Chapter

2. System Integration

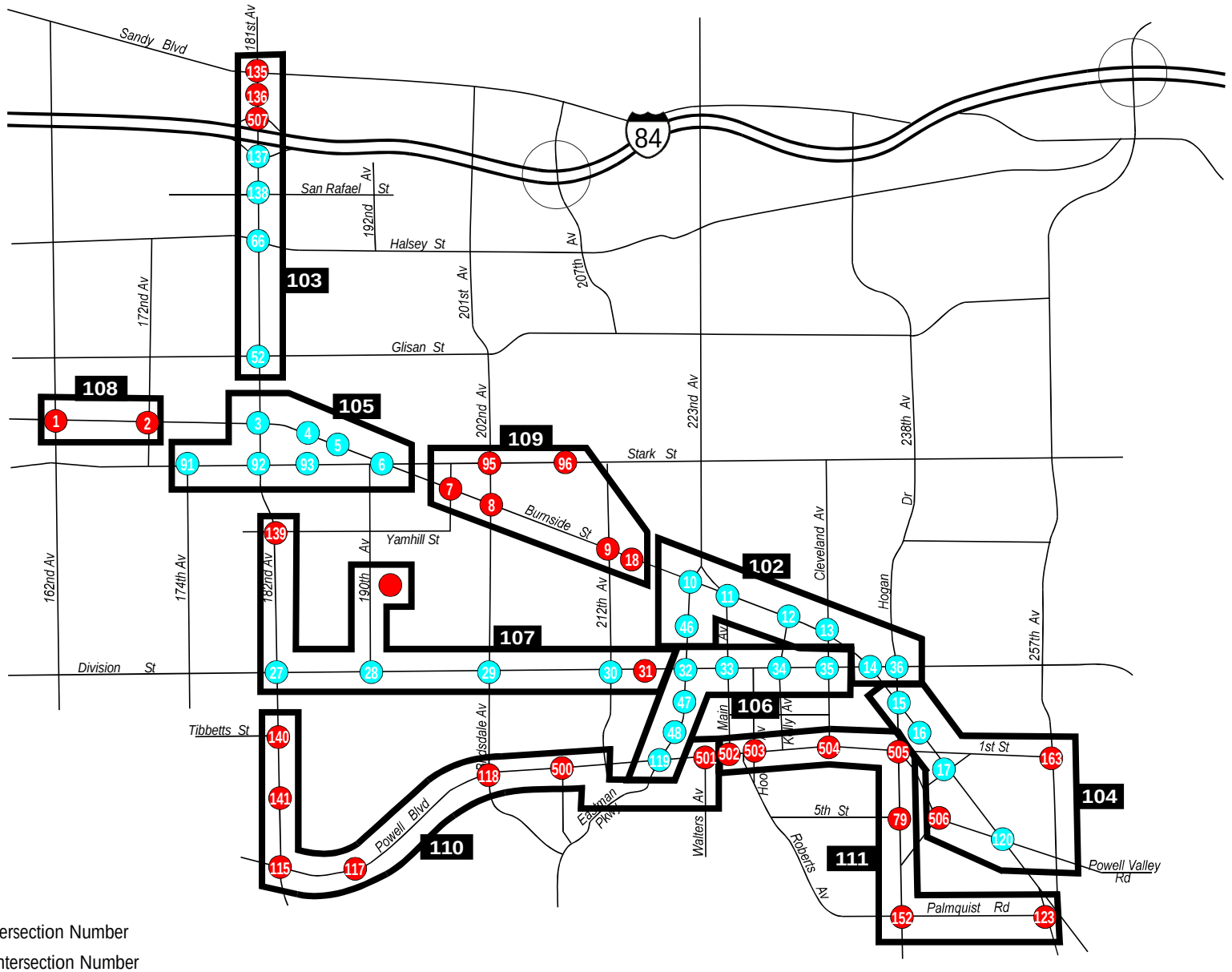
Traffic signal system integration involves establishing communication to local traffic signal controllers by connecting modems, establishing communication channels, sections and drops, preparing Series 2000 graphics and configuring system detectors. The communication channels and hubs have been designed so communications to every signal in East Multnomah County can be established with only a 12-pair interconnect cable.

SYSTEM COMMUNICATION

The ability to collect and communicate traffic information is the key component in a successful traffic management system. This project included the installation of modems and interconnect cable to establish communication between the intersection and the traffic operation centers. Twisted pair interconnect cable is used for communication between the local intersection traffic signal controllers and the communications hubs. AT&T INET (Institutional Network) is used for trunk line communication to the central Series 2000 computer at the City of Portland. Figure 3 illustrates the communication infrastructure installed during this project and Table 1 shows the details of the network configuration.

SERIES 2000 GRAPHICS

The Series 2000 program gives authorized personnel the ability to view real-time traffic signal operation and status from a workstation with a dial-up connection to the City of Portland system. This system contains a graphical depiction of each intersection along with data corresponding to the current status of operation. Preparation of intersection maps, controller programming and timing information have been updated in Series 2000 to reflect the work performed for phase 2A.



NOT TO SCALE

LEGEND

- 00 - Phase 1 Intersection Number
- 00 - Phase 2A Intersection Number
- Channel and Channel Number *(Maximum 7 Intersections per Channel)*

DKS Associates

Figure 3
MULTNOMAH COUNTY/GRESHAM
TRAFFIC SIGNAL SYSTEM CONTROL

Table 1

Phase 2A Traffic Signal Communications

Int. ID #	Intersection	Interconnect Pairs	Hub	Cable	Channel	Drop
135	***181st Avenue/Sandy Blvd***	***1-2***	***Glisan***	***181st North***	***103***	***6***
136	***181st Avenue/Boeing/Bancorp***	***1-2***	***Glisan***	***181st North***	***103***	***5***
137	***181st Avenue/I-84 NB Ramps***	***1-2***	***Glisan***	***181st North***	***103***	***4***
137	181st Avenue/I-84 SB Ramps	1-2	Glisan	181st North	103	3
138	181st Avenue/San Rafael Street	1-2	Glisan	181st North	105	2
66	181st Avenue/Halsey Street	1-2	Glisan	181st North	105	1
52	181st Avenue/Glisan	1-2	Glisan	181st North	105	0
3	181st Avenue/Burnside Street	3-4	Glisan	181st South	105	0
92	181st Avenue/Stark Street	3-4	Glisan	181st South	105	1
91	Stark Street/174th Avenue	3-4	Glisan	181st South	105	2
93	Start Street/185th Avenue	3-4	Glisan	181st South	105	3
4	Burnside Street/185th Avenue	3-4	Glisan	181st South	105	4
5	Burnside Street/188th Avenue	3-4	Glisan	181st South	105	5
6	Burnside Street/190th Avenue/Stark Street	3-4	Glisan	181st South	105	6
1	***Burnside Street/162nd Ave***	***1-2***	***Glisan***	***181st South***	***108***	***0***
2	***Burnside Street/172nd Avenue***	***1-2***	***Glisan***	***181st South***	***108***	***1***
7	***Burnside Street/197th Avenue***	***7-8***	***City Hall***	***Burnside***	***109***	***0***
8	***Burnside Street/202nd Avenue***	***7-8***	***City Hall***	***Burnside***	***109***	***1***
9	***Burnside Street/212th Avenue***	***7-8***	***City Hall***	***Burnside***	***109***	***2***
18	***Burnside Street/Civic Drive***	***7-8***	***City Hall***	***Burnside***	***109***	***3***
95	***Stark Street/202nd Avenue***	***7-8***	***City Hall***	***Burnside***	***109***	***4***
96	***Stark Street/211th Avenue (Fujitsu Access)***	***7-8***	***City Hall***	***Burnside***	***109***	***5***
46	Eastman Parkway/Fire Signal	9-10	City Hall	Burnside	102	6
10	Burnside Street.Eastman Parkway	9-10	City Hall	Burnside	102	0
11	Burnside Street/Main Avenue	9-10	City Hall	Burnside	102	1
12	Burnside Street/Kelly Avenue	9-10	City Hall	Burnside	102	2
13	Burnside Street/Cleveland Avenue	9-10	City Hall	Burnside	102	3
14	Burnside Street/Division Street	9-10	City Hall	Burnside	102	4
36	Division Street/242nd Avenue	9-10	City Hall	Burnside	102	5
15	Burnside Street/242nd Avenue	11-12	City Hall	Burnside	104	0
16	Burnside Street/Shopping Center	11-12	City Hall	Burnside	104	1
17	Burnside Street/3rd Street	11-12	City Hall	Burnside	104	2
120	Burnside Street/Powell Boulevard	11-12	City Hall	Burnside	104	3
506	***Powell Valley Rd/Rene Avenue***	***11-12***	***City Hall***	***Burnside***	***104***	***4***
163	***257th Avenue/1st Street***	***11-12***	***City Hall***	***Burnside***	***104***	***5***

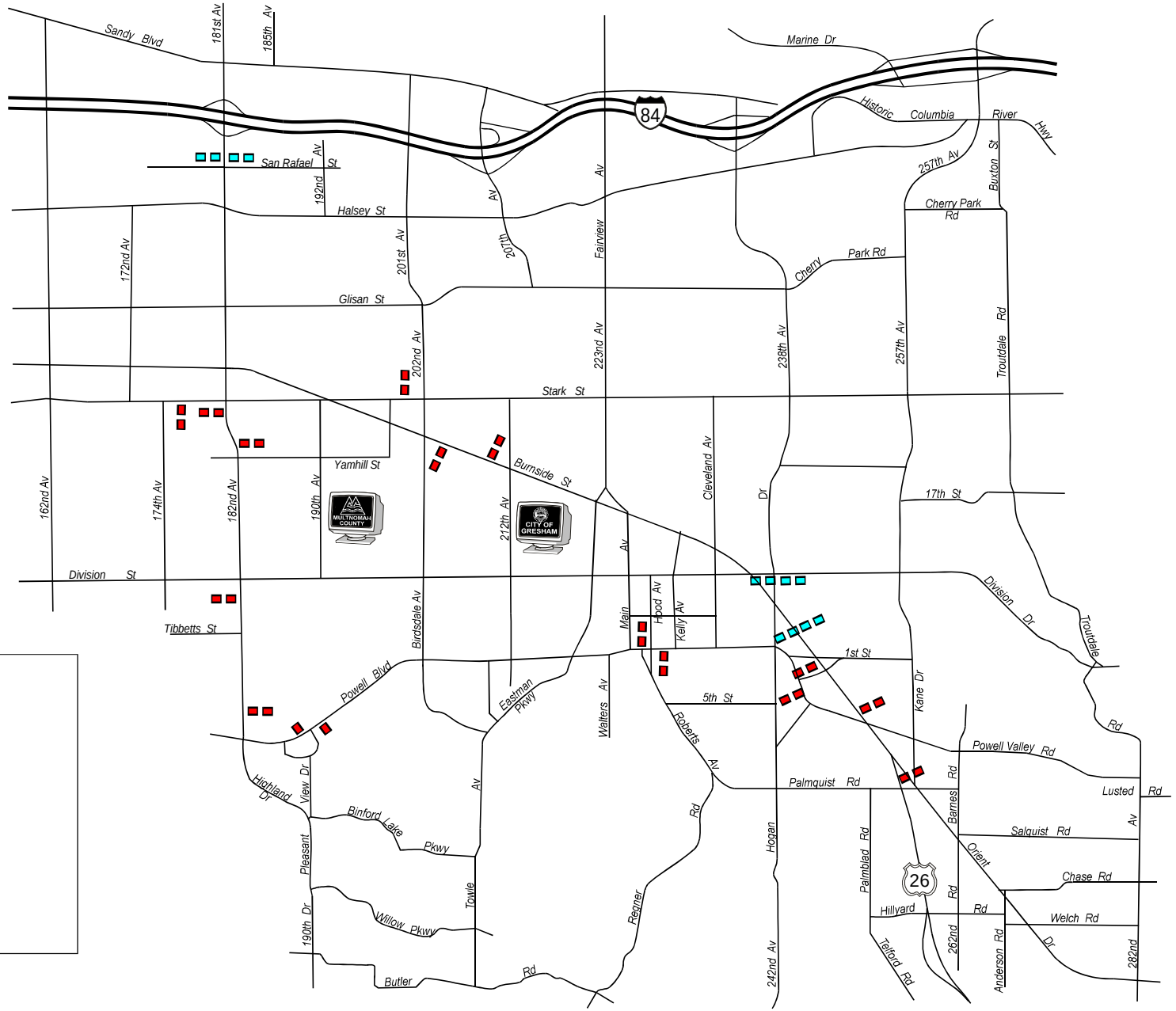
139	***182nd Avenue/Yamhill Street***	***5-6***	***City Hall***	***Division***	***107***	***0***
27	Division Street/182nd Avenue	5-6	City Hall	Division	107	1
28	Division Street/190th Avenue	5-6	City Hall	Division	107	2
29	Division Street/202nd Avenue	5-6	City Hall	Division	107	3
30	Division Street/212th Avenue	5-6	City Hall	Division	107	4
31	***Division Street/Civic Drive***	***5-6***	***City Hall***	***Division***	***107***	***5***
166	***Multnomah County Shop***	***5-6***	***City Hall***	***Division***	***107***	***6***
32	Division Street/Eastman Parkway	7-8	City Hall	Division	106	0
33	Division Street/Main Avenue	7-8	City Hall	Division	106	1
34	Division Street/Kelly Avenue	7-8	City Hall	Division	106	2
35	Division Street/Cleveland Avenue	7-8	City Hall	Division	106	3
47	Eastman Prkwy/N. Shopping Center	7-8	City Hall	Division	106	4
48	Eastman Prkway/3rd Street	7-8	City Hall	Division	106	5
119	Eastman Parkway/Powell Boulevard	7-8	City Hall	Division	106	6
140	***182nd Avenue/Tibbetts St***	***3-4***	***City Hall***	***Division***	***110***	***0***
141	***182nd Avenue/Centennial HS***	***3-4***	***City Hall***	***Division***	***110***	***1***
115	***Powell Blvd/182nd Avenue***	***3-4***	***City Hall***	***Division***	***110***	***2***
117	***Powell Blvd/10th Street***	***3-4***	***City Hall***	***Division***	***110***	***3***
118	***Powell Blvd/202nd Avenue***	***3-4***	***City Hall***	***Division***	***110***	***4***
500	***Powell Blvd/Towle Avenue***	***3-4***	***City Hall***	***Division***	***110***	***5***
501	***Powell Blvd/Walters Avenue***	***3-4***	***City Hall***	***Division***	***110***	***6***
502	***Powell Blvd/Main Avenue***	***1-2***	***City Hall***	***Division***	***111***	***0***
503	***Powell Blvd/Hood Avenue***	***1-2***	***City Hall***	***Division***	***111***	***1***
504	***Powell Blvd/Cleveland Avenue***	***1-2***	***City Hall***	***Division***	***111***	***2***
505	***Powell Blvd/Hogan Drive***	***1-2***	***City Hall***	***Division***	***111***	***3***
79	***Hogan Drive/5th Street***	***1-2***	***City Hall***	***Division***	***111***	***4***
152	***Hogan Drive/Palmquist Rd***	***1-2***	***City Hall***	***Division***	***111***	***5***
123	***Powell Blvd/Palmquist Rd***	***1-2***	***City Hall***	***Division***	***111***	***6***

SAMPLING LOOPS

Sampling loops have been designed and installed at thirteen locations within the project area as shown in Figure 4. Appendix A includes the sampling loop locations and information for controller programming. The sampling loops are located and configured to collect traffic volume, speed and occupancy data. This data may be used in a variety of ways including; traffic responsive plan selection, urban planing, roadway maintenance scheduling and traffic volume studies. Real-time volume, speed and occupancy data can be displayed and viewed on the Series 2000 graphics program. This data can provide information on current traffic conditions that may result in the user adjusting signal timing plans. This data can also be collected and stored providing historical traffic counts for use in planning and design. The City of Portland has reserved a range of sampling loops numbers within the S2000 database for use in the City of Gresham. These numbers are as follows:

Sampling loops Numbers 1000 and up

NOT
TO SCALE



LEGEND

- Existing Sampling Loops
- New Sampling Loops

Figure 4
SAMPLING LOOPS