CHAPTER ONE
EXISTING CONDITIONS

INTRODUCTION

This chapter provides an overview of the existing transportation conditions in the Gresham area regarding traffic signal and ITS elements. The reconnaissance of transportation conditions is intended to be used, along with other background material, in the needs assessment and evaluation of ITS alternatives in the Gresham area. The study area includes the City of Gresham, City of Fairview, City of Troutdale and Wood Village in East Multnomah County. A map of this area is shown in **Figure 1-1**.

The following sections describe transportation facilities in the study area, including discussion of existing ITS equipment.

TRANSIT

Tri-Met service in East Multnomah County is provided by numerous bus routes 4, 9, 23, 24, 25, 26, 27, 80, 81, 82, 84, 86S, and 87S operating on nearly every major arterial and Light Rail Service. The bus routes and light rail line in the study area are shown on **Figure 1-2.** Park and Ride Lots are located at 183rd/E. Burnside, Halsey/201st, Division/Eastman Parkway, 8th/Kelly and Cleveland/8th.

TRAFFIC SIGNALS

This section describes the traffic signal equipment at the signalized intersections in East Multnomah County. **Figure 1-3** shows the existing and planned traffic signals within the study area. Items surveyed for this section include controller cabinet type, controller type, emergency vehicle pre-emption, modems, and other pertinent information.

Traffic Signal Controllers

There are approximately 116[1] traffic signals in East Multnomah County. **Table 1-1** describes the existing traffic signal equipment in East Multnomah County.

The majority of existing traffic signals in the study area use Type 170 controllers with Wapiti software and are housed in Model 332 base mounted cabinets. Light rail vehicles operate in the median between Burnside/ 162nd Avenue and Burnside/197th Avenue. The light rail vehicles (LRV) operate under full preemption, which means they

1 91 signals maintained by Multnomah County, 25 signals maintained by ODOT

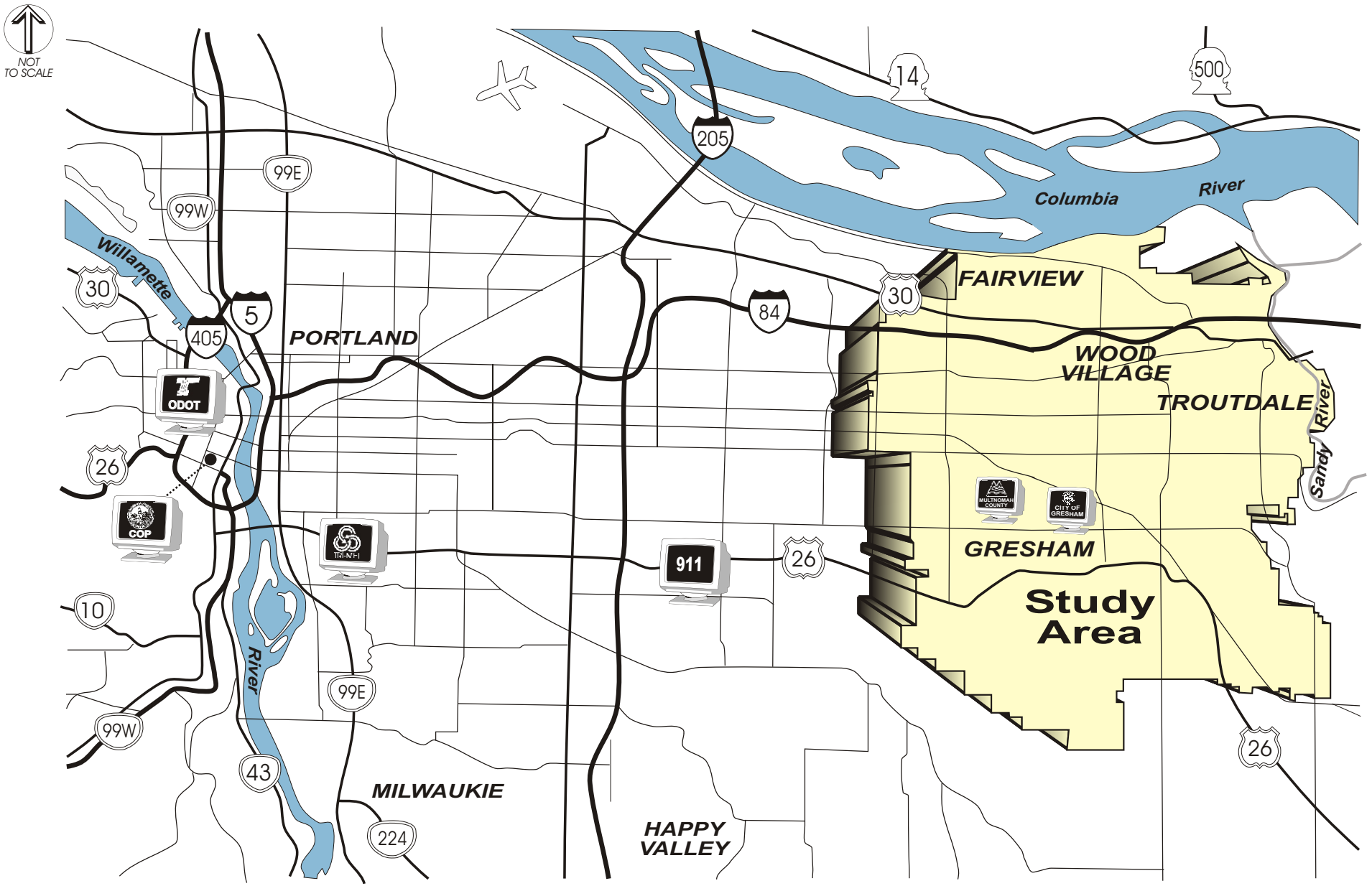


Figure 1-1
STUDY AREA

LEGEND

- Study Area Based on City Limit Lines of The City of Gresham, Fairview, Wood Village and Troutdale

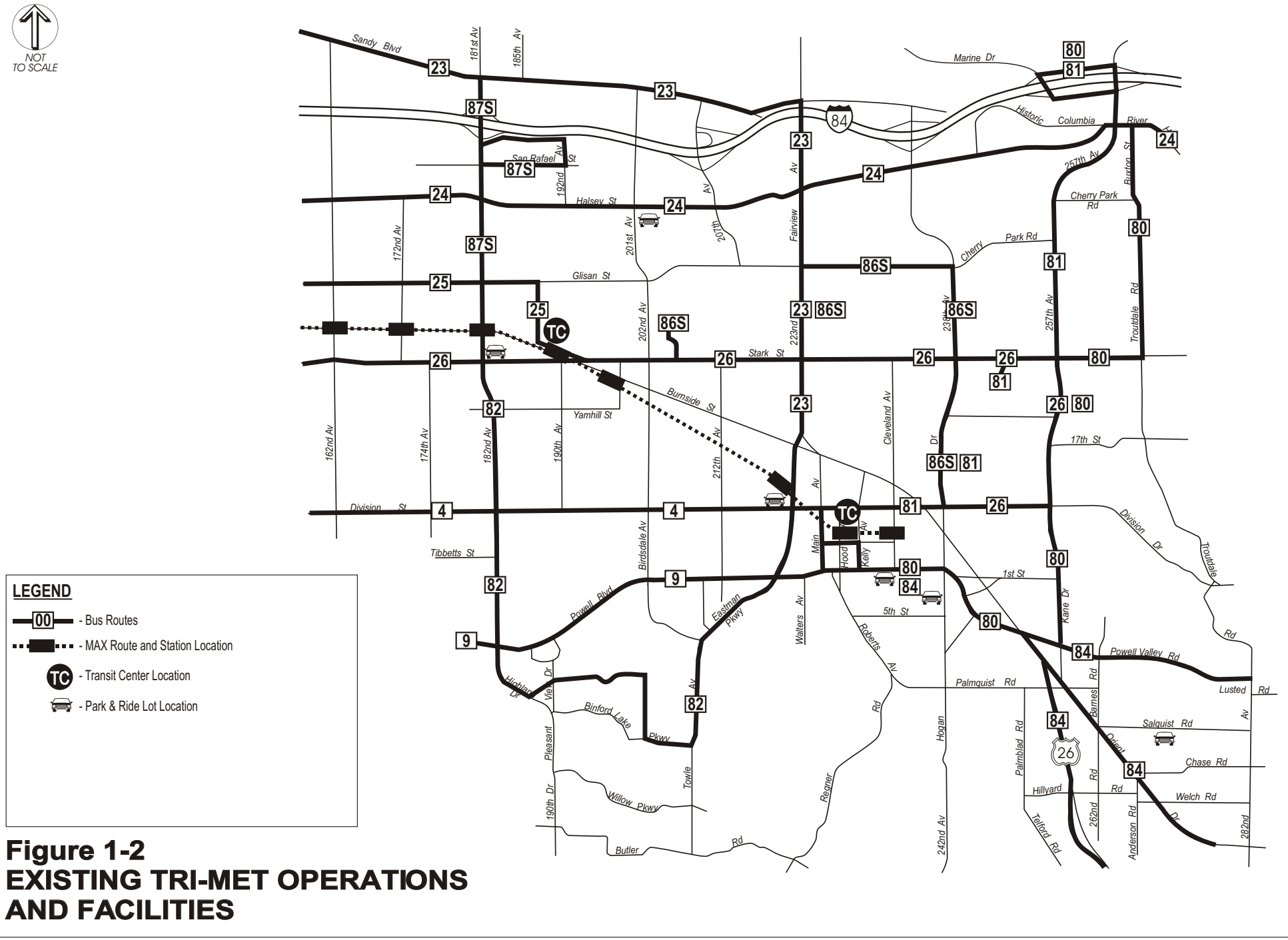
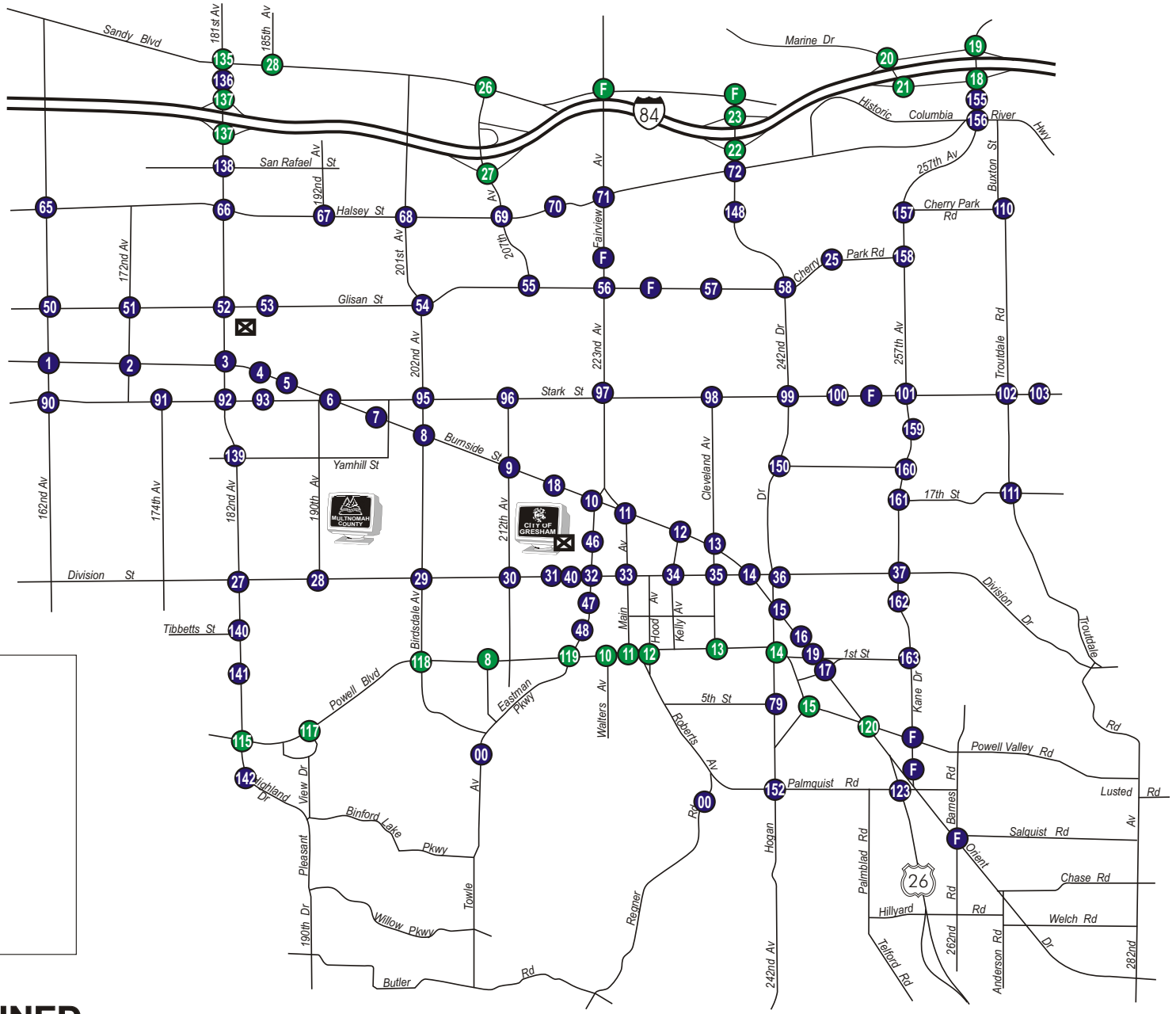


Figure 1-2
EXISTING TRI-MET OPERATIONS AND FACILITIES

NOT TO SCALE

Gresham/East Multnomah County Traffic Signal and Communications Master Plan



LEGEND

- 00 - Existing Signalized Intersection (*ODOT Maintained*)
- 00 - Existing Signalized Intersection (*Multnomah County Maintained*)
- F - Future Signalized Intersection
- ⊠ - Existing Communication Hub
- 🖥 - Operations Center

Figure 1-3
EXISTING AND PLANNED TRAFFIC SIGNALS

interrupt the existing signal phase sequences to provide a Go indication for the LRV.

Coordinated Signal Systems

Based on recommendations from the original *Traffic Signal System and Communications Master Plan*, completed in 1995, the traffic signals in the Gresham area have been integrated with the City of Portland's existing Series 2000 traffic signal system. Phase 1 of the signal system project established coordinated signal timings on 181st Avenue between the I-84 eastbound ramps and Stark Street, on Burnside Street between Eastman Parkway and Powell Boulevard, and on Division Street between 190th Avenue and 242nd Drive. Phase 2A expanded the signal system by another 26 signalized intersections and included implementation of coordinated timing plans on Powell Boulevard. Coordinated signal timing plans are used during the AM, Midday, PM and Weekend time periods. **Figure 1-4** shows the signals accessible via the Series 2000 signal system.

The existing INET (Institutional Network) agreement with the cable company is used for system communication between the City of Portland Series 2000 traffic signal system computer located in the Portland Building and the two communications hubs located in Gresham (one at Gresham City Hall and one at the 181st/Glisan intersection). Twisted pair interconnect cable is used for communication between the local intersection traffic signal controllers and the communications hubs.

System Detectors

Numerous system detectors have been installed in East Multnomah County as part of phase 1 and 2 of the signal system project.

Figure 1-5 illustrates the location of the existing system detectors. The system detectors are used to collect traffic volume, speed and occupancy data. This data may be used for planning purposes, to identify fluctuations in traffic conditions or to implement traffic responsive timing plans.

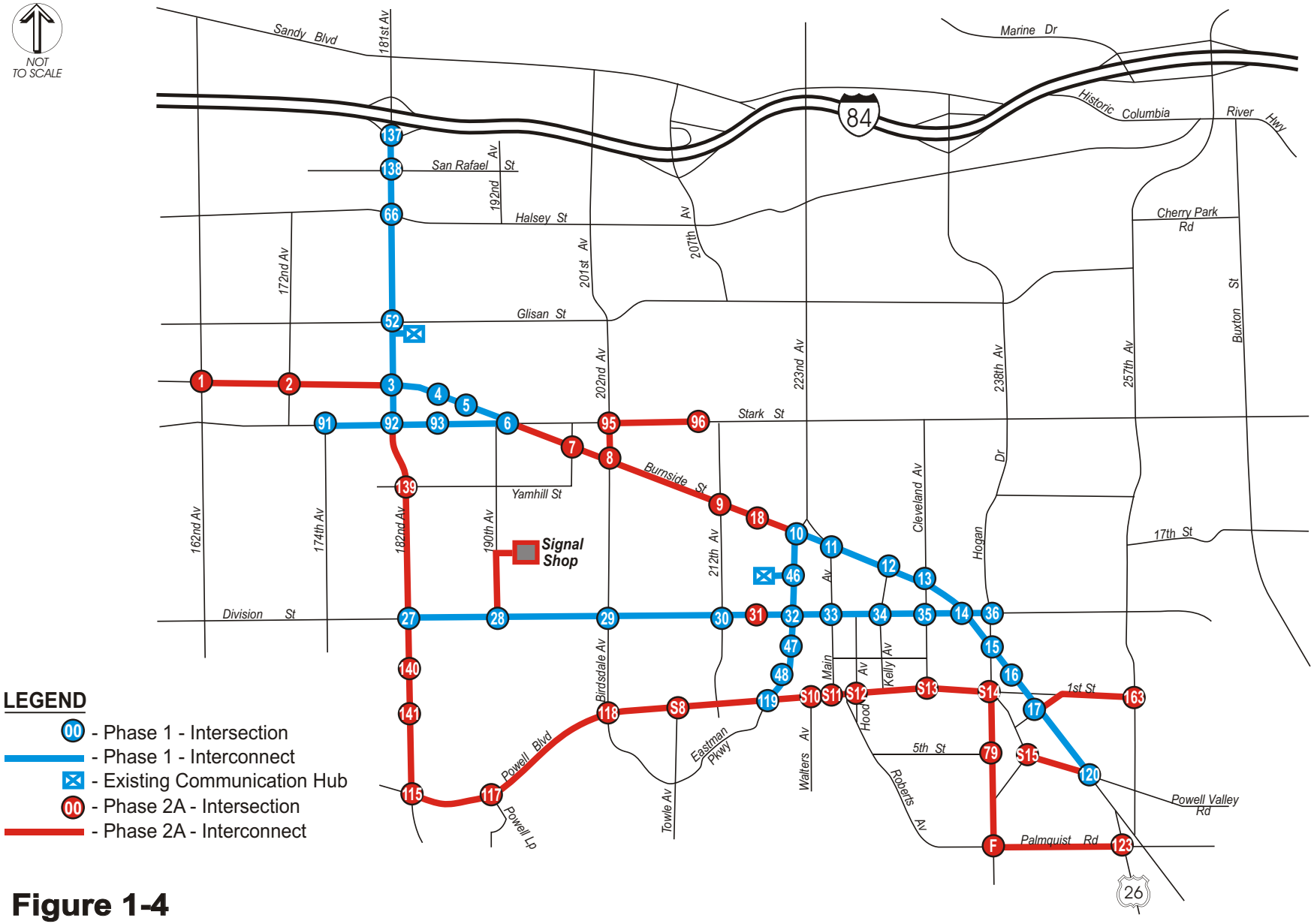
Emergency Vehicle Pre-emption

The majority of the traffic signals in East Multnomah County have full emergency vehicle pre-emption on all legs of each intersection (See Table 1-1). However, should Gresham and the County prefer to implement transit signal priority in the future the majority of the opticom detectors would need to be upgraded to a newer model to allow for both low and high priority.

COMMUNICATIONS EQUIPMENT - SIGNAL INTERCONNECT

As part of the first two phases of the signal system project signal interconnect cable has been installed to 58 intersections within East Multnomah County. **Figure 1-6** shows the location of all communications infrastructure in East Multnomah County including existing signal interconnect cable, Tri-Met fiber optic cable, existing empty conduit, radio interconnect, and proposed ODOT fiber.

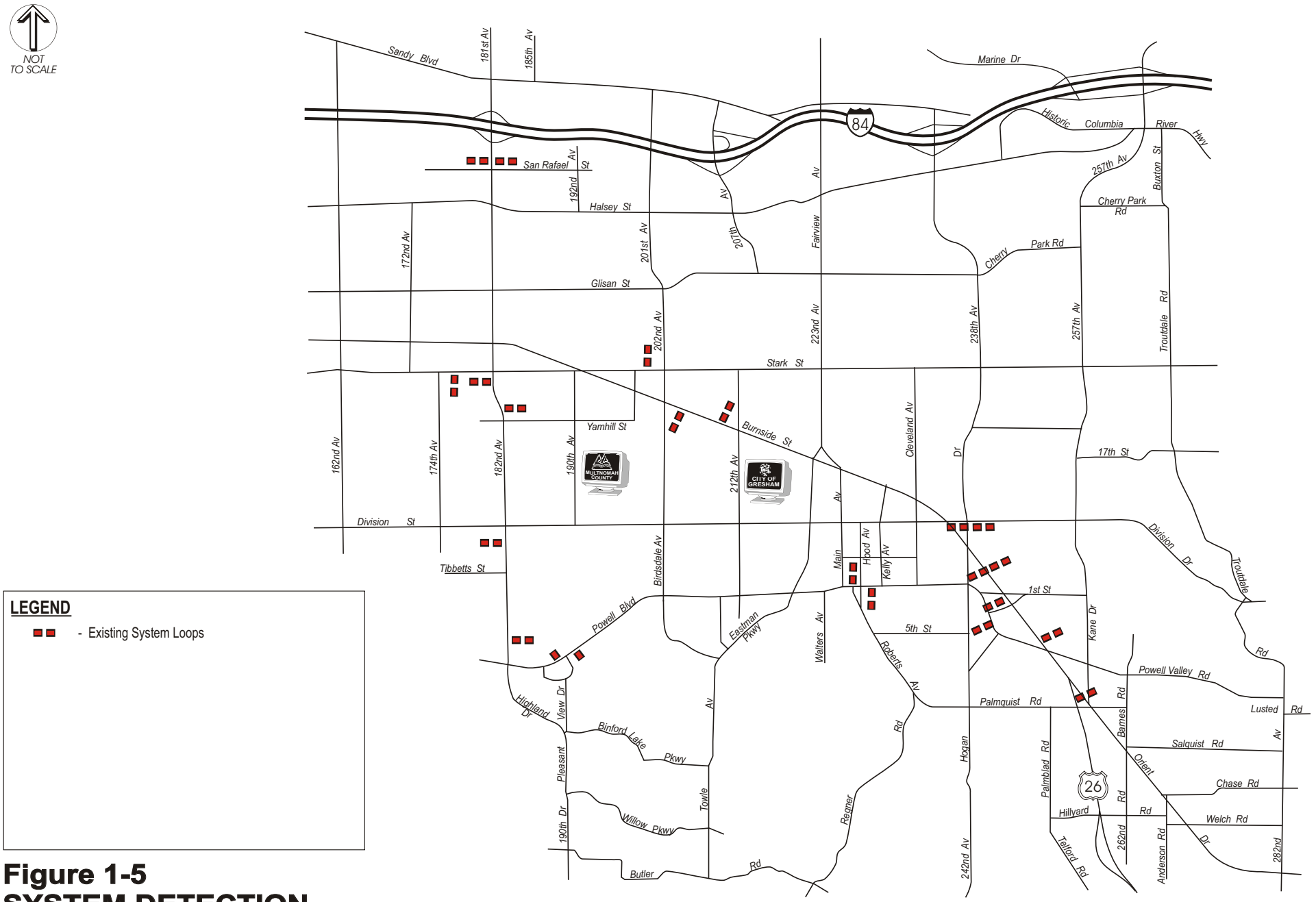
The existing interconnect cable is 24-conductor (12 pair) shielded cable.



LEGEND

- 00 - Phase 1 - Intersection
- Phase 1 - Interconnect
- Existing Communication Hub
- 00 - Phase 2A - Intersection
- Phase 2A - Interconnect

Figure 1-4
SIGNALS CONNECTED TO THE SIGNAL SYSTEM



LEGEND

- Existing System Loops

Figure 1-5
SYSTEM DETECTION

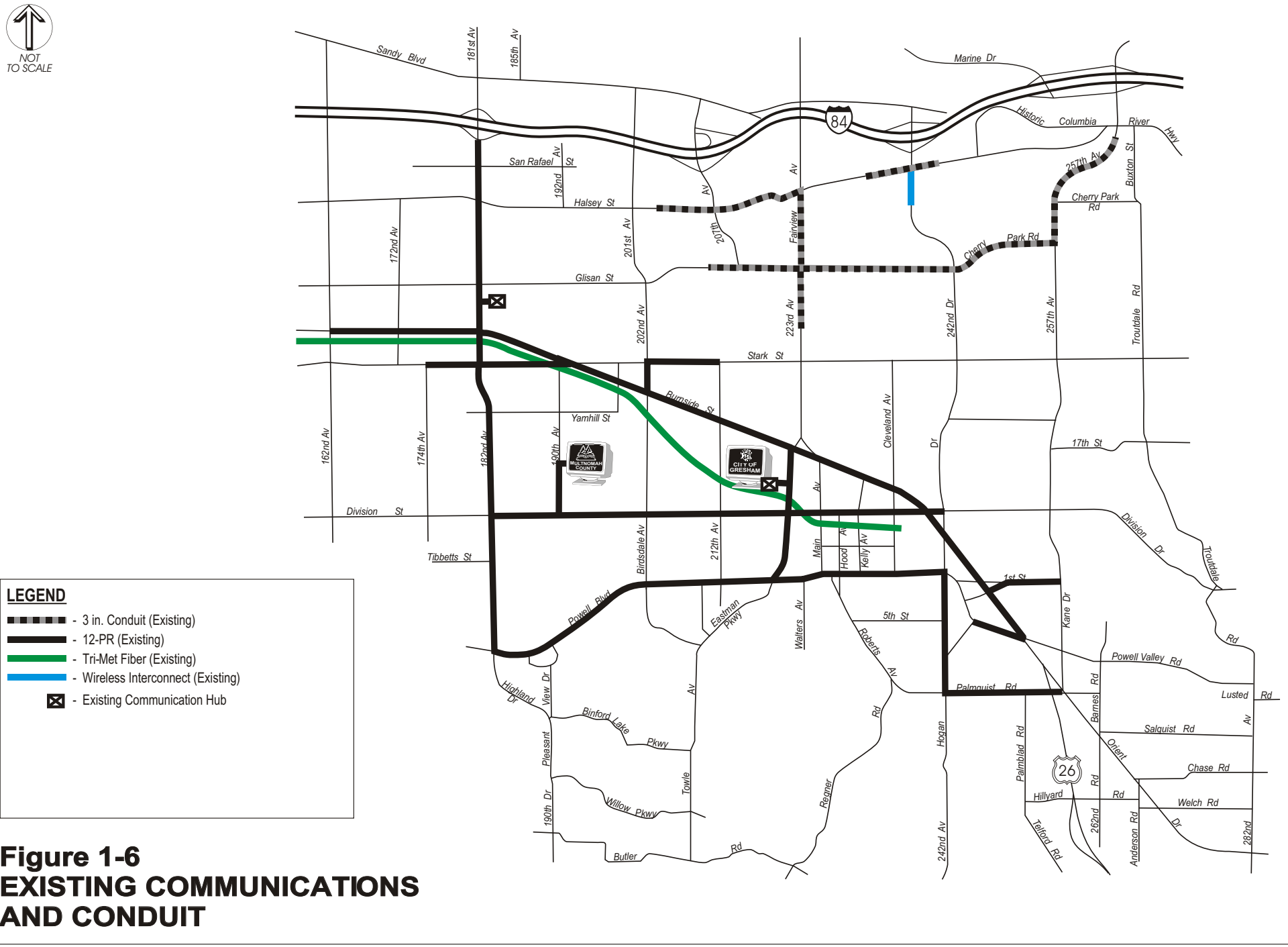
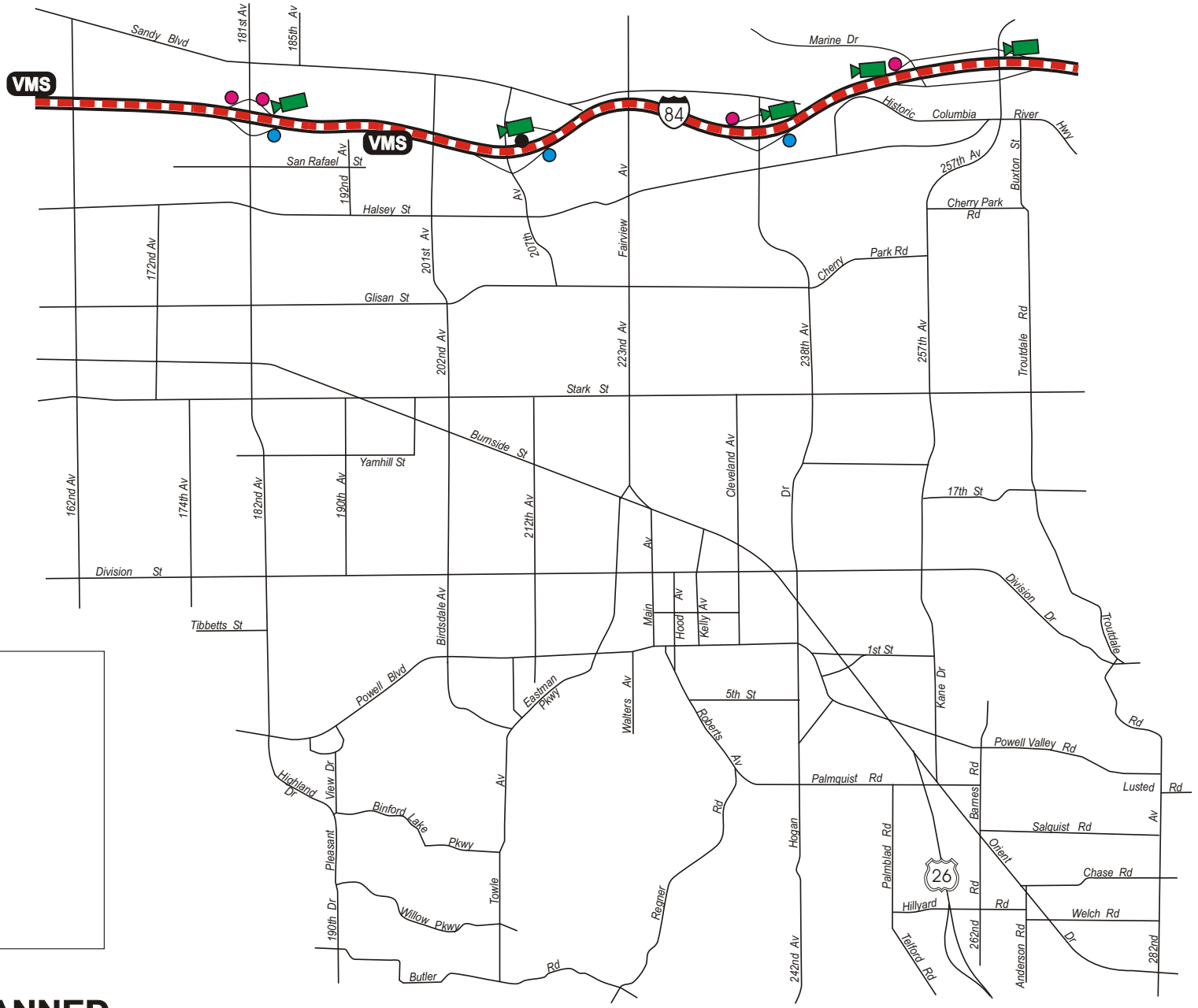


Figure 1-6
EXISTING COMMUNICATIONS AND CONDUIT

NOT TO SCALE



LEGEND

- ● - Ramp Meter (Existing)
- ● - Ramp Meter (Planned Year 2001)
- ● - Ramp Meter (Planned Year 2004)
- VMS - VMS (Existing)
- ▭ - CCTV (Planned Year 2005)
- ▬ ▬ ▬ - Fiber (Planned Year 2005)

Figure 1-7
EXISTING AND PLANNED ODOT EQUIPMENT

ODOT EQUIPMENT

ODOT is actively deploying a network of intelligent transportation systems in the Portland region. These systems include 45 CCTV, over 90 ramp meters, 14 VMS signs and a traveler information web site www.tripcheck.com for real-time traffic information. **Figure 1-7** shows the existing and planned ODOT ITS Equipment in East Multnomah County.

The ODOT travel information website "TripCheck" includeds roadway incident maps, camera images, a mileage calculator, and road conditions reports.

Variable Message Signs

There are currently two variable message signs on I-84 east of I-205 maintained and operated by ODOT.

Ramp Meters

ODOT currently operates approximately 90 ramp meters in the Portland metropolitan area. To date, only one ramp meter has been installed in the Gresham area, but several more are planned within the next five years. The one existing ramp meter in the Gresham area today has been installed on the westbound on-ramp at I-84 and 207th Avenue, but has not been turned on.

Closed Circuit Television Cameras (CCTV)

The only cameras used for monitoring in the Gresham area today are located at the Tri-Met Light Rail stations for security. ODOT has plans to install cameras at all interchanges on I-84 within the next five years.

The County operates a video vehicle detection camera at Division and Civic Drive.

ODOT INCIDENT RESPONSE

ODOT currently operates an incident response program to address traffic congestion and delays caused by incidents on roadways within the Portland metropolitan area. ODOT has several incident response vehicles staffed by six full time employees. The incident response vehicles are currently on the road 24 hours per day on weekdays and limited hours on weekends, but are available for service 24 hours per day/seven days per week.

The incident response vehicle drivers are available to assist motorists that need a flat tire repaired, extra gasoline, a battery jumped, etc. The drivers first priority is to keep travel lanes clear and they will help a vehicle off of the road and assist the motorist if possible. If the disabled vehicle cannot be on the move again with the responders equipment, then the responder will call a tow truck, at the motorist's expense The vehicle is equipped with flat tire repair, gasoline, jumper cables, water and other essentials to rescue a stranded motorist and get them on the move again.

A new incident response vehicle was just put into operation in Chehalis, but there are no other immediate plans to expand the fleet of vehicles and staff members in Clark and Cowlitz County.

PREVIOUS AND PLANNED PROJECTS

There are several current and planned projects which pertain to ITS/transportation in East Multnomah County. These projects provide the opportunity for resource sharing and joint operations which could significantly reduce the cost of ITS implementation.

These projects provide background into the transportation needs and opportunities in the area, and are important considerations for conduct of this study and future project implementation. A listing of a few key projects and plans is provided below:

Tri-Met Transit Priority **Tri-Met, Planned 2000.** This joint project involves the City of Portland, ODOT and Tri-Met. Several bus routes have been identified as candidates for bus priority using Opticom including Route #4 Division-Fessenden which originates at the Gresham Transit Cetner. The goal for this project is to reduce transit travel times by providing an early green or extending the green for a behind schedule bus.

Tri-met Fiber Optic Cable, **Tri-Met, Existing.** As part of the light rail construction, Tri-Met has installed fiber optic communications cable along the entire light rail line between the City of Gresham and the City of Portland. In addition, Tri-Met along with the City of Portland and ODOT have reached an agreement to share their fiber optic cable.

ODOT is currently extending its fiber optic network along I-84 and the City of Portland has plans to install fiber optic cable along Powell to the 911 Center at NE 99th Avenue within the next few months.

ODOT ITS Implementation Plan, **ODOT, 2000.** This implementation plan completed in early 2000 identifies ITS equipment planned for implementation within the next five years. This implementation plan includes figures illustrating proposed fiber optic communications, ramp meters, VMS signs and CCTV cameras. The current plan identifies ITS equipment and communications being installed on I-84 in the year 2005.

Communications Conduit, **Multnomah County and City of Gresham, On-going.** Over the past several years, Multnomah County and the City of Gresham have been installing a dedicated 3-inch communications conduit for future use wherever new roadway construction takes place. This strategy provides excellent opportunities for quickly expanding the current traffic management and signal system elements within East Multnomah County.

City of Portland ITS Implementation Plan, **City of Portland, 1997.** This implementation plan completed in 1997 identified potential future locations for traffic detection/count stations, CCTV cameras, variable message signs, and fiber optic communications within the City of Portland. Several of the planned locations are on the border between the City of Gresham and the City of Portland. Probably, the most critical of these elements is the planned fiber optic communications link along Powell Boulevard into the City of Gresham.

Table 1-1
Existing Traffic Signal Controller Equipment

Intersection ID#	Intersection	Cabinet Type	Controller Type	Opticom	Interconnect	Maintained By	Coordinated
001	**Burnside Rd/162nd Avenue**	332	170	N		Multnomah County	No
002	**Burnside Rd/172nd Avenue**	332	170	N		Multnomah County	No
003	**Burnside Rd/181st Avenue**	332	170	N	12-pair	Multnomah County	Yes
004	**Burnside Rd/185th Avenue**	332	170	N	12-pair	Multnomah County	No
005	**Burnside Rd/188th Avenue**	332	170	N	12-pair	Multnomah County	No
006	**Burnside Rd/Stark Street**	332	170	N	12-pair	Multnomah County	No
007	**Burnside Rd/197th Avenue**	332	170	N	12-pair	Multnomah County	No
008	**Burnside Rd/202nd (Birdsdale) Avenue**	332	170	Y	12-pair	Multnomah County	No
009	**Burnside Rd/212th (Wallula) Avenue**	332	170	Y	12-pair	Multnomah County	No
018	**Burnside Rd/Civic Drive**	332	170	Y	12-pair	Multnomah County	No
010	**Burnside Rd/221st (Eastman) Avenue**	332	170	Y	12-pair	Multnomah County	Yes
011	**Burnside Rd/225th (Main) Avenue**	332	170	Y	12-pair	Multnomah County	Yes
012	**Burnside Rd/Kelly Avenue**	332	170	Y	12-pair	Multnomah County	Yes
013	**Burnside Rd/235th (Cleveland) Avenue**	332	170	Y	12-pair	Multnomah County	Yes
014	**Burnside Rd/Division Street**	332	170	Y	12-pair	Multnomah County	Yes
015	**Burnside Rd/242nd Ave (Hogan Rd)**	332	170	Y	12-pair	Multnomah County	Yes
016	**Burnside Rd/OTSC (Oregon Trail Shopping enter Drwy)**	332	170	Y (N/S)	12-pair	Multnomah County	Yes
017	**Burnside Rd/3rd Street**	332	170	Y	12-pair	Multnomah County	Yes
025	**Cherry Park Rd/Sturges**	332	170	Y		Multnomah County	No
027	**Division Street/182nd Avenue**	332	170	Y	12-pair	Multnomah County	Yes
028	**Division Street/190th Avenue**	332	170	Y	12-pair	Multnomah County	Yes
029	**Division Street/202nd (Birdsdale) Avenue**	332	170	Y	12-pair	Multnomah County	Yes
030	**Division Street/212th (Wallula) Avenue**	332	170	Y	12-pair	Multnomah County	Yes
031	**Division Street/South Civic Drive**	332	170	Y	12-pair	Multnomah County	Yes
032	**Division Street/221st Ave (Eastman Parkway)**	332	170	Y	12-pair	Multnomah County	Yes
033	**Division Street/225th (Main) Avenue**	332	170	Y	12-pair	Multnomah County	Yes
034	**Division Street/Kelly Street**	332	170	Y	12-pair	Multnomah County	Yes
035	**Division Street/235th (Cleveland) Avenue**	332	170	Y	12-pair	Multnomah County	Yes

Intersection ID#	Intersection	Cabinet Type	Controller Type	Opticom	Interconnect	Maintained By	Coordinated
036	**Division Street/242nd Avenue (Hogan Rd)**	332	170	Y	12-pair	Multnomah County	Yes
037	**Division Street/257th Avenue (Kane Rd)**	332	170	Y		Multnomah County	No
046	**Eastman Ave/Fire Signal**	332	170	Y	12-pair	Multnomah County	No
047	**Eastman Parkway/Gresham Town Fair**	332	170	Y	12-pair	Multnomah County	Yes
048	**Eastman Parkway/3rd Street**	332	170	Y	12-pair	Multnomah County	Yes
050	**Glisan Street/162nd Avenue**	332	170	Y		Multnomah County	No
051	**Glisan Street/172nd Avenue**		EF-20	Y		Multnomah County	No
052	**Glisan Street/181st Avenue**	332	170	Y	12-pair	Multnomah County	Yes
053	**Glisan Street/185th Avenue**	332	170	Y		Multnomah County	No
054	**Glisan Street/202nd Avenue**	332	170	Y		Multnomah County	No
055	**Glisan Street/207th Avenue**	332	170	Y		Multnomah County	No
056	**Glisan Street/223rd (Fairview) Avenue**	332	170	Y		Multnomah County	No
057	**Glisan Street/LSI Entrance**	332	170	Y		Multnomah County	No
058	**Glisan Street/242nd Avenue (Hogan Rd)**	332	170	Y		Multnomah County	No
065	**Halsey Street/162nd Avenue**	332	170	Y		Multnomah County	No
066	**Halsey Street/181st Avenue**	332	170	Y	12-pair	Multnomah County	Yes
067	**Halsey Street/192nd Avenue**	332	170	Y		Multnomah County	No
068	**Halsey Street/201st Avenue**	332	170	Y		Multnomah County	No
069	**Halsey Street/207th Avenue**	332	170	Y		Multnomah County	No
070	**Halsey Street/7th Avenue**	332	170	Y		Multnomah County	No
071	**Halsey Street/223rd (Fairview) Avenue**	332	170	Y		Multnomah County	No
072	**Halsey Street/238th Drive**	332	170	Y	Radio	Multnomah County	No
079	**Hogan (242nd) Rd/5th Street**	332	170	Y		Multnomah County	No
084	**Orient Drive/282nd Avenue**	332	170	Y		Multnomah County	No
085	**Powell Valley Rd/257th Avenue (Kane Rd)**	332	170	Y		Multnomah County	No
090	**Stark St/162nd Avenue**	332	170	Y		Multnomah County	No
091	**Stark St/174th Avenue**	332	170	Y	12-pair	Multnomah County	Yes
092	**Stark St/181st Avenue**	332	170	Y	12-pair	Multnomah County	Yes
093	**Stark St/185th Avenue**	332	170	Y	12-pair	Multnomah County	Yes
095	**Stark St/202nd (Birdsdale) Ave**	332	170	Y	12-pair	Multnomah County	No
096	**Stark St/211th Ave (Fujitsu Access)**	332	170	Y	12-pair	Multnomah County	No

Intersection ID#	Intersection	Cabinet Type	Controller Type	Opticom	Interconnect	Maintained By	Coordinated
097	**Stark St/223rd (Fairview) Ave**	332	170	Y		Multnomah County	No
098	**Stark St/235th (Cleveland) Ave**	332	170	Y		Multnomah County	No
099	**Stark St/242nd Ave (Hogan Dr)**	332	170	Y		Multnomah County	No
100	**Stark St/24800 (Mt. Hood Hosp. Entrance)**	332	170	Y		Multnomah County	No
101	**Stark St/257th Ave (Kane Rd)**	332	170	Y		Multnomah County	No
102	**Stark St/Troutdale Rd**	332	170	Y		Multnomah County	No
103	**Stark St/Evans Ave**	332	170	Y		Multnomah County	No
110	**Troutdale Rd/Cherry Park Rd**		EF-20	Y		Multnomah County	No
111	**Troutdale Rd/Cochrane Rd**	332	170	Y		Multnomah County	No
115	**US 26 (Powell Blvd)/182nd Ave**	332	170	Y	12-pair	ODOT	No
117	**US 26 (Powell Blvd)/10th St**	332	170	Y	12-pair	ODOT	No
118	**US 26 (Powell Blvd)/202nd Ave**	332	170	Y	12-pair	ODOT	No
500	**US 26 (Powell Blvd)/Towle Ave**	336	170	Y	12-pair	ODOT	No
119	**US 26 (Powell Blvd)/221st Ave (Eastman Pkwy)**	332	170	Y	12-pair	ODOT	No
501	**US 26 (Powell Blvd)/Walters Ave**	336	170	Y	12-pair	ODOT	No
502	**US 26 (Powell Blvd)/Main Ave**	336	170	Y	12-pair	ODOT	No
503	**US 26 (Powell Blvd)/Hood Ave**	336	170	Y	12-pair	ODOT	No
504	**US 26 (Powell Blvd)/Cleveland Ave**	336	170	Y	12-pair	ODOT	No
505	**US 26 (Powell Blvd)/242nd Ave (Hogan Rd)**	332	170	Y	12-pair	ODOT	No
506	**US 26 (Powell Blvd)/Rene Ave**	332	170	Y	12-pair	ODOT	No
120	**US 26 (Powell Blvd)/Burnside Rd**	332	170	Y	12-pair	ODOT	Yes
123	**US 26 (Mt Hood Hwy)/Palmquist Rd**	332	170	Y	12-pair	ODOT	No
135	**181st Avenue/Sandy Blvd**	332	170	Y	No	ODOT	No
136	**181st Avenue/Boeing (Bancorp)**	332	170	Y	6-pair	Multnomah County	No
137	**181st Avenue/I-84 WB Ramps**	332	170	Y	6-pair	ODOT	No
137	**181st Avenue/I-84 EB Ramps**	332	170	Y	12-pair	ODOT	Yes
138	**181st Avenue/San Rafael St**	332	170	Y	12-pair	Multnomah County	Yes
139	**182nd Avenue/Yamhill St**	336	170	Y	12-pair	Multnomah County	No
140	**182nd Avenue/Tibbetts St**	336	170	Y	12-pair	Multnomah County	No
141	**182nd Avenue/Centennial HS**	336	170	Y	12-pair	Multnomah County	No
145	**190th Dr (Pleasant View)/23rd St (Hall Rd)**	332	170	Y		Multnomah County	No

Intersection ID#	Intersection	Cabinet Type	Controller Type	Opticom	Interconnect	Maintained By	Coordinated
147	**209th Avenue/Springwater Trail**	332	170	Y		Multnomah County	No
148	**238th Dr/Arata Rd**	336	170	Y	Radio	Multnomah County	No
150	**242nd Avenue/23rd St (Hall Rd)**	332	170	Y		Multnomah County	No
155	**257th Ave/257th Way**	332	170	Y		Multnomah County	No
156	**257th Ave/E. Historic Columbia River Hwy**	332	170	Y		Multnomah County	No
157	**257th Ave/Cherry Park (North)**	332	170	Y		Multnomah County	No
158	**257th Ave/Cherry Park (South)**	332	170	Y		Multnomah County	No
159	**257th Ave/29th Street**	332	170	Y		Multnomah County	No
160	**257th Ave/23rd St (Hall Rd)**	332	170	Y		Multnomah County	No
161	**257th Ave/17th St (Cochran Rd)**	332	170	Y		Multnomah County	No
162	**257th Ave/5th Street (South of Division)**		EF-20	N		Multnomah County	No
163	**257th Avenue/1st St (Bull Run Rd)**	332	170	N	12-pair	Multnomah County	No
28	**Sandy Blvd/Boeing Access**	332	170	Y	N	ODOT	No
26	**Sandy Blvd/207th Avenue**	332	170	N	N	ODOT	No
27	**I-84 EB/207th Avenue**	332	170	Y	N	ODOT	No
22	**I-84 EB/238th Drive**	332	170	Y	6-pair	ODOT	Yes
23	**I-84 WB/238th Drive**	332	170	Y	6-pair	ODOT	Yes
21	**I-84 EB/Marine Drive**	332	170	Y	6-pair	ODOT	No
18	**I-84 EB/Graham Rd**	332	170	Y	6-pair	ODOT	No
19	**I-84 WB/Graham Rd**	332	170	Y	6-pair	ODOT	No
20	**I-84 WB/Marine Drive**	332	170	Y	6-pair	ODOT	No