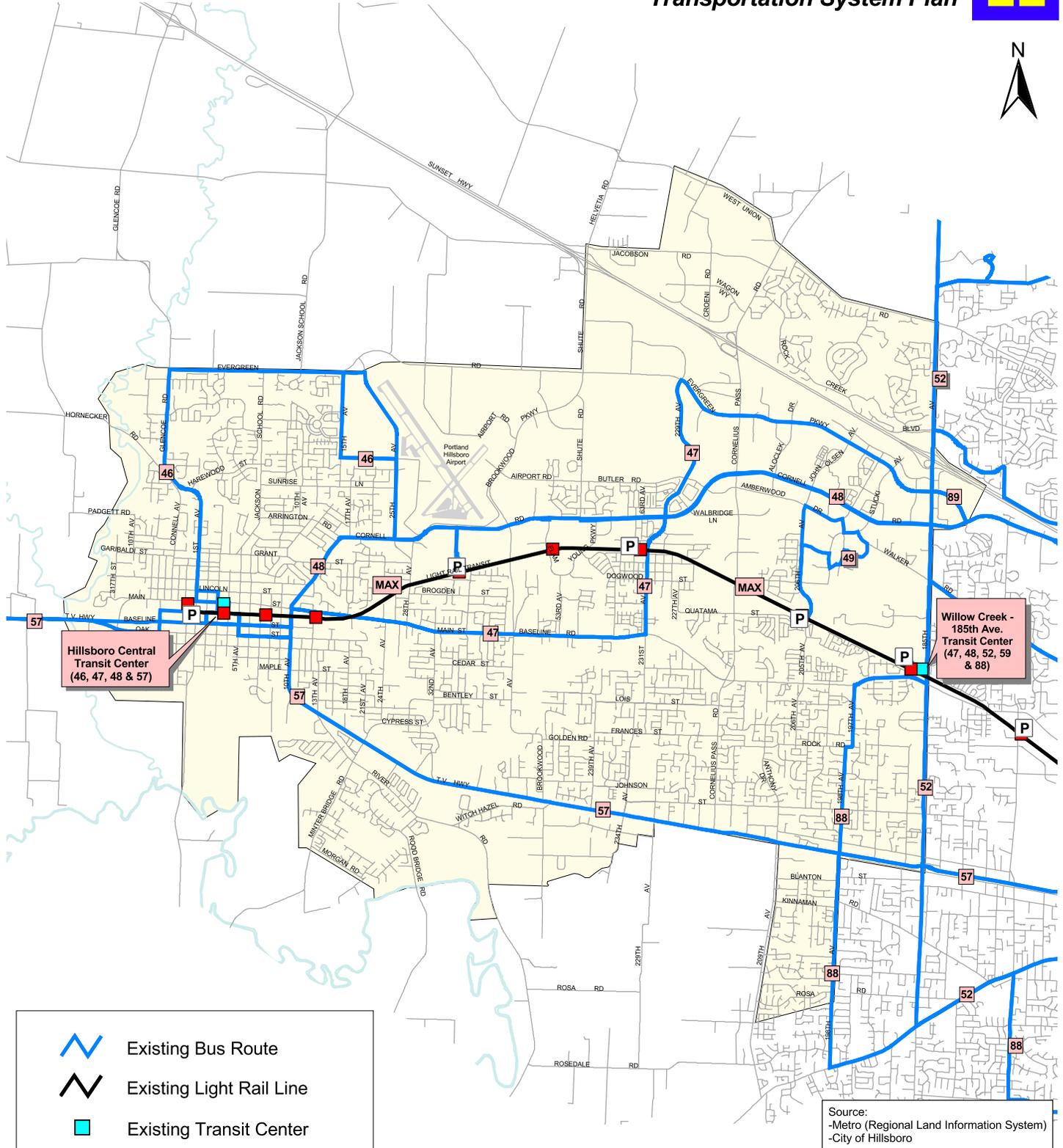
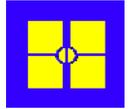
- Willow Creek/SW 185th Ave TC
- Quatama/NW 205th Ave
- Orenco/NW 231st Ave
- Hawthorne Farm
- Fair Complex/Hillsboro Airport
- Washington St/SE 12th Ave
- Tuality Hospital/SE 8th Ave
- Hillsboro Central TC/SE 3rd Ave
- Hatfield Government Center

MAX light rail and the majority of bus routes provide service all day throughout the week and on weekends. Shuttle bus routes connecting to MAX transit stations operate weekdays during the peak periods only. Table 3-13 provides the service days for the Tri-Met routes serving Hillsboro.

Table 3-13
Transit Service in Hillsboro

Weekday All Day Tri-Met Routes	Weekday Peak Only Tri-Met Routes	Saturday Tri-Met Routes	Sunday Tri-Met Routes
46, 47, 48, 52, 57, 59, 88, 89, MAX	41S, 42S, 49S	47, 48, 52, 57, 59, 88, 89, MAX	47, 48, 52, 57, 59, 88, 89, MAX

¹⁴ Spring 2003 Route Level Passenger Census, Tri-Met.



Hillsboro Central Transit Center
(46, 47, 48 & 57)

Willow Creek - 185th Ave. Transit Center
(47, 48, 52, 59 & 88)

-  Existing Bus Route
-  Existing Light Rail Line
-  Existing Transit Center
-  Existing Light Rail Stop
-  Existing Park and Ride
-  Study Boundary

Source:
-Metro (Regional Land Information System)
-City of Hillsboro

Figure 3-16
EXISTING TRANSIT ROUTES



The 2000 and 2003 average weekday ridership volumes within the TSP study area are summarized in Table 3-14. A comparison of overall transit ridership within the study area shows less than 1% growth from 2000 and 2003. A bus route level comparison shows ridership over the last three years has changed significantly for several routes. Weekday ridership volumes over the last three years have increased by more than 40% on Route 46: North Hillsboro and 27% on Route 47: Baseline – Evergreen. Route 57: TV Highway – Forest Grove continues to operate with the highest average weekday ridership volumes although ridership is down 10% over the last three years. Route 59: Walker – Park Way ridership has decreased 12% over the last three years.

**Table 3-14
Tri-Met Weekday Ridership in Study Area (Spring 2000 & 2003)**

Route	Direction	2000			2003		
		Ons	Offs	Total	Ons	Offs	Total
46: North Hillsboro	Outbound	67	69	136	94	99	193
	Inbound	59	58	117	70	93	163
47: Baseline–Evergreen	Outbound	234	348	582	330	405	735
	Inbound	294	285	579	384	361	745
48: Cornell	Outbound	291	344	635	282	332	614
	Inbound	282	271	533	293	276	569
49S: Quatama Shuttle	Outbound	43	12	55	41	12	53
	Inbound	32	43	75	20	49	69
52: Farmington–185th	Outbound	1,493	1,800	3,293	1,778	1,850	3,628
	Inbound	1,333	1,491	2,824	1,671	1,919	3,590
57: TV Highway–Forest Grove	Outbound	3,410	3,940	7,350	2,954	3,135	6,089
	Inbound	2,552	3,091	5,643	2,577	2,925	5,502
59: Walker–Park Way	Outbound	204	191	395	203	163	366
	Inbound	160	194	354	119	174	293
88: Hart–198 th	Outbound	695	822	1,517	681	680	1,361
	Inbound	534	649	1,183	587	677	1,264
89: Tanasbourne	Outbound	446	350	796	469	316	785
	Inbound	243	408	651	311	467	778
TOTAL				26,718			26,797

Source: Spring 2000 & Spring 2003 Route Level Passenger Census, Tri-Met.

Table 3-15 summarizes general trip frequency (in minutes) and average boarding rides per revenue hour¹⁵ for Tri-Met routes serving Hillsboro. All of the existing routes exceed the Tri-Met minimum boardings per revenue hour performance standard of 10 boarding per revenue hour. All of the transit routes operate at headways of 30 minutes or better during both the AM and PM peak hours. Headways of 30 minutes or better correspond to a LOS D or better as defined in the Highway Capacity Manual methodology¹⁶.

¹⁵ Frequency data as of September 1999. Boardings per revenue hour data for fiscal year 1998.

¹⁶ *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2000.

Table 3-15
Weekday System-Wide Frequency and Average System-Wide Boarding Rates Serving Hillsboro

Route	7:00 - 8:30 am	8:30 am- 4:00 pm	4:00 - 6:00 pm	6:00 – 9:30 pm	9:30 pm- Midnight	Boarding Rides Per Revenue Hour
MAX	7	10	7	15	15/30	n/a
46: North Hillsboro	30	60	30	-	-	n/a
47: Baseline – Evergreen	30	30	30	60	-	n/a
48: Cornell	30	30	30	60	-	n/a
49S: Quatama Shuttle	20	-	20	-	-	n/a
52: Farmington – 185 th *	15	15	15	30	60	41.5
57: TV Hwy – Forest Grove	15	15	15	30	30	37.1
59: Walker – Park Way	30	30	30	60	-	n/a
88: Hart – 198 th	30	30	30	60	-	38.2
89: Tanasbourne*	30	30	30	60	-	n/a

Source: Transit Choices for Livability Handbook, Tri-Met, Tables 1 and 2, 2000.

* Less frequent service provided to portion or end of route.

Figure 3-17 shows the transit coverage of transit supportive land use in the Hillsboro area. The Highway Capacity Manual¹⁷ defines transit supportive areas as having either a household density of three households per acre or an employment density of four employees per acre¹⁸. The TSP 2000 base model land use was used to define existing conditions. The transit coverage area (transit buffer) is defined as 0.25 miles from a bus stop, 0.25 miles from a transit shuttle service area, and 0.50 miles from a LRT (light rail transit) station. Approximately 87% of the transit supportive zones (8,437 of 9,703 acres) are covered within the transit buffer. However, there are areas that do not have walking access to transit and therefore does not meet the Hillsboro TSP goal of providing coverage within one-quarter mile to all of Hillsboro. Specific areas include north of US 26, along Shute Road north of Butler Road and Cornelius Pass Road between Johnson Street and Baseline Road.

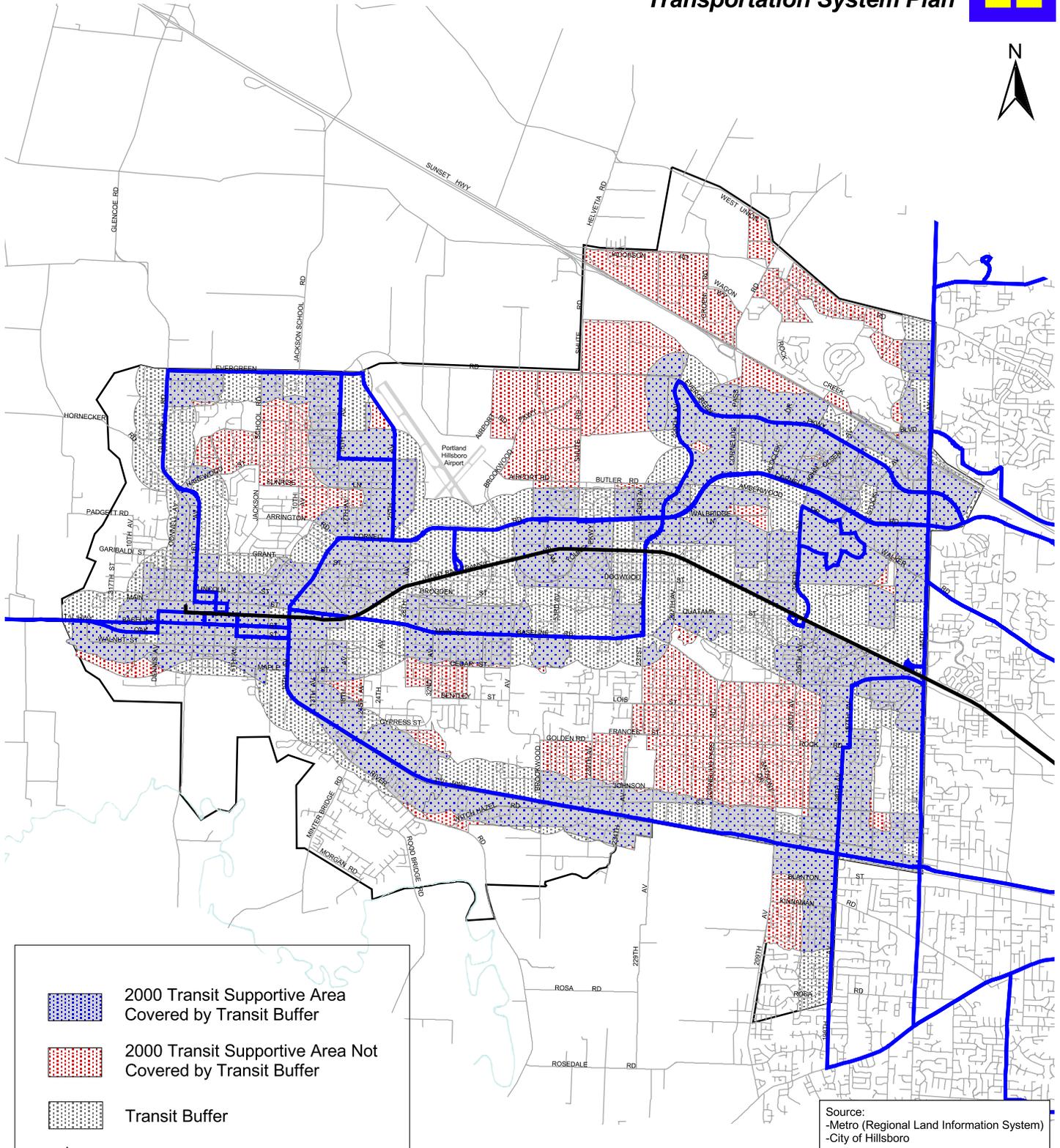
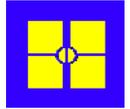
A new commuter rail line to be operated by Tri-Met is planned to serve the SW Portland Metro Area. The route will operate between Wilsonville and the Beaverton Town Center on existing freight rail tracks with stops at major roadway crossings and the Tigard Town Center. The new commuter rail line is expected to increase light rail ridership in Hillsboro by expanding the existing rail transit network to areas to the south including Tigard, Tualatin and Wilsonville.

Tri-Met’s most recent passenger census was used to determine boardings at each bus stop¹⁹. Bus stops with boardings of at least 35 passengers per day meet Tri-Met’s criteria for consideration of bus shelter locations.

¹⁷ Highway Capacity Manual, Transportation Research Board, Washington D.C., 2000.

¹⁸ Ibid.

¹⁹ Spring 2000 Passenger Census, Tri-Met, 2000.



2000 Transit Supportive Area Covered by Transit Buffer



2000 Transit Supportive Area Not Covered by Transit Buffer



Transit Buffer



Light Rail Transit Line



Transit Bus Line



Study Area Boundary

Source:
-Metro (Regional Land Information System)
-City of Hillsboro

Figure 3-17
EXISTING TRANSIT COVERAGE

0 5000 10000 Feet

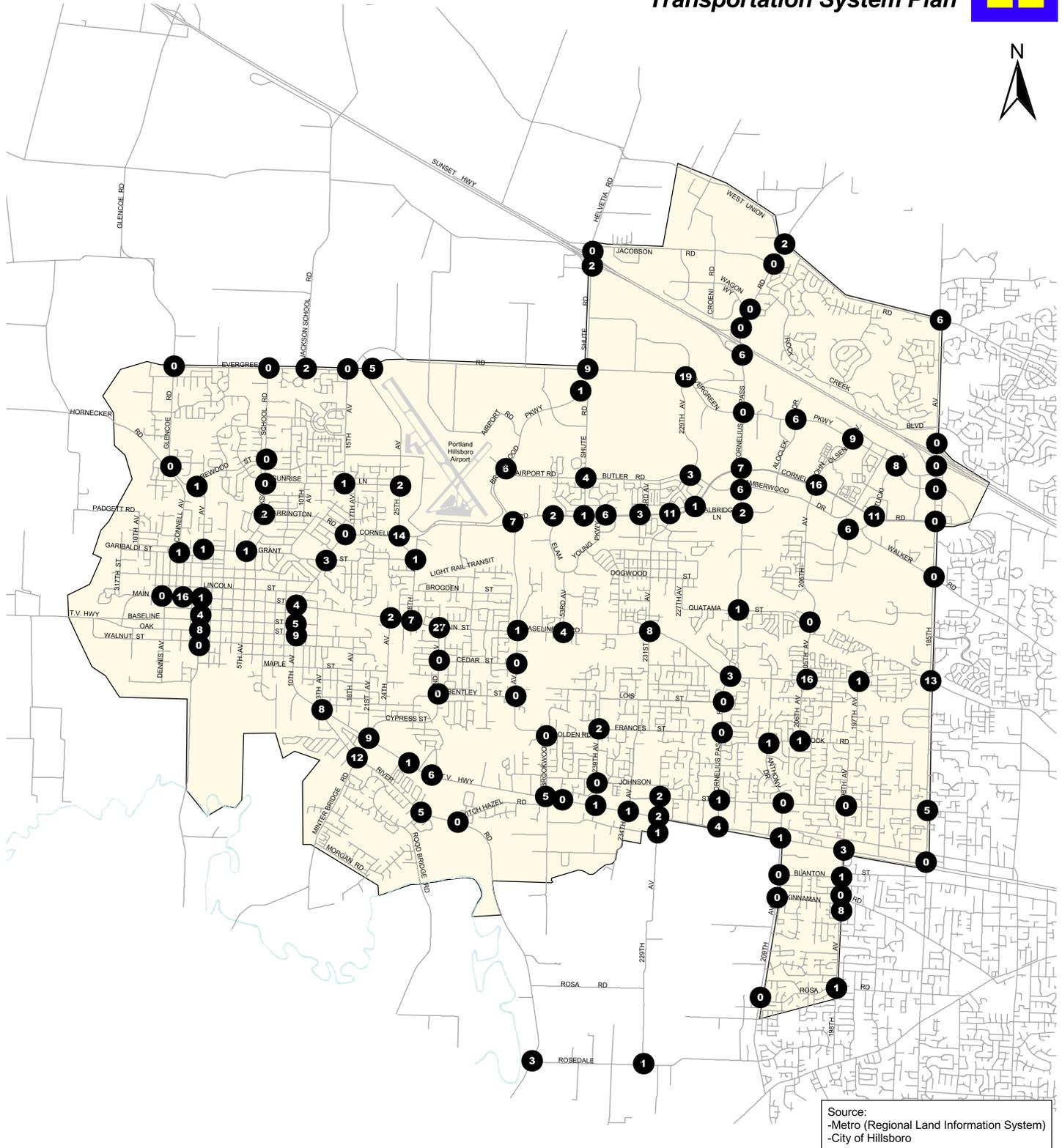
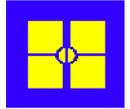


BICYCLE

Bicycle counts were conducted during the evening peak period (4:00 to 6:00 PM) at the study intersections in Hillsboro and are shown in Figure 3-18. Of over the hundred intersections analyzed, 46 were conducted in the fall of 2002 with the remainder done during spring 2001. These counts represent a small sample of the existing bicycle activity at the study intersection based on one evening peak hour during the Fall of 2001. The level of bicycle ridership is influenced by several factors such as time of year and weather. Wide variations in bicycle activity at the study intersections would be expected with data collection over extended periods of time.

The highest bicycle volumes were observed on Baseline Road at 28th Avenue and Cornelius Pass Road at Amberwood Drive. Bicycle counts were not conducted for the prior TSP, therefore a comparison between 1996 and current bicycle usage in Hillsboro cannot be made. The updated existing bike lanes, designated bikeways and off-street bike pathways are shown in Figure 3-19. The designated bikeway facilities may or may not have future bike lanes.

There is limited connectivity for bicyclists traveling to activity centers in Hillsboro. However, there are three primary east/west routes (TV Highway, Cornell Road and Evergreen Road) and one primary north/south route (185th Avenue) in Hillsboro. Bike lane gaps on Cornell Road, Cornelius Pass Road, and Evergreen Road should be addressed to provide connectivity for bicyclists on arterials. Bicycles are permitted on all roadways in the City except for US 26. Bicycle use in Hillsboro is generally for recreational, school and commuting purposes.



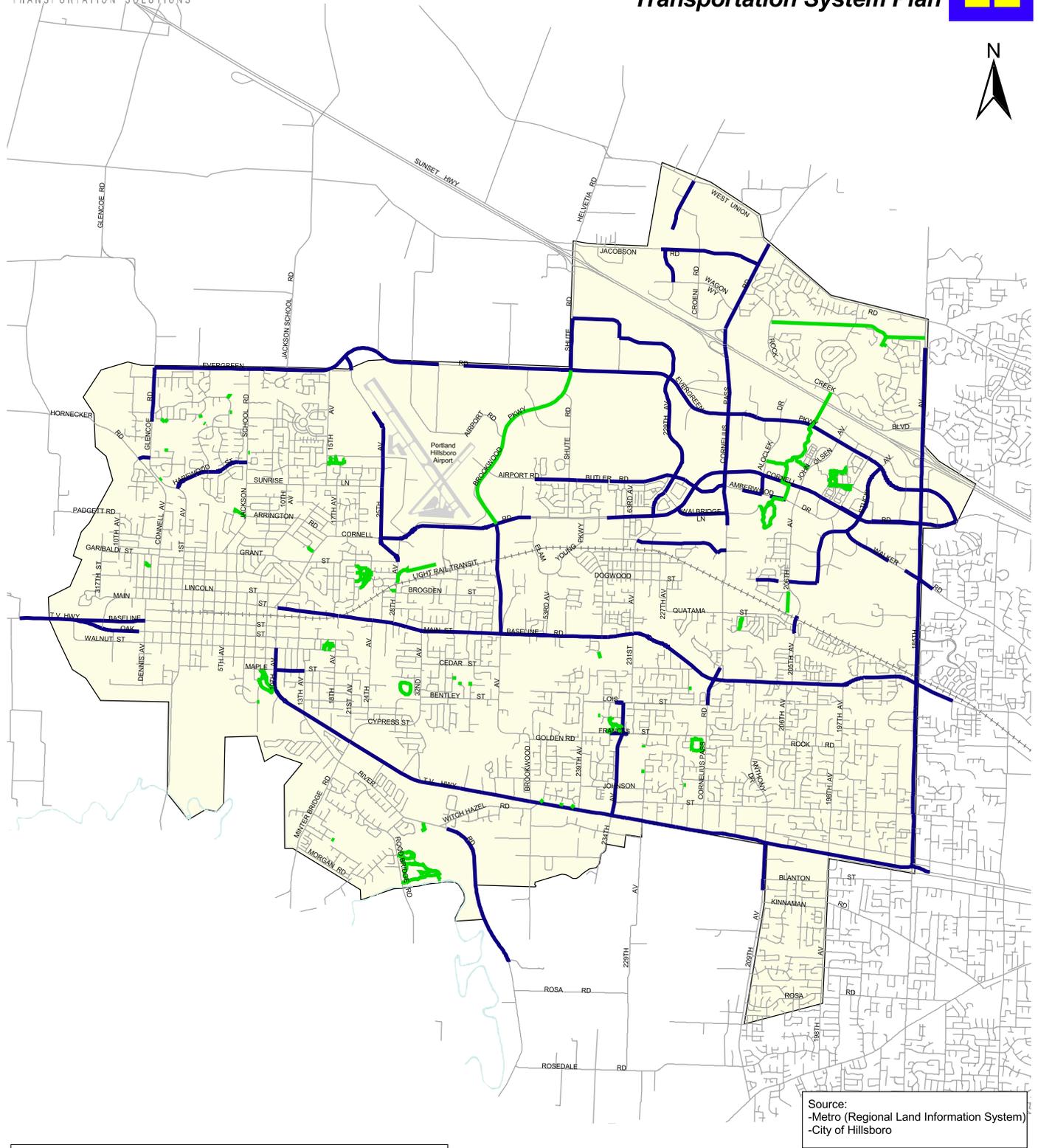
Source:
-Metro (Regional Land Information System)
-City of Hillsboro

6 Bicycle Movements - PM Peak Hour

Study Area Boundary

Figure 3-18
EXISTING BICYCLE VOLUMES
PM PEAK HOUR
2001/2002

0 5000 10000 Feet



Source:
-Metro (Regional Land Information System)
-City of Hillsboro

— Existing Bike Lanes
— Multi-Use Path
— Local Street

Figure 3-19
EXISTING BICYCLE NETWORK
2002

0 5000 10000 Feet

PEDESTRIANS

Pedestrian counts were updated with the current intersection PM peak turn movement counts. These counts represent a small sample of the existing pedestrian activity at the study intersection based on one evening peak hour during Spring 2001 – with 46 of the intersection analyzed in Fall 2002. Pedestrian activity is influenced by several factors such as time of year and weather. Wide variations in pedestrian activity at the study intersections would be expected with data collection over extended periods of time.

The current counts were broken down into both the peak hour and peak period count for pedestrians, while the previous TSP used only the peak period (4-6 PM) for pedestrian volumes. Therefore, the current pedestrian volumes shown in Figure 3-20 represent a smaller one hour time interval compared to the pedestrian volume figure in the prior TSP. Table 3-16 compares peak period (4-6 PM) pedestrian counts for current 2001/2002 and 1996 conditions at several intersections throughout Hillsboro. In general, pedestrian volumes have remained constant over the last five years. Pedestrian volumes have increased near new light rail stations, which are a large pedestrian generator. The most significant pedestrian movements occur in the Hillsboro downtown area, Tanasbourne and along TV Highway. Figure 3-20 summarizes the updated pedestrian counts.

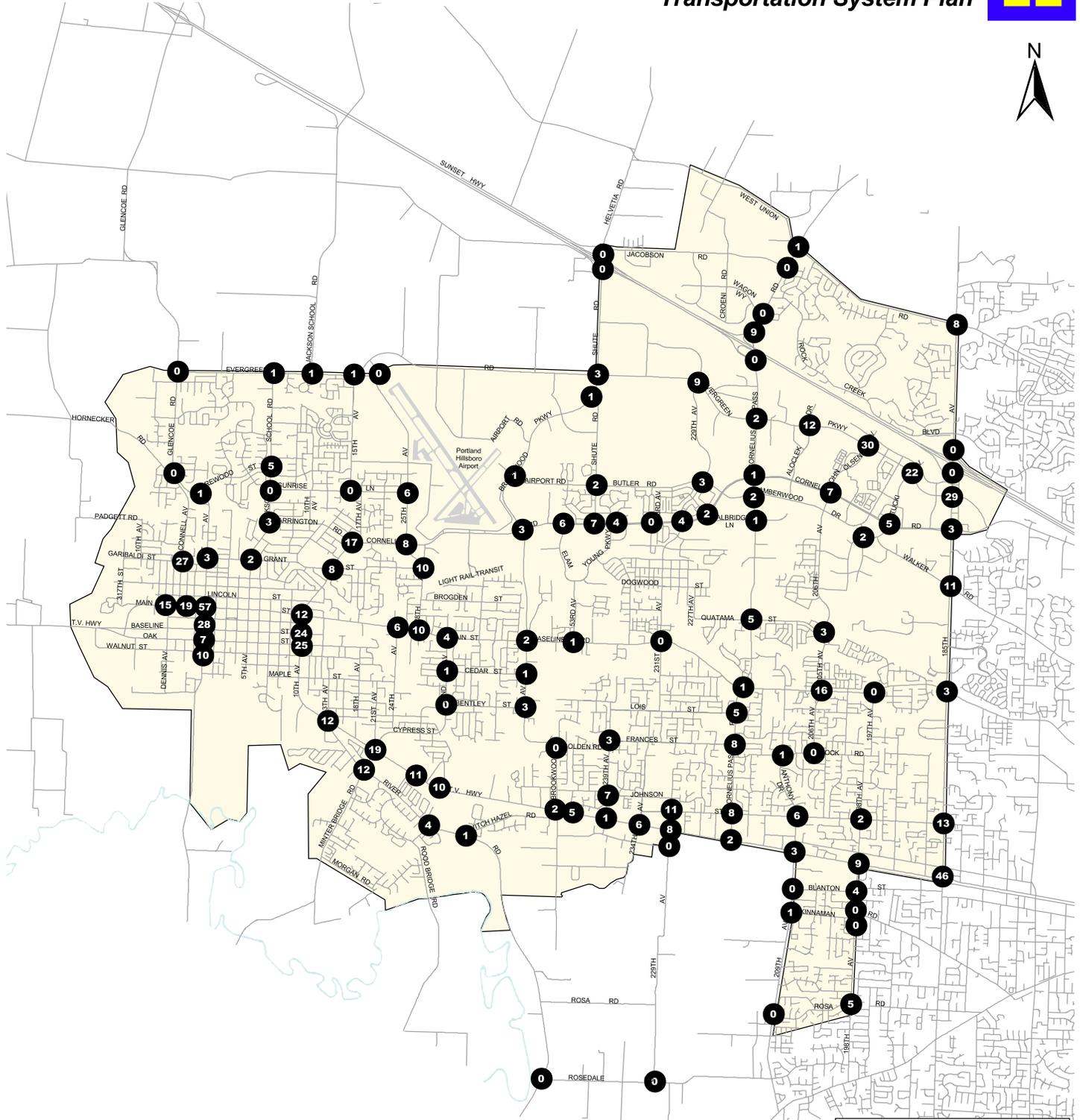
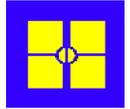
Figure 3-21 shows the updated existing sidewalks in Hillsboro. A majority of arterial and collector streets in Hillsboro have sidewalks on at least one side of the street. In some cases, neighborhoods have extensive sidewalks and the adjacent arterial/collector do not have sidewalks which creates isolated subareas. There are some locations where sidewalks are not connected; however, on the whole connectivity and pedestrian linkages are relatively improved over conditions from 1996. In addition to facilities that are shown on this map, many residential streets also have sidewalks.

Table 3-16
Pedestrian Volumes for 2001 and 1996 in Hillsboro

Intersection	2001/2002 Pedestrian Volume	1996 Pedestrian Volume
Cornell Road/25 th Avenue	18	23
Evergreen Road/229 th Avenue	10	7
TV Highway/13 th Avenue/River Road	40	37
Cornell Road/Stucki Avenue	40	40
185 th Avenue/Walker Road	11	110
Jackson School Road/Grant Street	11	15
River Road/Minter Bridge Road	14	9
1 st Avenue/Oak Street	56	44
10 th Avenue/Oak Street	81	148

Sidewalks at least five feet wide are required in all new development. Existing roadways that do not have sidewalks are being retrofitted where terrain and right-of-way make it economically feasible to do so. All newly constructed sidewalks include wheelchair ramps at intersections to permit easy ingress/egress for wheelchairs. The City of Hillsboro should work to continue increasing the sidewalk coverage on all arterials, collectors, and residential streets in the Hillsboro area.

In addition to sidewalks, pedestrian paths are included in many of the City's parks, open spaces and greenways, including the Rock Creek Trail. The City of Hillsboro Parks Department has recently extended the Rock Creek Trail from Evergreen Parkway to Rock Creek Boulevard north of US 26 with a pedestrian underpass.



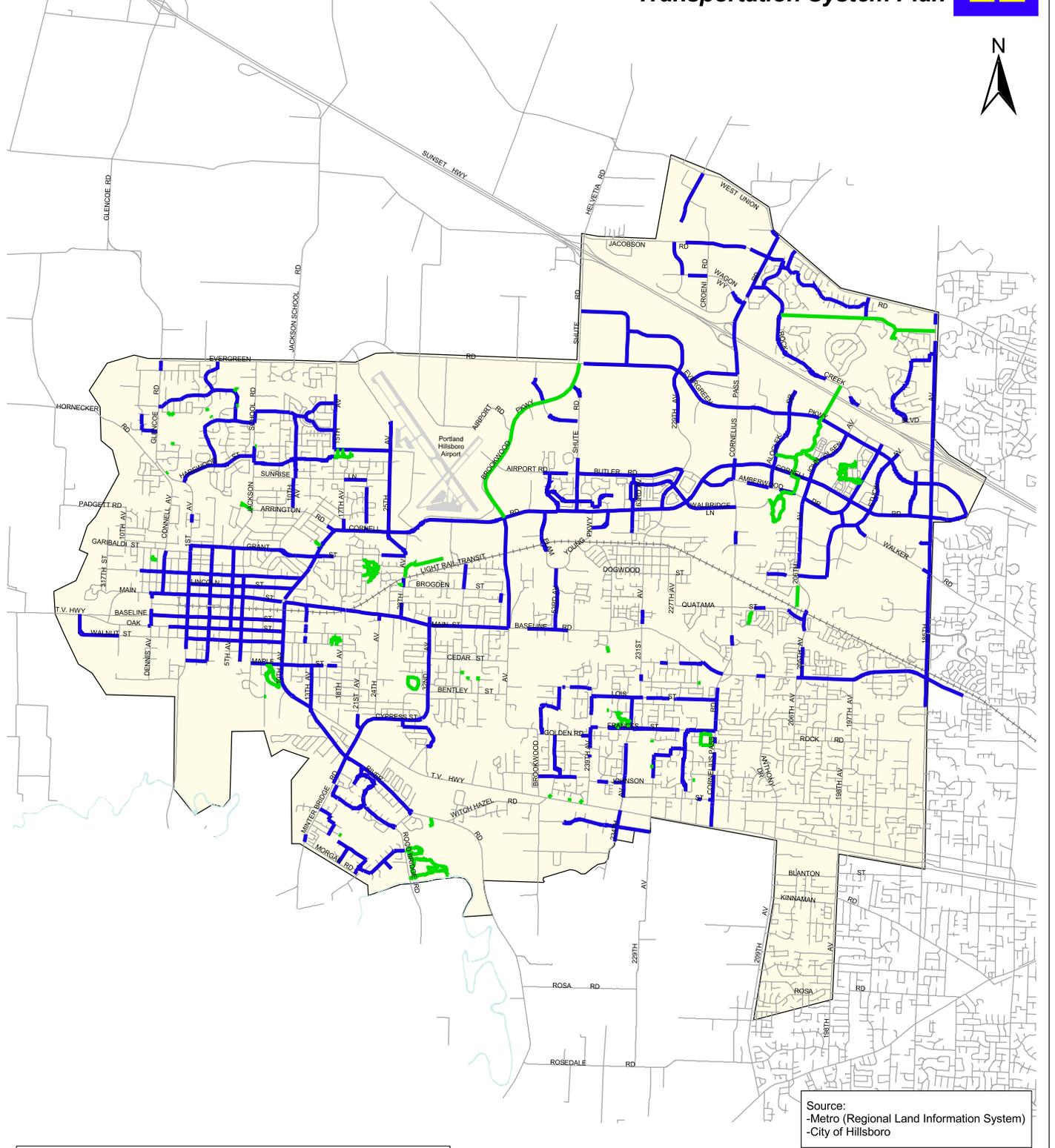
Source:
-Metro (Regional Land Information System)
-City of Hillsboro

6 Pedestrian Movements - PM Peak Hour

Study Area Boundary

Figure 3-20
EXISTING PEDESTRIAN VOLUMES
PM PEAK HOUR
2001/2002

0 5000 10000 Feet



Source:
-Metro (Regional Land Information System)
-City of Hillsboro

— Existing Sidewalks on Arterials, Collectors & Neighborhood Routes
— Existing Multi-Use Path
— Local Street

Figure 3-21
EXISTING PEDESTRIAN NETWORK
2002



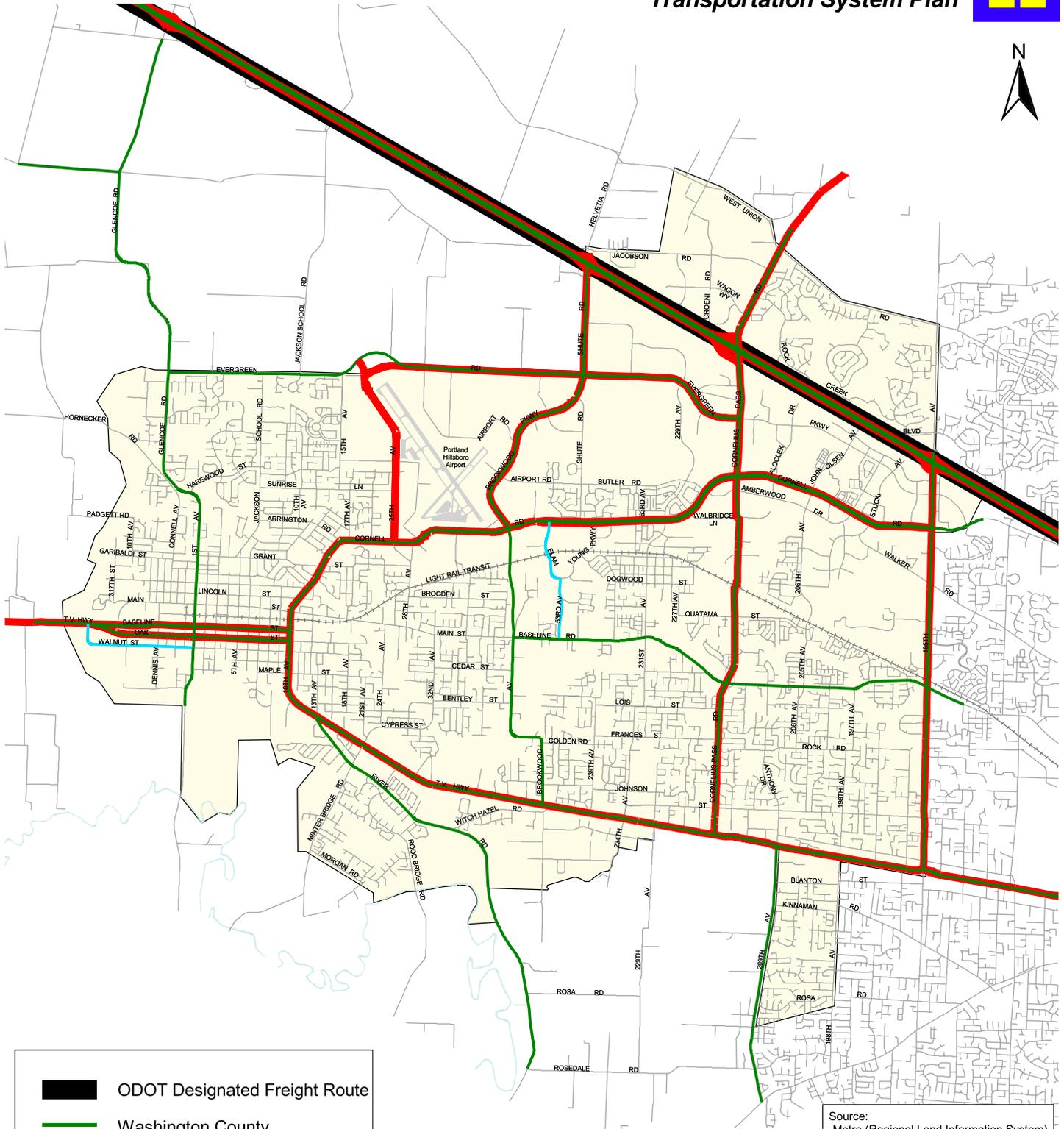
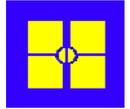
TRUCKS/FREIGHT

Truck routes that have been identified in Hillsboro are generally located on roadways classified as an arterial or above and not collectors, neighborhood routes or local streets. This system provides connections with truck routes serving areas within and outside of Hillsboro making efficient truck movement and the delivery of raw materials, goods, services, and finished products possible. These routes are generally found in and serve areas where there are concentrations of commercial and/or industrial land uses. Figure 3-22 shows through truck routes within the vicinity of Hillsboro.

The truck percentages (heavy vehicles) as a portion of through traffic at the study intersections were updated with the current turn movement counts. The current truck percentages, which range from 0 to 5 percent, are shown on Figure 3-23. Table 3-17 compares peak period (4-6 PM) pedestrian counts for current 2001 and 1996 conditions at several intersections throughout Hillsboro. Overall, the truck percentages have not changed significantly from the 1996 data. Truck percentages have decreased on TV Highway from Brookwood Avenue to Cornelius Pass Road by approximately 1%. The most significant truck percentages in Hillsboro occur at the US 26 interchanges, on Cornelius Pass Road north of US 26 and along the TV Highway corridor.

Table 3-17
Truck Percentages for 2001 and 1996 in Hillsboro

Intersection	2001 Truck Percentage	1996 Truck Percentage
Cornelius Pass Road/Cornell Road	2%	3%
TV Highway/Oak Street	2%	3%
Evergreen Road/Glencoe Road	3%	4%
1 st Street/Grant Street	3%	2%
TV Highway/Witch Hazel Road	2%	3%
Cornelius Pass Road/Jacobson Road	5%	6%
US 26 Westbound Ramps/185 th Avenue	4%	2%

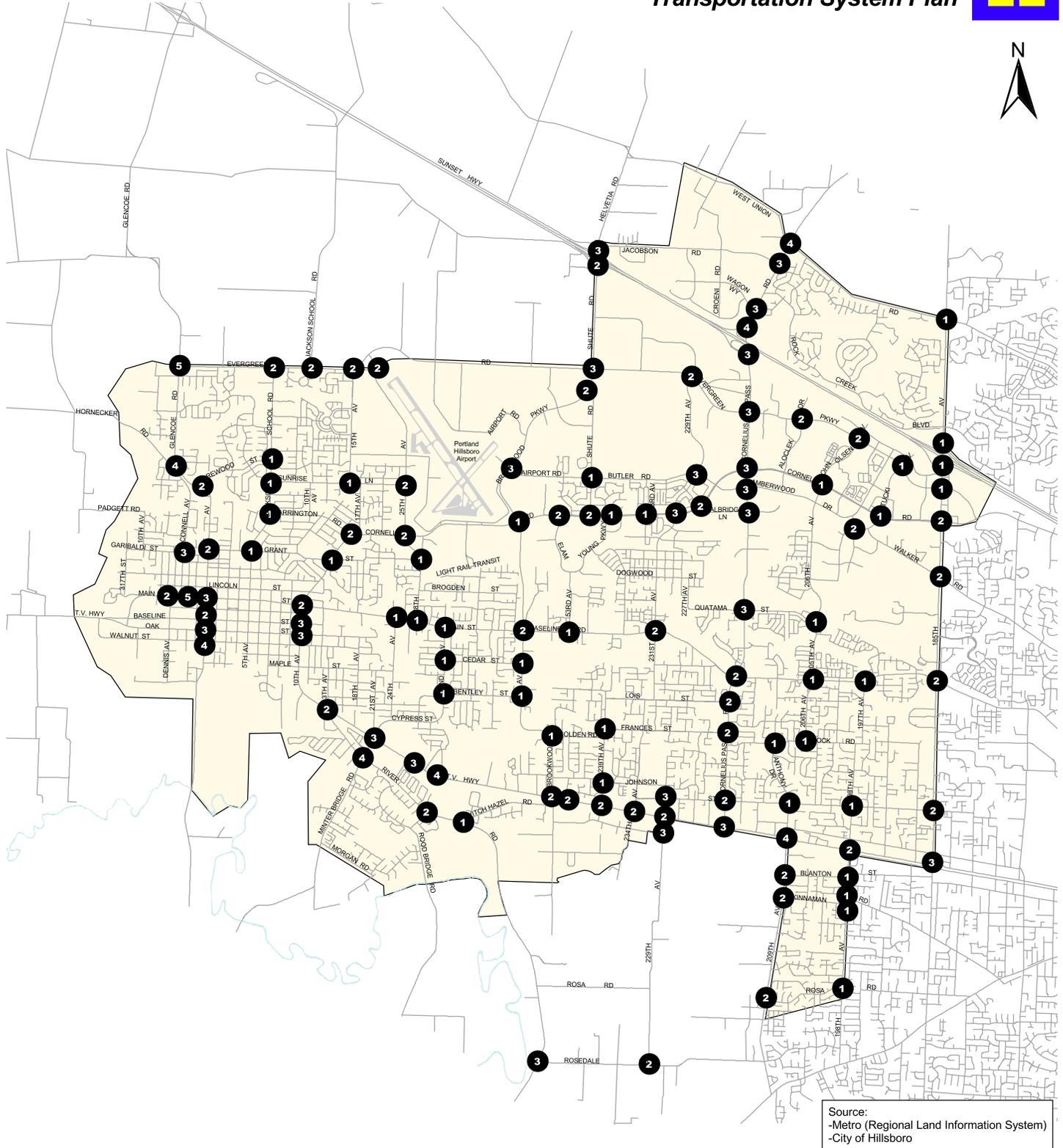
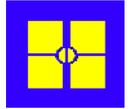


-  ODOT Designated Freight Route
-  Washington County
-  City Route
-  Metro Regional Freight System
-  Study Area Boundary

Source:
-Metro (Regional Land Information System)
-City of Hillsboro

Figure 3-22
EXISTING TRUCK/FREIGHT ROUTES
2002

0 5000 10000 Feet



Source:
-Metro (Regional Land Information System)
-City of Hillsboro

6 % of Truck Movements - PM Peak Hour

Study Area Boundary

Figure 3-23
EXISTING (2002) PERCENTAGE OF TRUCK
MOVEMENTS PM PEAK HOUR

0 5000 10000 Feet

RAIL

All freight rail lines within the vicinity of Hillsboro are operated by Portland & Western (P&W), a sister company of Willamette & Pacific (W&P) Railroad and a subsidiary of Genesee & Wyoming Incorporated. Figure 3-24 shows the existing rail routes and crossing treatments within the boundaries of Hillsboro. The rail lines in the Hillsboro area are low-density, meaning they are not used as mainline routes. Trains generally operate within the Hillsboro area Monday through Saturday. Time of operation can vary, but the approximate number of trains per day remains constant. Table 3-18 is a list of train origins, destinations, hours of operation and the number of trains per day.

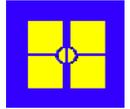
Table 3-18
Train Schedules for the Hillsboro Area

Origin	Destination	Frequency and Hours of Operation	
		AM	PM
Beaverton (St. Mary's)	Hillsboro Depot	None	1 train daily Monday – Friday
Hillsboro Depot	Cornelius	None	1 train daily Monday – Friday
Deer Island or Donquin (near Wilsonville)	Hillsboro Depot	5 trains per week	None
Hillsboro Depot	Banks	12 trains per week, schedule times varies	

Accident data provided by the ODOT Rail Division indicates three train related accidents have occurred in Hillsboro in the last ten years. The accidents occurred on the railline located south of TV Highway at the River Road, Labor Camp Road and Minter Bridge Road rail crossings. The rail crossings at River Road and Minter Bridge Road are controlled by automatic gates. The Labor Camp Road rail crossing is uncontrolled and scheduled for eventual removal.

The area between 209th Avenue and 229th Avenue is the only available staging area along TV Highway where vehicle and other modes of travel are not disrupted due to blocked crossings caused by parked trains. Thus, should an extension of Cornelius Pass Road south of TV Highway be considered at some future date, a grade separation scheme will likely be required.

A new commuter rail line to be operated by Tri-Met is planned to serve the SW Portland Metro Area. The route will operate between Wilsonville and the Beaverton Transit Center on existing freight rail tracks with stops at major roadway crossings and the Tigard Town Center.



	Existing LRT Line
	Existing Railroad
	Study Area Boundary

Source:
-Metro (Regional Land Information System)
-City of Hillsboro

Figure 3-24
EXISTING (2002) RAIL ROUTES

0 5000 10000 Feet



AIR

Hillsboro Airport is located in the north central portion of the city. It is bordered by Brookwood Parkway to the east, Cornell Road to the south, 25th Avenue to the west and Evergreen Road to the north. Hillsboro Airport is an 870-acre airport which supports all facets of general aviation activity (business, recreational, etc). The airport facility is owned and operated by the Port of Portland as part of the Port's general aviation reliever system of airports. The 2003 Master Plan and Compatibility Study Update is currently being conducted for this facility by the Port of Portland.

Hillsboro Airport is Oregon's second busiest airport with over 200,000 operations annually trailing only Portland International. With two runways (Runway 12/30 – 6,600' and Runway 2/20 – 4,050') and three full-service fixed-based operators, the Hillsboro Airport supports jet and propeller-driven aircraft and helicopters. Runway 12/30 is equipped with high intensity edge lighting, runway end identifier lights (REILs), and an instrument landing system (ILS). The airport consists of the airfield, developed areas, runway protection zones and non-aviation industrial and commercial land. A MAX light rail station is located on NE 34th Avenue approximately 1/3 mile south of the airport providing travelers with access to regional destinations including Portland.

The Hillsboro area has three additional aviation facilities. All of these facilities are currently active. Figure 3-25 shows the location of the identified aviation facilities in Hillsboro.

- Teufel Farm Strip is a private airport located south of TV Highway near 13th Avenue.
- Licorice Lane is a private airport located outside the Hillsboro City Limits west of Rood Bridge Road.
- Amberglen Business is a private heliport located east of Aloclek Drive between Evergreen Parkway and Cornell Road.

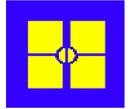
WATER

There are no navigable waterways within the vicinity of Hillsboro that support commercial use. The Tualatin River, to the south of Hillsboro is used for recreational purposes. No policies or recommendations in this area of transportation are provided.

PIPELINE

The only major pipeline facilities running through the Hillsboro area are high pressure natural gas feeder lines owned and operated by Northwest Natural Gas Company. Figure 3-26 shows the feeder line routes for Hillsboro.²⁰ The feeder lines serving Hillsboro originate at Sauvie Island. From Hillsboro, these lines branch north to North Plains and west to Forest Grove. The South Mist Pipeline Extension is a new pipeline corridor proposed by Northwest Natural Gas Company. The proposed pipeline would extend from north of US 26 near North Plains to Molalla traversing outside the west city limits of Hillsboro.

²⁰ Based on the Portland Area Distribution System Map (Dated: October 1996) received from Northwest Natural Gas Company, Engineering Facilities Information System, April 28, 1997.



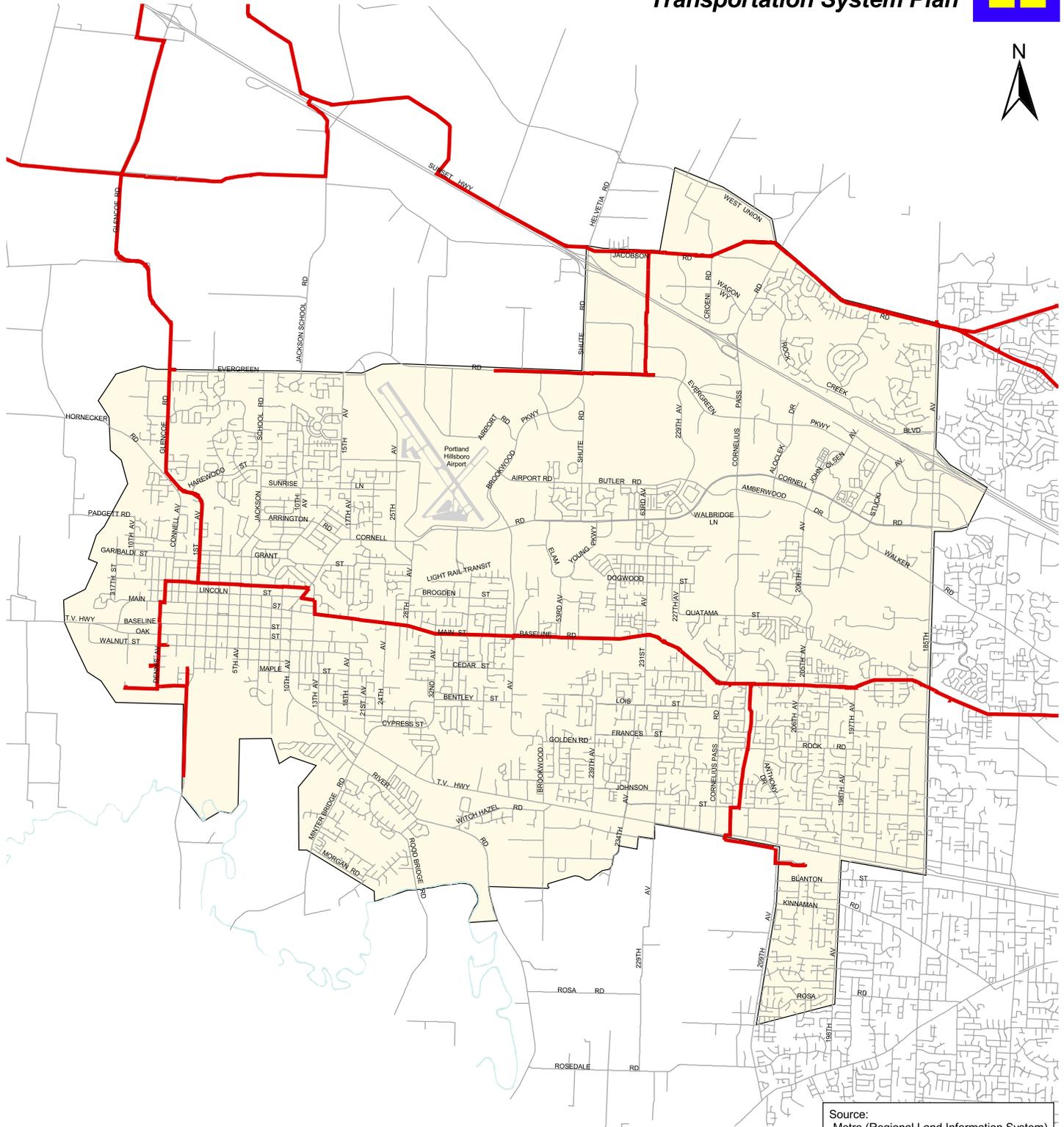
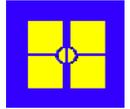
Source:
-Metro (Regional Land Information System)
-City of Hillsboro

	Existing Air Facility
	Study Area Boundary

Figure 3-25
EXISTING (2002) AIR FACILITIES

0 5000 10000 Feet





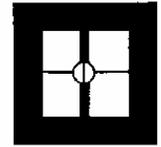
Source:
-Metro (Regional Land Information System)
-City of Hillsboro

— Existing High Pressure Gas Line
 Study Area Boundary

Figure 3-26

EXISTING (2002) MAJOR PIPELINE ROUTES

0 5000 10000 Feet



Chapter 4

Future Demand and Land Use

The Hillsboro Transportation System Plan Update identifies existing transportation system needs and additional facilities that are required to serve future growth for all modes of travel. Metro's transportation model was used to forecast future traffic volumes in Hillsboro. This forecast model assigns motor vehicles to the roadway network based on assumed existing and future land uses. These traffic volume projections form the basis for identifying potential roadway deficiencies and for evaluating alternative improvements. This section describes the forecasting process including key assumptions and the land use scenario.

FUTURE LAND USES

Land use is a key factor in developing a functional transportation system. The area of land that is planned to be developed, the types of land uses, and how the land uses are mixed together have a direct relationship to forecasted demands on the transportation system. Understanding the amount and types of land use is critical to taking actions to maintain or enhance transportation system operation. Projected land uses were developed for areas within the urban growth boundary and reflect Metro's land use assumptions for the year 2020. Complete land use data sets were developed for existing 2000 conditions and year 2020 conditions.

The base year travel model is updated periodically and for this study effort, the available base model provided by Metro was for 2000. The City of Hillsboro conducted a detailed inventory of existing land uses which was incorporated into the base model by Metro. The land use database includes the number of dwelling units, the number of retail employees, and the number of other employees. Table 4-1 summarizes the land uses for existing conditions and the future 2020 scenario within the Hillsboro TSP Update study area. Since development of the 2015 Hillsboro TSP, more detailed analysis tools were developed that allow refined calculations of the land use data. Although these summaries only outline land uses in Hillsboro for the purposes of this study, the travel demand forecasts that have been evaluated reflect the regional land use growth throughout the Portland metropolitan area.¹

¹ Includes Clackamas, Clark, Multnomah and Washington Counties

**Table 4-1
Hillsboro Land Use Summary**

Land Use	2000	2020	Increase	Percent Increase
Households (HH)	38,292	50,802	12,510	33%
Retail Employees (RET)	10,323	19,054	8,731	85%
Other Employees (OTH)	50,241	124,576	74,335	148%

Based on existing conditions, the transportation system generally operates without significant deficiencies in the study area. As land uses are changed in proportion to each other (i.e. there is a significant increase in other employment relative to household growth), there will be a shift in the overall operation of the transportation system. Additionally, if a community is uniform in land use character (i.e. all employment or residential), the transportation system must support significant trips coming to or from the community rather than remaining within the community. Typically, there should be a mix of residential, commercial, and employment type land uses so that some residents may work and shop locally, reducing the need for residents to travel long distances. Table 4-1 indicates that significant growth is expected in Hillsboro in the coming decades and the housing-employment imbalance will continue.

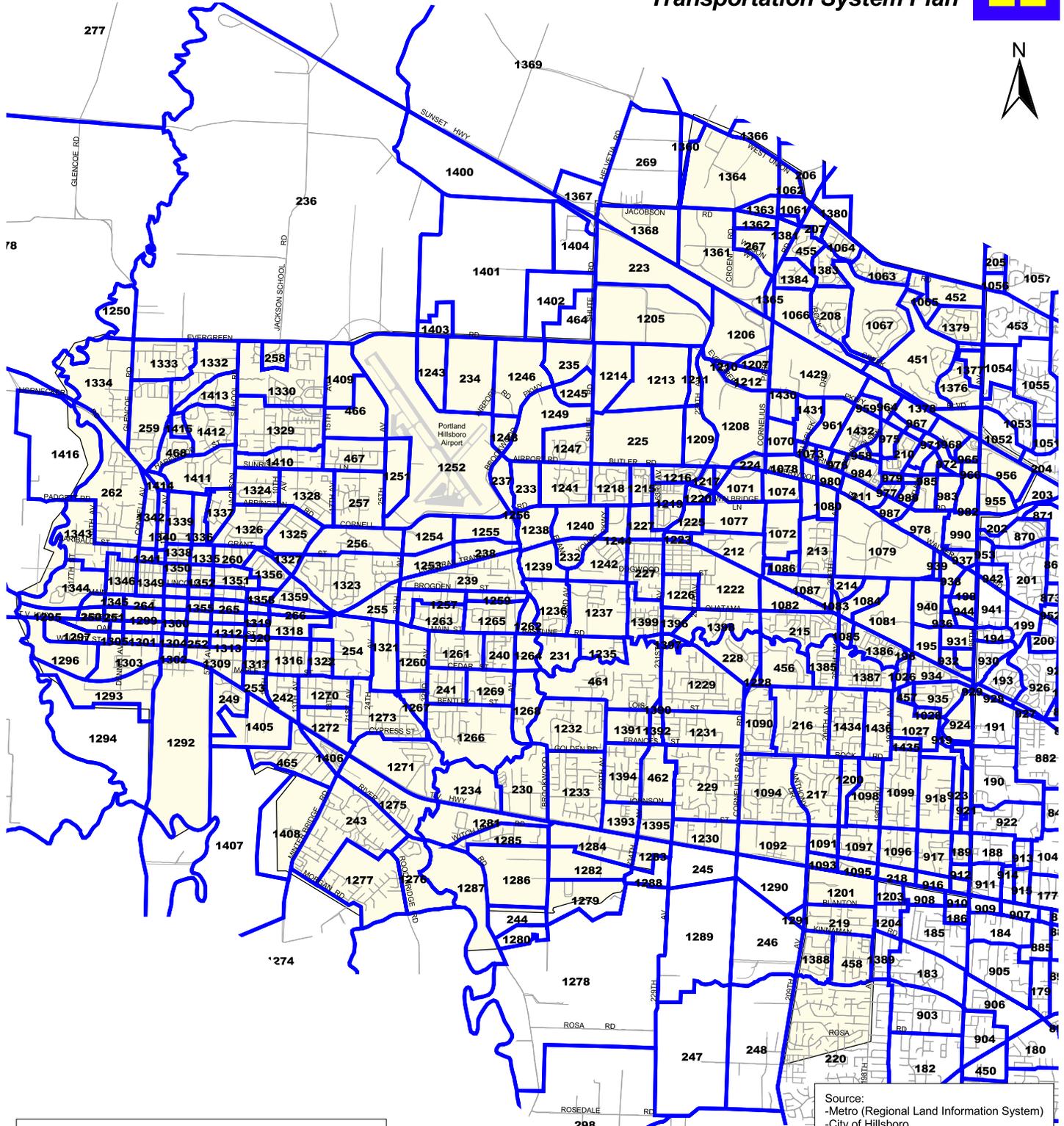
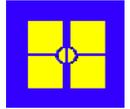
For transportation forecasting, the land use data is divided into geographical areas called transportation analysis zones (TAZs), which represent the sources of vehicle trip generation. There are 64 Metro TAZs within the Hillsboro TSP Update study area. These 64 TAZs were subdivided into 353 TAZs to more specifically represent land use in Hillsboro as part of this plan. The disaggregated model zone boundaries are shown in Figure 4-1.

METRO AREA TRANSPORTATION MODEL

An evaluation of future transportation system needs in Hillsboro requires the ability to accurately forecast travel demand resulting from estimates of future population and employment for the City. The objective of the transportation planning process is to provide the information necessary for making decisions on when and where improvements should be made to the transportation system to meet travel demand as developed in an urban area travel demand model as part of the Regional Transportation Plan update process. Metro uses EMME/2, a computer based program for transportation planning, to process the large amounts of data for the Portland Metropolitan area. For the Hillsboro TSP, the eastern Washington County area was evaluated at a level of detail consistent with Washington County travel forecast efforts for the 2020 travel through a traversal process and substantially more detail added into the Hillsboro area.

Traffic forecasting can be divided into several distinct but integrated components that represent the logical sequence of travel behavior. These components and their general order in the traffic forecasting process are as follows:

- Trip Generation
- Trip Distribution
- Mode Choice
- Traffic Assignment



Source:
-Metro (Regional Land Information System)
-City of Hillsboro
-Metro Regional Transportation Plan

 TSP TAZ Boundary
 XX TSP TAZ Identification Number
 Study Area Boundary

Figure 4-1
TRANSPORTATION
ANALYSIS ZONES (2002)

0 5000 10000 Feet

The initial roadway network used in the traffic model was the existing streets and roadways. Future 2020 land use scenarios were tested and roadway improvements were added to mitigate the impacts of motor vehicle traffic growth, using the RTP Priority System and the 2015 Hillsboro TSP improvements as a starting basis. Improvements in each of these plans (the RTP and TSP) were validated in the study process. Forecasts of PM peak period traffic flows were produced for every major roadway segment within Hillsboro. Traffic volumes were projected on all arterials and most collector streets. Some local streets were included in the model, but many are represented by centroid connectors in the model process.

Trip Generation

The trip generation process translates land use quantities (number of dwelling units, retail, and other employment) into vehicle trip ends (number of vehicles entering or leaving a TAZ or sub-TAZ) using trip generation rates established during the model verification process. The Metro trip generation process is elaborate, entailing detailed trip characteristics for various types of housing, retail employment, non-retail employment, and special activities. Typically, most traffic impact studies rely on the Institute of Transportation Engineers (ITE) research for analysis². The model process is tailored to variations in travel characteristics and activities in the region. For reference, Table 4-2 provides a summary of the approximate average evening peak hour trip rates used in the Metro model. These are averaged over a broad area and thus, are different than driveway counts represented by ITE. This data provides a reference for the trip generation process used in the model.

Table 4-2
Approximate Average PM Peak Period Trip Rates Used in Metro Model

Unit	Average Trip Rate/Unit		
	In	Out	Total
Household (HH)	0.43	0.19	0.62
Retail Employee (RET)	0.78	0.69	1.47
Other Employee (OTH)	0.07	0.29	0.36

Source: DKS/Metro

Table 4-3 illustrates the estimated growth in vehicle trips generated within the Hillsboro area (the area shown in Figure 4-1) during the PM peak period (2-hr peak) between 2000 and 2020. It indicates that vehicle trips in Hillsboro would grow by approximately 50 percent between 2000 and 2020 if the land develops according to Metro's 2020 land use assumptions. Assuming a 20-year horizon to the 2020 scenario, this represents annualized growth rate of about two percent per year.

Table 4-3
Existing and Future Projected Vehicle Trip Generation
PM Peak 2-Hour Period Vehicle Trips

	2000 Trips	2020 Trips
Hillsboro TSP study area	57,000	104,000

² *Trip Generation Manual*, 6th Edition, Institute of Transportation Engineers, 1997.

Trip Distribution

This step estimates how many trips travel from one zone in the model to any other zone. Distribution is based on the number of trip ends generated in each zone pair, and on factors that relate the likelihood of travel between any two zones to the travel time between zones. In projecting long-range future traffic volumes, it is important to consider potential changes in regional travel patterns.

Although the locations and amounts of traffic generation in Hillsboro are essentially a function of future land use in the city, the distribution of trips is influenced by regional growth, particularly in neighboring areas such as Portland and Beaverton as well as unincorporated areas to the north, south, and west of Hillsboro. External trips (trips that have either an origin and not a destination in Hillsboro or have a destination but not an origin in Hillsboro) and through trips (trips that pass through Hillsboro and have neither an origin nor a destination there) were projected using trip distribution patterns based upon the Metro Regional Travel Demand Forecast Model.

Mode Choice

This step determined how many trips will be made by various modes (single-occupant vehicle, transit, carpool, pedestrian, bicycle, etc.). The 2000 mode splits are incorporated into the base model and adjustments to that mode split may be made for the future scenario, depending on any expected changes in transit or carpool use. These considerations are built into the forecasts used for 2020.

Based upon analysis of the forecasted mode choice in 2020, an analysis was performed to determine the level of non-single occupant vehicle (SOV) mode share in Hillsboro. The travel model provides estimates of the various modes of travel that can be generally assessed at the transportation analysis zone level. Figures 4-3 to 4-5 (shown in following section) summarize the level of non-SOV mode share estimated for 2020 using the regional travel demand forecast model in comparison to the modal targets established in the RTP. Generally the areas served by light rail transit and frequent bus service have the highest levels of non-SOV mode use. Overall, the 2040 modal targets for the regional center/town center areas is nearly met in 2020 and is within the lower end of the target range for other land use designations.

Traffic Assignment

In this process, trips from one zone to another are assigned to specific travel routes in the network, and resulting trip volumes are accumulated on links of the network until all trips are assigned. Network travel times are updated to reflect the congestion effects of the traffic assigned through an equilibrium process. Congested travel times are estimated using what are called “volume-delay functions” in EMME/2. There are different forms of volume/delay functions, all of which attempt to simulate the impact of congestion on travel times (greater delay) as traffic volume increases. The volume-delay functions take into account the specific characteristics of each roadway link, such as capacity, speed and facility type. This allows the model to reflect conditions somewhat similar to driver behavior.

Model Verification

The base 2000 modeled traffic volumes were compared against actual traffic volume counts across on key arterials, at key intersections and screenlines (a straight line across the study area to assess directional volumes on each roadway crossing that line). Most arterial traffic volumes meet screenline tolerances for forecast adequacy. Based on this performance, the model was used for future forecasting and assessment of circulation change.

Model Application to Hillsboro

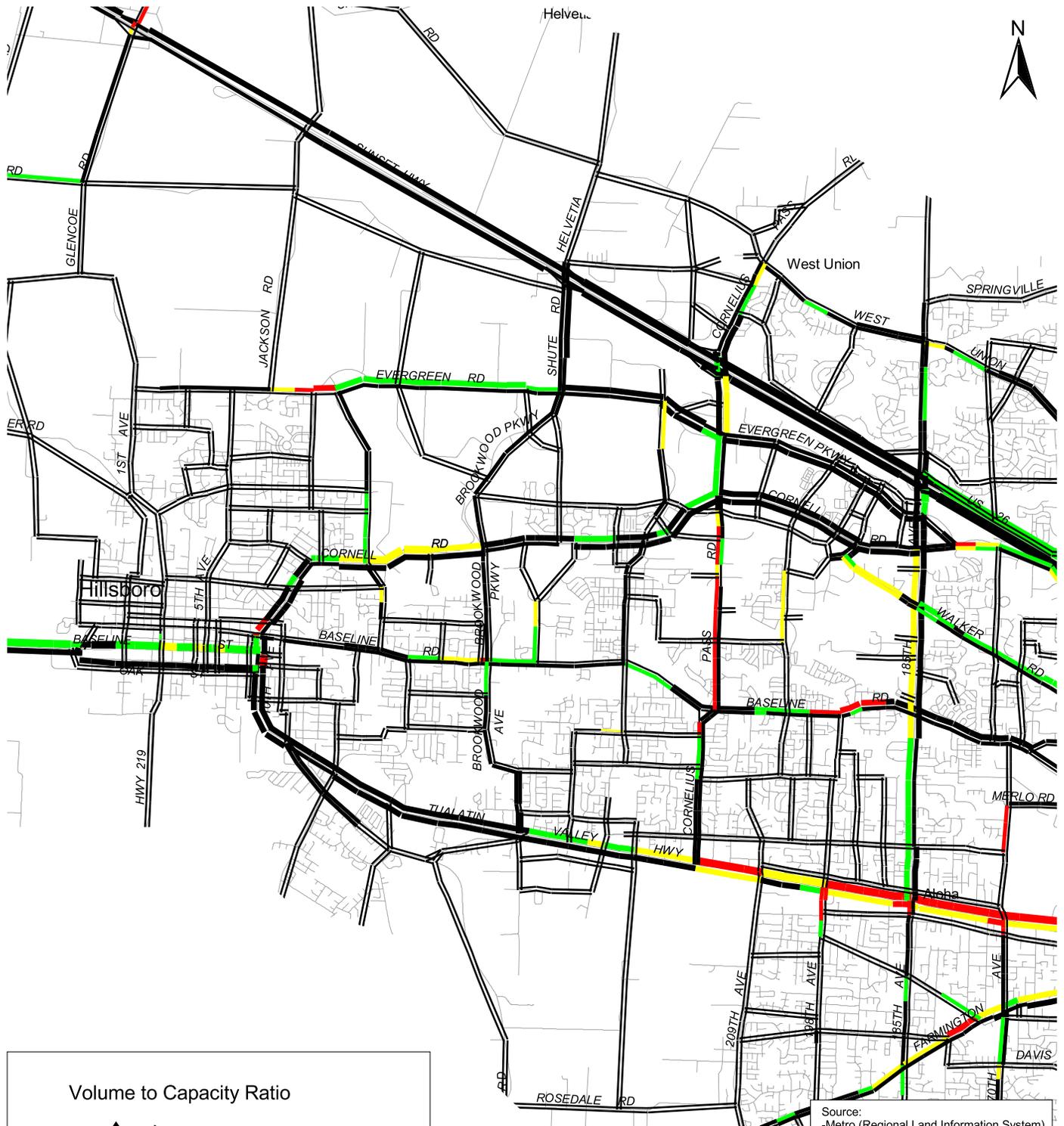
Intersection turn movements were extracted from the model at key intersections for both the base year 2000 and forecast year 2020 scenarios. These intersection turn movements were not used directly, but a portion of the increment of the year 2020 turn movements over the 2000 turn movements was applied (added) to existing (actual 2000) turn movement counts in Hillsboro. A post processing technique is utilized to refine model travel forecasts to the volume forecasts utilized for 2020 intersection analysis. The turn movement volumes used for future year intersection analysis can be found in the technical appendix for the TSP.

FORECASTED 2020 CAPACITY DEFICIENCIES

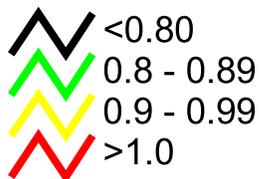
The forecasted 2020 no build scenario was evaluated to assess the worst case operating conditions. This scenario, based on the Metro Regional Travel Demand Forecast Model, does not include any planned or preferred transportation system improvements but the 2020 model does use the priority trip table. Figures 4-2 and 4-3 show the forecasted demand/capacity on roadways for the TSP 2000 base and 2020 no build scenarios. As shown in the figure, the no build scenario transportation system lacks adequate roadway capacity to serve the expected future travel needs. Demand/Capacity (D/C) ratios exceed 1.0 system wide. Table 4-4 lists the forecasted D/C ratios on major roadways in the TSP study area that would exceed standards. To meet performance standards and serve future growth, the future transportation system needs significant multi-modal improvements and strategies to manage the forecasted travel demand.

Table 4-4: Forecasted 2020 Demand/Capacity Ratios (Priority Scenario) 2-Hour

Roadway Section	Forecasted D/C ratio
TV Highway from 185 th to 198 th	1.10
TV Highway from 209 th to Cornelius Pass	1.07
TV Highway from Cornelius Pass to 229 th	1.08
Brookwood from Cedar to Bentley	1.03
Baseline from 53 rd to Brookwood	1.03
Baseline from 1 st to 5 th	1.02
Cornell from Brookwood to 28 th	1.24
Cornelius Pass from Quatama to Baseline	1.27
Cornelius Pass from Wagon Way to US 26	1.06
Evergreen from 15 th to Jackson School	1.41
Evergreen from Alocek to John Olsen	1.05
185 th from Walker to Baseline	1.08
Walker from 185 th to Amberglen	1.36
West Union from Cornelius Pass to 185 th	1.24
53 rd from Elam Young to Baseline	1.19



Volume to Capacity Ratio

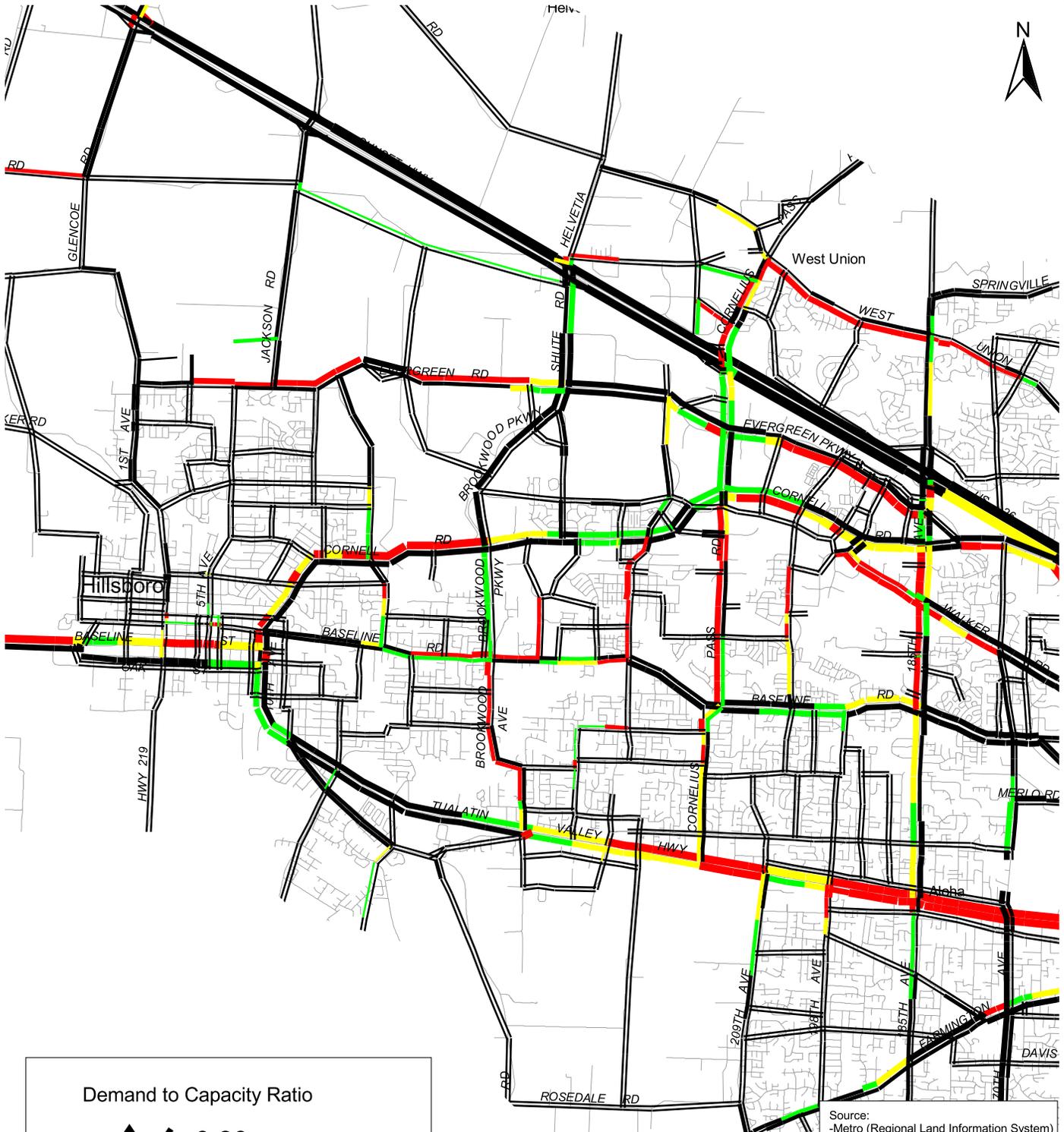


Line thickness based on a range of model volumes.

Source:
-Metro (Regional Land Information System)
-City of Hillsboro

Figure 4-2
2000 BASE NETWORK
VOLUME/CAPACITY RATIO (2 hour)

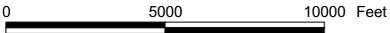




Source:
-Metro (Regional Land Information System)
-City of Hillsboro

Figure 4-3
2020 NO BUILD NETWORK
DEMAND/CAPACITY RATIO (2 hour)

Line thickness based on a range of model volumes.



Transportation Demand Management

Transportation Demand Management (TDM) is the general term used to describe any action that removes single occupant vehicle trips from the roadway network during peak travel demand periods. As growth in the Hillsboro area occurs, the number of vehicle trips and travel demand in the area will also increase. The ability to change a users travel behavior and provide alternative mode choices will help accommodate this growth. Generally, TDM focuses on reducing vehicle miles traveled and promoting alternative modes of travel for large employers of an area. This is due in part to the Employee Commute Options (ECO) rules that were passed by the Oregon Legislature in 1993 to help protect the health of Portland area residents from air pollution and to ensure that the area complied with the Federal Clean Air Act.³

Research has shown that a comprehensive set of complementary policies implemented over a large geographic area can have an effect on the number of vehicle miles traveled to/from that area.⁴ However, the same research indicates that in order for TDM measures to be effective, they should go beyond the low-cost, uncontroversial measures commonly used such as carpooling, transportation coordinators/associations, priority parking spaces, etc. The more effective TDM measures include elements related to parking and congestion pricing, improved services for alternative modes of travel, and other market-based measures. However, TDM includes a wide variety of actions that are specifically tailored to the individual needs of an area. Table 4-5 provides a list of several strategies outlined in the ECO program that could be applicable to the Hillsboro area.

**Table 4-5
Transportation Demand Management Strategies**

Strategy	Description	Potential Trip Reduction
Telecommuting	Employees perform regular work duties at home or at a work center closer to home, rather than commuting from home to work. This can be full time or on selected workdays. This can require computer equipment to be most effective.	82-91% (Full Time) 14-36% (1-2 day/wk)
Compressed Work Week	Schedule where employees work their regular scheduled number of hours in fewer days per week.	7-9% (9day/80hr) 16-18% (4day/40hr) 32-36% (3day/36hr)
Transit Pass Subsidy	For employees who take transit to work on a regular basis, the employer pays for all or part of the cost of a monthly transit pass.	19-32% (full subsidy, high transit service) 2-3% (half subsidy, medium transit service)
Cash Out Employee Parking	An employer that has been subsidizing parking (free parking) discontinues the subsidy and charges all employees for parking. An amount equivalent to the previous subsidy is then provided to each employee, who then can decide which mode of travel to use.	8-20% (high transit service available) 5-9% (medium transit services available) 2-4% (low transit services available)
Reduced Parking Cost for HOVs	Parking costs charged to employees are reduced for high occupancy vehicles (HOV) such as carpools and vanpools.	1-3%
Bicycle Program	Provides support services to those employees that bicycle to	0-10%

³ Oregon Administrative Rules, Chapter 340, Division 30.

⁴ *The Potential for Land Use Demand Management Policies to Reduce Automobile Trips*, ODOT, by ECO Northwest, June 1992.

Strategy	Description	Potential Trip Reduction
	work. Examples include: safe/secure bicycle storage, shower facilities and subsidy of commute bicycle purchase.	
On-site Rideshare Matching for HOVs	Employees who are interested in carpooling or vanpooling provide information to a transportation coordinator regarding their work hours, availability of a vehicle and place of residence.	1-2%
Provide Vanpools	Employees that live near each other are organized into a vanpool for their trip to work. The employer may subsidize the cost of operation and maintaining the van.	15-25% (company provided van with fee) 30-40% (company subsidized van)
Gift/Awards for Alternative Mode Use	Employees are offered the opportunity to receive a gift or an award for using modes other than driving alone.	0-3%
Walking Program	Provide support services for those who walk to work. This could include buying walking shoes or providing lockers and showers.	0-3%
Company Cars for Business Travel	Employees are allowed to use company cars for business-related travel during the day	0-1%
Guaranteed Ride Home Program	A company owned or leased vehicle or taxi fare is provided in the case of an emergency for employees that use alternative modes.	1-3%
Time off with Pay for Alternative Mode Use	Employees are offered time off with pay as an incentive to use alternative modes.	1-2%

Source: *Guidance for Estimating Trip Reductions from Commute Options*, Oregon Department of Environmental Quality, August 1996.

Redevelopment in the Hillsboro area will also allow for an increased use in TDM measures. Setting TDM goals and policies for new development will be necessary to implement TDM measures in the future. With many regional trips destined to and from the Hillsboro area, region wide TDM measures should help to reduce congestion. Metro has established non-SOV (Single Occupancy Vehicle) mode share targets by 2040 for regional centers. The 2040 non-SOV model target for regional centers, town centers, LRT (light rail transit) communities, main streets, and corridors is 45-55%.⁵

The RTP⁶ outlines non-SOV targets for the year 2040 for the Portland region. Non-SOV trip percentages for the Hillsboro area, based on the Metro 2020 forecast model, are summarized in Table 4-6. The 2020 Priority system forecasted rates indicate that the significant investment in transportation improvements will, in general, achieve a three percent reduction in SOV trips in the Hillsboro area, compared to the committed funding scenario. Figures 4-4 to 4-6 show the non-SOV trip percentages by Metro TAZ for the committed, priority, and growth in non-SOV between committed and priority scenarios.

⁵ Based on the *2000 Metro Regional Transportation Plan*, August 10, 2000, page 1-62, Table 1.3.

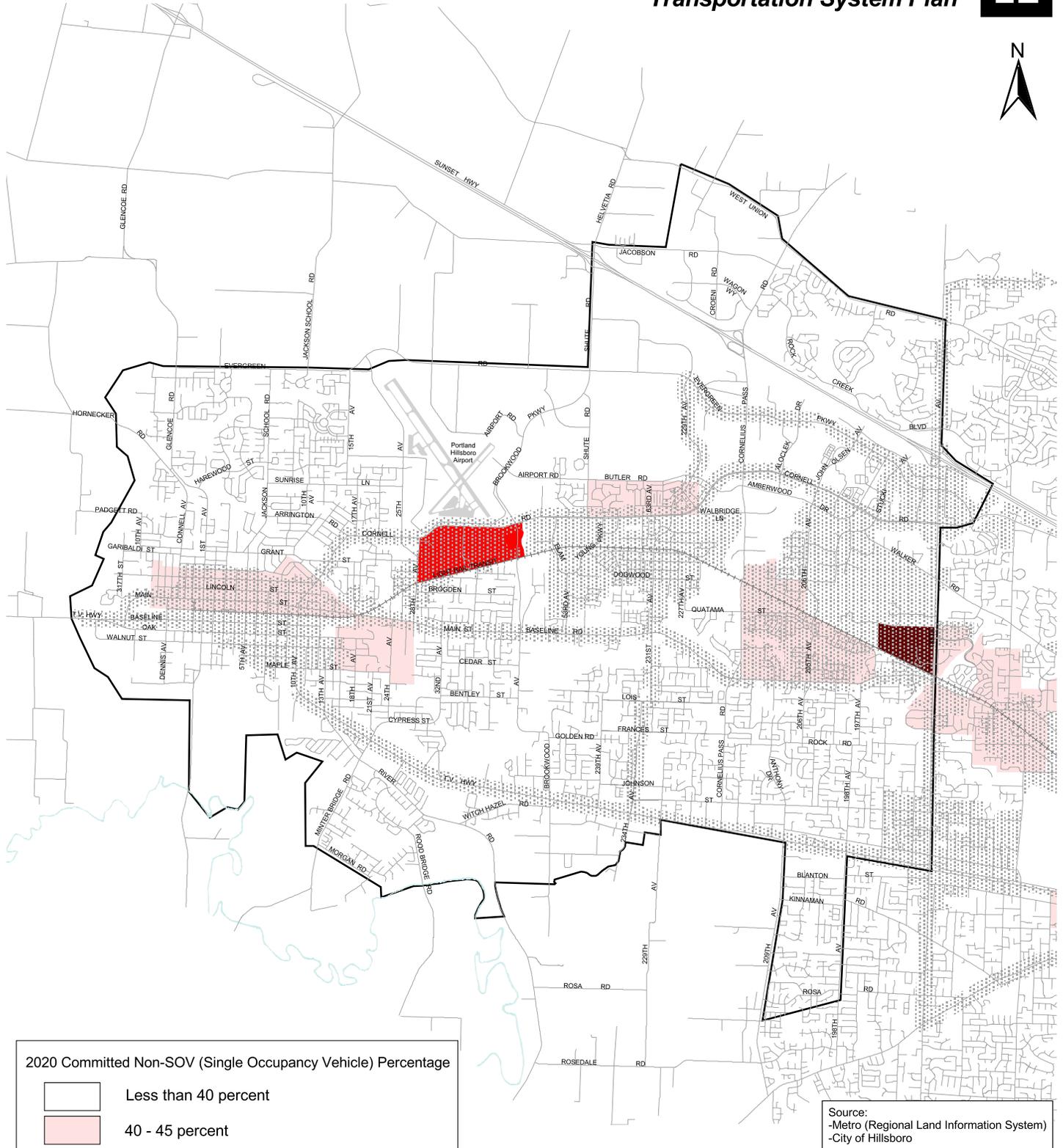
⁶ Based on the *2000 Metro Regional Transportation Plan*, August 10, 2000, page 1-62, Table 1.3.

**Table 4-6
Forecasted non-SOV shares in the Hillsboro TSP Study Area**

Area	2020 RTP Committed System Model Rate	2020 RTP Priority System Model Rate	2040 Metro Goal
Overall TSP Study Area	33%	36%	N/A
2040 Design Type: <ul style="list-style-type: none"> ▪ Regional Centers ▪ Town Centers ▪ LRT Communities ▪ Main Streets ▪ Corridors 	36%	40%	45-55%
2040 Design Type: <ul style="list-style-type: none"> ▪ Industrial areas ▪ Intermodal facilities ▪ Employment areas ▪ Inner neighborhoods ▪ Outer neighborhoods 	30%	32%	40-45%

Source: 2020 Metro Regional Travel Demand Model
2000 Metro Regional Transportation Plan

The forecasted non-SOV percentages can only be achieved with significant improvements to the transportation system and implementation of trip reduction strategies. The City of Hillsboro should coordinate with Washington County, the Westside Transportation Alliance, and Tri-Met to implement strategies to ensure TDM assumptions in the RTP are implemented. The City of Hillsboro, Washington County, and Tri-Met should coordinate to implement the pedestrian, bicycle, and transit system improvements, which offer alternative modes of travel.



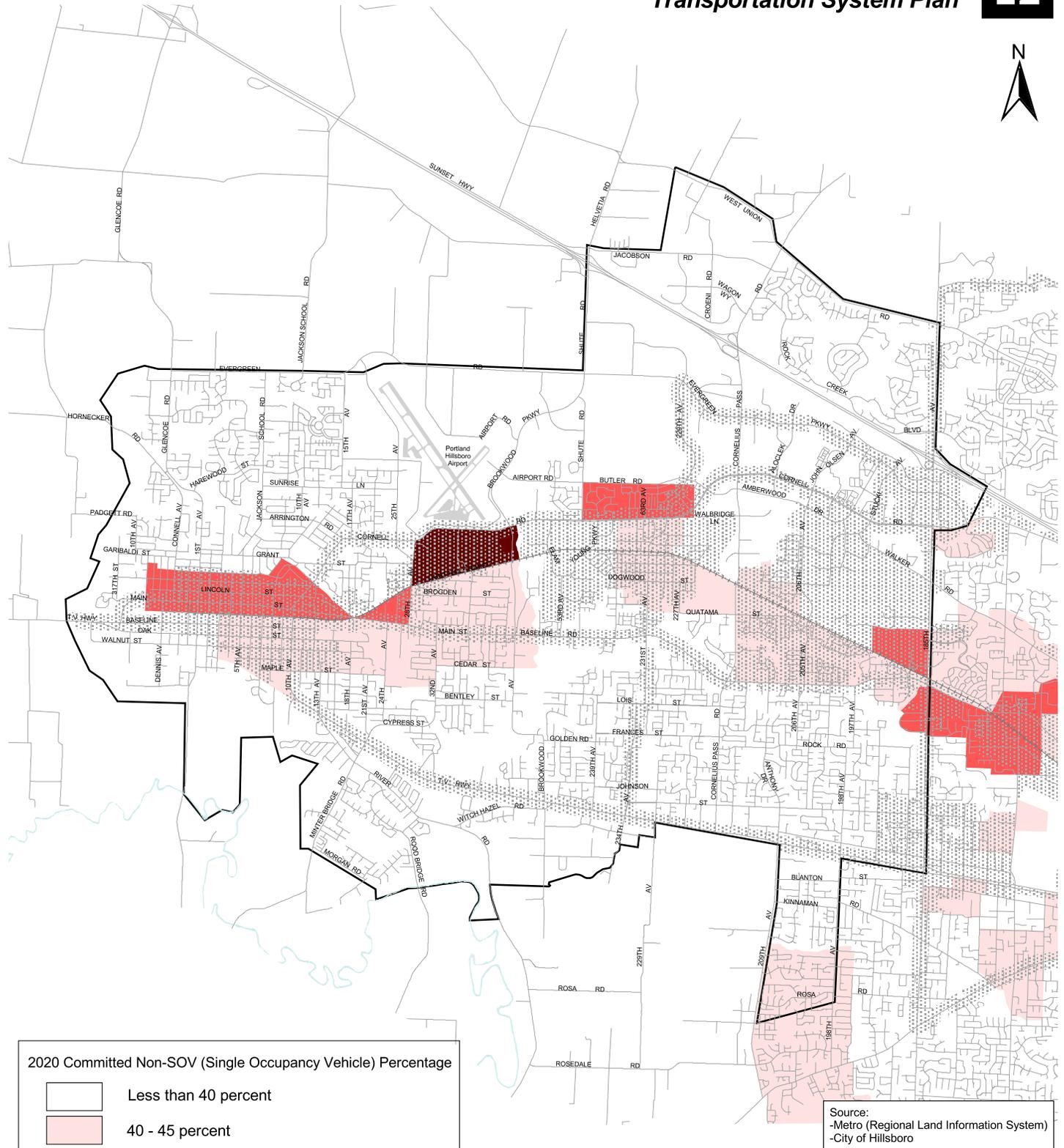
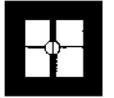
2020 Committed Non-SOV (Single Occupancy Vehicle) Percentage

- Less than 40 percent
- 40 - 45 percent
- 46 - 55 percent
- Greater than 55 percent
- Town Center, Regional Center, Station Community, Corridor, Main Street
- Study Area Boundary

Source:
-Metro (Regional Land Information System)
-City of Hillsboro

Figure 4-4
2020 RTP COMMITTED SCENARIO
NON-SOV PERCENTAGES

0 5000 10000 Feet



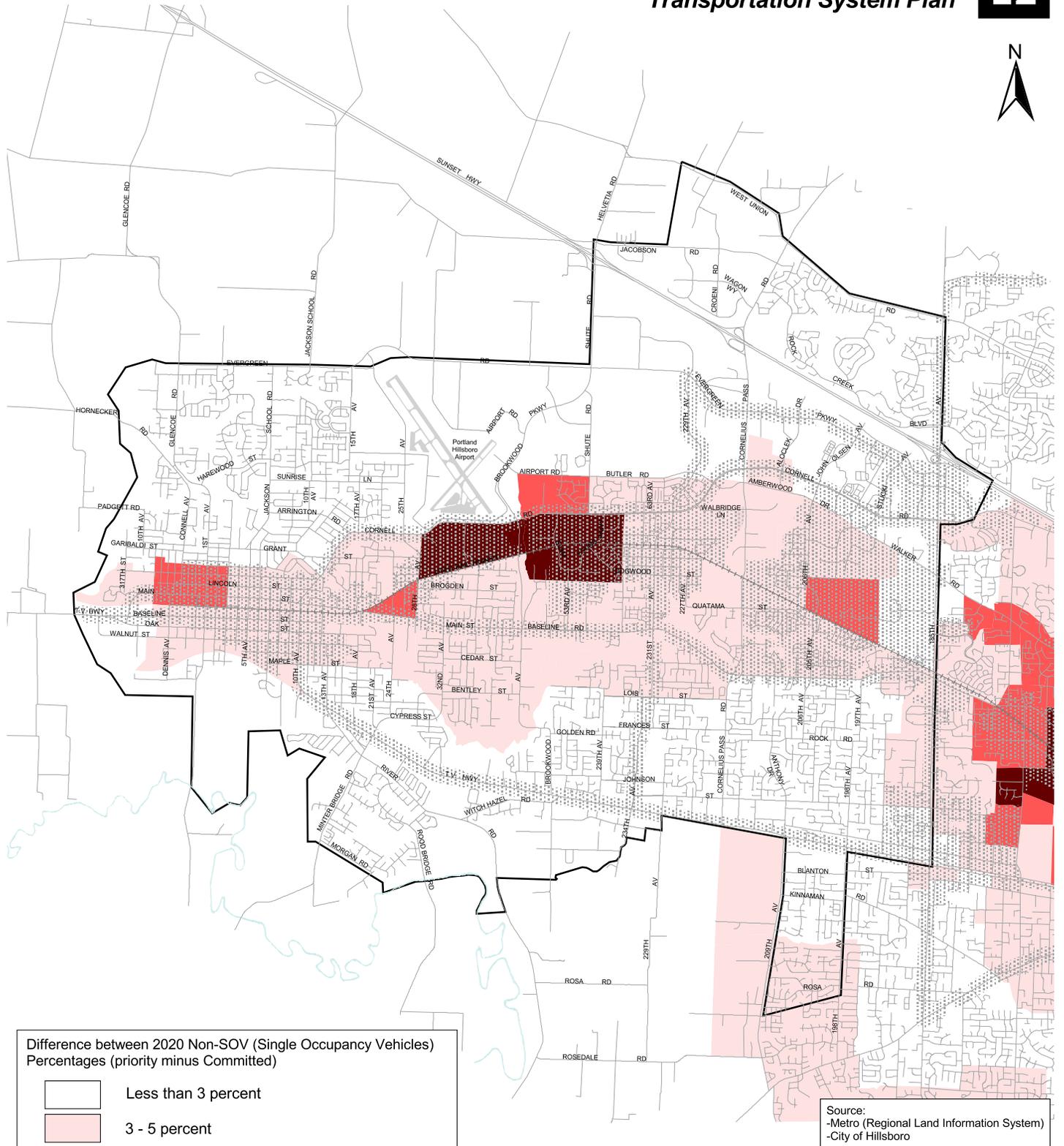
2020 Committed Non-SOV (Single Occupancy Vehicle) Percentage

- Less than 40 percent
- 40 - 45 percent
- 46 - 55 percent
- Greater than 55 percent
- Town Center, Regional Center, Station Community, Corridor, Main Street
- Study Area Boundary

Source:
 -Metro (Regional Land Information System)
 -City of Hillsboro

Figure 4-5
2020 RTP PRIORITY SCENARIO
NON-SOV PERCENTAGES

0 5000 10000 Feet



Difference between 2020 Non-SOV (Single Occupancy Vehicles) Percentages (priority minus Committed)

- Less than 3 percent
- 3 - 5 percent
- 6 - 9 percent
- Greater than 10 percent

- Town Center, Regional Center, Station Community, Corridor, Main Street
- Study Area Boundary

Source:
 -Metro (Regional Land Information System)
 -City of Hillsboro

Figure 4-6
GROWTH IN NON-SOV USE BETWEEN
COMMITTED AND PRIORITY RTP SCENARIOS

0 5000 10000 Feet

PEDESTRIANS

The existing pedestrian system network map was updated from the previous TSP to reflect recent improvements and the expanded TSP Study Area. In most cases sidewalk improvements are aimed at closing gaps in the existing sidewalk network to provide connectivity rather than capacity.

Existing strategies contained within the TSP for identifying and prioritizing future pedestrian projects in Hillsboro were revised over the past three years by the Hillsboro Bicycle and Pedestrian Task Force in order to address new emphases on providing safe routes to school and safe access to transit.

The Hillsboro Bicycle and Pedestrian Task Force were formed in late 2000 as the citizen participation committee charged with implementing Strategy 11 of the Hillsboro 2020 Vision and Action Plan. Strategy 11 calls for completion of “an integrated system of sidewalks and bike paths to serve the entire city, improving neighborhood connections, recreation options and safety.” Two of the key implementing actions for Strategy 11 are developing an inventory and mapping local neighborhood bike/pedestrian pathways and exploring feasible funding options.

The Task Force identified and prioritized pedestrian projects using seven criteria that were designed to provide pedestrians with system-wide connectivity to key destinations in a safe, convenient manner. Built into the seven criteria was the new emphasis on providing safe routes to school whereby pedestrian projects that would provide a safe route to school received more points than projects that do not. The highest total score that a pedestrian project could receive is 20 points. All projects receiving 12 points or more were included in the Pedestrian Master Plan project list. The Task Force selected this point range to ensure an equitable geographic distribution of projects in addition to system-wide connectivity. These criteria were also used to identify and prioritize bicycle projects. The seven criteria and their point value are as follows:

- 1. Destinations.** *Does the project provide connections to schools, parks, recreational uses and activity centers?* This criterion was intended to ensure that safe connections are provided to popular or likely destinations, especially destinations where children are likely to travel. (2 points for each school; 2 points for downtown; and 1 point per park and shopping/employment area, up to a maximum of 5 points).
- 2. Potential usage.** *Does the project has or is likely to have a high daily usage?* This criterion was intended to make sure that projects that were likely to have a high daily usage were given more points than ones that do not. (Maximum of 4 points based on land uses and pedestrian attractors).
- 3. Connects to transit.** *Does the project provide access to bus stops, light rail transit (LRT) stations and park and ride sites?* Connectivity to other transportation modes such as transit is a high priority. (Maximum of 3 points if project is located on street with existing or planned bus line; 2 points if project is on street with MAX line in the Regional Center (RC) or within ¼ mile of MAX in RC, or is within ¼ mile of existing or planned bus line; 1 point if project is between ¼ to ½ mile from existing or planned transit line; 0 points if project is greater than ½ mile from existing or planned transit line).
- 4. Connects to existing pedestrian network.** *Does the project link, complete or extend existing or funded systems (e.g. bikeways or walkways) or is the first element of a planned system?* This criterion was intended to give more points to projects that provide connections on both ends to planned or existing bikeways or walkways. (Maximum of 3 points if project connects

on both ends to planned or existing bikeways or walkways; 2 points if it connects on one end; and 1 point if it stands alone).

5. **Benefits both bicyclists and pedestrians.** *Does the project consider the needs of both bicyclists and pedestrians?* This criterion was intended to give more points to projects that are multi-modal and the needs of bicyclists and pedestrians are both considered. If the project only provides for one mode, the design of the project should not preclude use by the other mode, now or in the future, where appropriate. (Maximum of 2 points if project is multi-modal; 1 point if marginal benefit, e.g., pedestrians can now walk in bike lane).
6. **Overcomes barrier.** *Does the project overcome an existing barrier or road that is a deterrent to safe bicycle or pedestrian travel?* This criterion was intended to ensure those barriers such as river crossings (e.g., bridge improvements); freeway, arterial or railroad crossings; and other “squeeze points” such as lack of shoulders on high speed/volume roadways, dangerous/complicated intersections, poor sight distance, or other obstacles to direct travel were addressed in the project. (Maximum of 2 points if a barrier like a major street without sidewalks or lots of intersections is overcome; 1 point if minor barrier, e.g. no sidewalks now is overcome).
7. **Safe route to school.** *Does the project provide a safe route to school?* This criterion was intended to capture projects located within school walk boundaries that provide a safe route to school. For bicycle projects, it was assumed that children would be riding their bicycles on sidewalks or streets with bike lanes that are located within school walk boundaries. (If this criterion is met, 1 point is given).

In the identification and prioritization of pedestrian projects, the Task Force discovered that the sidewalk gaps within the network are mainly found on unimproved streets (i.e. street with inadequate drainage lacking curb and gutter). Many of these streets also have been identified as needing bike lanes to fill gaps in the bikeway network. Because of these conditions, projects that are multi-modal e.g. provide the opportunity to choose among more than one transportation mode (pedestrian, bicycle, access to transit) received more points.

See Chapter 1, Table 1-1 for the Pedestrian Master Plan Priority Projects list.

The 2000 Regional Transportation System Plan (RTP) includes designations for pedestrian districts and transit/mixed use corridors (see Figure 1-2). The RTP defines pedestrian districts as areas of high or potentially high pedestrian activity where regional policy places priority on creating a safe, direct, and attractive pedestrian environment. In general, these are areas planned for compact, mixed-use development served by transit and correspond to the following 2040 design type designations within the City of Hillsboro: regional centers, town centers, main streets, and station communities. The corresponding areas within the City of Hillsboro include the Hillsboro Regional Center (downtown Hillsboro), Orenco Town Center, the Tanasbourne Town Center, the NE 28th Avenue/East Main Street Planning Area, and the Station Community Planning Areas (SCPA). These areas are characterized by buildings oriented to the street and by boulevard street design features such as wider sidewalks with buffering from traffic, marked street crossing at intersections, pedestrian-scale lighting, benches, bus shelters, and street trees.

Transit/mixed-use corridors are defined as priority areas for pedestrian travel served by good quality transit service that will generate substantial pedestrian traffic near neighborhood-oriented retail development, schools, parks, and bus stops. These corridors should include such design features as wide sidewalks with buffering from traffic, pedestrian scale-lighting, benches, bus shelters, and street

trees. The 2040 design type designation for transit/mixed-use corridors is “Corridors”. The corresponding corridor areas within the City of Hillsboro include Tualatin Valley Highway, 185th Avenue, Baseline Road, Cornell Road, Evergreen Parkway, 229th Avenue and the Baseline Street/Oak Street couplet. As shown in Figure 1-2, the Pedestrian Master Plan identifies improvements to provide a connected pedestrian network to and within the RTP designated pedestrian districts and transit/mixed use corridors. The City of Hillsboro Development Code regulations should require new development in the pedestrian districts and transit/mixed use corridors to comply with the RTP descriptions listed above.

In general, the most important existing pedestrian need in Hillsboro is a well-connected pedestrian system within a half-mile grid and connectivity to light rail transit (LRT) stations and key centers in Hillsboro (parks, schools, retail, etc.). The seven criteria previously described were designed to identify the greatest needs and barriers to providing a safe, well-connected pedestrian system in Hillsboro (see described description of the criteria). A well-connected pedestrian system to and within the pedestrian districts and transit/mixed use corridors will ensure direct and logical pedestrian crossing at transit stops. The City of Hillsboro should coordinate with Washington County, Tri-Met, Metro, and ODOT to ensure that major transit stops will be located at sites with a signalized and/or marked pedestrian crossing. In the future, pedestrian needs will be similar in the City, but there will be additional activity centers that will need to be considered and interconnected.

In 2003, due to the numerous changes to the existing sidewalk inventory of collector and arterial streets conducted in 1996, it was determined that a new sidewalk inventory should be conducted. The new sidewalk inventory also inventoried streets designated as neighborhood routes. Identifying gaps in the sidewalk system for neighborhood route streets is important as they provide key connectivity to popular destinations and are more likely to experience heavy pedestrian usage due to their characteristics such as lower traffic volumes which provide for a safer, more pleasant walking experience. Rather than starting from scratch with a new inventory, the City used a regional sidewalk inventory conducted 2001-2002 by Tri-Met in as part of their Pedestrians to Transit project as a base inventory. The City updated the base inventory to reflect conditions as of August 2003. This new sidewalk inventory shows gaps in the sidewalk system that were not identified in 1996, as well as new sidewalks that were added since the 1996 inventory.

The main changes to the Pedestrian Master Plan that are a result of the new sidewalk inventory consist of the addition of existing and planned sidewalks on streets designated as Neighborhood Routes, new street connections including planned sidewalks such as those to Witch Hazel Village located south of Tualatin Valley Highway (see Figure 1-5, Street Improvement Plan), and changing the type of pedestrian facility from planned sidewalk to multi-use trail connections for some streets that would need to cross creeks or wetlands such as SE 18th Avenue or Brogden Street. Overall, the changes that are a result of the new sidewalk inventory document a more realistic picture of what is actually on the ground in terms of gaps in the pedestrian system than was shown previously in the TSP. For example, arterial, collector and neighborhood route streets as depicted on the Pedestrian Master Plan map (see Figure 1-2) are only shown as having existing sidewalks if there are sidewalks on both sides of the street, and if there are sidewalks missing on one side of the street, then planned sidewalks are shown.

BICYCLES

The Bicycle Master Plan has been updated from the previous TSP and includes completed

improvement projects, the addition of new improvement projects, a new type of bikeway facility, and an expanded TSP Study Area (See Figure 1-3). Bikeway improvements are intended to close the gaps in the bicycle network along arterial and collector roadways and improve connectivity to key destinations (schools, parks, employment areas, and activity centers).

Existing strategies contained within the TSP for identifying and prioritizing future bicycle projects in Hillsboro were revised over the past three years by the Hillsboro Bicycle and Pedestrian Task Force in order to improve connectivity and provide bikeway facilities that better address safety issues for children and commuters and a new emphasis on providing safe routes to school.

In review of the existing bikeway network, the Task Force realized that there was a need for some methodology for determining if bike lanes were appropriate for existing collector streets that are currently designated as bicycle way network streets in the TSP. The Task Force found guidelines developed by the City of Portland for determining under which circumstances bike lanes are appropriate for all new or reconstructed streets and applied these guidelines to existing collector streets currently designated as bicycle way network streets.

These guidelines are based on the average number of vehicles per day (vpd) and the functional classification of a street. In some cases, due to width or topographical constraints, on-street parking or traffic calming needs, it may not be possible to provide bike lanes. All collector streets with over 3,000 vpd were evaluated and as a result, many streets not previously designated for bike lanes were designated as appropriate for bike lanes.

In order to address the need for the provision of bikeway facilities that were more safe for children and commuting cyclists looking for routes on streets with less traffic volumes that provide connectivity to key destinations, the Task Force determined that a new type of bikeway facility would be appropriate. This new bikeway facility – a bicycle boulevard is suggested in the Oregon Bicycle and Pedestrian Plan as a refinement of the shared roadway concept (bicycle way network).

A bicycle boulevard is a shared roadway where the through movement of bicycles is given priority over motor vehicle travel on a local street. Traffic calming and control devices including signage are used to control traffic speeds and limit conflicts between automobiles and bicyclists and favor bicycle movement on bicycle boulevard streets. There are three bicycle boulevard streets in Hillsboro (see Figure 1-3). They include Connell Avenue from W. Main Street to NW Cory Street, Grant Street from N. 1st Avenue to NE 28th Avenue and Walnut Street from S. 1st Avenue to SE 18th Avenue. These streets were selected due to their primarily residential character, their length and connectivity to key destinations and lower speeds.

Bicycle projects were identified and prioritized by the Hillsboro Bicycle and Pedestrian Task Force using the same seven criteria used to identify and prioritize pedestrian projects. All projects with a score of 12 or greater out of 20 possible points were included on the Bicycle Master Plan project list (see Table 1-2). All multi-use trail projects which consist of off-street facilities were also included on the Bicycle Master Plan project list as they supplement the bikeway network by providing additional connectivity to key destinations and recreational opportunities.

The 2000 Metro RTP includes a bicycle functional classification system with the following designations:

- Regional Access Bikeway: Function focuses on accessibility to and within the central city, regional centers, and larger town centers. Travel time is an important factor as these bikeways generally have high volumes.
- Regional Corridor On-Street Bikeway: Functions as longer routes that provide point-to-point connection between the central city, regional centers, and larger town centers. Generally higher automobile speeds and volumes than community connector bikeways.
- Community Connector Bikeway: Connect smaller town centers, main streets, station areas, industrial areas, and other regional attractions.
- Regional Corridor Off-Street Bikeway (multi-use paths with bicycle transportation function): Likely to be used for commuting to work or school, accessing transit, or traveling to a store, library, or other local destination. Bicycle/pedestrian sidewalks on bridges are included in this classification. Design includes physical separation from motor vehicle traffic by open space or barrier.

Regional bikeway facilities in TSP Study Area are as follows:

Regional Access Bikeway

- 1st Avenue (South city limits to NE Jackson St)
- SE 10th Avenue (SE Walnut St to SE Baseline St)
- NW 185th Avenue (W Baseline Rd to US 26)
- NW 231st Avenue (W Baseline Rd to NW Cornell Rd)
- SE Baseline Street (S 1st Ave to SE 10th Ave)
- NW Evergreen Parkway (NW Stucki Ave to NW Cornell Rd)
- SE Oak Street (S 1st Ave to SE 10th Ave)

Regional Corridor On-street Bikeway

- N 1st Avenue/NW Glencoe Road (NE Jackson St to US 26)
- NW 185th Avenue (US 26 to NW Springville Rd)
- SW 185th Avenue (W Baseline Rd to TV Hwy)
- SW Baseline Street (S 1st Ave to TV Hwy)
- Cornell Road (E Main St to east city limits)
- E Main Street/W Baseline Road (SE 10th Ave to NW 185th Ave)
- SW Oak Street (S 1st Ave to TV Hwy)
- Tualatin Valley Highway (east city limits to SE 10th Ave)
- Tualatin Valley Highway (SW Baseline/Oak St to west city limits)

Community Connector Bikeway

- SW 205th /NW 206th Avenues (SW Baseline Rd to NW Cornell Rd)
- SW 209th Avenue (TV Hwy to SW Farmington Rd)
- NW 229th Avenue (NE Cornell Rd to NW Evergreen Pkwy)
- NE 28th /NE 25th Avenues (E Main St to NW Evergreen Rd)
- SW 231st/SW 234th Avenues/Century Blvd (TV Hwy to W Baseline Rd)
- NE Airport Road/NE Butler Street/Road (NE Brookwood Pkwy to NW Cornelius Pass Rd)
- NW Amberglen Parkway/NW Stucki Avenue (NW 206th Ave to NW Evergreen Pkwy)

- Brookwood Avenue/Parkway/NW Shute Road (TV Hwy to NW Helvetia Rd)
- Cornelius Pass Road (TV Hwy to West Union Rd)
- NW Evergreen Road/Parkway (NW Glencoe Rd to NW Stucki Ave)
- NW Walker Road (NW Amberglen Pkwy to east city limits)
- West Union Road (NW Shute Rd to NW 185th Ave)

Regional Corridor Off-street Bikeway

- Beaverton Creek Trail (NW 231st Ave/Baseline Rd to SW 185th Ave)
- Rock Creek Trail (Tualatin River to West Union Rd)
- Bronson Creek Trail (WW 205th Ave to NW Cornell Rd)

The proposed updates to the Bicycle Master Plan are summarized in Table 4-7.

**Table 4-7
Updates to Bicycle Master Plan**

Roadway	Hillsboro 2015 TSP	Draft Hillsboro 2020 TSP
6 th Avenue – NE Lincoln St to SE Washington St	N/A	Bicycle Way Network
NE 10 th Avenue/NE Queens Lane/NE Delsey Street – NE Kathryn St to NE Grant St	N/A	Bicycle Way Network
NE 15 th Avenue – NE Kathryn St to NW Evergreen Rd	Bicycle Way Network	Planned Bike Lanes
NE 15 th Avenue – NE Sunrise Ln to NE Kathryn St	Bicycle Way Network	N/A
NE 17 th Avenue – NE Cornell Rd to NE Sunrise Ln	Bicycle Way Network	N/A
NE 18 th Avenue – E Main St to NE Grant St	N/A	Bicycle Way Network
SE 21 st Avenue – SE Cypress St to SE Maple St	Bicycle Way Network	Planned Bike Lanes
SW 211 th Avenue – SW Rock Rd to SW Jay St	N/A	Bicycle Way Network
SE 24 th Avenue – SE Maple St to E Main St	Bicycle Way Network	Planned Bike Lanes
NW 228 th Avenue/NW Alder Street – NW Dogwood St to NW 231 st Ave	N/A	Bicycle Way Network
SW 229 th Avenue – TV Hwy to SW Johnson St	Bicycle Way Network	Planned Bike Lanes
NW 235 th Avenue – NW Evergreen Pkwy to NW Bennett St	N/A	Bicycle Way Network
SW 239 th Avenue – TV Hwy to SW Lois St	Bicycle Way Network/ N/A	Planned Bike Lanes
NE 25 th Avenue/NE Hampton Court – E Main St to Multi-use path connecting to NE 28 th Ave	N/A	Bicycle Way Network
NW 253 rd Avenue Realignment – NW Evergreen Rd to NW Huffman St	N/A	Planned Bike Lanes
NW 317 th Avenue – W Main St to NW Jackson St	Bicycle Way Network	N/A

Roadway	Hillsboro 2015 TSP	Draft Hillsboro 2020 TSP
NE 53 rd Avenue – W Baseline Rd to NE Elam Young Pkwy	Bicycle Way Network	Planned Bike Lanes
NE 7 th Avenue – NE Lincoln St to SE Washington St	Bicycle Way Network	N/A
SE Alexander Street – SW 229 th Ave to SE Brookwood Ave	N/A	Planned Bike Lanes
Baseline Street – SW Dennis Ave to SE 10 th Ave	Bicycle Way Network	N/A
NE Campus Court Extension – to NE Ray Circle	N/A	Bicycle Way Network
SE Cedar Street – SE 32 nd Ave to SW Brookwood Ave	N/A	Bicycle Way Network
NW Connell Avenue – E Main St to NW Cory St	Bicycle Way Network	Bicycle Boulevard (also Bicycle Way Network from E Main to NW Garibaldi St and Planned Bike Lanes from NW Garibaldi to NW Cory St)
NE Dawson Creek Drive – NE Shute Rd to NW Evergreen Rd	Bicycle Way Network/ N/A	Planned Bike Lanes
NW Dennis Street – E Main St to NW Garibaldi St	N/A	Bicycle Way Network
NW Dogwood St – NW 231 st Ave to NW 228 th Ave	Bicycle Way Network	N/A
NE Elam Young Parkway (both legs) – NE 53 rd Ave to NE Cornell Rd	Bicycle Way Network	Planned Bike Lanes
NW Evergreen Road Extension – NW Glencoe Rd to NW Hornecker Rd	N/A	Planned Bike Lanes
NE Grant Street – N 1 st Ave to NE 28 th Ave	Bicycle Way Network	Bicycle Boulevard (also Bicycle Way Network)
NE Griffin Oaks Street – NE 15 th Ave to NE 25 th	N/A	Bicycle Way Network
NW Huffman St Extension – NW Shute Rd to NW Evergreen Rd	N/A	Planned Bike Lanes
NW Imbrie Dr	Bicycle Way Network	Planned Bike Lanes
SW Jay Street - SW Cornelius Pass Rd to SW 206 th Ave	N/A	Bicycle Way Network
NW John Olsen Avenue – NW Cornell Rd to NW Evergreen Pkwy	Bicycle Way Network	Planned Bike Lanes
SW Johnson Street/SW 229 th Ave – SW 239 th Ave to SW Cornelius Pass Rd	Bicycle Way Network	Planned Bike Lanes
NE Kathryn Street – NE Jackson School Rd to NE 15 th Ave	N/A	Bicycle Way Network
NE Lenox Street/NE Lorie Drive/NE Estate Drive – NW Glencoe Rd to NE Jackson School Rd	N/A	Bicycle Way Network
NE Lincoln Street – NE 6 th Ave to NE 7 th Ave	Bicycle Way Network	N/A
Lincoln Street – NW Dennis Ave to NE 6 th Ave	N/A	Bicycle Way Network
SE Lois Street – SW 239 th Ave to SW Cornelius Pass Rd	N/A	Bicycle Way Network

Roadway	Hillsboro 2015 TSP	Draft Hillsboro 2020 TSP
W Main Street – SW Baseline St to N 1 st Ave	Bicycle Way Network	Planned Bike Lanes
SE Maple Street – SE 13 th Ave to SE 24 th Ave	Bicycle Way Network	Planned Bike Lanes
SE Meadowlark Drive/SE Thrush Avenue/SE Rood Bridge Drive – SE Minter Bridge Rd to SE Rood Bridge Dr	N/A	Bicycle Way Network
SE Morgan Road/SE Smith Drive/SE Singing Woods Drive – SE Minter Bridge Rd to SE Rood Bridge Rd	N/A	Bicycle Way Network
North/South Road – NW Huffman St to NW Meek Rd	N/A	Bicycle Way Network
Oak Street – SW Dennis Ave to SE 10 th Ave	Bicycle Way Network	N/A
SE River Road – TV Hwy to SE Witch Hazel Rd	Bicycle Way Network	Planned Bike Lanes
SE Rood Bridge Road – SE River Rd to south city limits	Bicycle Way Network	Planned Bike Lanes
NE Rosebay Drive/NE Walbridge Street – NE Orenco Station Pkwy to NE Cornell Rd	N/A	Bicycle Way Network
NE Shute Road – NE Cornell Rd to NE Brookwood Pkwy	Bicycle Way Network	Planned Bike Lanes
NW Springville Rd Extension – NW 185 th Ave to West Union Rd	N/A	Planned Bike Lanes
NE Sunrise Lane – NE Jackson School Rd to NE 25 th Ave	Bicycle Way Network	N/A
NW Wagon Way – NW 229 th Ave/Century Blvd to NW Croeni Rd	N/A	Bicycle Way Network
SE Walnut Street – S 1 st Ave to SE 18 th Ave	Bicycle Way Network/ N/A	Bicycle Boulevard (also Bicycle Way Network)
SE Washington Street – SE 6 th Ave to SE 7 th Ave	N/A	Bicycle Way Network
Witch Hazel Village – multiple new and rebuilt streets such as SW Lone Oak St	N/A	Bicycle Way Network

TRANSIT

Currently, there are eight Tri-Met transit routes serving Hillsboro (see Figure 1-4). The transit service has been significantly changed from the 1999 TSP due to the opening of the Westside MAX. The existing transit system coverage area (see Figure 3-17) includes approximately 50 percent of the modeled transit supportive zones within the Hillsboro TSP study area⁷. The City of Hillsboro should coordinate with Tri-Met to focus possible future transit coverage on those transit supportive areas not covered by the existing system.

The proposed updates to the Transit Master Plan are summarized in Table 4-8.

⁷ Coverage is determined as the area within 0.25 miles of a bus stop or 0.50 miles of a LRT stop.

**Table 4-8
Updates to Transit Master Plan**

Transit Route	Hillsboro 2015 TSP	Draft Hillsboro 2020 TSP
Bus Route 89	Existing Bus Route Line	Relocated to Evergreen east of Tanasbourne TC
Bus Route 42	Existing Bus Route Line	Removed from operation
Bus Route 41	Existing Bus Route Line	Removed from operation
Planned RTP Community Bus	na	Bus Routes Identified
Frequent Bus Stop Ranking – TV Highway	na	Bus Stops Identified

Corridor level transit services will need to be improved and expanded to help relieve congestion and increase passenger convenience. TV Highway has been designated a planned frequent bus corridor by Tri-Met with passenger amenities identified for each bus stop based on average ridership. The frequent bus stop rankings are shown in Figure 4-7. The bus stop amenities associated with the bus stop ranking are summarized in Table 4-9.

**Table 4-9
Frequent Bus Stop Rankings**

Level 1A	Level 1B	Level 2A	Level 2B	Level 3A	Level 3B
Frequent sign	Frequent sign	Frequent sign	Frequent sign	Frequent sign	Frequent sign
Pole & sign	Pole & sign	Pole & sign	Pole & sign	Pole & sign	Pole & sign
Schedule display	Schedule display	BCID in shelter	BCID in shelter	BCID in shelter	BCID in shelter
Sidewalk access	Sidewalk access	Sidewalk access	Sidewalk access	Sidewalk access	Sidewalk access
	Bench	Bench	Bench	Bench	Bench
	Curb ramp	Curb ramp	Curb ramp	Curb ramp	Curb ramp
	<i>Optional:</i>	A/B shelter	A/B shelter	BX/BB shelter	High capacity shelter
	A/B shelter	Rear door pad	Rear door pad	Rear door pad	Rear door pad
	Rear door pad	Trash can	Trash can	Trash can	Trash can
		Lighting/electric	Lighting/electric	Lighting/electric	Lighting/electric
			Transit tracker	Transit tracker	Transit tracker
			<i>Optional:</i>	Bike rack	Bike locker
			BX/BB Shelter	<i>Optional:</i>	Artwork element
				Public telephone	Public telephone
				Ticket vending	Ticket vending
				Artwork element	Concessions
					Custom landscaping

BCID (Bus Catcher Information Display)
A/B (Standard Shelter) with approx 25% increase in size
BX/BB (Largest Bus Shelter)

The City of Hillsboro should coordinate with Tri-Met, ODOT, and Washington County to provide

signal priority for transit routes along TV Highway, the RTP designated frequent bus lines. Signal priority along the section of TV Highway within the study area would include approximately 15 signals at approximately \$10,000 each. Signal priority along the frequent transit routes would improve transit service speed and reliability along these congested corridors with high multi-modal trip potential.



Source:
 -Metro (Regional Land Information System)
 -City of Hillsboro
 -Tri-Met

RTP Frequent Bus

Frequent Bus Stop Ranking

1A	1B
2A	2B
3A	3B

Figure 4-7
TRANSIT FREQUENT
BUS STOP RANKINGS

MOTOR VEHICLES

Functional Classification

Roadways have two functions, to provide mobility and to provide access. These functions can be incompatible since high or continuous speeds are desirable for mobility, while low speeds are more desirable for land access. Arterials emphasize a high level of mobility for through movement; local facilities emphasize the land access function; and collectors offer a balance of both functions.

Principal Arterials are typically state highways that provide the highest level of connectivity. These routes connect over the longest distance (sometimes miles long) and are less frequent than other arterials or collectors. These highways generally span several jurisdictions and many times have statewide importance.

Arterial streets serve to interconnect and support the principal arterial highway system. These streets link major commercial, residential, industrial and institutional areas. Arterial streets are typically spaced about one mile apart to assure accessibility and reduce the incidence of traffic using collectors or local streets in lieu of a well placed arterial street. Many of these routes connect to surrounding cities.

Collector streets provide both access and circulation within residential and commercial/industrial areas. Collectors differ from arterials in that they provide more of a citywide circulation function, do not require as extensive control of access and penetrate residential neighborhoods, distributing trips from the neighborhood and local street system.

Neighborhood routes are usually long relative to local streets and provide connectivity to collectors or arterials. Because neighborhood routes have greater connectivity, they generally have more traffic than local streets and are used by residents in the area to get into and out of the neighborhood, but do not serve citywide/large area circulation. Traffic from cul-de-sacs and other local streets may drain onto neighborhood routes to gain access to collectors or arterials. Because traffic needs are greater than a local street, certain measures should be considered to retain the neighborhood character and livability of these routes. Neighborhood traffic management measures are often appropriate (including devices such as speed humps, traffic circles and other devices - refer to later section in this chapter). However, it should not be construed that neighborhood routes automatically get speed humps or any other measures. While these routes have special needs, neighborhood traffic management is only one means of retaining neighborhood character and vitality.

Local Streets have the sole function of providing access to immediate adjacent land. Service to “through traffic movement” on local streets is deliberately discouraged by design.

The current functional classification of streets in Hillsboro was updated to reflect the expanded TSP study area, on-going regional planning, the functional needs of Hillsboro, and consistency with the Regional Transportation Plan. Changes in land use, environmental issues or barriers, topographic constraints, and demand for facilities can change the frequency for routes of certain functional classifications. While spacing standards can be a guide, they must consider other features and potential long term uses in the area. Figure 1-9 shows the functional classification plan. The updates to the Functional Classification Plan are summarized in Table 4-10. Streets designated in the RTP should be designed with a modal orientation that reflects the function of the street and the character of

surrounding land uses as defined in Chapter 1 of the RTP⁸.

The functional classification update included an evaluation of how each roadway currently serves traffic in the Hillsboro area and the access spacing requirement for each designation. Approximately 13 roadways were upgraded from a local street designation to neighborhood route or collector to reflect the future characteristics of the roadway. An additional seven roadways were updated from a neighborhood route designation to collector. The expanded study area added approximately 22 roadways with designations higher than local street to the functional classification plan. Several roadways dropped the planned designation to reflect roadway projects completed since the 1999 TSP.

Table 4-10
Updates to Functional Classification Plan

Roadway	Hillsboro 2015 TSP	Draft Hillsboro 2020 TSP
Evergreen extension – Glencoe to Hornecker	na	Planned Collector
317 th Avenue – Jackson to Connell	Collector	Local Street
Wood – Hwy 219 to Armco	Planned Collector	Collector
Garibaldi – Connell to 1 st Avenue	Neighborhood Route	Collector
30 th /Ripplewood/Tumblestone/28 th – TV Hwy to Cypress	Planned Neighborhood Route	Neighborhood Route
Arbor Rose Street Connections – TV Hwy to River Road	na	Planned Neighborhood Route
24 th Avenue – TV Hwy to River Road	Planned Neighborhood Route	Collector
Morgan – Minter Bridge to Noland	Local Street	Collector
Tanager Circle – Meadowlark to Rood Bridge	Planned Neighborhood Route	Neighborhood Route
Jacquelin, Brent, Eric, Gerhard, Smith and	Local Street	Neighborhood Route
Daren – Morgan to Gerhard	Local Street	Neighborhood Route
231 st Avenue – Gaboes Ct to Borwick	Planned Collector	Collector
Dogwood and Oelrich – 60 th to 231st	Local Street	Neighborhood Route
60 th Avenue/Orenco Gardens – Baseline to Elam Young	Local Street	Neighborhood Route
Campus Ct extension to Ray Circle	na	Planned Collector
Stile Drive extension to 61 st Avenue	Neighborhood Route	Planned Neighborhood Route
Brighten Street – Orenco Station Pkwy to Cornell	Planned Neighborhood Route	Local Street
Orenco Station Pkwy – Butler to Campus Ct	Collector	Neighborhood Route
Rosebay/Walbridge – Orenco to Cornell	Local Street	Neighborhood Route

⁸ Based on the 2000 *Regional Transportation Plan*, Metro, August 2000.

Roadway	Hillsboro 2015 TSP	Draft Hillsboro 2020 TSP
Proposed road – Aloclek to 229 th south of Evergreen	na	Planned Neighborhood Route
Dawson Creek – realignment south of Evergreen	na	Planned Collector
253 rd Avenue realigned – Evergreen to Huffman	na	Planned Collector
Huffman – 253 rd to Shute	na	Planned Collector
North/South road – Huffman to Meek	na	Planned Collector
Springville extension – 185 th to West Union	na	Planned Arterial
Croeni – Wagon Way to Jacobson	Neighborhood Route	Local Street
Mauzey – Jacobson to West Union	Neighborhood Route	Local Street
Wagon Way – Croeni to Cornelius Pass	Neighborhood Route	Collector
Wagon Way – Croeni to Century	Local Street	Collector
Century – Wagon Way to Jacobson	Planned Collector	Collector
Century – Appox. 900 feet north of Jacobson to West Union	Planned Collector	Collector
Salix extension – 185 th to Walker *	Collector	Planned Collector
Heritage – 185 th to Salix	Collector	Planned Collector
East-West connection – Salix to Stucki	Planned Collector	na
Brookwood – Cornell to Baseline	Planned Arterial	Arterial
48 th Avenue – Cornell to Airport Road	Local Street	Neighborhood Route
43 rd Avenue – Brogden to Main	Local Street	Neighborhood Route
Cedar – Brookwood to 32 nd	Neighborhood Route	Collector
Bentley – Brookwood to 32 nd	Neighborhood Route	Collector
313 th /Milne/Lenox/Merle – west of Glencoe	Local Street	Planned Neighborhood Route
Wilkins – 206 th to Arroyo	Planned Collector	Collector
Cherry – 231 st to Cornelius Pass	Planned Collector	Collector
Maple – 6 th to 7 th	Neighborhood Route	Planned Neighborhood Route
12 th – Maple to Oak	Local Street	Neighborhood Route
Borwick – 231 st to Baseline	Neighborhood Route	Collector
Lois – 239 th to Cornelius Pass	Neighborhood Route	Collector
239 th – Lois to TV Hwy	Neighborhood Route	Collector
Expanded Study Area: South Hillsboro		
East/West road – River Road to Brookwood	na	Planned Arterial
Blanton: 198 th to 209 th	na	Neighborhood Route
Kinnaman: 198 th to 209 th	na	Collector
Stoddard/205 th : Blanton to 209 th	na	Neighborhood Route

Roadway	Hillsboro 2015 TSP	Draft Hillsboro 2020 TSP
209 th Avenue: TV Hwy to Farmington	Collector	Arterial
Rosa: 198 th to 209 th	na	Neighborhood Route
Deline: 198 th to 209 th	na	Neighborhood Route
Alexander: 229 th to 247 th	Neighborhood Route	Collector
Alexander extension: west of Brookwood (247 th) to Davis extension	Planned Neighborhood Route	Planned Collector
Continuation of Alexander extension south of Davis extension to Pleasant Street	Planned Neighborhood Route	Na
Pleasant Street – Brookwood (247 th) to end	Neighborhood Route	Local Street
Pleasant Street extension to River Road	Planned Neighborhood Route	na

* Part of the East-West Connector Study Area

Characteristics of Streets for each Functional Classification

The design characteristics of streets in Hillsboro were developed in the 1999 TSP. No changes to the roadway cross sections are proposed in this TSP update. The analysis of capacity needs indicated several roadway cross sections. Where center left turn lanes are identified (3, 5 and 7 lanes sections) the actual design of the street may include sections without center turn lanes (2, 4, and 6 lane sections) where feasible. The Future Streets Right-of-Way Plan (Figure 1-6) provides the right-of-way requirements for arterial and collector streets which are anticipated within the TSP planning horizon to require more than two lanes. The updates to the Future Streets Right-of-Way Plan are summarized in Table 4-11.

Table 4-11
Updates to Future Streets Right-of-Way Plan

Roadway	Hillsboro 2015 TSP	Draft Hillsboro 2020 TSP
TV Hwy – 185 th to Brookwood	5/7 lanes	6/7 lanes
TV Hwy – Brookwood to 10 th	5/7 lanes	4/5 lanes
Johnson – 185 th to Brookwood	2 lanes	2/3 lanes
Frances – Cornelius Pass to 234 th	2 lanes	2/3 lanes
Evergreen Road extension west of Glencoe	na	Planned 2/3 lanes
10 th Avenue – Walnut to Main	4/5 lanes	6/7 lanes
Brookwood – Baseline to south of Cornell	Planned 2/3 lanes	2/3 lanes
Brookwood – Johnson to TV Highway	2/3 lanes	4/5 lanes
Brookwood – TV Highway to Witch Hazel	Planned 2/3 lanes	Planned 4/5
Dawson Creek – realignment south of Evergreen	na	Planned 2/3 lanes
253 rd Avenue realigned – Evergreen to Huffman	na	Planned 2/3 lanes
Huffman – 253 rd to Shute	na	Planned 2/3 lanes
North/South road – Huffman to Meek	na	Planned 2/3 lanes

Roadway	Hillsboro 2015 TSP	Draft Hillsboro 2020 TSP
Griffin Oaks – 15 th to 25 th	2/3 lanes	2 lanes
East-West road – Salix to Stucki	Planned 2/3 lanes	na
Campus Ct extension to Ray Circle	na	Planned 2/3 lanes
Orenco Station – Butler to Cornell	Planned 2/3 lanes	2/3 lanes
Butler – east of Shute	Planned 2/3 lanes	2/3 lanes
194 th Terrace – Cornell to Evergreen	Planned 2/3 lanes	2/3 lanes
227 th – Quatama to Dogwood	2/3 lanes	2 lanes
Dogwood – 231 st to 227 th	2/3 lanes	2 lanes
Expanded Study Area: South Hillsboro		
East/West road – River Road to Brookwood	na	2/3 lanes
209 th – TV Hwy to south of Rosa	na	2/3 lanes
Alexander: 170 th to 209 th	na	2/3 lanes
Kinnaman: 209 th to Farmington	na	2/3 lanes
185 th – TV to south of Rosa	na	2/3 lanes
Kinnaman extension: 209 th to Cornelius Pass	na	2/3 lanes
Davis – 234 th to 239 th	na	Planned 2/3 lanes
Davis – Brookwood to River Road	na	Planned 2/3 lanes

Connectivity/Local Street Plan

There are a number of locations in Hillsboro where, due to the lack of alternative routes, the majority of neighborhood traffic is funneled onto one single street. This type of street network results in out-of-direction travel for motorists and an imbalance of traffic volumes that impacts residential neighborhoods. By providing connectivity between neighborhoods, out-of-direction travel and accessibility between various modes can be enhanced and traffic levels can be balanced out between various streets. Several goals and policies established by this TSP are intended to address these objectives. Improved connectivity could mitigate capacity deficiencies by better dispersing traffic.

Several roadway connections will be needed within neighborhood areas to reduce out of direction travel for vehicles, pedestrians and bicyclists. The proposed Functional Classification Plan (Figure 1-9) shows several neighborhood routes through future development areas and recommended connection points to arterial or collector roadways. In most cases, the connector alignments are not specific and are intended to reduce potential neighborhood traffic impacts by balancing traffic flows on neighborhood routes. The updated recommended local connections for vehicles and pedestrians/bicycles are shown on Figures 1-10 to 1-17 (representing the City of Hillsboro neighborhood districts). The updates to the connectivity plans are summarized in Table 4-12.

Table 4-12
Updates to Local Street Connectivity Maps

City Area	Roadway	Hillsboro 2015 TSP	Draft Hillsboro
West Hillsboro	Connell connection between West Main and Washington	Planned Local Street Connection	Deleted

City Area	Roadway	Hillsboro 2015 TSP	Draft Hillsboro
Northwest Hillsboro	Cory Extension from Glencoe to Hornecker	Study Area	Deleted (Completed)
Northwest Hillsboro	Simmental Street extension east beyond 10 th Avenue	Planned Local Street Connection	Deleted (Completed)
Northwest Hillsboro	Moon Rise Drive extension beyond 11 th Avenue	Planned Local Street Connection	Deleted (road extends to 10 th Avenue)
Northwest Hillsboro	Extension of 11 th Avenue south of Moon Rise Drive	Planned Local Street Connection	Deleted (road extends to Morning Sun Drive)
Northwest Hillsboro	Tina Street extension east beyond 9 th Avenue	Planned Local Street Connection	Deleted (road extends to 10 th Avenue)
Northwest Hillsboro	Extension of Setting Sun Drive west	Planned Local Street Connection	Deleted (road extends to 12 th Avenue, which links with Morning Sun Drive to the south)
Northwest Hillsboro	New road connection between 10 th and 13 th Avenues	Planned Local Street Connection	Deleted (completed; now called Morning Sun Drive)
Northwest Hillsboro	Extension of 10 th Avenue north of Kathryn Street	Planned Local Street Connection	Deleted (road extends north to Rogahn Street)
Northwest Hillsboro	Extension west off of 15 th Avenue north of Prah Pkwy.	Planned Local Street Connection	Deleted
Northwest Hillsboro	Extension of 9 th Avenue south to Sunrise Lane	Planned Local Street Connection	Deleted
Northwest Hillsboro	Extension of Lilac Ct west to 12 th Avenue	Planned Local Street Connection	Deleted
Northwest Hillsboro	Southwest pedestrian connection at Mooberry Elementary School off Kennedy Lane	Planned Ped/Bike Connection	Deleted
Northwest Hillsboro	North pedestrian connection off 17 th Avenue to Griffin Oaks Street	Planned Ped/Bike Connection	Deleted
Northwest Hillsboro	Connection off Barberr Drive south to Cornell Road between 17 th and 21 st Avenues	Planned Local Street Connection	Deleted
Central Hillsboro	Extension of 5 th Avenue south of Cedar Street	Planned Local Street Connection	Deleted, replaced with a Planned Ped/Bike Connection south of railroad tracks
Central Hillsboro	Hollow Street extension east	Planned Local Street Connection	Changed to Planned Ped/Bike Connection

City Area	Roadway	Hillsboro 2015 TSP	Draft Hillsboro
Central Hillsboro	28 th Avenue extension south of Cypress	Planned Local Street Connection	Deleted (road extends south to Tumblestone Drive)
Central Hillsboro	30 th Avenue extension south of Cypress	Planned Local Street Connection	Deleted (road extends south to Rosespring Drive)
Central Hillsboro	30 th Avenue extension north off TV Hwy	Planned Local Street Connection	Deleted (complete)
South Hillsboro	Lone Oak connection to River Road south of Witch Hazel	na	Planned Local Street Connection
South Hillsboro	49 th Avenue connection to Lone Oak north of Witch Hazel	na	Planned Pedestrian/Bicycle Connection
South Hillsboro	Connection west off River Road to Rock Creek	na	Planned Pedestrian/Bicycle Connection
South Hillsboro	South extension of Currin Lane	na	Planned Local Street Connection
South Hillsboro	Extension of Meadowlark Drive west of Minter Bridge Road	na	Planned Local Street Connection
South Hillsboro	Extension of 12 th Court north toward Currin Lane	na	Planned Local Street Connection
South Hillsboro	South extension of April Court	na	Planned Local Street Connection
South Hillsboro	Connection of Gerhard Drive to Minter Bridge Road	Planned Local Street Connection	Deleted
South Hillsboro	Connection of TV Hwy and River Road east of Minter Bridge Road	Planned Local Street Connection	Deleted (complete)
Brookwood	43 rd Avenue connection north of Bentley	na	Planned Local Street Connection
Brookwood	Azalea Street connection at 32 nd Avenue	na	Planned Local Street Connection
Brookwood	39 th Avenue extension north of Brogden Avenue	na	Planned Local Street Connection
Brookwood	Laurel Street connection to Brookwood Pkwy	Planned Local Street Connection	Deleted
Brookwood	Connection east off 49 th Avenue north and parallel with Baseline Road	Planned Local Street Connection	Deleted (completed)
East Hillsboro	East/west connection from Cornelius Pass to 229 th Avenue north of Cornell	na	Planned Local Street Connection
East Hillsboro	South connection from Walker between 185 th Avenue and Stucki	Planned Local Street Connection	na *
Northeast Hillsboro	Campus Ct connection to Ray Circle south of Cornell	Planned Pedestrian/Bicycle Connection	Planned Local Street Connection

City Area	Roadway	Hillsboro 2015 TSP	Draft Hillsboro
Northeast Hillsboro	Connection of 48 th Avenue to Airport Road	Planned Local Street Connection	Deleted (completed)
Northeast Hillsboro	South and east connection within Orenco Station Town Center	Planned Local Street Connection	Deleted (completed)
Northeast Hillsboro	Connections within Orenco/Arbor Garden	Planned Local Street Connection	Deleted (completed)
Northeast Hillsboro	Extension of Croeni Avenue north of Jacobson Road	Planned Local Street Connection	Deleted (completed)
Northeast Hillsboro	Extension of 229 th Avenue north of Wagon Way	Planned Local Street Connection	Deleted (completed)
Northeast Hillsboro	Connection of 66 th /230 th Avenues between Deer Run Street and Dogwood Street	na	Planned Local Street Connection
Northeast Hillsboro	Extension of Fir Street west of 228 th Avenue	na	Planned Local Street Connection
Southeast Hillsboro	Maxwell and Montego connections to Brookwood north of TV Highway	na	Planned Local Street Connections
Southeast Hillsboro	47 th Avenue extension	Planned Local Street Extension	Deleted (completed)
Southeast Hillsboro	229 th Avenue connection south of Alexander	Planned Local Street Connection	na *
Southeast Hillsboro	Extension of 49 th Avenue south of Witch Hazel Road	Planned Local Street Connection	Planned Pedestrian/Bicycle Connection
Southeast Hillsboro	Connection between Drake and Ozark Lanes	Planned Local Street Connection	Planned Pedestrian/Bicycle Connection
Southeast Hillsboro	East extension of Cedarbrook Street	Planned Local Street Connection	Planned Pedestrian/Bicycle Connection
Southeast Hillsboro	Extension of Golden Street east and 61 st Drive north	Planned Local Street Connection	Deleted (completed)
Southeast Hillsboro	Connection of Jess Court east to Century Blvd	na	Planned Pedestrian/Bicycle Connection
Southeast Hillsboro	Connection of Rancho Street east to 239 th Avenue	Planned Local Street Connection	Deleted (completed)
Southeast Hillsboro	Connection of Hacienda Street to Rancho Street	Planned Local Street Connection	Deleted
Southeast Hillsboro	Connection of 60 th Avenue south of Hacienda Street	Planned Local Street Connection	Deleted (completed)
Southeast Hillsboro	Connection of Sierra Street to Century Blvd	Planned Local Street Connection	Deleted
Southeast Hillsboro	Extension of 62 nd and 63 rd Avenues south of Hacienda Street	Planned Local Street Connection	Deleted (completed)
Southeast Hillsboro	East extension of Gadroom Street	Planned Local Street Connection	Deleted (completed)

City Area	Roadway	Hillsboro 2015 TSP	Draft Hillsboro
Southeast Hillsboro	West extension of Reedville Creek Drive	Planned Local Street Connection	Deleted
Southeast Hillsboro	West connection of Drake Street to 229 th Avenue	Planned Local Street Connection	Deleted (completed)
Southeast Hillsboro	East extension of Beverly and Shamrock Lanes	Planned Local Street Connection	Deleted
Southeast Hillsboro	East connection of Hacienda Street to Cornelius Pass Road	Planned Local Street Connection	Deleted
Southeast Hillsboro	Northwest extension of 73 rd Avenue off Francis Avenue	Planned Local Street Connection	Deleted
Southeast Hillsboro	Austin Drive connection between 65 th and 68 th Avenues	Planned Local Street Connection	Deleted (completed)
Southeast Hillsboro	North extension of 67 th Avenue to Austin Drive	Planned Local Street Connection	Deleted (completed)
Southeast Hillsboro	Green Street connection between 62 nd Avenue and Century Blvd	Planned Local Street Connection	Deleted (completed)
Southeast Hillsboro	Extension of 62 nd Avenue south of Green Street	Planned Local Street Connection	Deleted
Southeast Hillsboro	Extension of 61 st Avenue south of Sigrid Street	Planned Local Street Connection	Deleted
Southeast Hillsboro	Extension of Madison Street west of 67 th Avenue	Planned Local Street Connection	Deleted
Southeast Hillsboro	Extension of Madison Street east of 71 st Avenue	Planned Local Street Connection	Deleted (completed)
Southeast Hillsboro	Extension of 71 st Avenue north of Ariel Street	Planned Local Street Connection	Deleted (completed)
Southeast Hillsboro	Connection to 71 st Avenue south off Borwick Road	Planned Pedestrian/Bicycle Connection	Deleted
East Hillsboro	Aloclek Drive connection to Amberwood Drive	Na	Planned Local Street Connection
East Hillsboro	South extension of 196 th Terrace	Planned Local Street Connection	Deleted (completed)
East Hillsboro	Connection of 194 th Terrace between Evergreen Pkwy and Cornell Road	Planned Local Street Connection	Deleted (completed)
East Hillsboro	Extension of Venetian Drive off Stucki Avenue connecting to 194 th Terrace	Planned Local Street Connection	Deleted (completed)
East Hillsboro	Street extension north off Wilkins Street east of 206 th Avenue	Planned Local Street Connection	Deleted
East Hillsboro	Street extension west off 206 th Avenue north of Wilkens Street	Planned Local Street Connection	Deleted
East Hillsboro	Street Connections within OHSU Campus	Planned Local Street Connections	na *

* Reclassified as study areas

Capacity Needs

Future motor vehicle capacity needs in Hillsboro were determined based on the same approach outlined in chapter 8 of the 1999 TSP. The updated TSP is based on an evening peak hour forecast for the future 2020 scenario. The 2020 scenario assumes that Transportation Demand Management (TDM) will occur and that significant shifts to transit will occur. While numerous analysis scenarios were developed, the base 2020 conditions assumed a street network that included the RTP Priority System improvements and the improvements identified in the 1999 Hillsboro TSP. This was done because the prior TSP and RTP both confirmed that this level of motor vehicle transportation investment would be necessary to minimally address the future 2020 needs of the Hillsboro area.

The need for additional improvement projects beyond the recommendations of the 1999 TSP were expected based on the additional five years of traffic growth (2020 instead of 2015 conditions) included in the operational analysis. Performance was evaluated using a three-tiered assessment of capacity and operations.

- Roadway segments with a demand to capacity ratio⁹ exceeding 1.0 were studied for potential improvements (based on a 1-hour and 2-hour D/C ratio). Areas within a 2040 design type of Regional Center, Town Center, Main Street, or Station Communities were studied if the 1-hour D/C ratio exceeded 1.1 or the second hour exceeded 1.0.
- Intersection level data were developed for approximately 119 intersections in Hillsboro. While this is a broad sampling of intersections, it does not represent every intersection in the City. Therefore, there may be other locations that may require some mitigation. Alternative improvements were considered where D/C ratios exceeded 1.0 or Level of Service (LOS) was at F. Mitigated levels of service were generally brought to the D/C ratio 1.0 or LOS of E/F range for the 20-year planning assessment.
- New roadway alignments were considered if connectivity was needed to reduce traffic volumes on congested roadways. The goal of new road alignments was to achieve a roadway that would carry a daily volume of at least 5,000 to 10,000 vehicles per day or would significantly reduce the volume on other congested roadway facilities. Additionally, new road connections/alignments were considered if they would reduce neighborhood traffic volumes by 2,000 to 4,000 vehicles per day.

Updates to the Street Improvement Plan (Figure 1-5) and the Traffic Signal Master Plan (Figure 1-8) are summarized in Table 4-13 and 4-14.

Table 4-13
Updates to Street Improvement Plan

Roadway	Hillsboro 2015 TSP	Draft Hillsboro 2020 TSP
Evergreen: Glencoe to 15th	Proposed 3 lanes	5 lanes
Evergreen extension: Glencoe to Hornecker	na	Proposed street
209 th Avenue: TV Hwy to Farmington	na	3 lanes
TV Hwy – 185 th to Cornelius Pass	Street widening	7 lanes
Springville extension – 185 th to West Union	na	Proposed street

⁹ Demand to capacity ratio is similar to volume to capacity (V/C) ratio. The difference is that in the future demand is being estimated and therefore the term demand is utilized. For existing conditions, volume refers to the actual traffic on the roadway. While a demand to capacity ratio can exceed 1.0, a volume to capacity ratio would never exceed 1.0.

Roadway	Hillsboro 2015 TSP	Draft Hillsboro 2020 TSP
Proposed road – Aloclek to 229 th south of Evergreen	na	Proposed street
Proposed road – Aloclek to Cornelius Pass north of Evergreen	na	Proposed street
North/South road – Huffman to Meek	na	Proposed street
253 rd Avenue realigned – Evergreen to Huffman	na	Proposed street
Huffman – 253 rd to Shute	na	Proposed street
Dawson Creek – realignment south of Evergreen	na	Proposed street
Tanasbourne interior roadways north of Walker	Existing street widening	Proposed street
Baseline – Brookwood to 10 th Avenue	Proposed street	na
Holly – 185 th to Salix *	Proposed street	Street widening
Parr – 185 th to Salix *	Proposed street	Street widening
Johnson – 185 th to Brookwood	na	3 lanes
Wilkins – 206 th to Arroyo	Proposed street	Removed
Cherry – 229 th to 72nd	Proposed street	Removed
Jacobson – Croeni to Cornelius Pass	Proposed 3 lanes	Removed
Amberwood – Cornell to Evergreen	Proposed 3 lanes	Removed
253 rd extension – south of Evergreen	Proposed 2/3 lanes	Removed
East/West connection from 185 th to 206 th	Proposed 2/3 lanes	Future Study Area
Brogden – 28 th to Brookwood	Proposed 3 lanes	Removed
East/West road – Salix to Stucki	Proposed street	Future Study Area
Expanded Study Area: South Hillsboro		
Cornelius Pass extension – TV Hwy to 209 th	na	Proposed street
Kinnaman extension – 209 th to Cornelius Pass	na	Proposed street
Davis – 234 th to 239 th	na	Proposed street
Davis – Brookwood to River Road	na	Proposed street
East/West road – River Road to Brookwood	na	Proposed street

* Part of the East-West Connector Study Area

Table 4-14
Updates to Traffic Signal Master Plan

Intersection	Hillsboro 2015 TSP	Draft Hillsboro 2020 TSP
Evergreen/Jackson School East	New/Future Signal	Existing Traffic Signal
Evergreen/Jackson School West	New/Future Signal	Existing Traffic Signal
198 th /Johnson	Stop Sign Controlled	Proposed Traffic Signal
209 th /TV Hwy	New/Future Signal	Existing Traffic Signal
185 th /Holly	New/Future Signal	Stop Sign Controlled

185 th /Westview HS	New/Future Signal	Existing Traffic Signal
Aloclek/Evergreen	New/Future Signal	Existing Traffic Signal
John Olsen/Evergreen	New/Future Signal	Existing Traffic Signal
Stucki/Evergreen	New/Future Signal	Existing Traffic Signal
Orengo Station/Cornell	New/Future Signal	Existing Traffic Signal
Witch Hazel Road/River Road	Stop sign controlled	Proposed Traffic Signal
Baseline/Adams	Proposed Traffic Signal	na
Oak/Adams	Proposed Traffic Signal	na
West Union/Springville	na	Proposed Traffic Signal
West Union/Century	na	Proposed Traffic Signal
Jacobson/Century	na	Proposed Traffic Signal
188 th Avenue/Cornell	na	Proposed Traffic Signal

TRUCKS/FREIGHT MOVEMENT

Efficient truck and freight movement plays a vital role in the economical movement of raw materials and finished products. The establishment of through truck routes provides for this movement while at the same time maintaining neighborhood livability, public safety and minimizing maintenance costs of the roadway system. To accomplish this, a map of through truck routes in Hillsboro has been developed (Figure 1-18) that is intended to address the movement of trucks through the study area with regional destinations, not local deliveries. The objective of these route designations is to enable the City to better focus on design criteria that is “truck friendly”, i.e. 12 foot travel lanes, greater access spacing, 25-35 foot (or larger) curb returns and pavement design that accommodates a larger share of trucks. The designated through truck routes in the TSP Study area include and exceed the coverage included in the RTP designations. Updates to the Truck Master Plan are display in Table 4-15.

Table 4-15
Updates to Truck/Freight Master Plan

Roadway	Hillsboro 2015 TSP	Draft Hillsboro 2020 TSP
Brookwood – Cornell to TV Highway	na	Truck Route
Minter Bridge south of TV Highway	Truck Route	na
185 th Avenue north of US 26	Truck Route	na
Main – Brookwood to 53 rd Avenue	na	Truck Route

SPECIAL STUDY AREAS

East-West Connector Study Area

The Hillsboro TSP update has identified a study area for the property located south of Walker Road between 185th Avenue and Amberglen Parkway and north of the light rail tracks. This study area covers approximately 1,400-acres with the largest land holding being the Oregon Health Sciences University (OHSU). The potential constraints to achieving acceptable collector-level circulation in the

study area require additional study of both potential land use and circulation prior to any comprehensive plan changes or development approvals that may preclude potential circulation routes.

Uncertain plans for the largest land holding (OHSU) make specific recommendations that meet both circulation and land use needs less definitive. Technical analysis conducted for this TSP update indicates that an east-west connection between a proposed Salix Terrace extension and Amberglen Parkway would have a potential to benefit the future 2020 transportation system. Figure 4-8 summarizes several potential roadway connections that were identified in the TSP update. However, given the speculative future development of the OHSU property, this TSP update does not propose a specific alignment for the east-west connector roadway, nor does it propose a specific alignment for the north-south Salix Extension. Furthermore, the alignments for multi-use paths, such as the Bronson Creek Trail, displayed in the Pedestrian and Bicycle Master Plans (Figures 1-2 and 1-3) are not intended to be specific. The TSP, therefore recommends a detailed multi-modal transportation subarea analysis be conducted for the study area which considers all reasonable roadway and trail alignment alternatives combined with future land use proposals to produce a balance between traffic circulation needs and the land use/environmental sensitivity of the area, particularly accounting for the unique scientific/research character of the OHSU West Campus.

Meek Road Study Area

Concerns exist regarding the proximity of the intersection of Meek Road and Shute Road to the interchange at U.S. 26 and Shute Road. Washington County has designated this as a study area (see Figure 4-9) in order to evaluate options for moving the intersection of Meek Road further south. However, reorienting the roadway to the south would place it within the Shute Road Site Special Development District. The 203 acre site, located at the intersection of Evergreen Road and Shute Road, was added to the urban growth boundary for the purpose of providing large lots for high tech industrial development. Meek Road, situated immediately north of the new district, will be influenced by future development within the Shute Road site. The Conceptual Transportation Plan for Shute Road, drafted by Group MacKenzie suggests that additional analysis would be required with regards to Meek Road to determine any relocation of Meek Road or re-routing of traffic.

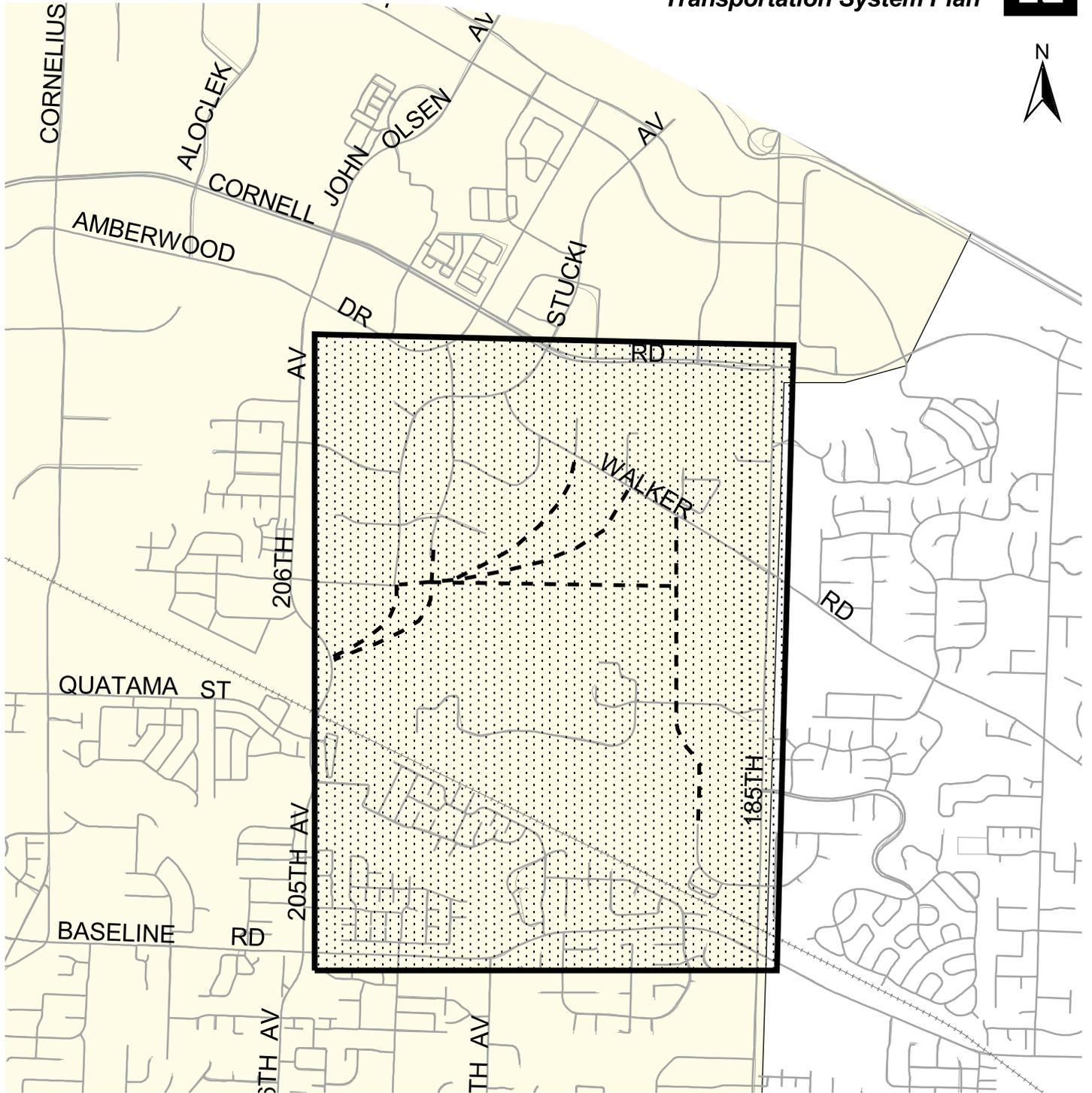
Potential Future Connections/Realignments

As a long range plan, the TSP requires enough flexibility to permit consideration of road extensions beyond the study area and urban growth boundary. No specific roadway alignments have been defined for any of these extensions/realignments. However, Figure 4-10 pinpoints seven study areas that can be categorized as potential future connections/realignments. The seven areas are described as follows:

1. Evergreen Road Extension West of Glencoe Road – the road extension may be deemed necessary at a future date in order to alleviate congestion in the Hillsboro Regional Center and along TV Highway caused by east-west through traffic. The vicinity represents part of a larger study area that is represented on the Washington County 2020 Transportation Plan.
2. Extensions of Huffman Street and Dawson Creek Drive into 253rd Avenue – part of the Shute Road Concept Plan, these road extensions are intended to provide access to the newly added 203-acre Shute Road Special Development District.
3. Jacobson Road Realignment to Helvetia Road – the realignment north of the U.S. 26/Shute

Road interchange is intended to accommodate potential increased right-way-of-way necessary for interchange improvements.

4. Springville Road extension to West Union Road – extension of the roadway, if implemented, would alleviate traffic congestion along 185th Avenue between West Union Road and Springville Road. The area is discussed as a concern in the Washington County 2020 Transportation Plan due to the design of the intersection of 185th Avenue and West Union Road and whether it will be able to handle projected traffic growth.
5. Extension of Cornelius Pass Road South of TV Highway to 209th Avenue – the road extension would serve future development should UGB expansion occur here at some future date and reduce traffic stress along TV Highway as commuters traverse from Cornelius Pass Road to 209th Avenue. The extension was included in the Washington County 2020 Transportation Plan as a placeholder for evaluation purposes. It is recognized that the area will require further study, particularly with regards to resolution of issues along TV Highway before inclusion in the UGB. In particular, the Portland and Western Railroad which runs parallel along the southern side of TV Highway, uses the tracks between 209th and 229th Avenues as a staging area for trains. Subsequently, any extension south of TV Highway in this vicinity will require a grade separated crossing over/under the tracks. The transportation study, therefore, would have to evaluate the Cornelius Pass extension and the transportation needed to support the development prior to any UGB expansion in the area.
6. Extension of Davis Road and Roadway Improvements along 229th Avenue – extensions and improvements within this vicinity would the planned Witch Hazel Village community to potential future development to the east. Along with the Cornelius Pass Road extension, Davis Road and 229th Avenue would provide vital traffic circulation the area between 209th and 229th Avenues.
7. Extension of 247th Avenue (future Brookwood Avenue) to River Road – if deemed necessary, the extension to provide a significant north-south connection to the future Witch Hazel Village and the East Hillsboro communities north of TV Highway.



Source:
-Metro (Regional Land Information System)
-City of Hillsboro

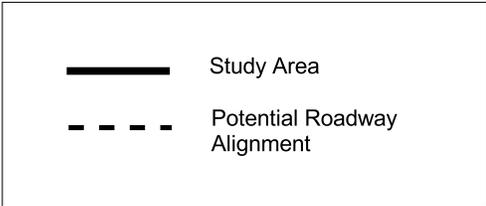
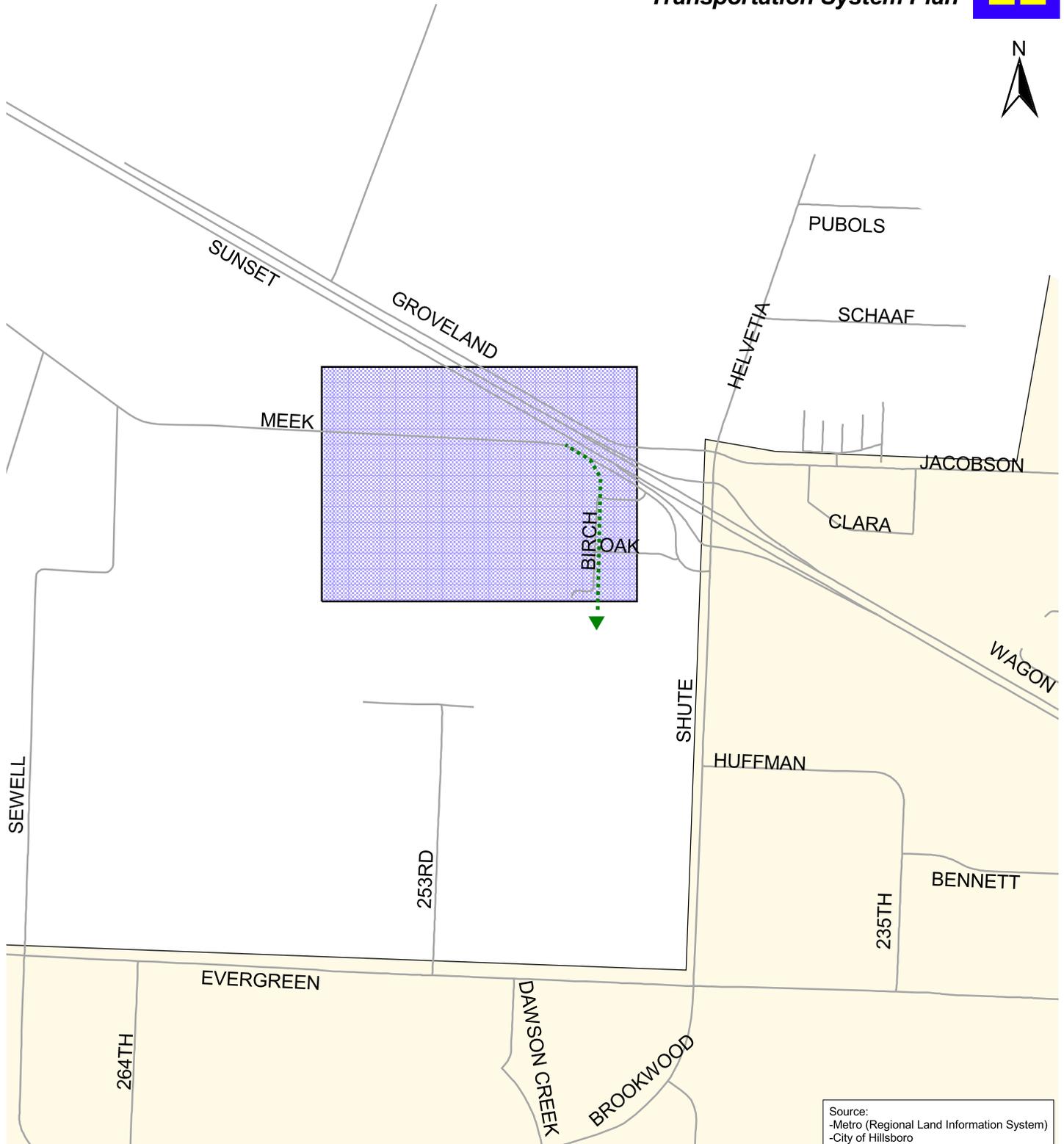
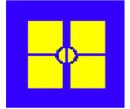


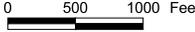
Figure 4-8
EAST-WEST CONNECTOR
STUDY AREA



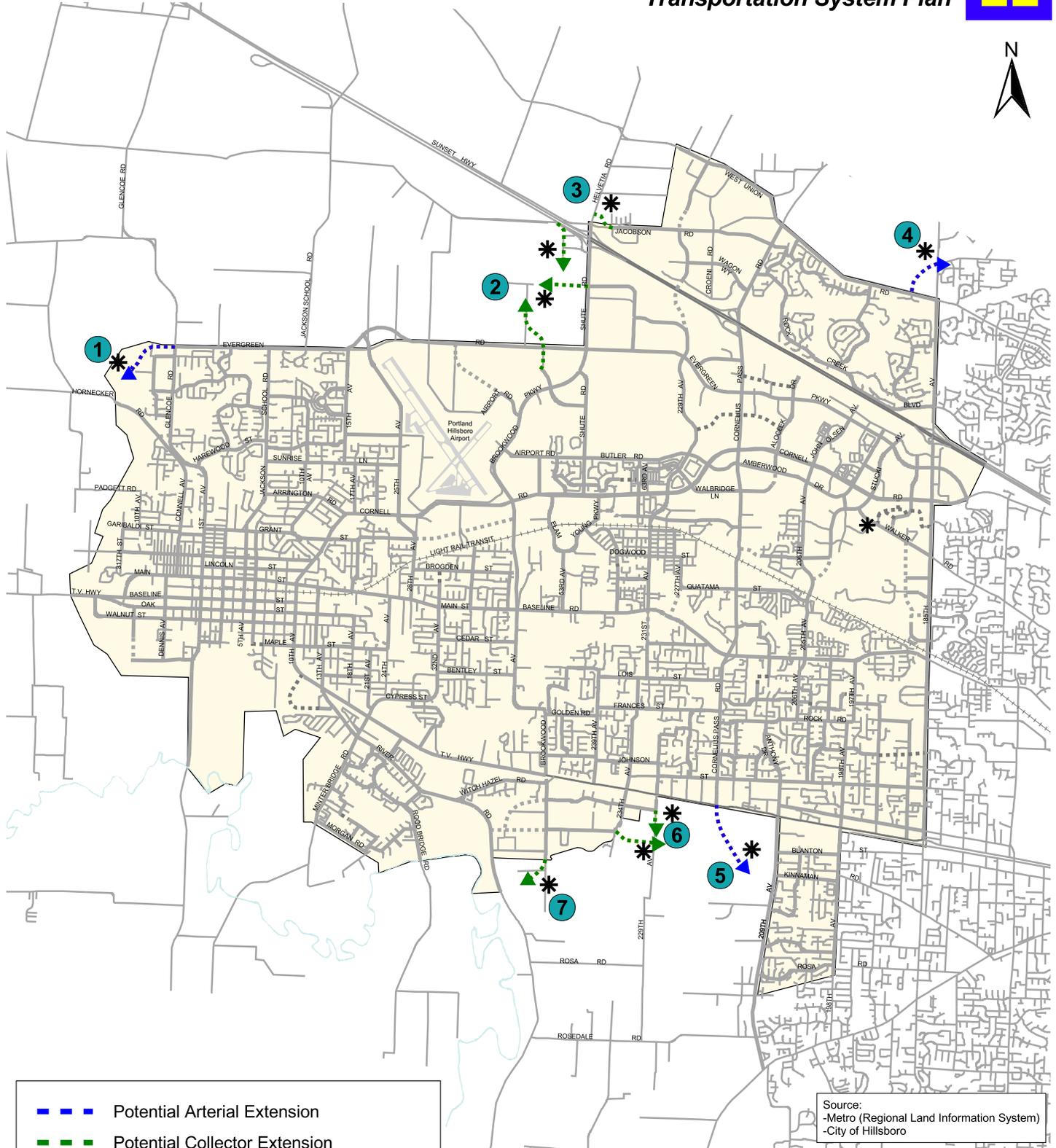
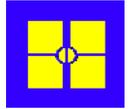
Source:
-Metro (Regional Land Information System)
-City of Hillsboro

	Meek Road Study Area Boundary
	Potential Roadway Connection
	Local Street
	Study Area Boundary

Figure 4-9
MEEK ROAD STUDY AREA



0 500 1000 Feet



- - - Potential Arterial Extension
- - - Potential Collector Extension
- Other Streets
- Study Area Boundary
- * Alignment subject to UGB expansion and/or future refinement or study in these areas.

Source:
-Metro (Regional Land Information System)
-City of Hillsboro

Figure 4-10
POTENTIAL FUTURE CONNECTIONS/REALIGNMENTS

0 5000 10000 Feet