Appendix

A 2006 Strategic Plan

B Community Communications & Services Subcommittee Report

C Traffic Study

D HCC Wetlands Memo

E Stormwater Detention

F Existing Site Utilities

G Infrastructure Repair Recommendation

H Greenhouse Gas Emission Reduction Plan

I SBCTC Capital Analysis Model

Highline Community College
2006 Strategic Plan

Vision

Highline Community College is valued as the educational crossroads where dreams are shaped, communities created and excellence achieved.

Mission Statement

We deliver innovative education and training opportunities to foster your personal and professional success in our multicultural world and global economy. We help you build a better future.

Values

Highline Community College is committed to the following values:

Access:	We believe education should be available to all who seek it.
Collaboration:	We value teamwork, joint responsibility and ownership.
Community:	We value our community and are dedicated to serving its educational needs.
Diversity:	We respect the rights and perspectives of the diverse populations, who live, learn and work in our community.
Excellence:	We strive for the highest quality in all our programs and services.
Integrity:	We believe in honesty and trustworthiness in all our college practices.
Internationalization:	We value a global perspective and respect cultural diversity.
Learning:	We develop an interactive, creative, and learner-centered environment that supports student success.

Strategic Initiative #1: Achieve excellence in teaching and learning

Activities:

A. The College will rigorously pursue superior academic and skills-based student outcomes.

B. The College will create an atmosphere that inspires and prepares all students to succeed.

C. The College will assess the progress of pre-college students and develop strategies for their success.

D. The College will ensure that the instructional programs, services and technology capabilities respond to community needs.

E. The College will establish a process of incorporating continuous quality improvement by regularly assessing services, faculty, staff, administrators and instructional programs.

F. The College will create and maintain an infrastructure that supports a safe, accessible and innovative environment for teaching and learning.

Strategic Initiative #2: Enhance a college climate that values diversity and global perspectives

Activities:

A. The College community will deepen its understanding and appreciation of the diversity and global perspectives of our nation and local community.

B. The College will sustain and enhance the framework to support internationalization of the College.

C. The College will continue to increase the number of international students and nurture the existing systematic programs that promote interaction among all students.

Strategic Initiative #3: Strengthen and expand the presence and role of the college within the communities it serves

Activities:

A. The College will examine the needs of local, state, national and international communities to determine appropriate college offerings and initiatives.

B. The College will strengthen its visibility by developing a coordinated institutional advancement program.

C. The College will strengthen its outreach program to prospective students.

D. The College will build its capacity to carry out its role in the advancement of economic opportunity for the communities in our service area.

<u>Strategic Initiative #4:</u> Sustain an open, honest and collaborative environment that is responsive to the needs of the college community and that promotes good stewardship of the college's financial resources

Activities:

A. The College will continue to support positive interactions and promote candid, open exchange of ideas.

B. The College will continue to create programs that support training, professional growth and development for all employees.

C. The College will maintain and expand its tradition of acknowledging excellence in teaching, learning, service, and innovative contributions to the institution.

D. The College will reassess and revamp its current internal communication system to improve quality and responsiveness.

E. The College will assess and implement campus health and safety procedures.

Approved by the Board of Trustees
July 20, 2006

B COMMUNITY COMMUNICATIONS & SERVICES SUBCOMMITTEE REPORT

CCSS Committee: Inventory of Off-Campus Offerings

B-Tech -- A B-tech I-Best is offered at Greenbridge in White Center. This program began with ESL classes offered in conjunction with the YWCA. When a new center was built, there was room for more classes. Highline people involved in this project are Steve W., Rolita, Marcia W. and Alice.

Business incubators -- The Small Business Development Center is working with business incubators in the community.

Center for Learning Connections – CLC offers a range of workshops, conferences, and project activities at many off-campus locations. Web site: www.learningconnections.org.

Clinicals/internships/practicums/externships -- A number of departments, including Nursing, Respiratory Care, Polysomnography, Personal Fitness Trainer, Education, and Human Services offer these at various locations.

Community Education CEL coordinates a number of off-campus offerings. They include non-credit training requested by organizations and businesses, such as keyboarding classes for a sheet metal company and coaching classes for social service workers, and credit classes, such as Spanish conversation classes for the Highline School District and Btech classes for the General Services Adminstration. Some of these classes are funded by grants. In most cases faculty get a stipend, but in a few cases these classes have been part of an instructor's load. These classes generally cost less than the same classes on the main campus because they don't count for FTEs and we negotiate the cost with the contracting organization.

Education Department classes -- The Education department has recently been offering several Education classes at White Center Heights. These were credit classes; however, they were offered and funded through CEL. It's not clear at this point if this arrangement will continue.

ESL/ABE sites

Bow Lake Elementary	18237 42nd Ave S.	Sea Tac	(206) 433-2336	BOW
Burien Library	14700 6th Ave. SW	Burien	(206) 243-3490	BUR
Federal Way C.C.	33325 8TH Ave. S	Fed. Way	(253) 835-7000	FWCC
Foster High School	4242 S. 144th St.	Tukwila	(206) 901-7900	FHS
Korean Women's Assoc.	31218 Pac Hwy S.	Fed Way	(253) 946-1995	KWA

Mount View Elementary	10811 12th Ave SW	Seattle	(206) 433-2244	MTV
Olympic View Elementary	2626 SW 327th	Fed Way	(253) 945-3500	OLY
Sunnydale	15631 8th Ave. S.	Burien	(206) 433-2276	SUN
Thomas Jefferson H. S.	4248 S. 288th St.	Fed Way	(253) 945-5600	TJH
Vintage Park Apartments	1101 SW 139th St.	Burien	(206) 242-1292	VIN
Wiley Center	9800 8TH Ave. SW	Seattle	(206) 461-4554	WIL
Windsor Heights Apts.	17229 32nd Ave. S.	SeaTac	(206) 901-0180	WHT

Geology -- Geology has a 1 credit field trip classes and has historically had 5 credit classes that met off campus (i.e. Geology of Hawaii)

HEET grant -- In a collaboration with Renton Tech, we offer training for healthcare workers. Swedish Medical Center and the SEIU office in Renton.

MAST Center – Credit classes and community workshops related to marine science.

Medical Assisting -- The Medical Assisting Department has a number of off-campus programs, including medical assistant (MA), medical transcription (MT), patient account specialist (PAS), medical insurance coding specialist (MICS), and the I-BEST Phlebotomy.

Outreach -- Outreach offers community and school workshops throughout the region.

Parent education classes -- Alicja Baker has been teaching Parent Education classes at the Tukwila Community Center for several years.

StartZone -- StartZone is exploring opportunities to offer a few of our introductory workshops in community-based settings. We received a request to offer a class at a community center in Burien and are in discussions. In 2009 we offered a series of workshops off campus to the African Chamber of Commerce and the YWCA in Greenbridge.

SeaTac Airport -- Airport Jobs (also called Port Jobs) is a nonprofit that provides classes at the airport – 20,000 people work there. Eighty percent of them live in our service area. Many of the students are in janitorial, restaurant and retail jobs, but managers sometimes take classes as well. Airport Jobs provides classrooms and computer stations. Nancy Warren has taught Business 160 and 165. Susan Taylor has taught Btech classes, and John Lindsay taught a travel and tourism I-Best. Funding is an issue. In the past, tuition was paid with worker retraining money and

currently Airport Jobs has some grants. Nancy thinks there's room for expansion – it would be great to offer credit English and math classes. Students could use advising, and it's always important to market classes – Nancy hands out fliers in the airport.

Tech prep – Nancy Warren manages Tech Prep, which is a program in which high school students doing prof-tech classes in their high schools can get HCC credit if they earn a B or higher and the HCC department accepts. Two to three thousand students get this HCC credit every year. The most popular credits are in Btech and Early Childhood Education. She would like to see more of these students come to HCC to continue the degree or certificate.

Community Communications and Services Subcommittee Report
Spring 2010
Members: Rolita Ezeonu, Judy Perry, Steve Washburn, Keith Paton, Allison Green, Chair

Charge

The committee's primary task was to "give greater specificity and substance to Instruction's role in meeting the college's efforts to maintain a meaningful presence in its local communities. Ideally, the committee will be able to develop a set of near-term recommendations around instructional activities to support those goals."

Committee activities

- Reviewed the report of the Off-Campus Programming Subcommittee, June 2007; the demographics report from Economic Modeling Specialists, 2009; Highline's Facilities Master Plan Program Needs Analysis, 2009; the OFM Interim Business and Facility Summary, Federal Way Campus, 2008; and "A Matter of Need," South King Council of Human Services, 2005.
- Met with the following to gather information: Alice Madsen, Lisa Skari, Tonya Benton, James Peyton, Nancy Warren, Jason Prenovost, Rashad Norris, and Jorja Gunderson.
- Compiled a list of off-campus offerings (see Appendix).
- Reviewed data provided by Tonya and James.

Challenges to serving our communities

The committee identified the following challenges to developing a "meaningful presence" in our local communities:

1. Existing off-campus programs and projects are directed through a range of offices – academic departments, Community Education, Outreach, and so forth – and tend to develop organically and locally, as a small group of staff and/or faculty work together to meet an identified community need. Sometimes that need comes in the form of a grant application; at other times someone makes a community contact and develops a relationship further. While "organic and local" have their benefits, disadvantages might include duplicated effort, lack of communication across projects, lack of connection to institutional mission/strategic initiatives, unequal distribution of workload, and unsustainable levels of involvement by faculty and staff who maintain the projects.
2. Definitions of our "community" and our relationship to that community vary significantly across faculty. For example, while professional-technical faculty have always been connected to our service area through institutionalized vehicles such as advisory boards, and ABE/ESL faculty

often teach at off-campus locations, transfer faculty have an orientation toward national and international academic communities. Meanwhile, tenure, post-tenure and column advancement have rewarded (or are perceived to have rewarded) the visible labor associated with on-campus projects. To orient all faculty toward our service area will require shifts in culture as well as in policies and practices.

3. Opportunities to serve our communities are extensive and difficult to prioritize. The communities we serve are diverse; a meaningful presence in one community may look very different from a meaningful presence in another. Existing data provide only so much information; we know a lot about our current students but not so much about those who could potentially be our students. Making decisions about which needs to address and how are by nature imprecise.

Guiding principles

- Off-campus projects and programs must support our mission and strategic initiatives.
- Our communities, in the form of individuals, non-profits, schools and other organizations, must be equal partners in identifying and responding to community needs.
- Given the economic situation, we cannot currently afford to build or rent off-campus space; any off-campus programs will need to be in community spaces offered free of charge.

Recommendations

(Items in italics from the charge to the committee)

Communications and outreach: How can we connect instructional programs and staff with our local communities to build relationships, share information, and create ties? What community organizations can we leverage in that effort?

As noted above, to engage all faculty in developing relationships with organizations in our service area, we will need to shift college culture and policies/procedures. First, this goal needs to be more clearly communicated to faculty. Second, faculty need to be explicitly granted the option of replacing campus committee work with off-campus organizational work. Third, tenure, post-tenure and column advancement need to more explicitly value this work.

In addition, those faculty engaged in work in the community need to be provided the support they need to develop and maintain off-campus programs.

Finally, more centralized communication about off-campus projects might prompt more opportunities for networking. A staff member responsible for collecting and disseminating information internally and externally about community projects might be more effective than the current decentralized approach. It might be worth organizing a council of coordinators of off-campus projects that can meet quarterly and share information.

Sites and services: Without the prospect of any large-scale off-campus college rental facilities on the horizon, how could we develop locations to offer for-credit courses off-campus? What services and support would we need? Who could help us?

Jeff Wagnitz has identified the following areas for providing for-credit off-campus classes: Burien, Tukwila and Federal Way. His vision is a series of offerings that would build skills, knowledge, and credits to the point where a student would feel prepared to continue their education online or on the main campus. Such a series might look like this: quarter 1: I-Best/pre-college; quarter 2: face-to-face core classes like English and math; quarter 3: more general education classes in hybrid format; quarter 4: more general education courses in online format.

In order to develop such a program, we would need at minimum the following:

- Advising/advisors
- Computer lab
- Testing (COMPASS, etc)
- Classrooms
- Meeting room/office space

In addition, it would be important to appoint a coordinator of each off-campus program, either a dean, a staff member or a faculty member with release time who also teaches in the program. This person would be responsible for attending community meetings, making connections with community leaders and programs, functioning as liaison with coordinators of the physical site, supporting the faculty, and functioning as liaison with the main campus.

Messaging: How can we best characterize and portray our instructional programs and shape our messages in ways that are most useful to our communities? What information do our communities need? What formats and delivery methods are most useful?

Messaging will need to vary depending on the community being served, and the committee was not able to develop any recommendations with any level of specificity on this topic. However, one role of a coordinator and centralized support staff for off-campus offerings might be to work with the faculty and staff "in the field" to develop such guidelines.

School relations: What strategies and tools will best help us stay in meaningful contact with the local schools?

Perhaps our most effective sources of information on local schools are our outreach workers. Rashad Norris has indicated that he can work with faculty to develop programs for middle and high school students on or off campus.

Lisa Skari suggested that service learning is one means by which faculty connect to the community.

ESL-to-credit: Without duplicating the work that's already been done here, are there other strategies or tools we can explore to support our off-campus ESL students in transitioning to college?

We were not able to address this question.

Summary

The committee recommends the following:

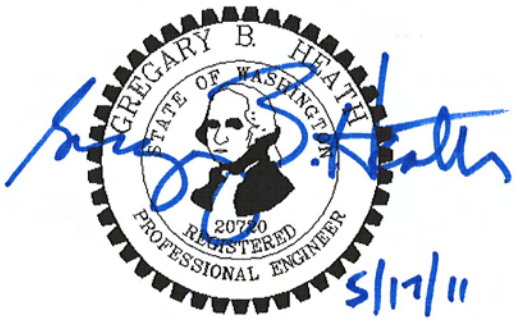
1. Each site/community should have a coordinator whose job it is to build and maintain relationships in the community, publicize the program, work with department coordinators to hire faculty, coordinate advising, act as point person for those in charge of the physical site, and perform other duties as needed. This person could be an administrator, staff member or faculty member (with release time).
2. Communication about off-campus programs should be more centralized. This might be accomplished with a support staff member assigned to function as a clearinghouse of information and/or a quarterly council of coordinators of off-campus programs.
3. Campus culture needs to shift toward valuing off-campus contributions and making them more sustainable. Some ways to accomplish this include raising the visibility of off-campus programs, working with faculty to plan flexible schedules that compensate them for time spent off campus, and promoting community engagement with new faculty.

The committee feels that it has only scratched the surface of what is a complex and multifaceted challenge. The next step would most likely be to develop a community site and pay close attention to what is involved in that development so as to create a road map for developing other projects.

C TRAFFIC STUDY

HIGHLINE COMMUNITY COLLEGE
ACCESS ANALYSIS

City of Des Moines, WA



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MAY 2011

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HIGHLINE COMMUNITY COLLEGE
ACCESS ANALYSIS

TABLE OF CONTENTS

List of Tables

List of Figures

HIGHLINE COMMUNITY COLLEGE
ACCESS ANALYSIS

I. INTRODUCTION

The Highline Community College, located in Des Moines, WA, has a concern over excessive queuing within the parking lot at the 240th Street S access during the peak period for the college. The first task of this report is to determine the level of service and queuing of the project accesses and adjacent roadways to the college. The second task is to analyze the proposed modifications to the S 236th Lane/Pacific Highway access from a one-way (entrance only) to a two-way access configuration. This would divert some outbound traffic from the S 240th Street access to the Pacific Highway access, avoiding the Pacific Highway & S 240th Street intersection in the process. The third task is to analyze MUTCD signal warrants for the proposed modified Pacific Highway access. Applicable conclusions are then provided.

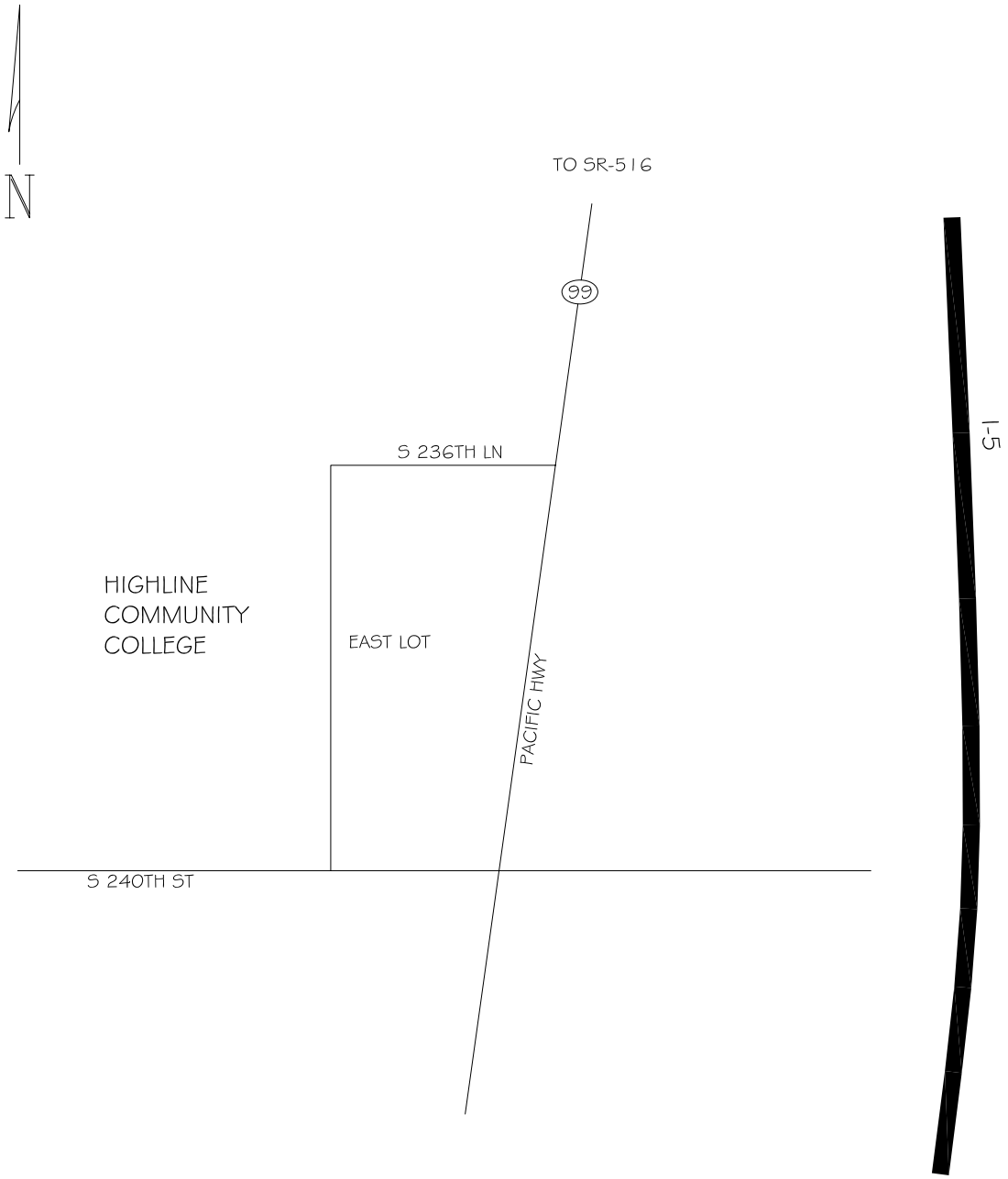
II. PROJECT DESCRIPTION

Highline Community College is located at the northwest corner of the intersection of Pacific Highway and S 240th Street. Three main parking lots are provided: the north lot, south lot, and east lot. The east lot has a one-way, inbound only access point at the S 236th Lane connection from Pacific Highway, and a full access connection onto S 240th Street. The north lot is connected to the east lot, while the south lot is unconnected. There is also a parking lot, connected to the east lot, for the Building 99 leased facility with right-in/right-out access onto Pacific Highway.

The access point intersection of S 236th Lane & Pacific Highway currently has a median curb on Pacific Highway channelizing left turns onto S 236th Lane, and preventing left turns onto Pacific Highway. The intersection of S 240th Street with the main east lot access currently has separate lanes for southbound left and right turns, a westbound right turn lane, and an eastbound center left turn lane.

The proposed plan involves changing the one-way inbound access from S 236th Lane to a two-way access for inbound and outbound traffic, and modifying the S 236th Lane & Pacific Highway intersection to allow for left turns onto Pacific Highway. If warranted, a signal may be installed.

Figure 1 shows the general site location with the surrounding street network and primary arterials. A site plan illustrating the existing vehicular circulation and parking is given in Figure 2.



HIGHLINE COMMUNITY COLLEGE

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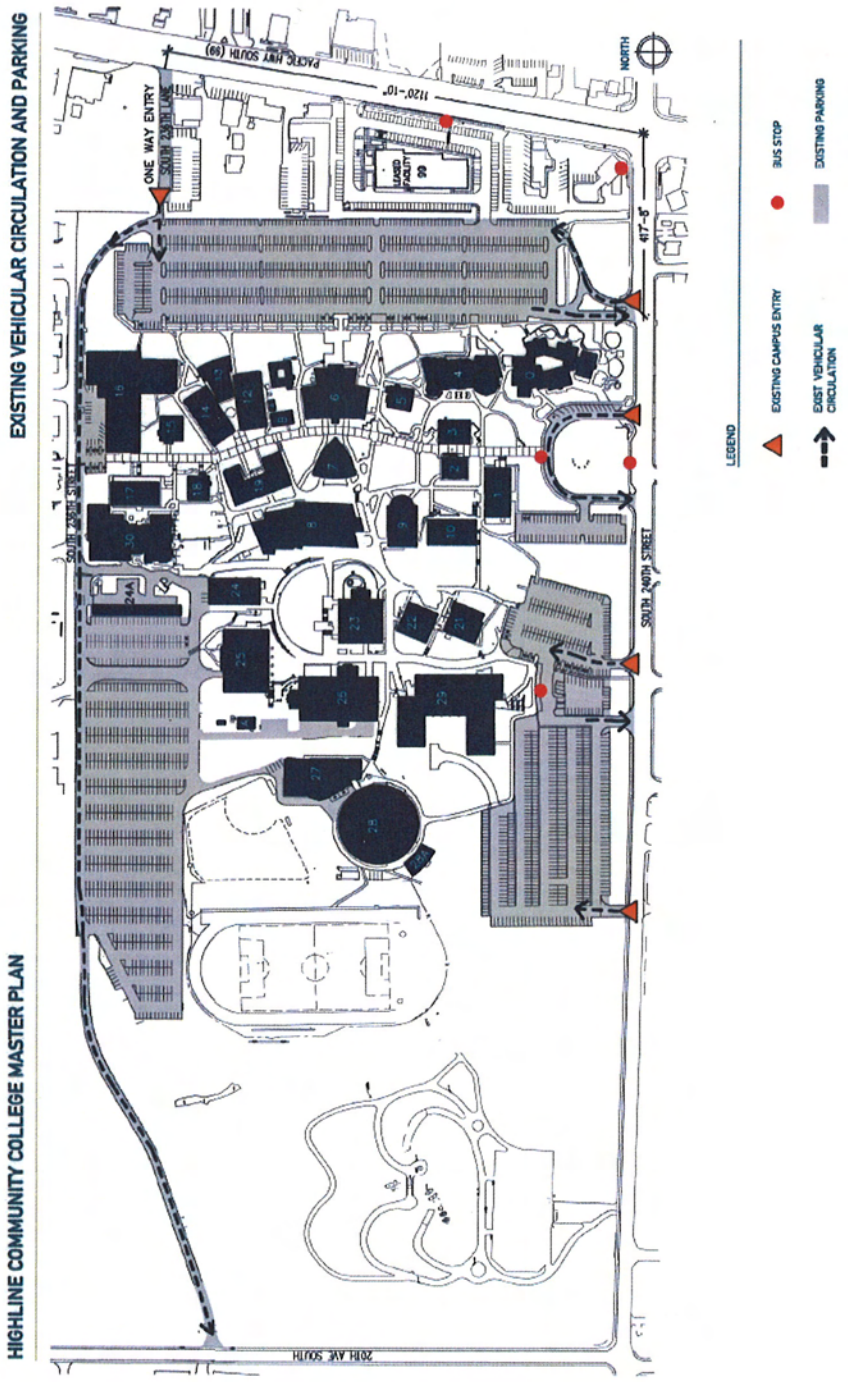
VICINITY MAP & ROADWAY SYSTEM

FIGURE 1



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SITE PLAN

FIGURE 2

III. EXISTING CONDITIONS

A. Surrounding Roadways

The street system serving the proposed project is listed and described below:

Pacific Highway, or SR-99, is a north-south, multi-lane state highway which borders the east side of the project. The speed limit along the roadway is posted at 45 mph. Pavement surfacing consists of asphalt in good condition with curbed shoulders and sidewalks. High Occupancy Vehicles are allowed as through traffic on the rightmost (right turn) lanes. Left turn lanes are provided at major intersections.

South 240th Street is an east-west roadway which borders the south edge of the project. The posted speed limit along the roadway is 35 mph and the pavement surface is comprised of asphalt. Lane widths are approximately 12 feet with curbed shoulders and sidewalks. A center two-way left turn lane is provided along most of the Highline frontage. A right turn lane is provided for the east parking lot entrance, extending back to Pacific Highway. Grades along the road are mildly rolling.

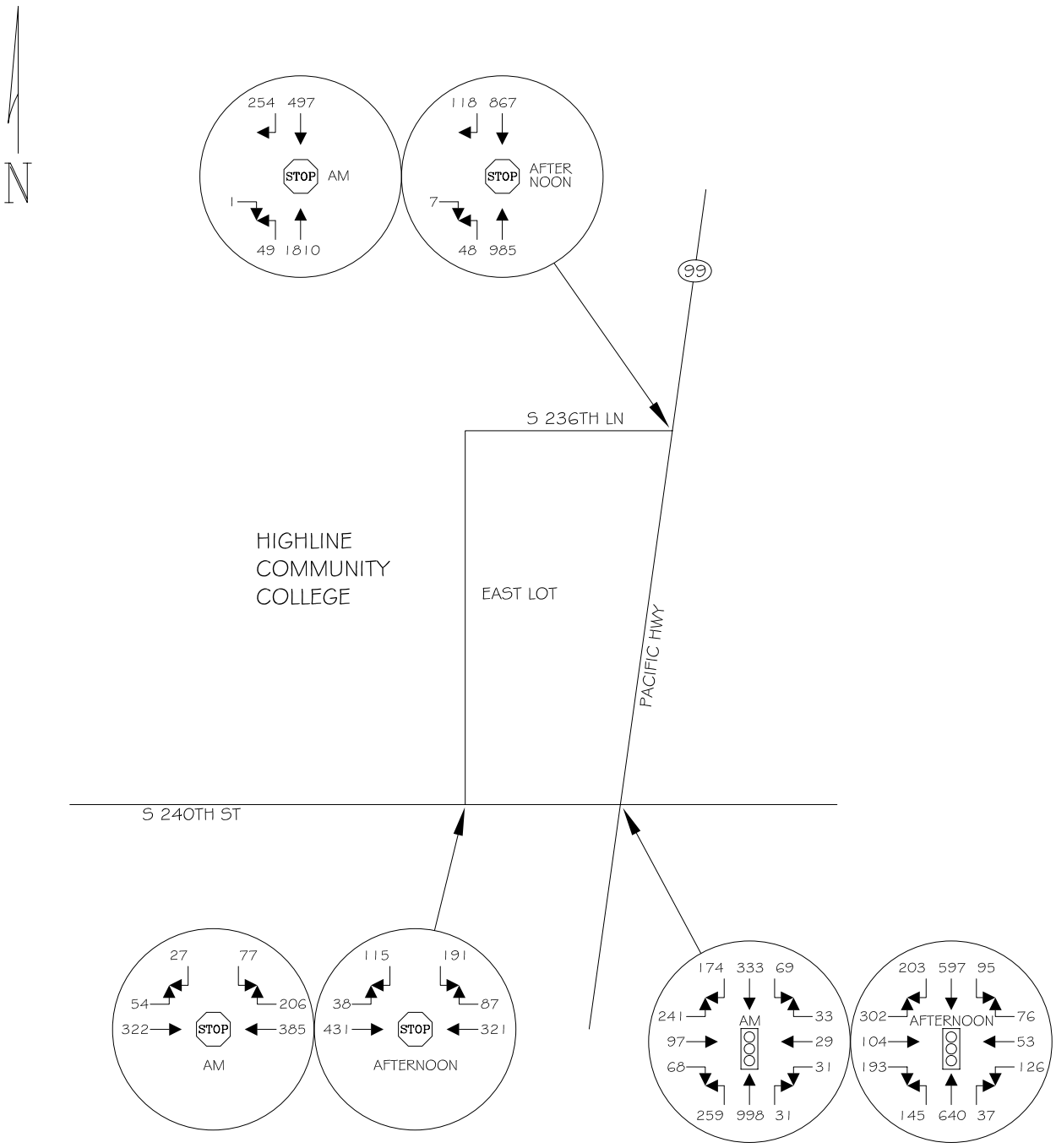
South 236th Lane serves as the access from Pacific Highway to the east and north parking lots. The Highline connection is gated and currently allows for entering traffic only.

B. Existing Peak Hour Volumes

Field data for this study was collected in April and May of 2011. Turning movement counts were taken during the morning peak period between the hours of 7 AM and 9 AM, and the afternoon peak period between 12 PM and 2 PM. These specific peak periods were targeted for analysis purposes since they represent the highest activity for Highline Community College traffic volumes with respect to inbound morning traffic and outbound afternoon traffic. In addition, 24-hour tube counts were taken for the approaches to the intersection of Pacific Highway & S 236th Lane, as well as for the project access on S 240th Street. Figure 3 on the following page shows the existing AM and afternoon peak hour turning movement volumes at the key intersections. Tube count volumes broken down by 15 minute intervals and hourly intervals may be found in the appendix. Three days of tube count data was collected, from a Tuesday through a Thursday.

C. Existing Level of Service

A level of service analysis was made of the existing AM and afternoon peak hour volumes of Figure 3. Results were determined using the *Synchro 6* program. A summary of the LOS results is found in Table 1 on page 8.



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EXISTING AM & AFTERNOON PEAK HOUR VOLUMES

FIGURE 3

TABLE 1
Existing Level of Service

Intersection	*Control*	*Geometry*	*LOS*	*Delay*
Pacific Hwy/240th St (AM)	Signal	Eastbound	D	48.8
		Westbound	D	46.1
		Northbound	C	22.8
		Southbound	C	28.5
		Overall	C	29.5
Pacific Hwy/236th Ln (AM)	Stop	Eastbound	B	11.6
		Northbound LT	B	11.3
240th St/Entrance (AM)	Stop	Southbound	D	29.8
		Eastbound LT	A	9.9
Pacific Hwy/240th St (PM)	Signal	Eastbound	D	43.7
		Westbound	D	51.1
		Northbound	C	30.3
		Southbound	C	27.2
		Overall	C	34.7
Pacific Hwy/236th Ln (PM)	Stop	Eastbound	B	11.6
		Northbound LT	B	11.0
240th St/Entrance (PM)	Stop	Southbound	F	64.9
		Eastbound LT	A	8.6

As shown in the table, delays are generally mild to moderate during the AM peak hour, with delays of up to LOS D. During the afternoon peak hour, outbound delays at the main project entrance on S 240th Street are currently at LOS F.

D. Existing Queue Lengths

The Synchro analysis included an investigation of 95th percentile queue lengths for the eastbound approach of S 240th Street at Pacific Highway, as well as for queuing within the parking lot at the main entrance to S 240th Street. Note that the S 240th Street entrance is located roughly 320 feet to the west of the stop bar on the S 240th Street approach to the intersection with Pacific Highway.

The analysis results indicate 95th percentile queue lengths of 294 feet for eastbound S 240th Street, and 81 feet for the main project entrance during the AM peak hour. Results for the afternoon PM peak hour are 391 feet for eastbound S 240th Street, and 244 feet within the main project entrance. These results indicate blockage of the main project entrance from cars queuing up for the eastbound to northbound left turn onto Pacific Highway. Some alternate routing for outbound traffic is the result, with increased southbound right turns out of the parking lot to avoid the congestion.

IV. FUTURE TRAFFIC CONDITIONS

A. Future Peak Hour Volumes – Existing Configuration

Future AM and afternoon peak hour traffic volumes were derived by applying a 3 percent annual growth rate to the existing turning movement counts and tube counts, to a 5 year horizon of 2016. This growth would not only provide an increase in the adjacent roadway volumes, but would also assume growth in Highline traffic as an increase in enrollment for a measure of conservatism. Year 2016 peak hour traffic volumes under the existing configuration may be found in Figure 4.

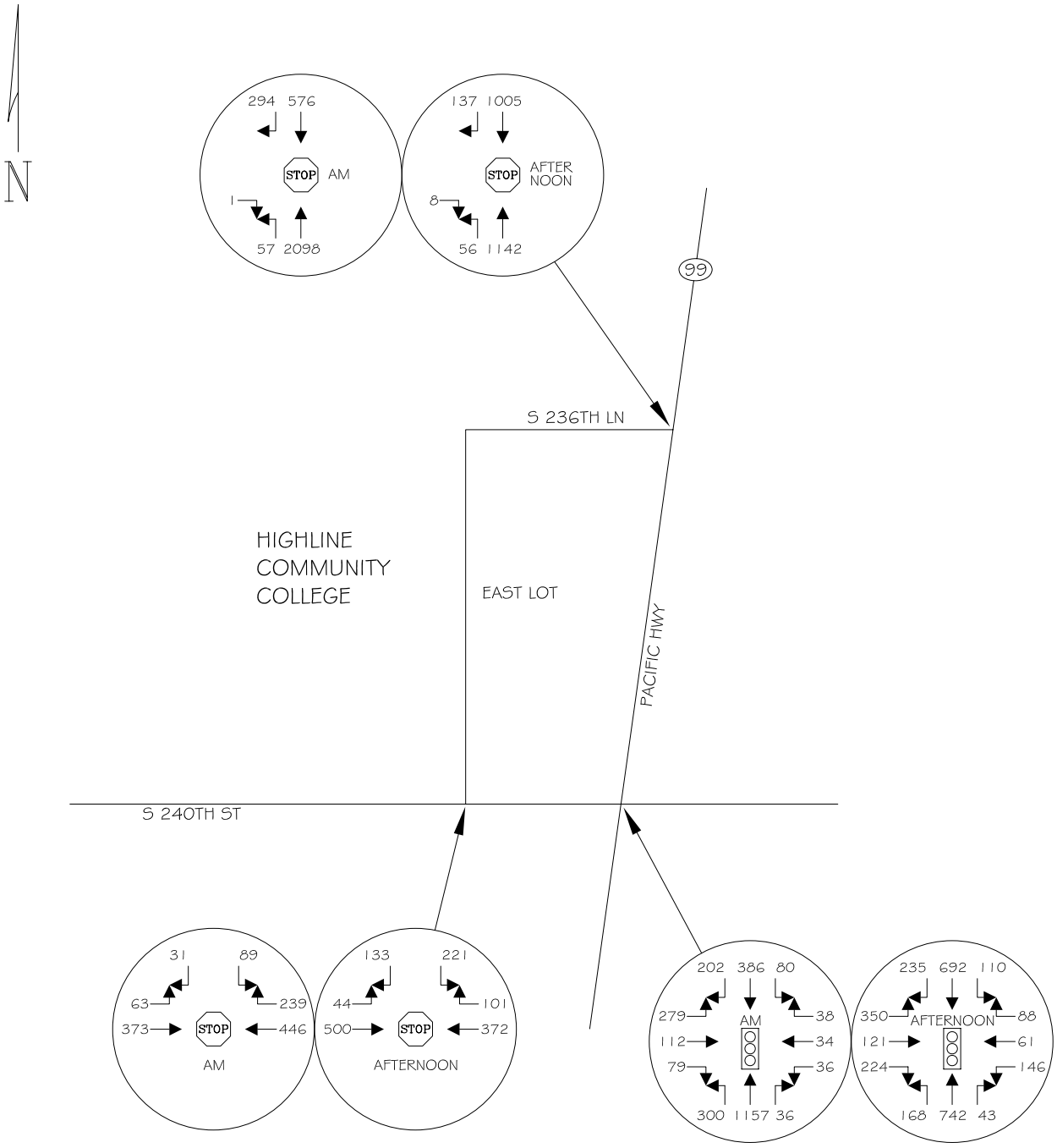
B. Future Peak Hour Volumes – Modified Access

The proposed modification of the S 236th Lane access from inbound only to inbound/outbound, plus left turns out onto Pacific Highway, would divert much of the outbound project traffic away from the main access on S 240th Street. Many of these trips would therefore bypass the Pacific Highway/S 240th Street intersection, lowering delays there. It is not anticipated that inbound traffic patterns to the site would be substantially altered. Based on the existing inbound splits, the assumed proportion of outbound traffic that would use the S 236th Lane access would be roughly 55 percent. Figure 5 shows the anticipated 2016 peak hour volumes redistributed under the proposed access configuration.

C. Future Level of Service

A level of service analysis was made of the future 2016 peak hour volumes with the access modification in place. Results were determined using the *Synchro 6* program. A LOS summary is found in Table 2 on page 12.

As shown in Table 2, delays at the main entrance on S 240th Street would be reduced with the addition of outbound lanes at the 236th Lane access. Southbound delays onto S 240th Street would be expected to drop roughly from LOS F to LOS C during the afternoon peak hour. Assuming the 236th Lane intersection at Pacific Highway is signalized (see Section E below), and assuming separate lanes for left turns and right turns out onto Pacific Highway, delays at that intersection would have delays of LOS A to LOS B. A separate analysis was performed for Pacific Highway & 236th Lane assuming only one lane for outbound traffic, with the results indicating LOS C delays for 236th Lane during the critical afternoon peak.



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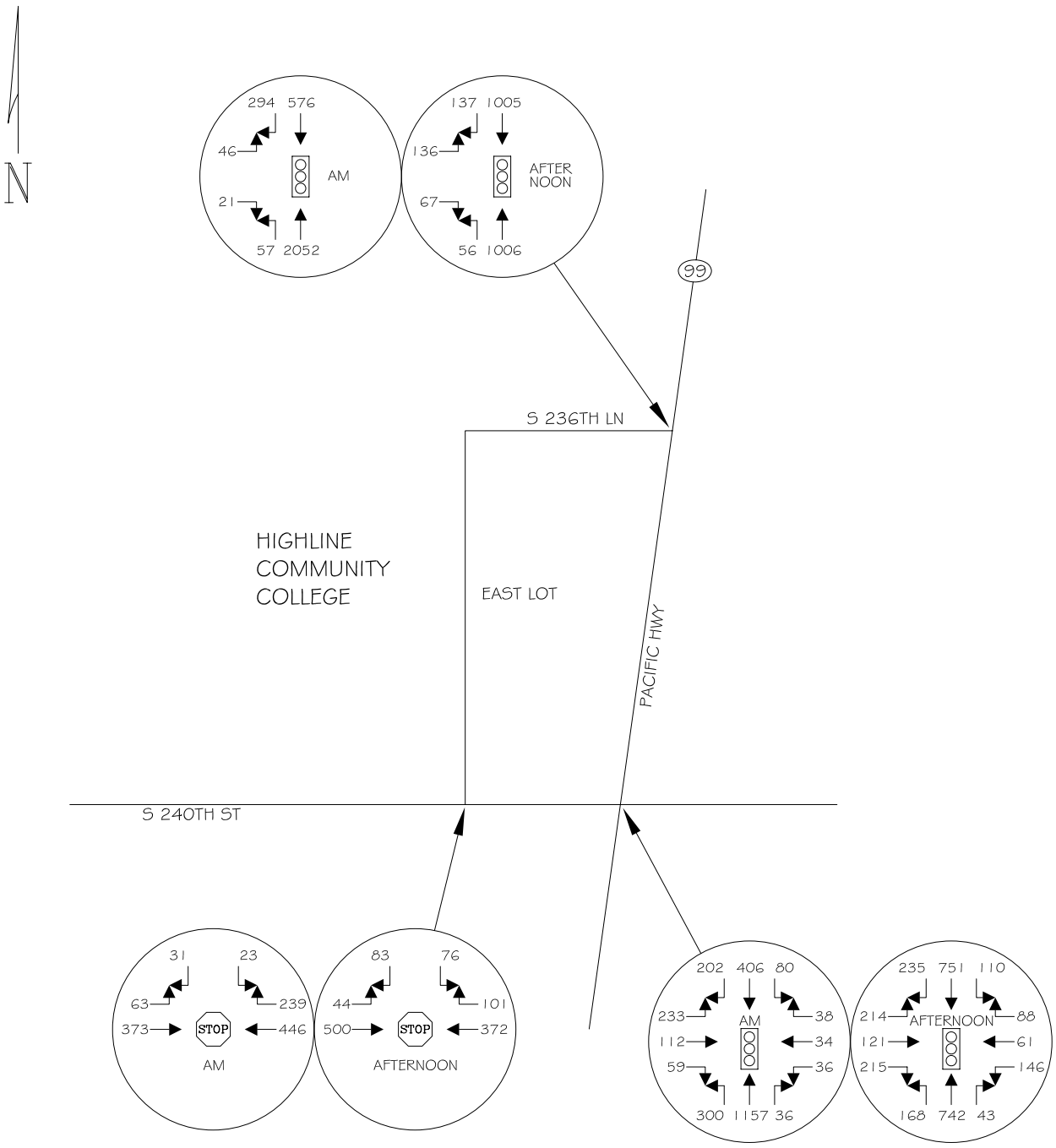
2016 AM & AFTERNOON PEAK HOUR VOLUMES

FIGURE 4



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2016 AM & AFTERNOON PEAK HOUR VOLUMES
WITH MODIFIED ENTRANCE
FIGURE 5

TABLE 2
2016 Level of Service With Modified Access

Intersection	*Control*	*Geometry*	*LOS*	*Delay*
Pacific Hwy/240th St (AM)	Signal	Eastbound	D	50.1
		Westbound	D	49.6
		Northbound	C	25.4
		Southbound	C	30.3
		Overall	C	31.3
Pacific Hwy/236th Ln (AM)	Signal	Eastbound	B	14.4
w/ LT & RT lanes		Northbound	A	5.9
		Southbound	A	5.8
		Overall	A	6.2
Pacific Hwy/236th Ln (AM)	Signal	Eastbound	B	14.7
w/ 1 out lane		Northbound	A	6.9
		Southbound	A	6.3
		Overall	A	7.0
240th St/Entrance (AM)	Stop	Southbound	D	25.1
		Eastbound LT	A	10.6
Pacific Hwy/240th St (PM)	Signal	Eastbound	D	49.8
		Westbound	E	56.8
		Northbound	C	33.0
		Southbound	C	31.4
		Overall	D	38.3
Pacific Hwy/236th Ln (PM)	Signal	Eastbound	B	14.2
w/ LT & RT lanes		Northbound	A	8.7
		Southbound	B	11.5
		Overall	B	10.8
Pacific Hwy/236th Ln (PM)	Signal	Eastbound	C	21.7
w/ 1 out lane		Northbound	A	9.6
		Southbound	B	12.9
		Overall	B	12.8
240th St/Entrance (PM)	Stop	Southbound	C	22.6
		Eastbound LT	A	8.9

D. Future Queue Lengths With Modification

The analysis results under the future volumes with the access modification indicates 95th percentile queue lengths of 285 feet for eastbound S 240th Street, and 18 feet for the main project entrance during the AM peak hour. Results for the afternoon PM peak hour are 295 feet for eastbound S 240th Street, and 55 feet within the main project entrance, a reduction from 399 feet and 244 feet under existing conditions. These results indicate that blockage of the main project entrance would not be expected under the modified access scenario.

E. Potential Transit Center Effects

There is the possibility of a future transit center to be added at the south end of the east parking lot. The transit center would serve the S 240th Street community as well as Highline students. Actual effects of this potential transit center were not modeled, as bus route headways and usage would not be known at this preliminary stage. Qualitatively, there would likely be some increase in delays from the addition of larger buses into the mix of passenger vehicles, as well as some increase in pedestrians. On the other hand, an increase in Highline student usage of transit is possible, tempering the increase in bus activity with some decrease in student vehicles using the parking lot. It is also possible that the majority of transit users at this location would be transfers between routes, which would not reduce the local background traffic but also would not add pedestrian crossing movements.

F. Signal Warrants

A signal warrant analysis was performed for the modified access intersection of Pacific Highway & S 236th Lane. This analysis is based on Warrants 1, 2, and 3 in the Manual on Uniform Traffic Control Devices (MUTCD) 2009 Edition. The warrant analysis results are as follows:

WARRANT 1, Eight Hour Vehicular Volume
The installation of a traffic signal may be necessary to control an intersection with large volumes of conflicting traffic. The required traffic volumes must be present for at least 8 hours of an average weekday. This analysis assumes 2+ lanes moving traffic on the major street, 2 on the minor street, and a speed of greater than 40 mph. The minor street is assumed to have 2 lanes for a more conservative warrant analysis. The warrant is split with Condition A for Minimum Vehicular Volume, while Condition B is for Interruption of Continuous Traffic. Warrant 1 is met if either condition is met. The results indicate that under 2016 volumes with the modification in place, Condition B warrants ***would be met*** for well over the minimum 8 hours of the day. Refer to the appendix for the analysis spreadsheets.

WARRANT 2, Four Hour Vehicular Volume
The four hour vehicular volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal. The warrant is met if, for each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street and the minor street all fall above the applicable curve in Figure 4C-2 (applies to a speed above 40 mph on the major street). The analysis results indicate the volumes would be met for 12 hours of the day, exceeding the 4 hour minimum. Warrant 2 therefore ***would be met***.

WARRANT 3, Peak Hour
The peak hour warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor street traffic suffers undue

delay when entering or crossing the major street. The warrant is considered met if the plotted point falls above the applicable curve in Figure 4C-4 (speed above 40 mph). The warrant results show the plotted point above the curve, Warrant 3 ***would be met***.

V. CONCLUSIONS

Highline Community College currently shows substantial queuing on S 240th Street across the project entrance, and within the parking lot for vehicles waiting to turn onto S 240th Street. The existing access at the northeast end of the project is currently for inbound traffic only from Pacific Highway. A full movement access is being considered for the S 236th Lane & Pacific Highway access intersection.

The results of providing an outbound lane for the S 236th Lane access onto Pacific Highway would indicate that queuing on S 240th Street would not extend across the main project access under this configuration. MUTCD Signal Warrants 1, 2, and 3 would be met for the new S 236th Lane & Pacific Highway intersection, assuming full movements at the intersection. Delays for the project access points and for Pacific Highway & S 240th Street should be improved under the proposed access configuration using a 5 year horizon and a 3 percent annual growth rate to account for background increases in volume as well as increased Highline enrollment.

HIGHLINE COMMUNITY COLLEGE
ACCESS ANALYSIS

APPENDIX

LEVEL OF SERVICE

The following are excerpts from the *2000 Highway Capacity Manual - Transportation Research Board Special Report 209.*

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level of service (LOS) is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience.

Six LOS are defined for each type of facility that has analysis procedures available. Letters designate each level, from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each level of service represents a range of operating conditions and the driver's perception of those conditions.

Level-of-Service definitions

The following definitions generally define the various levels of service for arterials.

Level of service A represents primarily free-flow operations at average travel speeds, usually about 90 percent of the free-flow speed for the arterial classification. Vehicles are seldom impeded in their ability to maneuver in the traffic stream. Delay at signalized intersections is minimal.

Level of service B represents reasonably unimpeded operations at average travel speeds, usually about 70 percent of the free-flow speed for the arterial classification. The ability to maneuver in the traffic stream is only slightly restricted and delays are not bothersome.

Level of service C represents stable operations; however, ability to maneuver and change lanes in midblock locations may be more restricted than in LOS B, and longer queues, adverse signal coordination, or both may contribute to lower average travel speeds of about 50 percent of the average free-flow speed for the arterial classification.

Level of service D borders on a range in which small increases in flow may cause substantial increases in approach delay and hence decreases in arterial speed. LOS D may be due to adverse signal progression, inappropriate signal timing, high volumes, or some combination of these. Average travel speeds are about 40 percent of free-flow speed.

Level of service E is characterized by significant delays and average travel speeds of one-third the free-flow speed or less. Such operations are caused by some combination of adverse progression, high signal density, high volumes, extensive delays at critical intersections, and inappropriate signal timing.

Level of service F characterizes arterial flow at extremely low speeds, from less than one-third to one-quarter of the free-flow speed. Intersection congestion is likely at critical signalized locations, with long delays and extensive queuing.

These definitions are general and conceptual in nature, and they apply primarily to uninterrupted flow. Levels of service for interrupted flow facilities vary widely in terms of both the user's perception of service quality and the operational variables used to describe them.

For each type of facility, levels of service are defined based on one or more operational parameters that best describe operating quality for the subject facility type. While the concept of level of service attempts to address a wide range of operating conditions, limitations on data collection and availability make it impractical to treat the full range of operational parameters for every type of facility. The parameters selected to define levels of service for each facility type are called "measures of effectiveness" or "MOE's", and represent available measures that best describe the quality of operation on the subject facility type.

Each level of service represents a range of conditions, as defined by a range in the parameters given. Thus, a level of service is not a discrete condition, but rather a range of conditions for which boundaries are established.

The following tables describe levels of service for signalized and unsignalized intersections. Level of service for signalized intersections is defined in terms of average control delay. Delay is a measure of driver discomfort, frustration, fuel consumption and lost travel time, as well as time from movements at slower speeds and stops on intersection approaches as vehicles move up in queue position or slow down upstream of an intersection. Level of service for unsignalized intersections is determined by the computed or measured control delay and is determined for each minor movement.

Signalized Intersections - Level of Service

Level of Service	Control Delay per Vehicle (sec)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

Unsignalized Intersections - Level of Service

Level of Service	Average Total Delay per Vehicle (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

As described in the 2000 Highway Capacity Manual, level of service breakpoints for all-way stop controlled (AWSC) intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from distinct kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an AWSC intersection. Thus a higher level of control delay is acceptable at a signalized intersection for the same level of service.

AWSC Intersections - Level of Service

Level of Service	Average Total Delay per Vehicle (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

HIGHLINE COMMUNITY COLLEGE
ACCESS ANALYSIS

24 HOUR TUBE COUNTS
&
PEAK HOUR TURNING MOVEMENT COUNTS

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(425) 861-8866

Site Code: 01A
Station ID:

KENT, WASHINGTON
S 236TH LANE
@ GATE TO PARKING HIGHLINE CC
LOC# 01A HEA11116T

Latitude: -999' 0.000 South

Start Time	Tue 03-May-1 A.M.	P.M.	Wed 04-May-1 A.M.	P.M.	Thu 05-May-1 A.M.	P.M.	Daily Average A.M.	P.M.
12:00	0	66	0	54	0	49	0	56
12:15	0	21	0	12	0	26	0	20
12:30	0	19	0	20	0	24	0	21
12:45	0	**50**	0	36	0	43	0	43
01:00	0	**57**	0	50	0	47	0	51
01:15	0	**34**	0	38	0	34	0	35
01:30	0	**26**	0	15	0	18	0	20
01:45	0	22	0	22	0	34	0	26
02:00	0	18	0	7	0	12	0	12
02:15	0	20	0	18	0	16	0	18
02:30	0	28	0	10	0	25	0	21
02:45	0	16	0	23	0	21	0	20
03:00	0	18	0	12	0	22	0	17
03:15	0	21	0	21	0	16	0	19
03:30	0	12	0	18	0	18	0	16
03:45	0	24	0	14	0	20	0	19
04:00	0	16	0	16	0	16	0	16
04:15	1	12	2	33	1	21	1	22
04:30	0	29	0	18	0	30	0	26
04:45	0	22	0	33	0	18	0	24
05:00	0	34	0	**59**	0	36	0	**43**
05:15	1	30	0	**33**	0	**36**	0	**33**
05:30	5	24	1	**34**	2	**20**	3	**26**
05:45	4	64	4	**60**	6	**49**	5	**58**
06:00	3	40	0	42	0	**44**	1	42
06:15	9	14	4	15	2	20	5	16
06:30	8	6	4	11	10	6	7	8
06:45	25	9	22	7	20	4	22	7
07:00	22	12	20	10	20	10	21	11
07:15	32	27	36	27	25	24	31	26
07:30	76	12	57	16	48	8	60	12
07:45	121	6	109	8	74	6	101	7
08:00	**98**	6	**108**	4	**88**	0	**98**	3
08:15	**58**	0	**66**	0	**51**	0	**58**	0
08:30	**94**	0	**86**	0	**57**	0	**79**	0
08:45	**140**	0	**130**	0	**110**	0	**127**	0
09:00	72	0	83	0	82	0	79	0
09:15	44	0	46	0	42	0	44	0
09:30	52	0	46	0	44	0	47	0
09:45	85	0	63	0	58	0	69	0
10:00	62	0	46	0	42	0	50	0
10:15	41	0	54	0	37	0	44	0
10:30	62	0	62	0	62	0	62	0
10:45	70	0	74	0	52	0	65	0
11:00	37	0	48	0	42	0	42	0
11:15	25	0	20	0	15	0	20	0
11:30	28	0	30	0	27	0	28	0
11:45	42	0	49	0	48	0	46	0
Total	1317	815	1270	796	1065	773	1215	794
Combined Total	2132		2066		1838		2009	
Peak	08:00	00:45	08:00	05:00	08:00	05:15	08:00	05:00
Volume	390	167	390	186	306	149	362	160
P.H.F.	0.696	0.633	0.750	0.775	0.695	0.760	0.713	0.690
ADT	Not Calculated							

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(425) 861-8866

Site Code: 01A
Station ID:

KENT, WASHINGTON
S 236TH LANE
@ GATE TO PARKING HIGHLINE CC
LOC# 01A HEA11116T

Latitude: -999' 0.000 South

Start Time	Mon 02-May-11	Tue 03-May-11	Wed 04-May-11	Thu 05-May-11	Fri 06-May-11	Average Day	Sat 07-May-11	Sun 08-May-11	Week Average
12:00 AM	*	0	0	0	*	0	*	*	0
01:00	*	0	0	0	*	0	*	*	0
02:00	*	0	0	0	*	0	*	*	0
03:00	*	0	0	0	*	0	*	*	0
04:00	*	1	2	1	*	1	*	*	1
05:00	*	10	5	8	*	8	*	*	8
06:00	*	45	30	32	*	36	*	*	36
07:00	*	251	222	167	*	213	*	*	213
08:00	*	**390**	**390**	**306**	*	**362**	*	*	**362**
09:00	*	253	238	226	*	239	*	*	239
10:00	*	235	236	193	*	221	*	*	221
11:00	*	132	147	132	*	137	*	*	137
12:00 PM	*	**156**	122	**142**	*	140	*	*	140
01:00	*	139	125	133	*	132	*	*	132
02:00	*	82	58	74	*	71	*	*	71
03:00	*	75	65	76	*	72	*	*	72
04:00	*	79	100	85	*	88	*	*	88
05:00	*	152	**186**	141	*	**160**	*	*	**160**
06:00	*	69	75	74	*	73	*	*	73
07:00	*	57	61	48	*	55	*	*	55
08:00	*	6	4	0	*	3	*	*	3
09:00	*	0	0	0	*	0	*	*	0
10:00	*	0	0	0	*	0	*	*	0
11:00	*	0	0	0	*	0	*	*	0
Day Total	0	2132	2066	1838	0	2011	0	0	2011
% Avg. WkDay	0.0%	106.0%	102.7%	91.4%	0.0%				
% Avg. Week	0.0%	106.0%	102.7%	91.4%	0.0%	100.0%	0.0%	0.0%	
AM Peak		08:00	08:00	08:00		08:00			08:00
Volume		390	390	306		362			362
PM Peak		12:00	17:00	12:00		17:00			17:00
Volume		156	186	142		160			160
Grand Total	0	2132	2066	1838	0	2011	0	0	2011
ADT	Not Calculated								

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(425) 861-8866

Site Code: 04
Station ID:

KENT, WASHINGTON
HIGHLINE CC EXIT ON TO S 240TH ST
417' W/O SR-99 (PACIFIC HWY S)
LOC# 04 HEA11116T

Latitude: -999' 0.000 South

Start Time	Mon 02-May-11	Tue 03-May-11	Wed 04-May-11	Thu 05-May-11	Fri 06-May-11	Average Day	Sat 07-May-11	Sun 08-May-11	Week Average
12:00 AM	*	1	1	2	*	1	*	*	1
01:00	*	0	0	0	*	0	*	*	0
02:00	*	0	0	0	*	0	*	*	0
03:00	*	0	1	0	*	0	*	*	0
04:00	*	0	0	0	*	0	*	*	0
05:00	*	3	0	0	*	1	*	*	1
06:00	*	4	6	5	*	5	*	*	5
07:00	*	45	47	45	*	46	*	*	46
08:00	*	110	104	99	*	104	*	*	104
09:00	*	153	170	166	*	163	*	*	163
10:00	*	**258**	**280**	**261**	*	**266**	*	*	**266**
11:00	*	197	178	208	*	194	*	*	194
12:00 PM	*	**321**	**299**	275	*	**298**	*	*	**298**
01:00	*	234	270	259	*	254	*	*	254
02:00	*	250	251	**279**	*	260	*	*	260
03:00	*	232	218	248	*	233	*	*	233
04:00	*	141	173	201	*	172	*	*	172
05:00	*	155	142	151	*	149	*	*	149
06:00	*	99	83	102	*	95	*	*	95
07:00	*	182	209	120	*	170	*	*	170
08:00	*	191	215	167	*	191	*	*	191
09:00	*	166	106	142	*	138	*	*	138
10:00	*	10	30	26	*	22	*	*	22
11:00	*	2	0	1	*	1	*	*	1
Day Total	0	2754	2783	2757	0	2763	0	0	2763
% Avg. WkDay	0.0%	99.7%	100.7%	99.8%	0.0%				
% Avg. Week	0.0%	99.7%	100.7%	99.8%	0.0%	100.0%	0.0%	0.0%	
AM Peak		10:00	10:00	10:00		10:00			10:00
Volume		258	280	261		266			266
PM Peak		12:00	12:00	14:00		12:00			12:00
Volume		321	299	279		298			298
Grand Total	0	2754	2783	2757	0	2763	0	0	2763
ADT		Not Calculated							

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(425) 861-8866

Site Code: 04
Station ID:

KENT, WASHINGTON
HIGHLINE CC EXIT ON TO S 240TH ST
417' W/O SR-99 (PACIFIC HWY S)
LOC# 04 HEA11116T

Latitude: -999' 0.000 South

Start Time	Tue 03-May-1 A.M.	P.M.	Wed 04-May-1 A.M.	P.M.	Thu 05-May-1 A.M.	P.M.	Daily Average A.M.	P.M.
12:00	0	**124**	0	119	1	94	0	112
12:15	0	**54**	0	51	0	58	0	54
12:30	0	**48**	0	38	0	53	0	46
12:45	1	**95**	1	**91**	1	**70**	1	**85**
01:00	0	68	0	**95**	0	**68**	0	**77**
01:15	0	88	0	**54**	0	**88**	0	**77**
01:30	0	44	0	**88**	0	**64**	0	**65**
01:45	0	34	0	33	0	39	0	35
02:00	0	38	0	70	0	60	0	56
02:15	0	62	0	68	0	63	0	64
02:30	0	93	0	72	0	96	0	87
02:45	0	57	0	41	0	60	0	53
03:00	0	74	1	70	0	66	0	70
03:15	0	64	0	56	0	60	0	60
03:30	0	50	0	56	0	52	0	53
03:45	0	44	0	36	0	70	0	50
04:00	0	43	0	52	0	66	0	54
04:15	0	33	0	54	0	47	0	45
04:30	0	33	0	39	0	40	0	37
04:45	0	32	0	28	0	48	0	36
05:00	3	45	0	54	0	63	1	54
05:15	0	42	0	37	0	32	0	37
05:30	0	36	0	28	0	30	0	31
05:45	0	32	0	23	0	26	0	27
06:00	0	32	0	20	0	37	0	30
06:15	0	18	0	23	0	28	0	23
06:30	2	21	2	16	0	19	1	19
06:45	2	28	4	24	5	18	4	23
07:00	6	47	2	25	4	20	4	31
07:15	6	76	5	76	6	47	6	66
07:30	13	33	9	70	10	31	11	45
07:45	20	26	31	38	25	22	25	29
08:00	19	75	28	90	17	77	21	81
08:15	10	74	13	94	12	59	12	76
08:30	27	25	22	19	22	18	24	21
08:45	54	17	41	12	48	13	48	14
09:00	30	37	51	16	41	18	41	24
09:15	28	34	30	26	23	18	27	26
09:30	33	39	28	30	32	56	31	42
09:45	62	56	61	34	70	50	64	47
10:00	60	4	**68**	12	**73**	8	**67**	8
10:15	**84**	4	**88**	10	**71**	9	**81**	8
10:30	**40**	2	**42**	7	**41**	8	**41**	6
10:45	**74**	0	**82**	1	**76**	1	**77**	1
11:00	**64**	0	66	0	70	0	67	0
11:15	40	1	38	0	30	0	36	0
11:30	31	0	22	0	44	0	32	0
11:45	62	1	52	0	64	1	59	1
Total	771	1983	787	1996	786	1971	781	1986
Combined Total	2754		2783		2757		2767	
Peak	10:15	12:00	10:00	00:45	10:00	00:45	10:00	00:45
Volume	262	321	280	328	261	290	266	304
P.H.F.	0.780	0.647	0.795	0.689	0.859	0.755	0.821	0.679
ADT	Not Calculated							

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(425) 861-8866

Site Code: 03
Station ID:

KENT, WASHINGTON
SR-99 (PACIFIC HWY S) S/O
S 236TH LN
LOC# 03 HEA11116T

Latitude: -999' 0.000 South

Start Time	Mon 02-May-11	Tue 03-May-11	Wed 04-May-11	Thu 05-May-11	Fri 06-May-11	Average Day	Sat 07-May-11	Sun 08-May-11	Week Average
12:00 AM	*	104	89	116	*	103	*	*	103
01:00	*	73	68	74	*	72	*	*	72
02:00	*	67	82	74	*	74	*	*	74
03:00	*	93	109	105	*	102	*	*	102
04:00	*	217	198	196	*	204	*	*	204
05:00	*	554	536	521	*	537	*	*	537
06:00	*	939	992	1015	*	982	*	*	982
07:00	*	**1260**	**1303**	**1743**	*	**1435**	*	*	**1435**
08:00	*	936	1051	1447	*	1145	*	*	1145
09:00	*	857	813	1040	*	903	*	*	903
10:00	*	882	865	843	*	863	*	*	863
11:00	*	897	907	892	*	899	*	*	899
12:00 PM	*	1012	984	1008	*	1001	*	*	1001
01:00	*	**1061**	1066	1048	*	**1058**	*	*	**1058**
02:00	*	1050	1057	1011	*	1039	*	*	1039
03:00	*	1025	**1070**	**1079**	*	1058	*	*	1058
04:00	*	894	998	989	*	960	*	*	960
05:00	*	1005	958	949	*	971	*	*	971
06:00	*	860	868	844	*	857	*	*	857
07:00	*	842	815	850	*	836	*	*	836
08:00	*	759	738	727	*	741	*	*	741
09:00	*	616	555	610	*	594	*	*	594
10:00	*	332	360	367	*	353	*	*	353
11:00	*	223	206	229	*	219	*	*	219
Day Total	0	16558	16688	17777	0	17006	0	0	17006
% Avg. WkDay	0.0%	97.4%	98.1%	104.5%	0.0%				
% Avg. Week	0.0%	97.4%	98.1%	104.5%	0.0%	100.0%	0.0%	0.0%	
AM Peak		07:00	07:00	07:00		07:00			07:00
Volume		1260	1303	1743		1435			1435
PM Peak		13:00	15:00	15:00		13:00			13:00
Volume		1061	1070	1079		1058			1058
Grand Total	0	16558	16688	17777	0	17006	0	0	17006
ADT		Not Calculated							

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(425) 861-8866

Site Code: 03
Station ID:

KENT, WASHINGTON
SR-99 (PACIFIC HWY S) S/O
S 236TH LN
LOC# 03 HEA11116T

Latitude: -999' 0.000 South

Start Time	Tue 03-May-1 A.M.	P.M.	Wed 04-May-1 A.M.	P.M.	Thu 05-May-1 A.M.	P.M.	Daily Average A.M.	P.M.
12:00	34	252	26	249	40	238	33	246
12:15	22	248	24	238	26	279	24	255
12:30	24	248	22	236	24	233	23	239
12:45	24	264	17	261	26	258	22	261
01:00	26	278	14	258	30	261	23	266
01:15	18	279	24	262	22	266	21	269
01:30	17	268	14	292	14	260	15	273
01:45	12	236	16	254	8	261	12	250
02:00	18	232	36	259	22	239	25	243
02:15	11	**252**	16	257	19	257	15	255
02:30	20	**300**	16	286	16	253	17	**280**
02:45	18	**266**	14	255	17	**262**	16	**261**
03:00	18	**280**	25	254	20	**284**	21	**273**
03:15	24	241	24	**268**	20	**278**	23	**262**
03:30	27	244	32	**286**	36	**267**	32	266
03:45	24	260	28	**262**	29	250	27	257
04:00	24	237	34	**270**	22	246	27	251
04:15	50	228	37	252	46	260	44	247
04:30	78	217	68	214	68	229	71	220
04:45	65	212	59	262	60	254	61	243
05:00	110	263	102	252	91	226	101	247
05:15	130	242	118	236	142	256	130	245
05:30	154	256	150	204	144	234	149	231
05:45	160	244	166	266	144	233	157	248
06:00	155	266	188	228	182	204	175	233
06:15	238	232	220	225	247	236	235	231
06:30	279	196	292	199	290	212	287	202
06:45	267	166	292	216	296	192	285	191
07:00	**290**	240	**310**	184	322	237	307	220
07:15	**320**	190	**329**	210	**447**	225	**365**	208
07:30	**340**	216	**362**	213	**477**	178	**393**	202
07:45	**310**	196	**302**	208	**497**	210	**370**	205
08:00	243	216	262	206	**460**	232	**322**	218
08:15	202	240	281	224	362	178	282	214
08:30	264	172	262	152	301	166	276	163
08:45	227	131	246	156	324	151	266	146
09:00	231	132	226	139	306	148	254	140
09:15	206	154	193	144	278	134	226	144
09:30	220	171	196	156	228	190	215	172
09:45	200	159	198	116	228	138	209	138
10:00	216	126	232	98	210	134	219	119
10:15	224	84	200	106	210	93	211	94
10:30	212	72	218	90	217	79	216	80
10:45	230	50	215	66	206	61	217	59
11:00	223	67	253	66	220	76	232	70
11:15	236	42	204	56	214	60	218	53
11:30	218	62	219	42	236	48	224	51
11:45	220	52	231	42	222	45	224	46
Total	6879	9679	7013	9675	8066	9711	7317	9687
Combined Total	16558		16688		17777		17004	
Peak	07:00	02:15	07:00	03:15	07:15	02:45	07:15	02:30
Volume	1260	1098	1303	1086	1881	1091	1450	1076
P.H.F.	0.926	0.915	0.900	0.930	0.946	0.960	0.922	0.961
ADT	Not Calculated							

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(425) 861-8866

Site Code: 02
Station ID:

KENT, WASHINGTON
SR-99 (PACIFIC HWY S) N/O
S 236TH LN
LOC# 02 HEA11116T

Latitude: -999' 0.000 South

Start Time	Mon 02-May-11	Tue 03-May-11	Wed 04-May-11	Thu 05-May-11	Fri 06-May-11	Average Day	Sat 07-May-11	Sun 08-May-11	Week Average
12:00 AM	*	156	152	162	*	157	*	*	157
01:00	*	88	69	96	*	84	*	*	84
02:00	*	63	63	70	*	65	*	*	65
03:00	*	46	34	48	*	43	*	*	43
04:00	*	66	44	62	*	57	*	*	57
05:00	*	108	136	127	*	124	*	*	124
06:00	*	258	269	268	*	265	*	*	265
07:00	*	589	654	534	*	592	*	*	592
08:00	*	817	**909**	719	*	815	*	*	815
09:00	*	764	883	772	*	806	*	*	806
10:00	*	**896**	892	798	*	**862**	*	*	**862**
11:00	*	865	877	**803**	*	848	*	*	848
12:00 PM	*	978	1014	1007	*	1000	*	*	1000
01:00	*	945	998	995	*	979	*	*	979
02:00	*	1043	1034	1072	*	1050	*	*	1050
03:00	*	1282	1275	1260	*	1272	*	*	1272
04:00	*	1433	1408	1402	*	1414	*	*	1414
05:00	*	**1593**	**1511**	**1552**	*	**1552**	*	*	**1552**
06:00	*	1128	1081	1124	*	1111	*	*	1111
07:00	*	834	837	867	*	846	*	*	846
08:00	*	625	667	624	*	639	*	*	639
09:00	*	564	542	568	*	558	*	*	558
10:00	*	377	425	382	*	395	*	*	395
11:00	*	245	254	278	*	259	*	*	259
Day Total	0	15763	16028	15590	0	15793	0	0	15793
% Avg. WkDay	0.0%	99.8%	101.5%	98.7%	0.0%				
% Avg. Week	0.0%	99.8%	101.5%	98.7%	0.0%	100.0%	0.0%	0.0%	
AM Peak		10:00	08:00	11:00		10:00			10:00
Volume		896	909	803		862			862
PM Peak		17:00	17:00	17:00		17:00			17:00
Volume		1593	1511	1552		1552			1552
Grand Total	0	15763	16028	15590	0	15793	0	0	15793
ADT		Not Calculated							

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(425) 861-8866

Site Code: 02
Station ID:

KENT, WASHINGTON
SR-99 (PACIFIC HWY S) N/O
S 236TH LN
LOC# 02 HEA11116T

Latitude: -999' 0.000 South

Start Time	Tue 03-May-1 A.M.	P.M.	Wed 04-May-1 A.M.	P.M.	Thu 05-May-1 A.M.	P.M.	Daily Average A.M.	P.M.
12:00	32	286	56	276	38	282	42	281
12:15	49	226	36	234	46	231	44	230
12:30	40	212	34	242	38	240	37	231
12:45	35	254	26	262	40	254	34	257
01:00	20	234	20	251	26	264	22	250
01:15	25	272	20	263	20	229	22	255
01:30	26	195	12	216	28	246	22	219
01:45	17	244	17	268	22	256	19	256
02:00	20	242	16	214	20	234	19	230
02:15	15	253	21	289	18	254	18	265
02:30	18	264	16	254	18	294	17	271
02:45	10	284	10	277	14	290	11	284
03:00	18	279	14	291	12	270	15	280
03:15	8	338	6	329	13	310	9	326
03:30	12	328	5	319	8	340	8	329
03:45	8	337	9	336	15	340	11	338
04:00	16	334	8	348	12	338	12	340
04:15	12	355	10	368	13	357	12	360
04:30	18	376	8	348	14	381	13	368
04:45	20	368	18	344	23	326	20	346
05:00	20	**398**	19	**394**	17	**392**	19	**395**
05:15	22	**402**	36	**380**	26	**396**	28	**393**
05:30	39	**385**	43	**377**	38	**388**	40	**383**
05:45	27	**408**	38	**360**	46	**376**	37	**381**
06:00	44	336	55	348	47	358	49	347
06:15	52	282	53	277	64	279	56	279
06:30	64	252	62	240	62	253	63	248
06:45	98	258	99	216	95	234	97	236
07:00	108	233	108	234	108	225	108	231
07:15	122	228	132	225	117	243	124	232
07:30	161	193	182	177	150	201	164	190
07:45	198	180	232	201	159	198	196	193
08:00	182	191	196	191	176	168	185	183
08:15	159	154	204	178	166	164	176	165
08:30	212	135	230	152	182	148	208	145
08:45	264	145	279	146	195	144	246	145
09:00	201	170	246	146	189	168	212	161
09:15	168	137	178	120	180	116	175	124
09:30	170	150	203	150	196	164	190	155
09:45	225	107	256	126	207	120	229	118
10:00	200	98	168	130	164	96	177	108
10:15	187	102	**224**	128	182	99	**198**	110
10:30	**252**	89	**260**	84	**214**	84	**242**	86
10:45	**257**	88	**240**	83	**238**	103	**245**	91
11:00	**210**	72	**238**	70	**200**	76	**216**	73
11:15	**211**	58	174	66	**184**	74	190	66
11:30	204	62	212	58	198	66	205	62
11:45	240	53	253	60	221	62	238	58
Total	4716	11047	4982	11046	4459	11131	4720	11074
Combined Total	15763		16028		15590		15794	
Peak	10:30	05:00	10:15	05:00	10:30	05:00	10:15	05:00
Volume	930	1593	962	1511	836	1552	901	1552
P.H.F.	0.881	0.976	0.862	0.959	0.878	0.980	0.916	0.982
ADT	Not Calculated							

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(425) 861-8866

Site Code: 01B
Station ID:

KENT, WASHINGTON
S 236TH LN 200' W/O
GATE TO HIGHLINE CC PARKING LOT
LOC# 01B HEA11116T

Latitude: -999' 0.000 South

Start Time	Mon 02-May-11	Tue 03-May-11	Wed 04-May-11	Thu 05-May-11	Fri 06-May-11	Average Day	Sat 07-May-11	Sun 08-May-11	Week Average
12:00 AM	*	0	0	0	*	0	*	*	0
01:00	*	0	0	0	*	0	*	*	0
02:00	*	0	1	0	*	0	*	*	0
03:00	*	0	1	0	*	0	*	*	0
04:00	*	3	2	1	*	2	*	*	2
05:00	*	11	6	8	*	8	*	*	8
06:00	*	53	49	52	*	51	*	*	51
07:00	*	261	269	206	*	245	*	*	245
08:00	*	**404**	**417**	**381**	*	**401**	*	*	**401**
09:00	*	257	234	279	*	257	*	*	257
10:00	*	235	224	232	*	230	*	*	230
11:00	*	126	151	143	*	140	*	*	140
12:00 PM	*	149	132	**155**	*	145	*	*	145
01:00	*	141	132	141	*	138	*	*	138
02:00	*	84	57	72	*	71	*	*	71
03:00	*	78	71	76	*	75	*	*	75
04:00	*	76	104	90	*	90	*	*	90
05:00	*	**151**	**184**	145	*	**160**	*	*	**160**
06:00	*	67	78	68	*	71	*	*	71
07:00	*	60	67	49	*	59	*	*	59
08:00	*	9	18	5	*	11	*	*	11
09:00	*	3	7	1	*	4	*	*	4
10:00	*	0	0	1	*	0	*	*	0
11:00	*	0	0	0	*	0	*	*	0
Day Total	0	2168	2204	2105	0	2158	0	0	2158
% Avg. WkDay	0.0%	100.5%	102.1%	97.5%	0.0%				
% Avg. Week	0.0%	100.5%	102.1%	97.5%	0.0%	100.0%	0.0%	0.0%	
AM Peak		08:00	08:00	08:00		08:00			08:00
Volume		404	417	381		401			401
PM Peak		17:00	17:00	12:00		17:00			17:00
Volume		151	184	155		160			160
Grand Total	0	2168	2204	2105	0	2158	0	0	2158
ADT	Not Calculated								

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(425) 861-8866

Site Code: 01B
Station ID:

KENT, WASHINGTON
S 236TH LN 200' W/O
GATE TO HIGHLINE CC PARKING LOT
LOC# 01B HEA11116T

Latitude: -999' 0.000 South

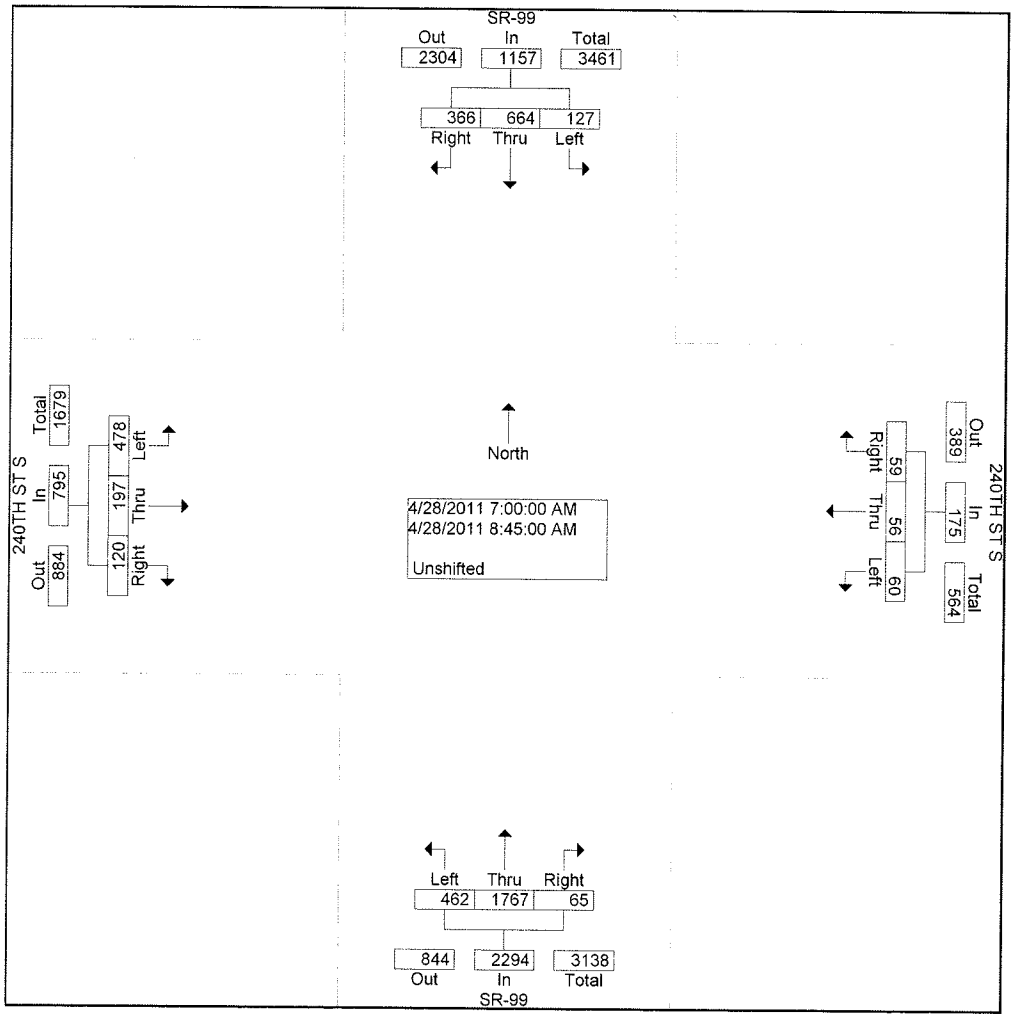
Start Time	Tue 03-May-1 A.M.	P.M.	Wed 04-May-1 A.M.	P.M.	Thu 05-May-1 A.M.	P.M.	Daily Average A.M.	P.M.
12:00	0	58	0	56	0	53	0	56
12:15	0	21	0	16	0	27	0	21
12:30	0	20	0	21	0	**25**	0	22
12:45	0	**50**	0	39	0	**50**	0	46
01:00	0	**52**	0	49	0	**52**	0	51
01:15	0	**40**	0	43	0	**36**	0	40
01:30	0	**25**	0	18	0	18	0	20
01:45	0	24	0	22	0	35	0	27
02:00	0	20	0	6	0	13	0	13
02:15	0	20	0	18	0	16	0	18
02:30	0	28	0	10	0	24	0	21
02:45	0	16	1	23	0	19	0	19
03:00	0	18	1	11	0	21	0	17
03:15	0	21	0	26	0	15	0	21
03:30	0	12	0	20	0	18	0	17
03:45	0	27	0	14	0	22	0	21
04:00	0	16	0	18	0	15	0	16
04:15	1	13	2	32	1	24	1	23
04:30	0	26	0	19	0	32	0	26
04:45	2	21	0	35	0	19	1	25
05:00	0	35	0	**56**	0	36	0	**42**
05:15	1	28	1	**32**	0	37	1	**32**
05:30	6	26	1	**36**	2	21	3	**28**
05:45	4	62	4	**60**	6	51	5	**58**
06:00	3	38	1	43	0	39	1	40
06:15	9	13	6	17	4	18	6	16
06:30	11	8	8	11	12	7	10	9
06:45	30	8	34	7	36	4	33	6
07:00	26	14	20	10	24	11	23	12
07:15	36	28	48	33	28	24	37	28
07:30	76	12	73	16	61	8	70	12
07:45	123	6	128	8	93	6	115	7
08:00	**100**	7	**120**	8	**110**	2	**110**	6
08:15	**61**	2	**73**	8	**64**	0	**66**	3
08:30	**102**	0	**89**	2	**69**	3	**87**	2
08:45	**141**	0	**135**	0	**138**	0	**138**	0
09:00	76	2	78	1	102	0	85	1
09:15	42	0	46	2	51	0	46	1
09:30	52	1	46	3	52	1	50	2
09:45	87	0	64	1	74	0	75	0
10:00	60	0	44	0	47	0	50	0
10:15	44	0	52	0	48	0	48	0
10:30	59	0	57	0	68	1	61	0
10:45	72	0	71	0	69	0	71	0
11:00	34	0	48	0	43	0	42	0
11:15	22	0	21	0	16	0	20	0
11:30	28	0	31	0	32	0	30	0
11:45	42	0	51	0	52	0	48	0
Total	1350	818	1354	850	1302	803	1333	825
Combined Total	2168		2204		2105		2158	
Peak	08:00	00:45	08:00	05:00	08:00	00:30	08:00	05:00
Volume	404	167	417	184	381	163	401	160
P.H.F.	0.716	0.673	0.772	0.767	0.690	0.769	0.726	0.690
ADT	Not Calculated							

Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : untitled1
Site Code : 00003255
Start Date : 04/28/2011
Page No : 1

Groups Printed- Unshifted

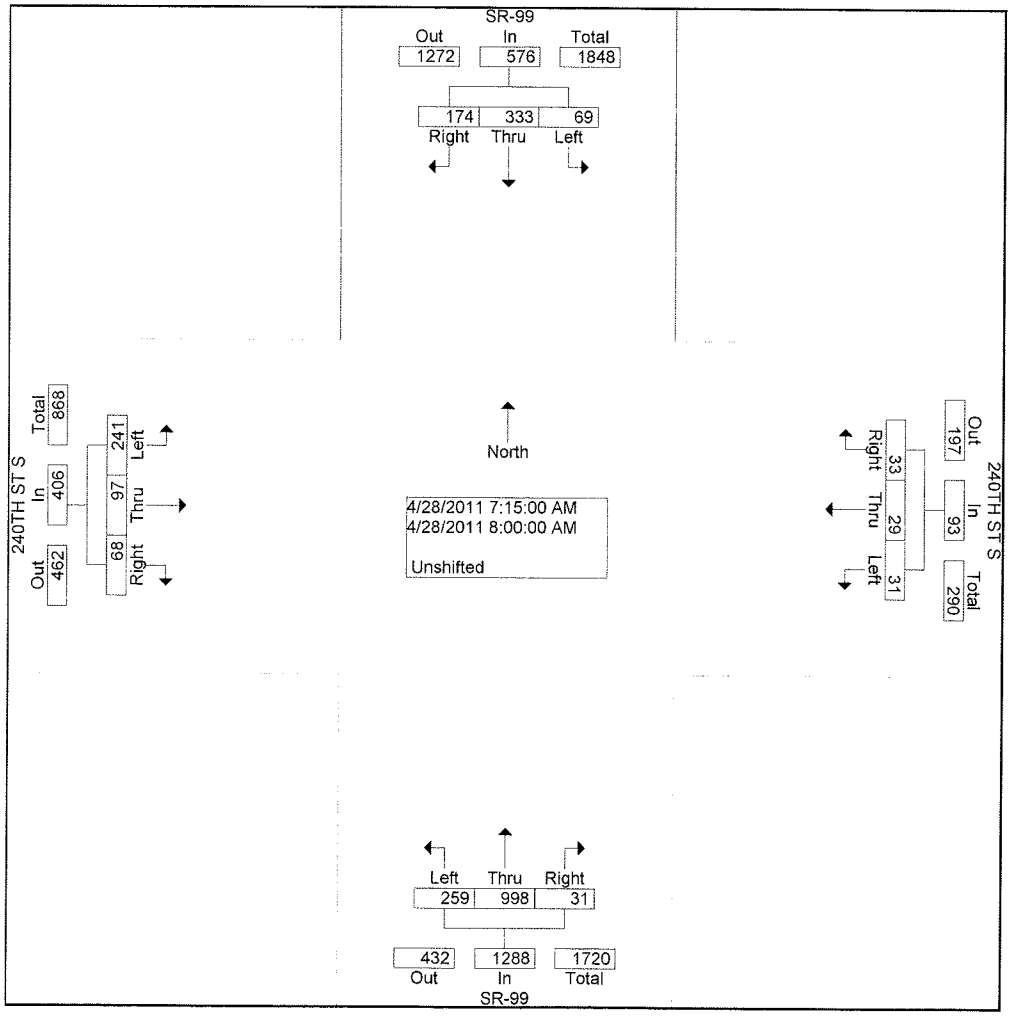
	SR-99 Southbound			240TH ST S Westbound			SR-99 Northbound			240TH ST S Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	20	60	13	6	4	4	7	264	26	7	18	56	485
07:15 AM	29	83	11	7	6	4	7	275	44	14	21	59	560
07:30 AM	36	79	16	8	3	6	4	291	64	17	22	63	609
07:45 AM	64	83	23	9	9	9	10	228	99	21	29	57	641
Total	149	305	63	30	22	23	28	1058	233	59	90	235	2295
08:00 AM	45	88	19	9	11	12	10	204	52	16	25	62	553
08:15 AM	42	94	9	7	5	12	6	186	48	9	17	47	482
08:30 AM	40	81	12	5	9	3	7	177	75	20	19	52	500
08:45 AM	90	96	24	8	9	10	14	142	54	16	46	82	591
Total	217	359	64	29	34	37	37	709	229	61	107	243	2126
Grand Total	366	664	127	59	56	60	65	1767	462	120	197	478	4421
Apprch %	31.6	57.4	11.0	33.7	32.0	34.3	2.8	77.0	20.1	15.1	24.8	60.1	
Total %	8.3	15.0	2.9	1.3	1.3	1.4	1.5	40.0	10.5	2.7	4.5	10.8	



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : untitled1
Site Code : 00003255
Start Date : 04/28/2011
Page No : 2

	SR-99 Southbound				240TH ST S Westbound				SR-99 Northbound				240TH ST S Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:15 AM																
Volume	174	333	69	576	33	29	31	93	31	998	259	1288	68	97	241	406	2363
Percent	30.2	57.8	12.0		35.5	31.2	33.3		2.4	77.5	20.1		16.7	23.9	59.4		
07:45 Volume	64	83	23	170	9	9	9	27	10	228	99	337	21	29	57	107	641
Peak Factor																	0.922
High Int.	07:45 AM				08:00 AM				07:30 AM				07:45 AM				
Volume	64	83	23	170	9	11	12	32	4	291	64	359	21	29	57	107	
Peak Factor				0.847				0.727				0.897				0.949	

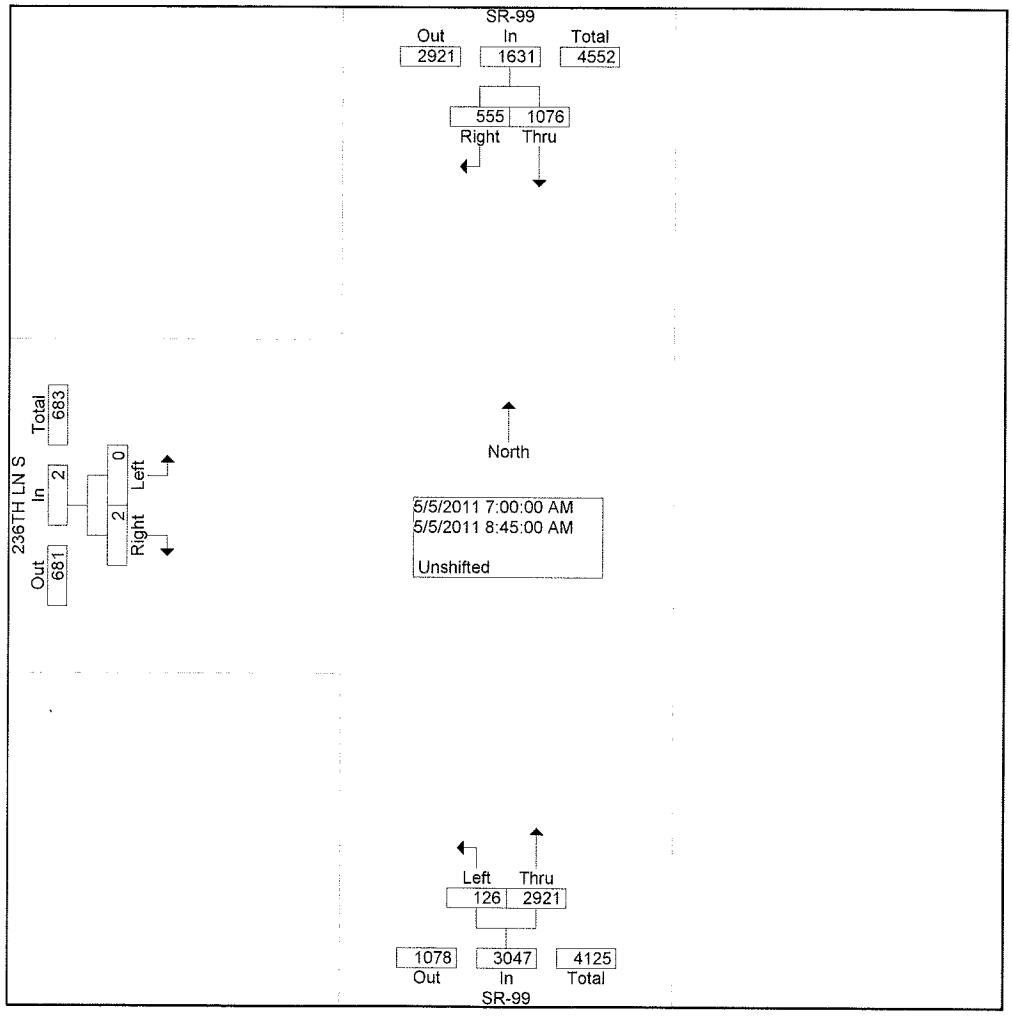


Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : 3255c
Site Code : 00003255
Start Date : 05/05/2011
Page No : 1

Groups Printed- Unshifted

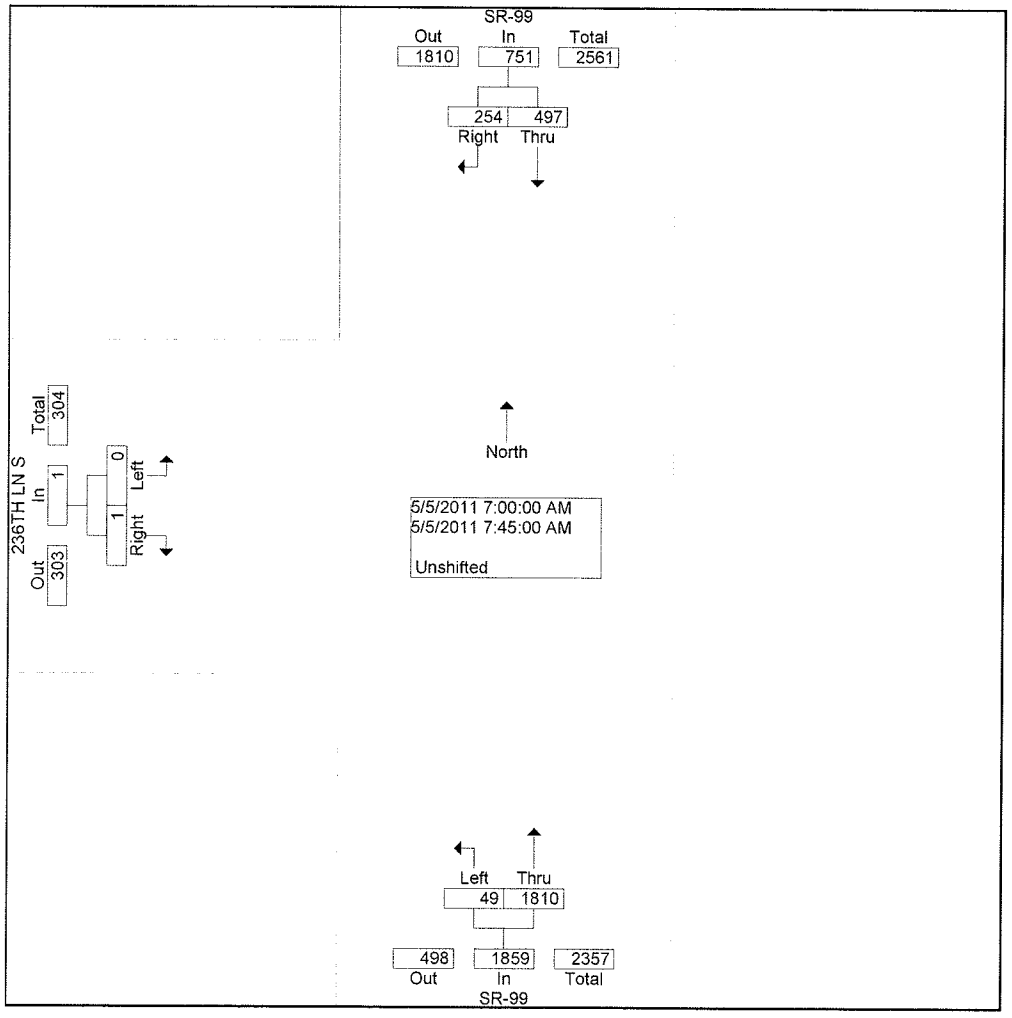
	SR-99 Southbound			SR-99 Northbound			236TH LN S Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	23	113	3	0	413	7	0	0	0	559
07:15 AM	46	120	7	0	458	8	0	0	0	639
07:30 AM	83	137	3	0	495	10	0	0	0	728
07:45 AM	102	127	3	0	444	24	1	0	0	701
Total	254	497	16	0	1810	49	1	0	0	2627
08:00 AM	38	108	6	0	298	3	0	0	0	453
08:15 AM	63	132	11	0	296	11	0	0	0	513
08:30 AM	87	161	7	0	241	29	1	0	0	526
08:45 AM	113	178	13	0	276	34	0	0	0	614
Total	301	579	37	0	1111	77	1	0	0	2106
Grand Total	555	1076	53	0	2921	126	2	0	0	4733
Apprch %	33.0	63.9	3.1	0.0	95.9	4.1	100.0	0.0	0.0	
Total %	11.7	22.7	1.1	0.0	61.7	2.7	0.0	0.0	0.0	



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : 3255c
Site Code : 00003255
Start Date : 05/05/2011
Page No : 2

	SR-99 Southbound				SR-99 Northbound				236TH LN S Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1													
Intersection	07:00 AM												
Volume	254	497	16	767	0	1810	49	1859	1	0	0	1	2627
Percent	33.1	64.8	2.1		0.0	97.4	2.6		100.0	0.0	0.0		
07:30 Volume	83	137	3	223	0	495	10	505	0	0	0	0	728
Peak Factor													0.902
High Int.	07:45 AM				07:30 AM				07:45 AM				
Volume	102	127	3	232	0	495	10	505	1	0	0	1	
Peak Factor				0.827				0.920				0.250	

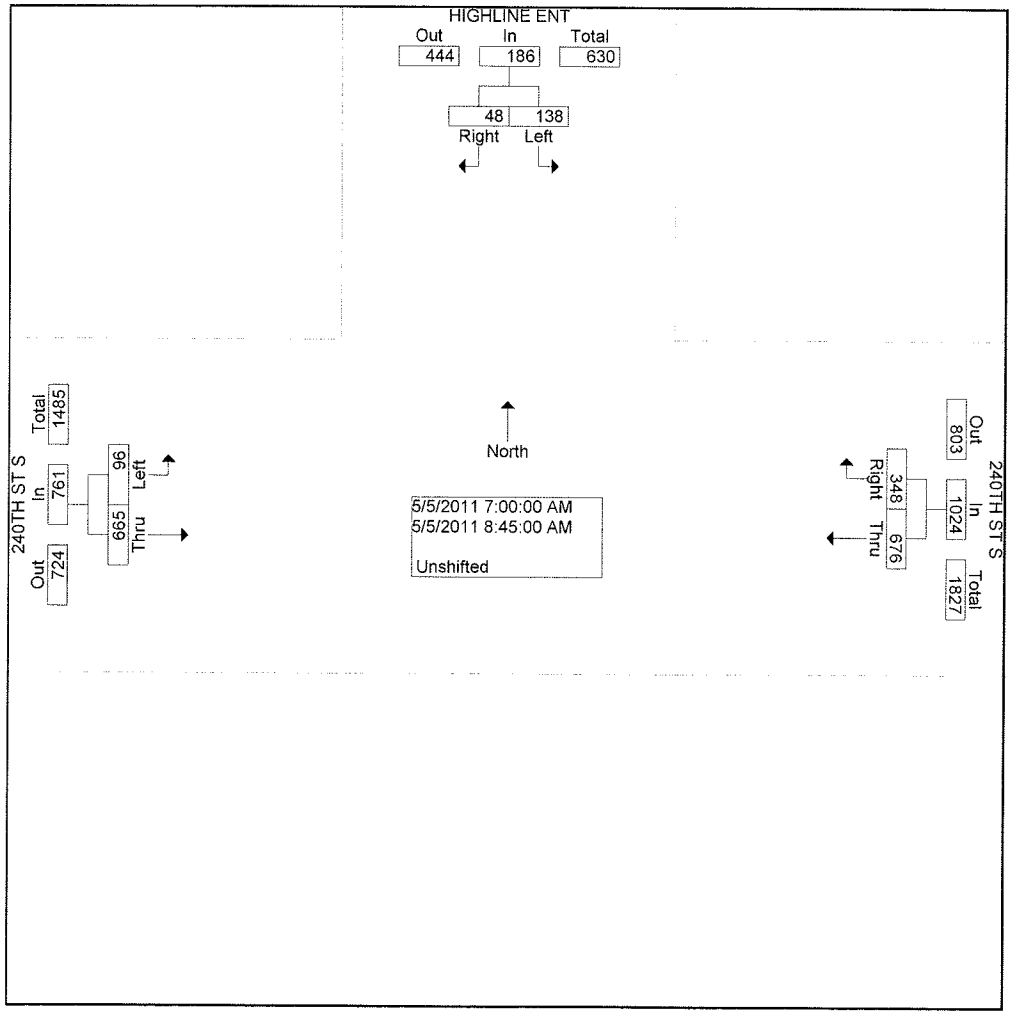


Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : untitled1
Site Code : 00003255
Start Date : 05/05/2011
Page No : 1

Groups Printed- Unshifted

	HIGHLINE ENT Southbound			240TH ST S Westbound			240TH ST S Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	2	0	3	14	56	0	0	69	2	146
07:15 AM	2	0	8	30	53	0	0	86	8	187
07:30 AM	9	0	17	72	90	0	0	91	26	305
07:45 AM	4	0	16	78	82	0	0	90	18	288
Total	17	0	44	194	281	0	0	336	54	926
08:00 AM	4	0	8	37	72	0	0	72	4	197
08:15 AM	4	0	18	46	101	0	0	65	11	245
08:30 AM	15	0	35	45	130	0	0	95	21	341
08:45 AM	8	0	33	26	92	0	0	97	6	262
Total	31	0	94	154	395	0	0	329	42	1045
Grand Total	48	0	138	348	676	0	0	665	96	1971
Apprch %	25.8	0.0	74.2	34.0	66.0	0.0	0.0	87.4	12.6	
Total %	2.4	0.0	7.0	17.7	34.3	0.0	0.0	33.7	4.9	



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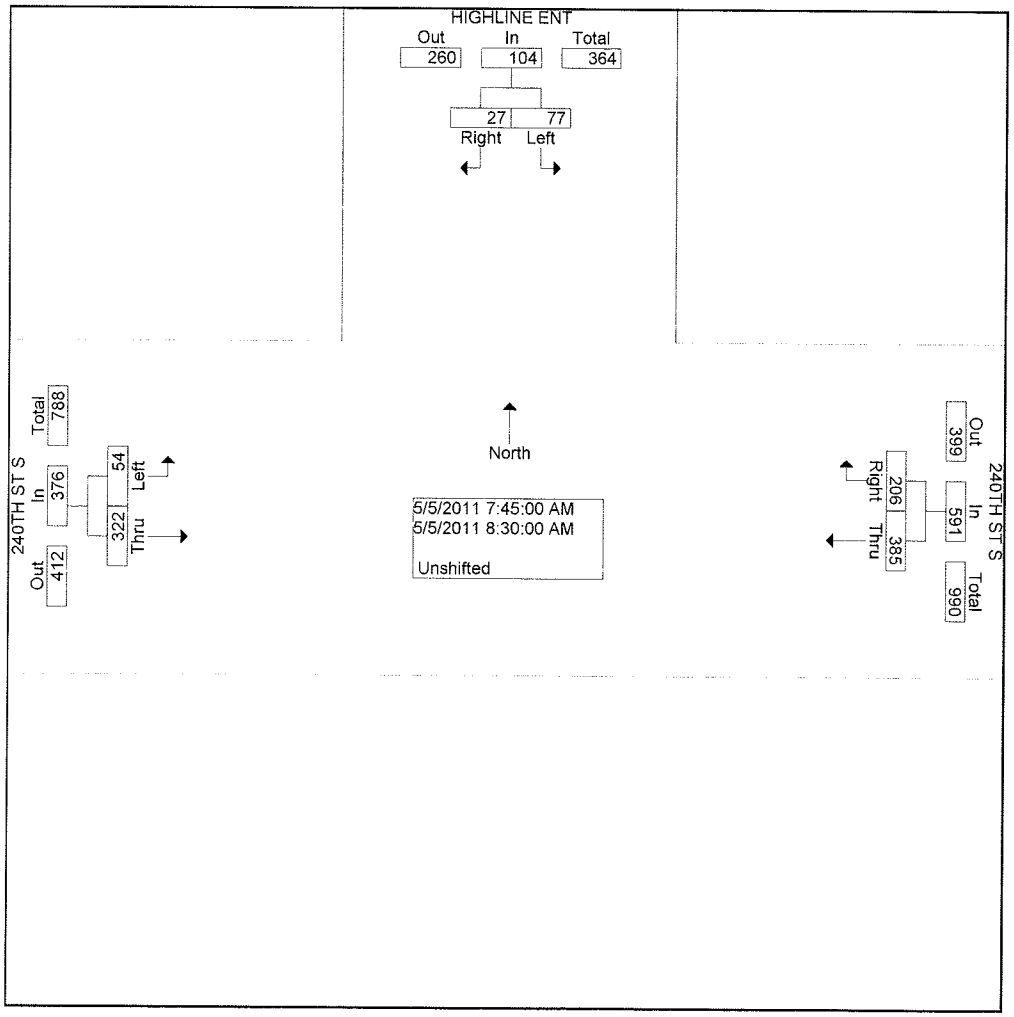
Puyallup, WA 98371

File Name : untitled1
Site Code : 00003255
Start Date : 05/05/2011
Page No : 2

	HIGHLINE ENT Southbound				240TH ST S Westbound				240TH ST S Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1													
Intersection	07:45 AM												
Volume	27	0	77	104	206	385	0	591	0	322	54	376	1071
Percent	26.0	0.0	74.0		34.9	65.1	0.0		0.0	85.6	14.4		
08:30 Volume	15	0	35	50	45	130	0	175	0	95	21	116	341
Peak Factor													0.785
High Int.	08:30 AM				08:30 AM				08:30 AM				
Volume	15	0	35	50	45	130	0	175	0	95	21	116	
Peak Factor				0.520				0.844				0.810	



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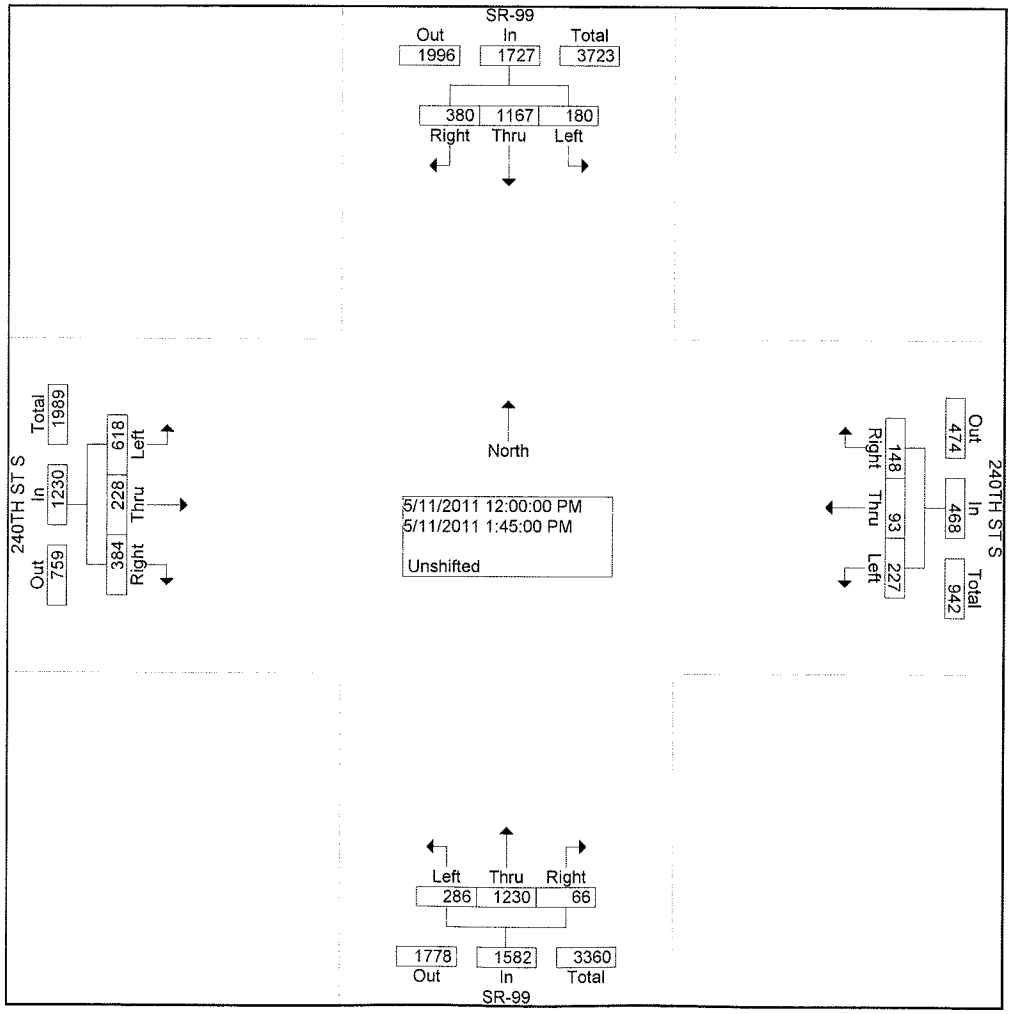
Site Code : 00003255
Start Date : 05/11/2011
Page No : 1

Groups Printed- Unshifted

	SR-99 Southbound			240TH ST S Westbound			SR-99 Northbound			240TH ST S Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
12:00 PM	58	140	25	23	15	32	4	164	48	61	30	75	675
12:15 PM	58	155	24	21	12	33	9	147	34	55	24	98	670
12:30 PM	48	144	24	15	7	25	9	156	30	33	21	62	574
12:45 PM	39	158	22	17	19	36	15	173	33	44	29	67	652
Total	203	597	95	76	53	126	37	640	145	193	104	302	2571
01:00 PM	39	150	23	23	9	21	6	160	57	40	34	85	647
01:15 PM	40	135	19	13	7	32	6	150	32	67	36	87	624
01:30 PM	48	147	20	14	16	30	11	133	31	42	32	79	603
01:45 PM	50	138	23	22	8	18	6	147	21	42	22	65	562
Total	177	570	85	72	40	101	29	590	141	191	124	316	2436
Grand Total	380	1167	180	148	93	227	66	1230	286	384	228	618	5007
Apprch %	22.0	67.6	10.4	31.6	19.9	48.5	4.2	77.7	18.1	31.2	18.5	50.2	
Total %	7.6	23.3	3.6	3.0	1.9	4.5	1.3	24.6	5.7	7.7	4.6	12.3	



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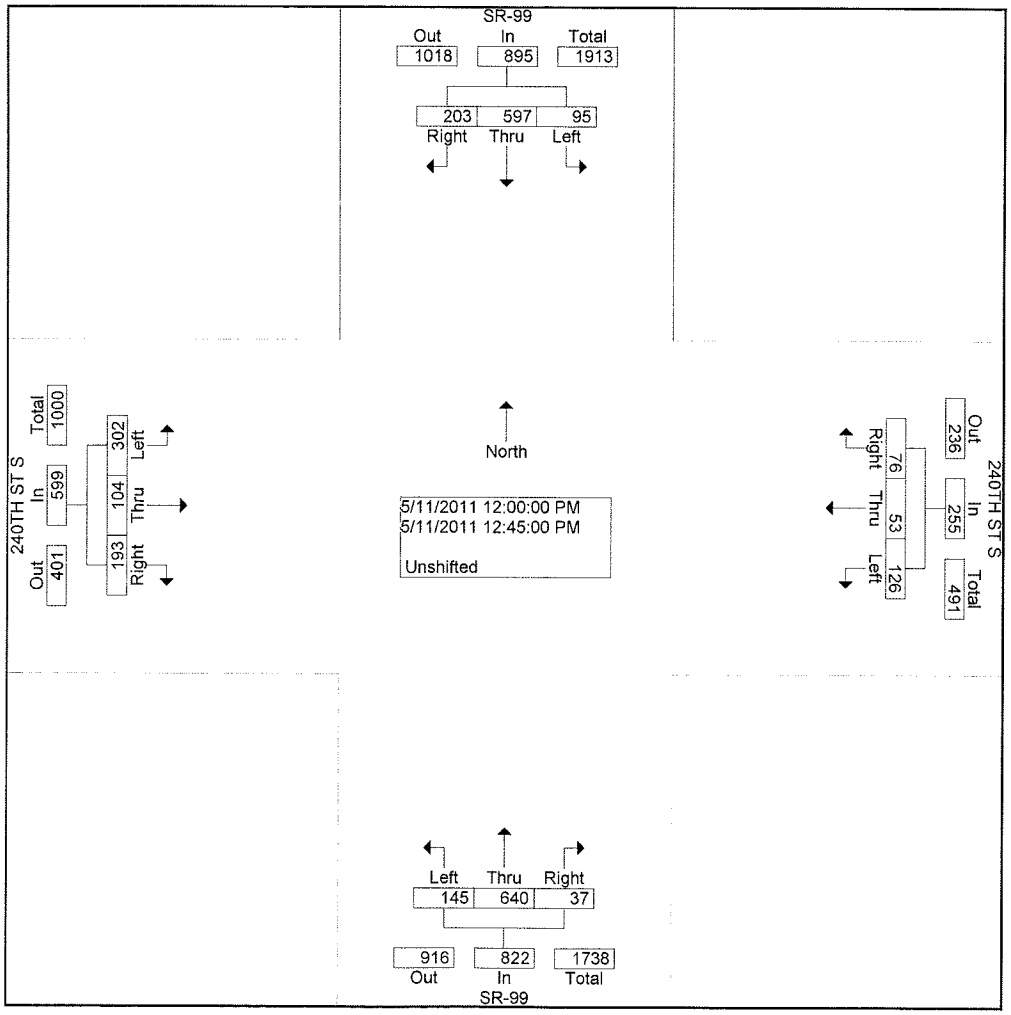
File Name : untitled1
Site Code : 00003255
Start Date : 05/11/2011
Page No : 2

	SR-99 Southbound				240TH ST S Westbound				SR-99 Northbound				240TH ST S Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 12:00 PM to 01:45 PM - Peak 1 of 1																	
Intersection	12:00 PM																
Volume	203	597	95	895	76	53	126	255	37	640	145	822	193	104	302	599	2571
Percent	22.7	66.7	10.6		29.8	20.8	49.4		4.5	77.9	17.6		32.2	17.4	50.4		
12:00 Volume	58	140	25	223	23	15	32	70	4	164	48	216	61	30	75	166	675
Peak Factor																	0.952
High Int.	12:15 PM				12:45 PM				12:45 PM				12:15 PM				
Volume	58	155	24	237	17	19	36	72	15	173	33	221	55	24	98	177	
Peak Factor				0.944				0.885				0.930				0.846	



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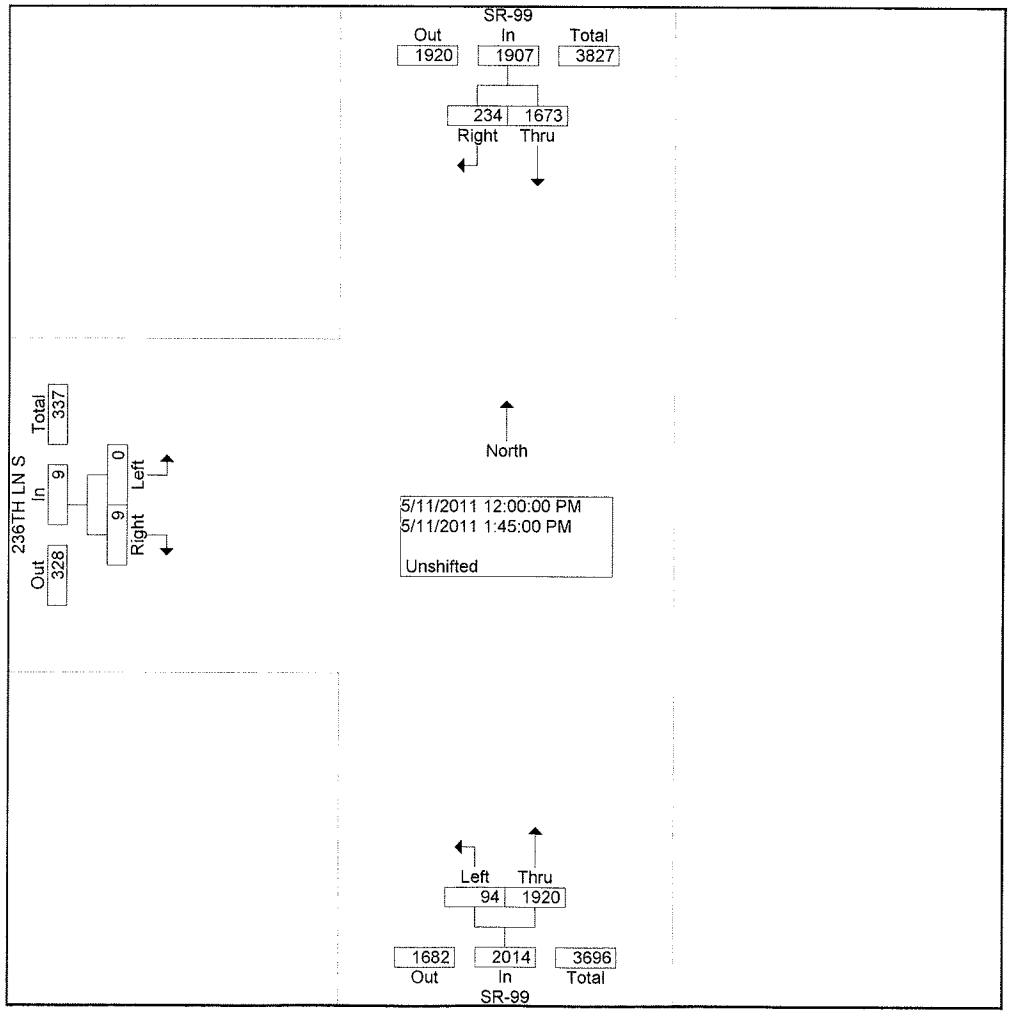
File Name : 3255d
Site Code : 00003255
Start Date : 05/11/2011
Page No : 1

Groups Printed- Unshifted

	SR-99 Southbound			SR-99 Northbound			236TH LN S Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
12:00 PM	48	210	0	0	249	18	4	0	0	529
12:15 PM	14	243	0	0	260	9	0	0	0	526
12:30 PM	20	188	0	0	217	10	0	0	0	435
12:45 PM	36	226	0	0	259	11	3	0	0	535
Total	118	867	0	0	985	48	7	0	0	2025
01:00 PM	46	201	0	0	238	12	1	0	0	498
01:15 PM	27	189	0	0	234	13	0	0	0	463
01:30 PM	23	215	0	0	221	15	1	0	0	475
01:45 PM	20	201	0	0	242	6	0	0	0	469
Total	116	806	0	0	935	46	2	0	0	1905
Grand Total	234	1673	0	0	1920	94	9	0	0	3930
Apprch %	12.3	87.7	0.0	0.0	95.3	4.7	100.0	0.0	0.0	
Total %	6.0	42.6	0.0	0.0	48.9	2.4	0.2	0.0	0.0	



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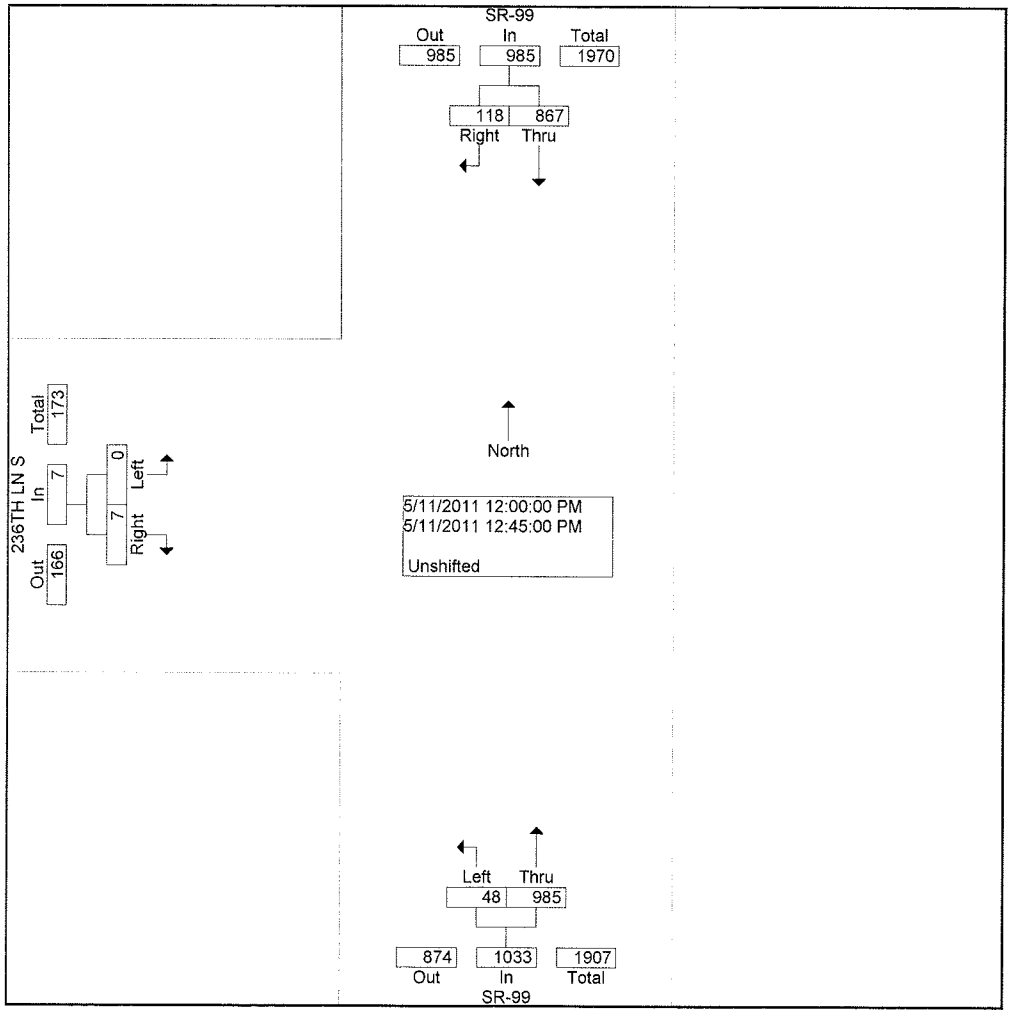
File Name : 3255d
Site Code : 00003255
Start Date : 05/11/2011
Page No : 2

	SR-99 Southbound				SR-99 Northbound				236TH LN S Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 12:00 PM to 01:45 PM - Peak 1 of 1													
Intersection	12:00 PM												
Volume	118	867	0	985	0	985	48	1033	7	0	0	7	2025
Percent	12.0	88.0	0.0		0.0	95.4	4.6		100.0	0.0	0.0		
12:45 Volume	36	226	0	262	0	259	11	270	3	0	0	3	535
Peak Factor													0.946
High Int.	12:45 PM				12:45 PM				12:00 PM				
Volume	36	226	0	262	0	259	11	270	4	0	0	4	
Peak Factor				0.940				0.956				0.438	



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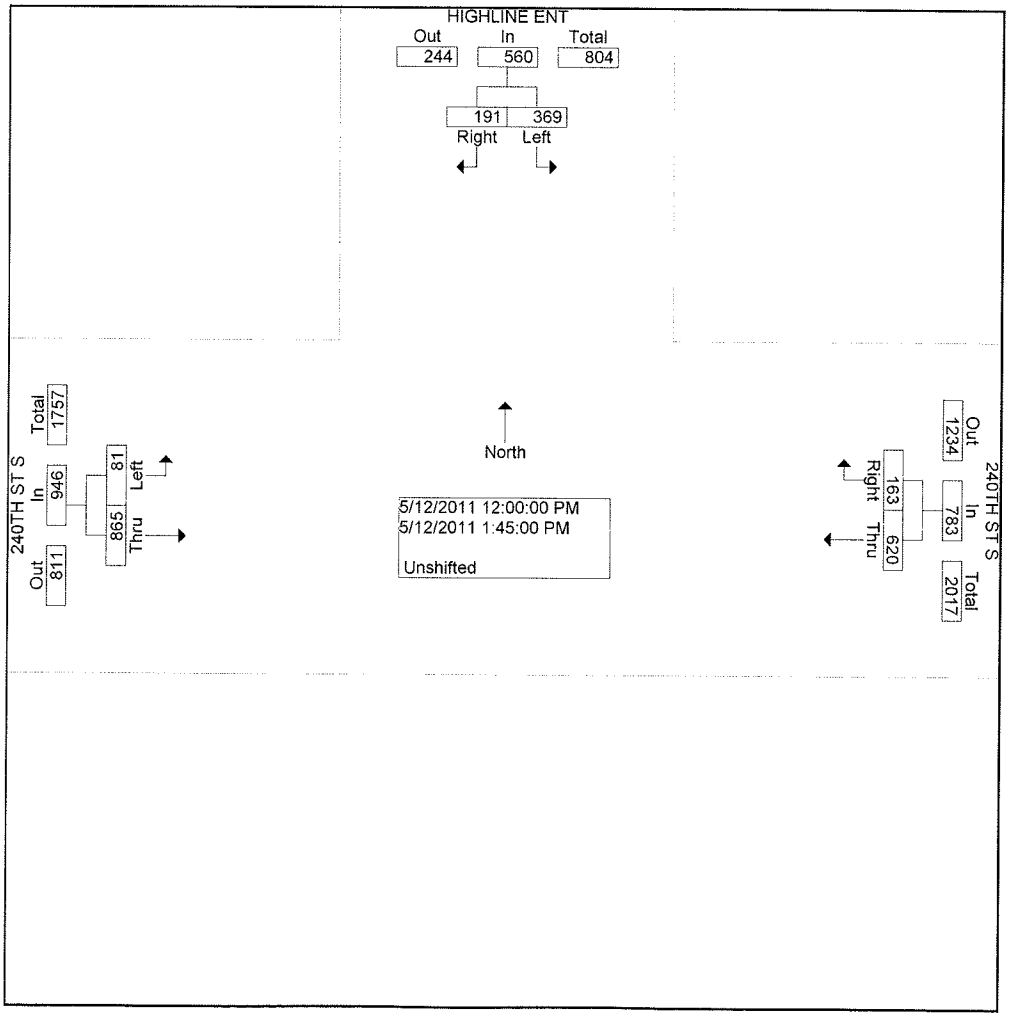
File Name : untitled1
Site Code : 00003255
Start Date : 05/12/2011
Page No : 1

Groups Printed- Unshifted

	HIGHLINE ENT Southbound			240TH ST S Westbound			240TH ST S Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
12:00 PM	74	0	29	33	79	0	0	150	9	374
12:15 PM	14	0	42	17	84	0	0	120	11	288
12:30 PM	12	0	53	15	76	0	0	74	7	237
12:45 PM	15	0	67	22	82	0	0	87	11	284
Total	115	0	191	87	321	0	0	431	38	1183
01:00 PM	11	0	53	22	61	0	0	93	12	252
01:15 PM	42	0	39	23	78	0	0	159	13	354
01:30 PM	16	0	49	17	83	0	0	101	10	276
01:45 PM	7	0	37	14	77	0	0	81	8	224
Total	76	0	178	76	299	0	0	434	43	1106
Grand Total	191	0	369	163	620	0	0	865	81	2289
Apprch %	34.1	0.0	65.9	20.8	79.2	0.0	0.0	91.4	8.6	
Total %	8.3	0.0	16.1	7.1	27.1	0.0	0.0	37.8	3.5	



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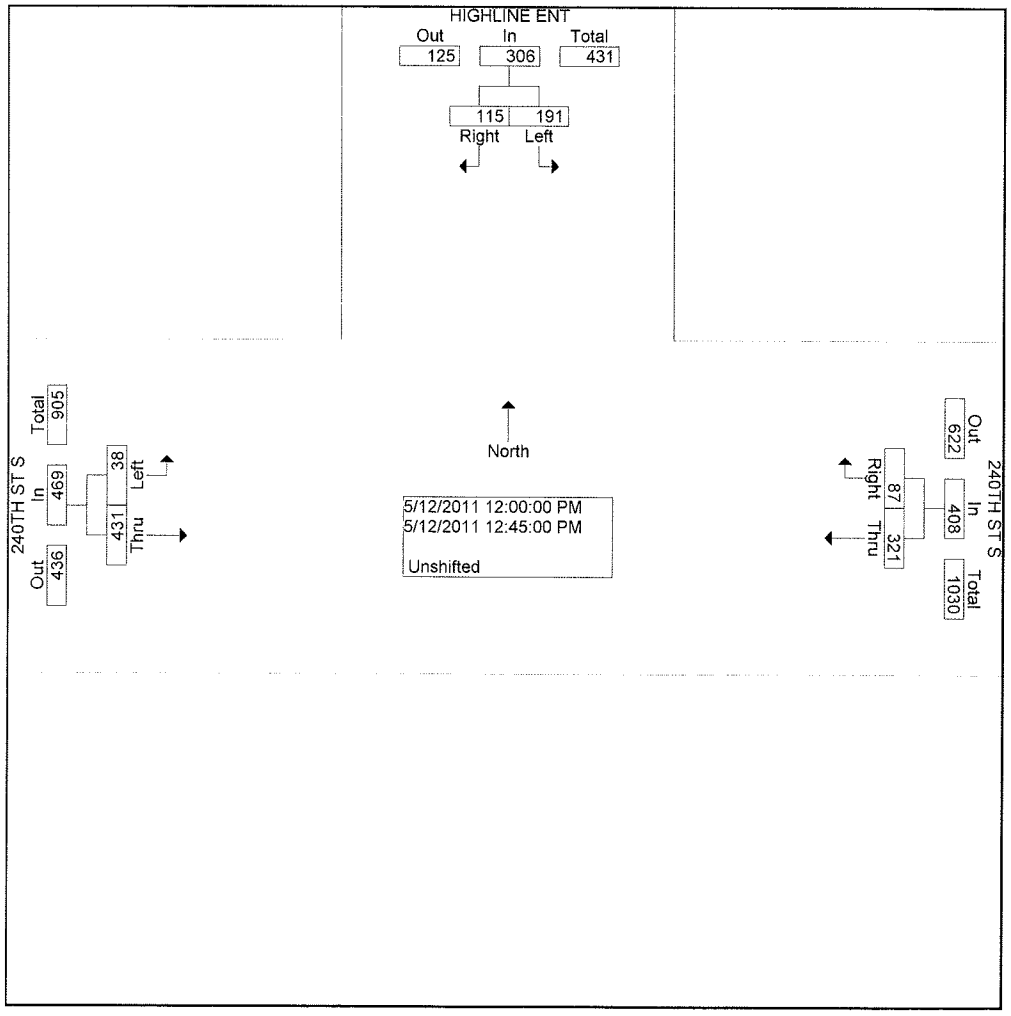
File Name : untitled1
Site Code : 00003255
Start Date : 05/12/2011
Page No : 2

	HIGHLINE ENT Southbound				240TH ST S Westbound				240TH ST S Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 12:00 PM to 01:45 PM - Peak 1 of 1													
Intersection	12:00 PM												
Volume	115	0	191	306	87	321	0	408	0	431	38	469	1183
Percent	37.6	0.0	62.4		21.3	78.7	0.0		0.0	91.9	8.1		
12:00 Volume	74	0	29	103	33	79	0	112	0	150	9	159	374
Peak Factor													0.791
High Int.	12:00 PM				12:00 PM				12:00 PM				
Volume	74	0	29	103	33	79	0	112	0	150	9	159	
Peak Factor				0.743				0.911				0.737	



HIGHLINE COMMUNITY COLLEGE
ACCESS ANALYSIS

LEVEL OF SERVICE ANALYSIS OUTPUT

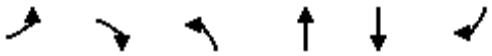
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	330		0	350		0
Storage Lanes	1		0	1		0	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.87	0.93		0.88	0.92		0.91		0.73	0.95		0.84
Frt		0.938			0.921				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1648	0	1752	1555	0	1787	3574	1599	1752	3505	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1547	1648	0	1545	1555	0	1631	3574	1173	1658	3505	1317
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30			41				34			205
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		407			613			801			1134	
Travel Time (s)		9.3			13.9			18.2			25.8	
Volume (vph)	241	97	68	31	29	33	259	998	31	69	333	174
Confl. Peds. (#/hr)	70		70	70		70	70		70	70		70
Peak Hour Factor	0.95	0.95	0.95	0.73	0.73	0.73	0.90	0.90	0.90	0.85	0.85	0.85
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	1%	1%	1%	3%	3%	3%
Adj. Flow (vph)	254	102	72	42	40	45	288	1109	34	81	392	205
Lane Group Flow (vph)	254	174	0	42	85	0	288	1109	34	81	392	205
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phases	7	4		3	8		5	2	2	1	6	6
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0		8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	25.0	35.0	0.0	10.0	20.0	0.0	38.0	56.0	56.0	14.0	32.0	32.0
Total Split (%)	21.7%	30.4%	0.0%	8.7%	17.4%	0.0%	33.0%	48.7%	48.7%	12.2%	27.8%	27.8%
Maximum Green (s)	21.0	31.0		6.0	16.0		34.0	52.0	52.0	10.0	28.0	28.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effct Green (s)	17.8	22.5		6.0	8.7		30.7	53.6	53.6	8.7	28.8	28.8
Actuated g/C Ratio	0.18	0.23		0.06	0.09		0.31	0.54	0.54	0.09	0.29	0.29
v/c Ratio	0.80	0.44		0.42	0.50		0.52	0.58	0.05	0.54	0.39	0.39
Control Delay	60.1	32.2		63.4	37.5		34.1	20.3	5.7	61.4	32.9	7.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.1	32.2		63.4	37.5		34.1	20.3	5.7	61.4	32.9	7.2
LOS	E	C		E	D		C	C	A	E	C	A
Approach Delay		48.8			46.1			22.8			28.5	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	166	86		29	29		161	291	0	54	118	0
Queue Length 95th (ft)	#294	152		54	57		261	395	18	102	163	48
Internal Link Dist (ft)		327			533			721			1054	
Turn Bay Length (ft)							330			350		
Base Capacity (vph)	370	499		103	266		596	1917	645	172	1012	526
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.35		0.41	0.32		0.48	0.58	0.05	0.47	0.39	0.39

Intersection Summary

Area Type: Other
Cycle Length: 115
Actuated Cycle Length: 99.9
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 29.5 Intersection LOS: C
Intersection Capacity Utilization 67.2% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

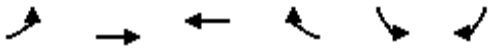
Splits and Phases: 1: S 240TH ST & PACIFIC HWY



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	1	49	1810	497	254
Peak Hour Factor	0.50	0.50	0.51	0.92	0.83	0.62
Hourly flow rate (vph)	0	2	96	1967	599	410
Pedestrians	20			20		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)				1134		
pX, platoon unblocked	0.97					
vC, conflicting volume	1672	444	1028			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1629	444	1028			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	86			
cM capacity (veh/h)	77	548	672			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	2	96	656	656	656	240	240	529
Volume Left	0	96	0	0	0	0	0	0
Volume Right	2	0	0	0	0	0	0	410
cSH	548	672	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.14	0.39	0.39	0.39	0.14	0.14	0.31
Queue Length 95th (ft)	0	12	0	0	0	0	0	0
Control Delay (s)	11.6	11.3	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B						
Approach Delay (s)	11.6	0.5				0.0		
Approach LOS	B							

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	54	322	385	206	77	27
Peak Hour Factor	0.64	0.81	0.84	0.66	0.52	0.52
Hourly flow rate (vph)	84	398	458	312	148	52
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					0	
Upstream signal (ft)			407			
pX, platoon unblocked						
vC, conflicting volume	790				1065	498
vC1, stage 1 conf vol					478	
vC2, stage 2 conf vol					586	
vCu, unblocked vol	790				1065	498
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	90				43	91
cM capacity (veh/h)	825				259	557

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	84	398	458	312	148	52
Volume Left	84	0	0	0	148	0
Volume Right	0	0	0	312	0	52
cSH	825	1700	1700	1700	259	557
Volume to Capacity	0.10	0.23	0.27	0.18	0.57	0.09
Queue Length 95th (ft)	9	0	0	0	81	8
Control Delay (s)	9.9	0.0	0.0	0.0	36.0	12.1
Lane LOS	A				E	B
Approach Delay (s)	1.7		0.0		29.8	
Approach LOS					D	

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

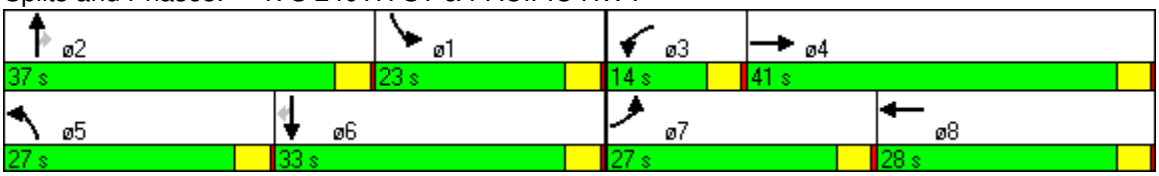
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	330		0	350		0
Storage Lanes	1		0	1		0	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.88	0.90		0.91	0.91		0.94		0.73	0.90		0.84
Frt		0.902			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1536	0	1787	1555	0	1787	3574	1599	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1582	1536	0	1621	1555	0	1675	3574	1173	1598	3539	1330
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		86			56				40			216
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		407			613			801			1134	
Travel Time (s)		9.3			13.9			18.2			25.8	
Volume (vph)	302	104	193	126	53	76	145	640	37	95	597	203
Confl. Peds. (#/hr)	70		70	70		70	70		70	70		70
Peak Hour Factor	0.85	0.85	0.85	0.89	0.89	0.89	0.93	0.93	0.93	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Adj. Flow (vph)	355	122	227	142	60	85	156	688	40	101	635	216
Lane Group Flow (vph)	355	349	0	142	145	0	156	688	40	101	635	216
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phases	7	4		3	8		5	2	2	1	6	6
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0		8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	27.0	41.0	0.0	14.0	28.0	0.0	27.0	37.0	37.0	23.0	33.0	33.0
Total Split (%)	23.5%	35.7%	0.0%	12.2%	24.3%	0.0%	23.5%	32.2%	32.2%	20.0%	28.7%	28.7%
Maximum Green (s)	23.0	37.0		10.0	24.0		23.0	33.0	33.0	19.0	29.0	29.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effct Green (s)	22.7	24.3		10.1	11.6		13.3	35.2	35.2	10.7	30.1	30.1
Actuated g/C Ratio	0.24	0.26		0.11	0.12		0.14	0.37	0.37	0.11	0.32	0.32
v/c Ratio	0.81	0.76		0.74	0.60		0.62	0.51	0.09	0.51	0.56	0.38
Control Delay	51.8	35.6		67.2	35.3		49.8	27.1	8.9	50.3	30.6	6.4

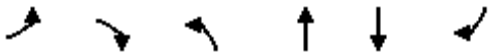
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.8	35.6		67.2	35.3		49.8	27.1	8.9	50.3	30.6	6.4
LOS	D	D		E	D		D	C	A	D	C	A
Approach Delay		43.7			51.1			30.3			27.2	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	198	146		83	50		88	169	0	57	162	0
Queue Length 95th (ft)	#391	239		#215	114		167	287	25	119	278	59
Internal Link Dist (ft)		327			533			721			1054	
Turn Bay Length (ft)							330			350		
Base Capacity (vph)	444	591		192	397		399	1340	465	324	1135	573
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.59		0.74	0.37		0.39	0.51	0.09	0.31	0.56	0.38

Intersection Summary

Area Type: Other
Cycle Length: 115
Actuated Cycle Length: 93.9
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 34.7 Intersection LOS: C
Intersection Capacity Utilization 67.6% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: S 240TH ST & PACIFIC HWY

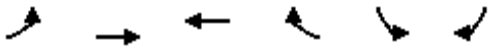




Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	1	49	1810	497	254
Peak Hour Factor	0.50	0.50	0.67	0.96	0.84	0.61
Hourly flow rate (vph)	0	2	73	1885	592	416
Pedestrians	20			20		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)				1134		
pX, platoon unblocked						
vC, conflicting volume	1595	445	1028			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1595	445	1028			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	89			
cM capacity (veh/h)	87	547	672			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	2	73	628	628	628	237	237	535
Volume Left	0	73	0	0	0	0	0	0
Volume Right	2	0	0	0	0	0	0	416
cSH	547	672	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.11	0.37	0.37	0.37	0.14	0.14	0.31
Queue Length 95th (ft)	0	9	0	0	0	0	0	0
Control Delay (s)	11.6	11.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B						
Approach Delay (s)	11.6	0.4				0.0		
Approach LOS	B							

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	38	431	321	87	191	115
Peak Hour Factor	0.74	0.74	0.91	0.66	0.74	0.74
Hourly flow rate (vph)	51	582	353	132	258	155
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					0	
Upstream signal (ft)			407			
pX, platoon unblocked						
vC, conflicting volume	505				1078	393
vC1, stage 1 conf vol					373	
vC2, stage 2 conf vol					705	
vCu, unblocked vol	505				1078	393
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	95				1	76
cM capacity (veh/h)	1053				259	639

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	51	582	353	132	258	155
Volume Left	51	0	0	0	258	0
Volume Right	0	0	0	132	0	155
cSH	1053	1700	1700	1700	259	639
Volume to Capacity	0.05	0.34	0.21	0.08	0.99	0.24
Queue Length 95th (ft)	4	0	0	0	244	24
Control Delay (s)	8.6	0.0	0.0	0.0	96.5	12.4
Lane LOS	A				F	B
Approach Delay (s)	0.7		0.0		64.9	
Approach LOS					F	

Intersection Summary			
Average Delay	17.8		
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		

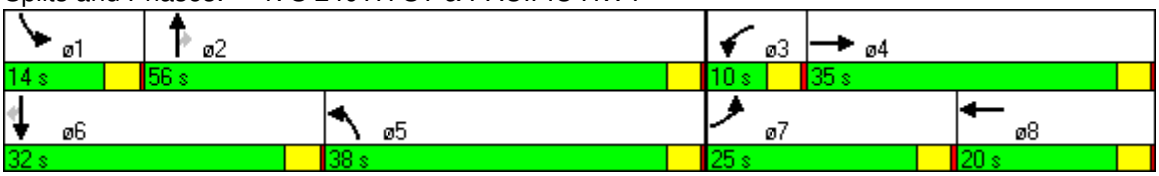
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	330		0	350		0
Storage Lanes	1		0	1		0	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.87	0.94		0.88	0.92		0.92		0.73	0.96		0.84
Frt		0.948			0.921				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1685	0	1752	1556	0	1787	3574	1599	1752	3505	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1552	1685	0	1546	1556	0	1648	3574	1173	1679	3505	1317
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			40				37			238
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		407			613			801			1134	
Travel Time (s)		9.3			13.9			18.2			25.8	
Volume (vph)	233	112	59	36	34	38	300	1157	36	80	406	202
Confl. Peds. (#/hr)	70		70	70		70	70		70	70		70
Peak Hour Factor	0.95	0.95	0.95	0.73	0.73	0.73	0.90	0.90	0.90	0.85	0.85	0.85
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	1%	1%	1%	3%	3%	3%
Adj. Flow (vph)	245	118	62	49	47	52	333	1286	40	94	478	238
Lane Group Flow (vph)	245	180	0	49	99	0	333	1286	40	94	478	238
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phases	7	4		3	8		5	2	2	1	6	6
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0		8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	25.0	35.0	0.0	10.0	20.0	0.0	38.0	56.0	56.0	14.0	32.0	32.0
Total Split (%)	21.7%	30.4%	0.0%	8.7%	17.4%	0.0%	33.0%	48.7%	48.7%	12.2%	27.8%	27.8%
Maximum Green (s)	21.0	31.0		6.0	16.0		34.0	52.0	52.0	10.0	28.0	28.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effct Green (s)	17.4	21.0		6.0	9.6		30.9	53.7	53.7	8.9	28.9	28.9
Actuated g/C Ratio	0.17	0.21		0.06	0.09		0.31	0.53	0.53	0.09	0.29	0.29
v/c Ratio	0.79	0.49		0.48	0.54		0.61	0.67	0.06	0.62	0.47	0.43
Control Delay	60.7	35.7		66.8	41.1		36.8	23.1	6.3	66.2	34.6	7.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.7	35.7		66.8	41.1		36.8	23.1	6.3	66.2	34.6	7.2
LOS	E	D		E	D		D	C	A	E	C	A
Approach Delay		50.1			49.6			25.4			30.3	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	161	94		34	39		193	366	1	63	149	0
Queue Length 95th (ft)	#285	161		62	68		311	503	21	#119	202	51
Internal Link Dist (ft)		327			533			721			1054	
Turn Bay Length (ft)							330			350		
Base Capacity (vph)	367	495		104	265		593	1906	643	171	1007	548
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.36		0.47	0.37		0.56	0.67	0.06	0.55	0.47	0.43

Intersection Summary

Area Type: Other
Cycle Length: 115
Actuated Cycle Length: 100.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 31.3 Intersection LOS: C
Intersection Capacity Utilization 75.3% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: S 240TH ST & PACIFIC HWY

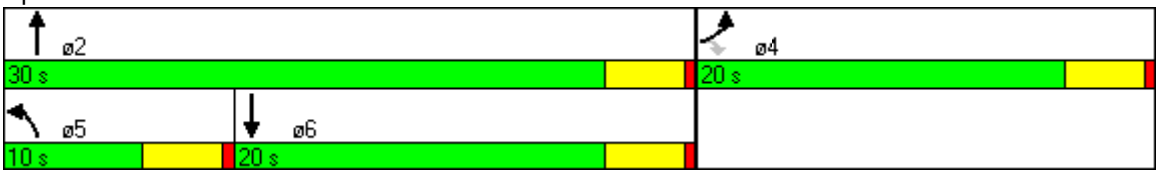


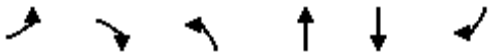
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91
Ped Bike Factor		0.97	0.99		0.98	
Frt		0.850			0.939	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	5187	4771	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1566	1794	5187	4771	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		42			364	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			30	30	
Link Distance (ft)	383			1134	674	
Travel Time (s)	8.7			25.8	15.3	
Volume (vph)	46	21	57	2052	576	294
Confl. Peds. (#/hr)		20	20			20
Peak Hour Factor	0.50	0.50	0.51	0.92	0.83	0.62
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	92	42	112	2230	694	474
Lane Group Flow (vph)	92	42	112	2230	1168	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phases	4	4	5	2	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	10.0	30.0	20.0	0.0
Total Split (%)	40.0%	40.0%	20.0%	60.0%	40.0%	0.0%
Maximum Green (s)	16.0	16.0	6.0	26.0	16.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	9.6	9.6	7.2	44.6	36.4	
Actuated g/C Ratio	0.15	0.15	0.12	0.77	0.63	
v/c Ratio	0.33	0.15	0.54	0.56	0.37	
Control Delay	17.7	7.1	26.6	4.8	5.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	17.7	7.1	26.6	4.8	5.8	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	B	A	C	A	A	
Approach Delay	14.4			5.9	5.8	
Approach LOS	B			A	A	
Queue Length 50th (ft)	19	0	24	93	47	
Queue Length 95th (ft)	25	5	33	166	73	
Internal Link Dist (ft)	303			1054	594	
Turn Bay Length (ft)						
Base Capacity (vph)	480	447	210	3973	3119	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.19	0.09	0.53	0.56	0.37	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 58.2			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 6.2		Intersection LOS: A	
Intersection Capacity Utilization 54.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: S 236TH LN & PACIFIC HWY



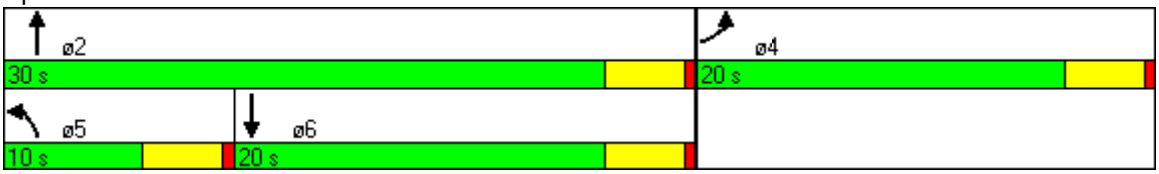


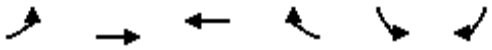
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50		50	50	50	
Trailing Detector (ft)	0		0	0	0	
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91
Ped Bike Factor	0.99		0.99		0.98	
Frt	0.958				0.939	
Flt Protected	0.967		0.950			
Satd. Flow (prot)	1743	0	1805	5187	4771	0
Flt Permitted	0.967		0.950			
Satd. Flow (perm)	1743	0	1794	5187	4771	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	42				364	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			30	30	
Link Distance (ft)	383			1134	674	
Travel Time (s)	8.7			25.8	15.3	
Volume (vph)	46	21	57	2052	576	294
Confl. Peds. (#/hr)		20	20			20
Peak Hour Factor	0.50	0.50	0.51	0.92	0.83	0.62
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	92	42	112	2230	694	474
Lane Group Flow (vph)	134	0	112	2230	1168	0
Turn Type			Prot			
Protected Phases	4		5	2	6	
Permitted Phases						
Detector Phases	4		5	2	6	
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	20.0		8.0	20.0	20.0	
Total Split (s)	20.0	0.0	10.0	30.0	20.0	0.0
Total Split (%)	40.0%	0.0%	20.0%	60.0%	40.0%	0.0%
Maximum Green (s)	16.0		6.0	26.0	16.0	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	0.5		0.5	0.5	0.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		None	Min	Min	
Walk Time (s)	5.0			5.0	5.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	9.9		7.1	42.3	34.0	
Actuated g/C Ratio	0.16		0.11	0.70	0.57	
v/c Ratio	0.43		0.55	0.61	0.41	
Control Delay	14.7		28.6	5.8	6.3	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	14.7		28.6	5.8	6.3	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	B		C	A	A	
Approach Delay	14.7			6.9	6.3	
Approach LOS	B			A	A	
Queue Length 50th (ft)	19		24	94	47	
Queue Length 95th (ft)	23		34	177	76	
Internal Link Dist (ft)	303			1054	594	
Turn Bay Length (ft)						
Base Capacity (vph)	497		203	3661	2861	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.27		0.55	0.61	0.41	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 60			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 7.0		Intersection LOS: A	
Intersection Capacity Utilization 55.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: S 236TH LN & PACIFIC HWY





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	63	373	446	239	23	31
Peak Hour Factor	0.64	0.81	0.84	0.66	0.52	0.52
Hourly flow rate (vph)	98	460	531	362	44	60
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					0	
Upstream signal (ft)			407			
pX, platoon unblocked						
vC, conflicting volume	913				1228	571
vC1, stage 1 conf vol					551	
vC2, stage 2 conf vol					677	
vCu, unblocked vol	913				1228	571
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	87				80	88
cM capacity (veh/h)	742				223	507

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	98	460	531	362	44	60
Volume Left	98	0	0	0	44	0
Volume Right	0	0	0	362	0	60
cSH	742	1700	1700	1700	223	507
Volume to Capacity	0.13	0.27	0.31	0.21	0.20	0.12
Queue Length 95th (ft)	11	0	0	0	18	10
Control Delay (s)	10.6	0.0	0.0	0.0	25.1	13.0
Lane LOS	B				D	B
Approach Delay (s)	1.9		0.0		18.2	
Approach LOS					C	

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

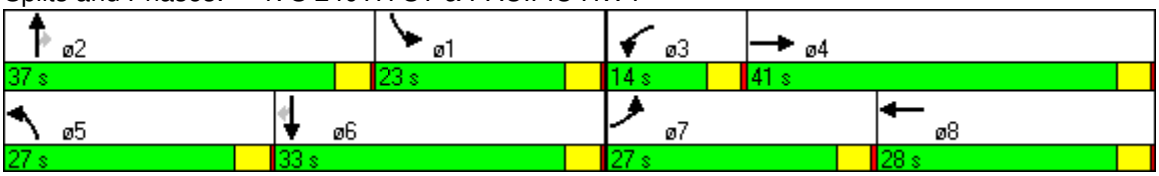
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	330		0	350		0
Storage Lanes	1		0	1		0	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.88	0.90		0.91	0.91		0.95		0.73	0.92		0.84
Frt		0.904			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1542	0	1787	1554	0	1787	3574	1599	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1589	1542	0	1631	1554	0	1698	3574	1173	1623	3539	1330
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		82			57				46			250
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		407			613			801			1134	
Travel Time (s)		9.3			13.9			18.2			25.8	
Volume (vph)	214	121	215	146	61	88	168	742	43	110	751	235
Confl. Peds. (#/hr)	70		70	70		70	70		70	70		70
Peak Hour Factor	0.85	0.85	0.85	0.89	0.89	0.89	0.93	0.93	0.93	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Adj. Flow (vph)	252	142	253	164	69	99	181	798	46	117	799	250
Lane Group Flow (vph)	252	395	0	164	168	0	181	798	46	117	799	250
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phases	7	4		3	8		5	2	2	1	6	6
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0		8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	27.0	41.0	0.0	14.0	28.0	0.0	27.0	37.0	37.0	23.0	33.0	33.0
Total Split (%)	23.5%	35.7%	0.0%	12.2%	24.3%	0.0%	23.5%	32.2%	32.2%	20.0%	28.7%	28.7%
Maximum Green (s)	23.0	37.0		10.0	24.0		23.0	33.0	33.0	19.0	29.0	29.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effct Green (s)	17.5	24.4		10.2	17.2		14.7	35.7	35.7	11.8	30.1	30.1
Actuated g/C Ratio	0.18	0.25		0.11	0.18		0.15	0.37	0.37	0.12	0.31	0.31
v/c Ratio	0.77	0.87		0.86	0.52		0.66	0.60	0.10	0.55	0.72	0.42
Control Delay	54.4	46.8		83.5	30.8		51.4	30.2	9.2	51.8	36.2	6.7

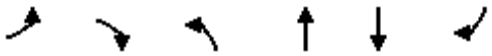
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	46.8		83.5	30.8		51.4	30.2	9.2	51.8	36.2	6.7
LOS	D	D		F	C		D	C	A	D	D	A
Approach Delay		49.8			56.8			33.0			31.4	
Approach LOS		D			E			C			C	
Queue Length 50th (ft)	145	184		100	61		105	214	0	68	227	0
Queue Length 95th (ft)	248	295		#267	137		194	360	28	137	#410	66
Internal Link Dist (ft)		327			533			721			1054	
Turn Bay Length (ft)							330			350		
Base Capacity (vph)	414	585		191	411		399	1333	466	322	1110	589
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.68		0.86	0.41		0.45	0.60	0.10	0.36	0.72	0.42

Intersection Summary

Area Type: Other
Cycle Length: 115
Actuated Cycle Length: 95.8
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 38.3 Intersection LOS: D
Intersection Capacity Utilization 74.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: S 240TH ST & PACIFIC HWY



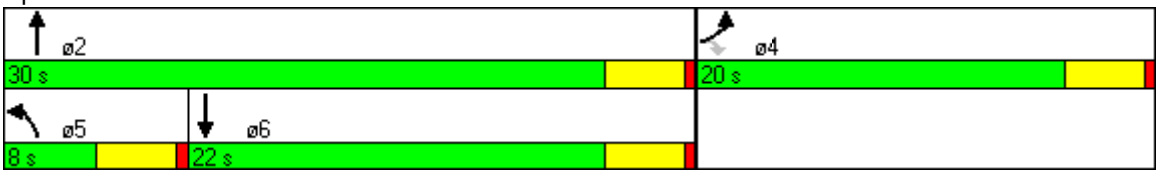


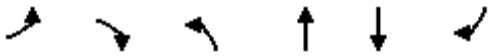
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91
Ped Bike Factor		0.97	1.00		0.99	
Frt		0.850			0.976	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	5187	5022	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1566	1797	5187	5022	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		134			86	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			30	30	
Link Distance (ft)	383			1134	674	
Travel Time (s)	8.7			25.8	15.3	
Volume (vph)	136	67	56	1006	1005	137
Confl. Peds. (#/hr)		20	20			20
Peak Hour Factor	0.50	0.50	0.67	0.96	0.84	0.61
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	272	134	84	1048	1196	225
Lane Group Flow (vph)	272	134	84	1048	1421	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phases	4	4	5	2	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	30.0	22.0	0.0
Total Split (%)	40.0%	40.0%	16.0%	60.0%	44.0%	0.0%
Maximum Green (s)	16.0	16.0	4.0	26.0	18.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	11.6	11.6	4.0	24.6	20.2	
Actuated g/C Ratio	0.26	0.26	0.08	0.55	0.45	
v/c Ratio	0.58	0.26	0.55	0.36	0.61	
Control Delay	18.9	4.7	38.3	6.3	11.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	18.9	4.7	38.3	6.3	11.5	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	B	A	D	A	B	
Approach Delay	14.2			8.7	11.5	
Approach LOS	B			A	B	
Queue Length 50th (ft)	62	0	22	46	102	
Queue Length 95th (ft)	57	3	43	83	150	
Internal Link Dist (ft)	303			1054	594	
Turn Bay Length (ft)						
Base Capacity (vph)	600	609	153	3011	2368	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.45	0.22	0.55	0.35	0.60	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 44.4			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 10.8		Intersection LOS: B	
Intersection Capacity Utilization 46.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: S 236TH LN & PACIFIC HWY



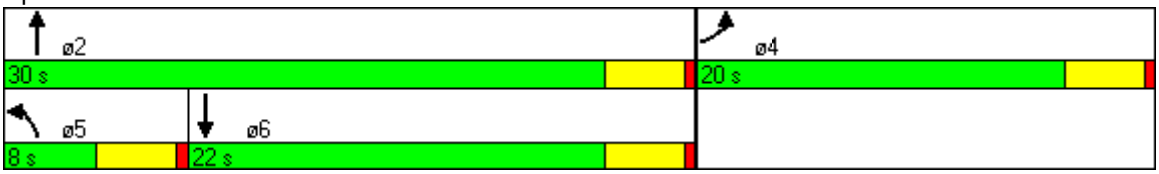


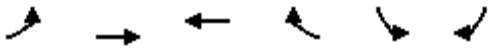
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50		50	50	50	
Trailing Detector (ft)	0		0	0	0	
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91
Ped Bike Factor	0.99		1.00		0.99	
Frt	0.955				0.976	
Flt Protected	0.968		0.950			
Satd. Flow (prot)	1739	0	1805	5187	5022	0
Flt Permitted	0.968		0.950			
Satd. Flow (perm)	1739	0	1797	5187	5022	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	52				86	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			30	30	
Link Distance (ft)	383			1134	674	
Travel Time (s)	8.7			25.8	15.3	
Volume (vph)	136	67	56	1006	1005	137
Confl. Peds. (#/hr)		20	20			20
Peak Hour Factor	0.50	0.50	0.67	0.96	0.84	0.61
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	272	134	84	1048	1196	225
Lane Group Flow (vph)	406	0	84	1048	1421	0
Turn Type			Prot			
Protected Phases	4		5	2	6	
Permitted Phases						
Detector Phases	4		5	2	6	
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	20.0		8.0	20.0	20.0	
Total Split (s)	20.0	0.0	8.0	30.0	22.0	0.0
Total Split (%)	40.0%	0.0%	16.0%	60.0%	44.0%	0.0%
Maximum Green (s)	16.0		4.0	26.0	18.0	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	0.5		0.5	0.5	0.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		None	Min	Min	
Walk Time (s)	5.0			5.0	5.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	13.0		4.0	22.2	18.1	
Actuated g/C Ratio	0.30		0.09	0.51	0.42	
v/c Ratio	0.73		0.54	0.40	0.67	
Control Delay	21.7		38.4	7.3	12.9	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	21.7		38.4	7.3	12.9	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	C		D	A	B	
Approach Delay	21.7			9.6	12.9	
Approach LOS	C			A	B	
Queue Length 50th (ft)	87		24	58	119	
Queue Length 95th (ft)	68		43	83	150	
Internal Link Dist (ft)	303			1054	594	
Turn Bay Length (ft)						
Base Capacity (vph)	641		156	2877	2170	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.63		0.54	0.36	0.65	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 43.5			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 12.8		Intersection LOS: B	
Intersection Capacity Utilization 48.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: S 236TH LN & PACIFIC HWY





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	44	500	372	101	76	83
Peak Hour Factor	0.74	0.74	0.91	0.66	0.74	0.74
Hourly flow rate (vph)	59	676	409	153	103	112
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					0	
Upstream signal (ft)			407			
pX, platoon unblocked						
vC, conflicting volume	582				1243	449
vC1, stage 1 conf vol					429	
vC2, stage 2 conf vol					815	
vCu, unblocked vol	582				1243	449
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	94				54	81
cM capacity (veh/h)	986				225	594

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	59	676	409	153	103	112
Volume Left	59	0	0	0	103	0
Volume Right	0	0	0	153	0	112
cSH	986	1700	1700	1700	225	594
Volume to Capacity	0.06	0.40	0.24	0.09	0.46	0.19
Queue Length 95th (ft)	5	0	0	0	55	17
Control Delay (s)	8.9	0.0	0.0	0.0	33.8	12.5
Lane LOS	A				D	B
Approach Delay (s)	0.7		0.0		22.6	
Approach LOS					C	

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

HIGHLINE COMMUNITY COLLEGE
ACCESS ANALYSIS

MUTCD SIGNAL WARRANT ANALYSIS

PACIFIC HWY & 236TH LN ACCESS: DAY 1 EXISTING VOLUMES WITH MODIFICATION									
TIME	SOUTHBOUND	NORTHBOUND	MAIN ENT	EASTBOUND	TOTAL THROUGH	CONDITION A		CONDITION B	
BEGIN	VOLUME	VOLUME	VOLUME	VOLUME (55%)	VOLUME	MAJOR	MINOR	MAJOR	MINOR
	MAJOR	MAJOR	TO REDUCE	MINOR		420	140	630	70
0:00	156	104	1	1	260				
1:00	88	73	0	0	161				
2:00	63	67	0	0	130				
3:00	46	93	0	0	139				
4:00	66	217	0	0	283				
5:00	108	554	3	2	662	X		X	
6:00	258	939	4	2	1197	X		X	
7:00	589	1260	45	25	1849	X		X	
8:00	817	936	110	61	1753	X		X	
9:00	764	857	153	84	1621	X		X	X
10:00	896	882	258	142	1778	X	X	X	X
11:00	865	897	197	108	1762	X		X	X
12:00	978	1012	321	177	1990	X	X	X	X
13:00	945	1061	234	129	2006	X		X	X
14:00	1043	1050	250	138	2093	X		X	X
15:00	1282	1025	232	128	2307	X		X	X
16:00	1433	894	141	78	2327	X		X	X
17:00	1593	1005	155	85	2598	X		X	X
18:00	1128	860	99	54	1988	X		X	
19:00	834	842	182	100	1676	X		X	X
20:00	625	759	191	105	1384	X		X	X
21:00	564	616	166	91	1180	X		X	
22:00	377	332	10	6	709	X		X	
23:00	245	223	2	1	468	X			
	15763	16558	2754	1515	32321				

PACIFIC HWY & 236TH LN ACCESS: DAY 2 EXISTING VOLUMES WITH MODIFICATION									
TIME	SOUTHBOUND	NORTHBOUND	MAIN ENT	EASTBOUND	TOTAL THROUGH	CONDITION A		CONDITION B	
BEGIN	VOLUME	VOLUME	VOLUME	VOLUME (55%)	VOLUME	MAJOR	MINOR	MAJOR	MINOR
	MAJOR	MAJOR	TO REDUCE	MINOR		420	140	630	70
0:00	152	89	1	1	241				
1:00	69	68	0	0	137				
2:00	63	82	0	0	145				
3:00	34	109	1	1	143				
4:00	44	198	0	0	242				
5:00	136	536	0	0	672	X		X	
6:00	269	992	6	3	1261	X		X	
7:00	654	1303	47	26	1957	X		X	
8:00	909	1051	104	57	1960	X		X	
9:00	883	813	170	94	1696	X		X	X
10:00	892	865	280	154	1757	X	X	X	X
11:00	877	907	178	98	1784	X		X	X
12:00	1014	984	299	164	1998	X	X	X	X
13:00	998	1066	270	149	2064	X	X	X	X
14:00	1034	1057	251	138	2091	X		X	X
15:00	1275	1070	218	120	2345	X		X	X
16:00	1408	998	173	95	2406	X		X	X
17:00	1511	958	142	78	2469	X		X	X
18:00	1081	868	83	46	1949	X		X	
19:00	837	815	209	115	1652	X		X	X
20:00	667	738	215	118	1405	X		X	X
21:00	542	555	106	58	1097	X		X	
22:00	425	360	30	17	785	X		X	
23:00	254	206	0	0	460	X			
	16028	16688	2783	1531	32716				

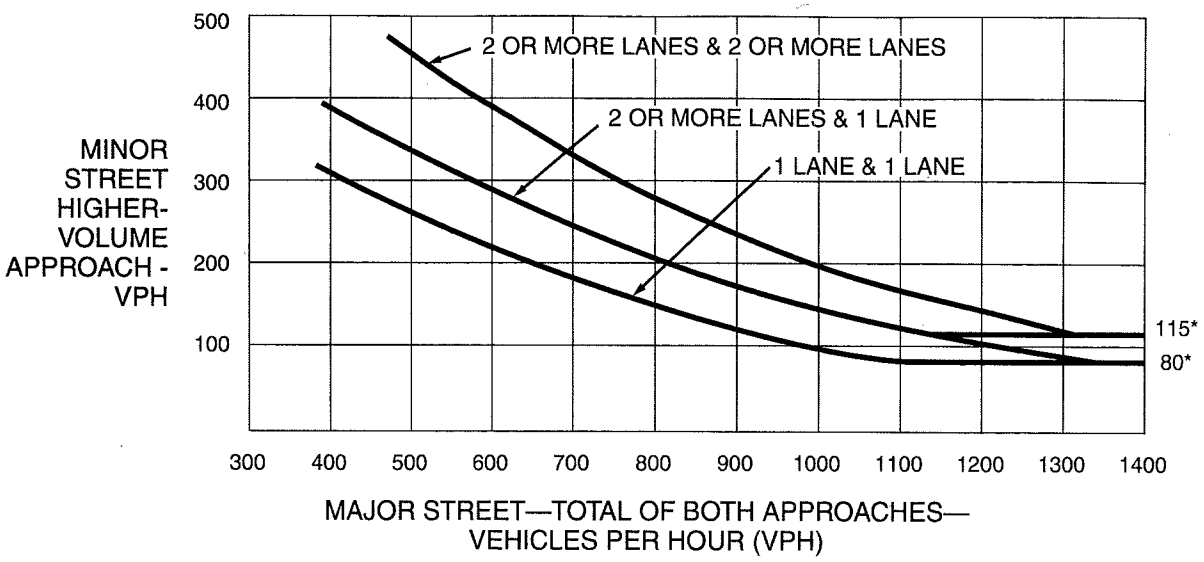
PACIFIC HWY & 236TH LN ACCESS: DAY 3 EXISTING VOLUMES WITH MODIFICATION									
TIME	SOUTHBOUND	NORTHBOUND	MAIN ENT	EASTBOUND	TOTAL THROUGH	CONDITION A		CONDITION B	
BEGIN	VOLUME	VOLUME	VOLUME	VOLUME (55%)	VOLUME	MAJOR	MINOR	MAJOR	MINOR
	MAJOR	MAJOR	TO REDUCE	MINOR		420	140	630	70
0:00	162	116	2	1	278				
1:00	96	74	0	0	170				
2:00	70	74	0	0	144				
3:00	48	105	0	0	153				
4:00	62	196	0	0	258				
5:00	127	521	0	0	648	X		X	
6:00	268	1015	5	3	1283	X		X	
7:00	534	1743	45	25	2277	X		X	
8:00	719	1447	99	54	2166	X		X	
9:00	772	1040	166	91	1812	X		X	X
10:00	798	843	261	144	1641	X	X	X	X
11:00	803	892	208	114	1695	X		X	X
12:00	1007	1008	275	151	2015	X	X	X	X
13:00	995	1048	259	142	2043	X	X	X	X
14:00	1072	1011	279	153	2083	X	X	X	X
15:00	1260	1079	248	136	2339	X		X	X
16:00	1402	989	201	111	2391	X		X	X
17:00	1552	949	151	83	2501	X		X	X
18:00	1124	844	102	56	1968	X		X	
19:00	867	850	120	66	1717	X		X	
20:00	624	727	167	92	1351	X		X	X
21:00	568	610	142	78	1178	X		X	X
22:00	382	367	26	14	749	X		X	
23:00	278	229	1	1	507	X			
	15590	17777	2757	1516	33367				

PACIFIC HWY & 236TH LN ACCESS: DAY 1 2016 VOLUMES WITH MODIFICATION									
TIME	SB	NB	MAIN ENT	EB	TOTAL THROUGH	CONDITION A		CONDITION B	
BEGIN			TO REDUCE	55% OF MAIN		MAJOR	MINOR	MAJOR	MINOR
						420	140	630	70
0:00	181	121	1	1	302				
1:00	102	85	0	0	187				
2:00	73	78	0	0	151				
3:00	53	108	0	0	161				
4:00	77	252	0	0	328				
5:00	125	643	3	2	768	X		X	
6:00	299	1089	5	3	1389	X		X	
7:00	683	1462	52	29	2145	X		X	
8:00	948	1086	128	70	2033	X		X	X
9:00	886	994	177	98	1880	X		X	X
10:00	1039	1023	299	165	2062	X	X	X	X
11:00	1003	1041	229	126	2044	X		X	X
12:00	1134	1174	372	205	2308	X	X	X	X
13:00	1096	1231	271	149	2327	X	X	X	X
14:00	1210	1218	290	160	2428	X	X	X	X
15:00	1487	1189	269	148	2676	X	X	X	X
16:00	1662	1037	164	90	2699	X		X	X
17:00	1848	1166	180	99	3014	X		X	X
18:00	1308	998	115	63	2306	X		X	
19:00	967	977	211	116	1944	X		X	X
20:00	725	880	222	122	1605	X		X	X
21:00	654	715	193	106	1369	X		X	X
22:00	437	385	12	6	822	X		X	
23:00	284	259	2	1	543	X			
	18285	19207	3195	1757	37492				

PACIFIC HWY & 236TH LN ACCESS: DAY 2 2016 VOLUMES WITH MODIFICATION									
TIME	SB	NB	MAIN ENT	EB	TOTAL THROUGH	CONDITION A		CONDITION B	
BEGIN			TO REDUCE	55% OF MAIN		MAJOR	MINOR	MAJOR	MINOR
						420	140	630	70
0:00	176	103	1	1	280				
1:00	80	79	0	0	159				
2:00	73	95	0	0	168				
3:00	39	126	1	1	166				
4:00	51	230	0	0	281				
5:00	158	622	0	0	780	X		X	
6:00	312	1151	7	4	1463	X		X	
7:00	759	1511	55	30	2270	X		X	
8:00	1054	1219	121	66	2274	X		X	
9:00	1024	943	197	108	1967	X		X	X
10:00	1035	1003	325	179	2038	X	X	X	X
11:00	1017	1052	206	114	2069	X		X	X
12:00	1176	1141	347	191	2318	X	X	X	X
13:00	1158	1237	313	172	2394	X	X	X	X
14:00	1199	1226	291	160	2426	X	X	X	X
15:00	1479	1241	253	139	2720	X		X	X
16:00	1633	1158	201	110	2791	X		X	X
17:00	1753	1111	165	91	2864	X		X	X
18:00	1254	1007	96	53	2261	X		X	
19:00	971	945	242	133	1916	X		X	X
20:00	774	856	249	137	1630	X		X	X
21:00	629	644	123	68	1273	X		X	
22:00	493	418	35	19	911	X		X	
23:00	295	239	0	0	534	X			
	18592	19358	3228	1776	37951				

PACIFIC HWY & 236TH LN ACCESS: DAY 3 2016 VOLUMES WITH MODIFICATION									
TIME	SB	NB	MAIN ENT	EB	TOTAL THROUGH	CONDITION A		CONDITION B	
BEGIN			TO REDUCE	55% OF MAIN		MAJOR	MINOR	MAJOR	MINOR
						420	140	630	70
0:00	188	135	2	1	322				
1:00	111	86	0	0	197				
2:00	81	86	0	0	167				
3:00	56	122	0	0	177				
4:00	72	227	0	0	299				
5:00	147	604	0	0	752	X		X	
6:00	311	1177	6	3	1488	X		X	
7:00	619	2022	52	29	2641	X		X	
8:00	834	1679	115	63	2513	X		X	
9:00	896	1206	193	106	2102	X		X	X
10:00	926	978	303	167	1904	X	X	X	X
11:00	931	1035	241	133	1966	X		X	X
12:00	1168	1169	319	175	2337	X	X	X	X
13:00	1154	1216	300	165	2370	X	X	X	X
14:00	1244	1173	324	178	2416	X	X	X	X
15:00	1462	1252	288	158	2713	X	X	X	X
16:00	1626	1147	233	128	2774	X		X	X
17:00	1800	1101	175	96	2901	X		X	X
18:00	1304	979	118	65	2283	X		X	
19:00	1006	986	139	77	1992	X		X	X
20:00	724	843	194	107	1567	X		X	X
21:00	659	708	165	91	1366	X		X	X
22:00	443	426	30	17	869	X		X	
23:00	322	266	1	1	588	X			
	18084	20621	3198	1759	38706				

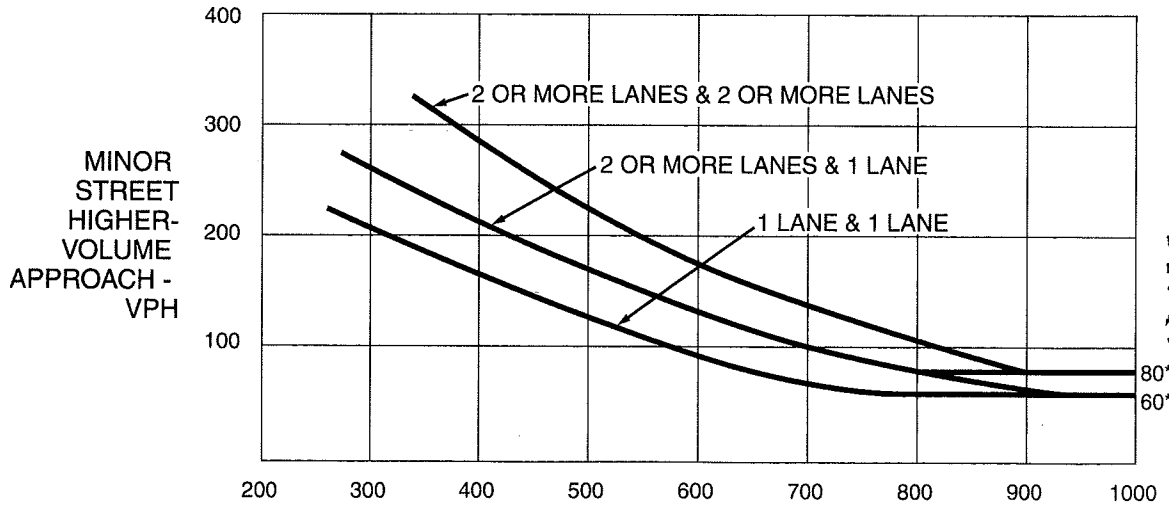
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

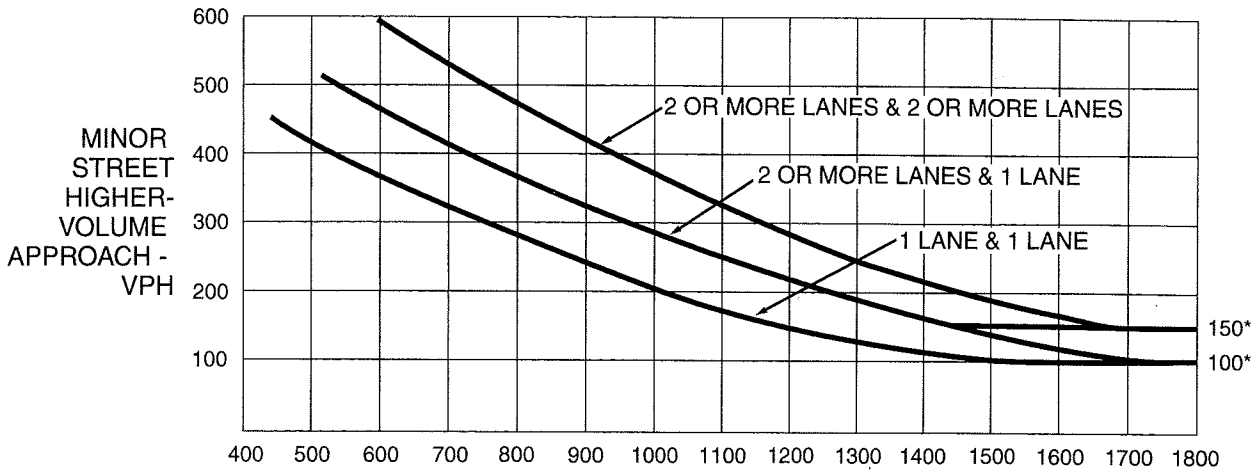


12 HOURS OBSERVED WITH MAJOR STREET VOLUMES OVER 900 VPH AND MINOR STREET VOLUMES OVER 80 VPH

SPEED LIMIT : 45

*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

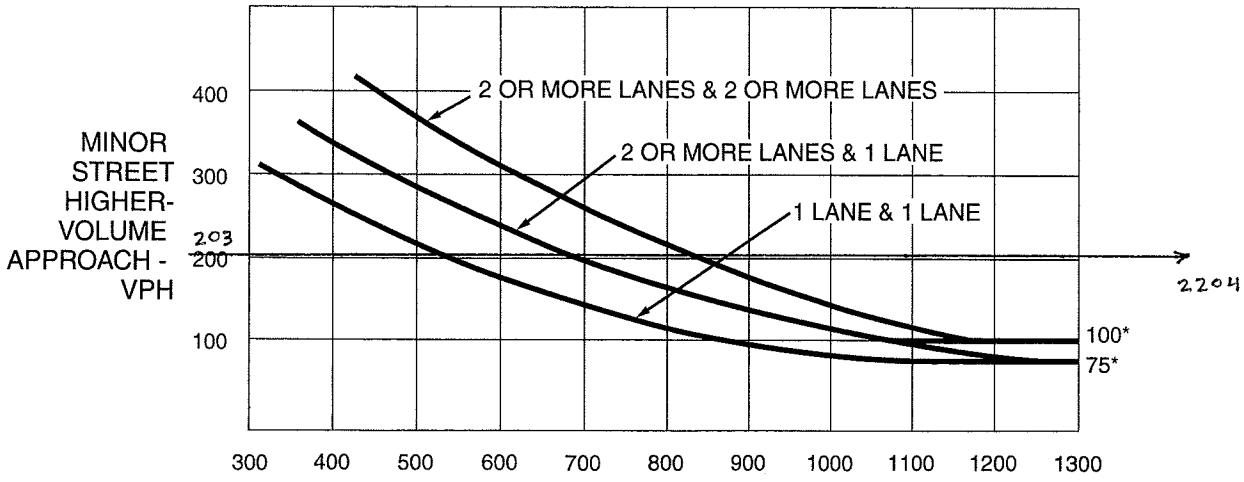
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

D HCC WETLANDS MEMO

PROJECT MEMO

TO: Joan Rumsey, McGranahan Architects

FROM: Theresa Dusek, AHBL TD

DATE: April 15, 2011

PROJECT: Highline Community College

OUR FILE NO.: 211123.70

SUBJECT: Wetland Delineation Summary and Sketch

Review of the southwest corner of Highline Community College Campus for wetlands within 300 feet of the tennis courts (parcel 1622049013) occurred on March 31, 2011. Methods defined in the *Washington State Wetland Identification and Delineation Manual* (1997), the *U.S. Army Corps of Engineers Wetland Delineation Manual* (1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* were used to determine the presence and extent of wetlands on the site. Wetlands were rated using the *Washington State Wetland Rating System for Western Washington Revised (2006)*. One wetlands was flagged but has not been surveyed by the date of this memo. The location of the wetland on the attached sketch is approximate and will need to be surveyed. Wetland boundary flags are pink ribbon flagging printed with "wetland delineation" and sequentially numbered. In addition, one hillside seep was also noted but does not meet the criteria of a wetland (hydropytic vegetation and hydric soils were not present). When the stormwater facility was constructed it is likely that the seep was created when the hillside contours were modified. Beyond 300 feet of the tennis courts is a stream and large wetland in the northwest portion of the Highline Community College campus. Our scope of work did not include review of this area.

A past wetland delineation by Shannon and Wilson, Inc., in 1998 was completed on a portion of the site and identified two wetlands and a Type 5 stream in the vicinity of the tennis courts. One of the past wetlands was very small (less than 550 square feet) and was impacted when the stormwater facility was constructed. Although documentation indicates that the 550 square foot wetland and a portion of a Type 5 stream were impacted by construction of the storm facility it does not appear that the storm facility is considered as a regulated wetland with buffers. A telephone call on April 14, 2011 with Robert Ruth the Development Services Manager at the City of Des Moines confirmed that the stormwater facility is not considered a jurisdictional wetland that would require buffer.

The second wetland identified by Shannon & Wilson in 1998 is in the same location as the wetland flagged by AHBL on March 31, 2011. It was determined that currently one wetland (Wetland A) is present adjacent to the tennis courts (see attached map). Wetland A is a Palustrine scrub-shrub system. Dominant vegetation in the wetland included salmonberry with understory species of lady fern, buttercup, sedge and stinging nettle. Skunk cabbage was noted in the south central portion of the wetland. Trees surround the wetland but were not rooted within the wetland and included cottonwood, red alder and planted western red cedar and spruce. Soils in the wetland included silt loam underlain by silty clay loam. Hydrologic conditions in the wetland included ponded water up to 6 inches deep and saturated soils at the surface. Water from the wetland enters a stormwater catch basin located west of the wetland via a shallow ditch. The ditch is located in the mowed grassy area and is approximately six inches wide and three inches deep. Water was flowing to the catch basin during the site visit.

Civil Engineers

Structural Engineers

Landscape Architects

Community Planners

Natural Resource Ecologists

Land Surveyors

Neighbors

TACOMA
2215 North 30th Street
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Tacoma, WA 98403-3350
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SPOKANE
827 West First Avenue
Suite 301
Spokane, WA 99201-3912
509.252.5019 TEL
509.315.8862 FAX

www.ahbl.com

Wetland A is approximately 6,500 square feet in size, located adjacent to the southeast corner of the tennis courts and is a Category III system with a current City of Des Moines code required buffer of 80 feet. Wetland buffers are based on the City of Des Moines Municipal Code (DMMC) 18.86.100(2). In addition, Des Moines requires a 10 foot building setback from the edge of wetland buffers. Agencies that regulate impacts to wetlands include the U.S Army Corps of Engineers, the Washington State Department of Ecology and the City of Des Moines.

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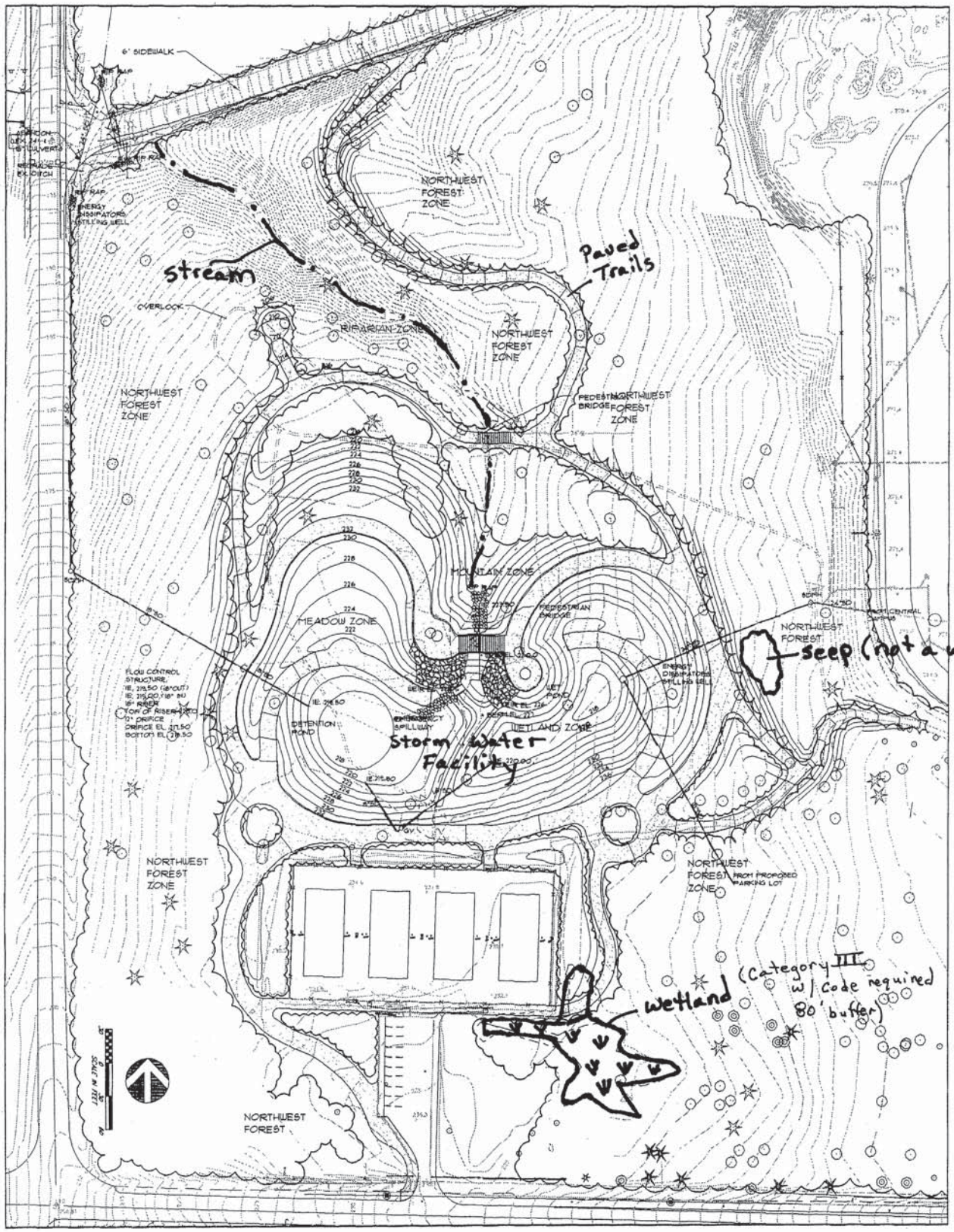


Sketch by AHBL
April 14, 2011
253-383-2422

DEPARTMENT OF GENERAL ADMINISTRATION
DIVISION OF ENGINEERING
AND ARCHITECTURAL SERVICES
206 GENERAL ADMINISTRATION BLDG.
OLYMPIA, WA 98504-1012
(360) 902-7274
(360) 753-2838 (FAX)

FACILITY MASTER PLAN
SURFACE WATER CONTROL
HIGHLINE COMMUNITY COLLEGE
DES MOINES, WA
PROJECT NO. 98-128

E STORMWATER DETENTION

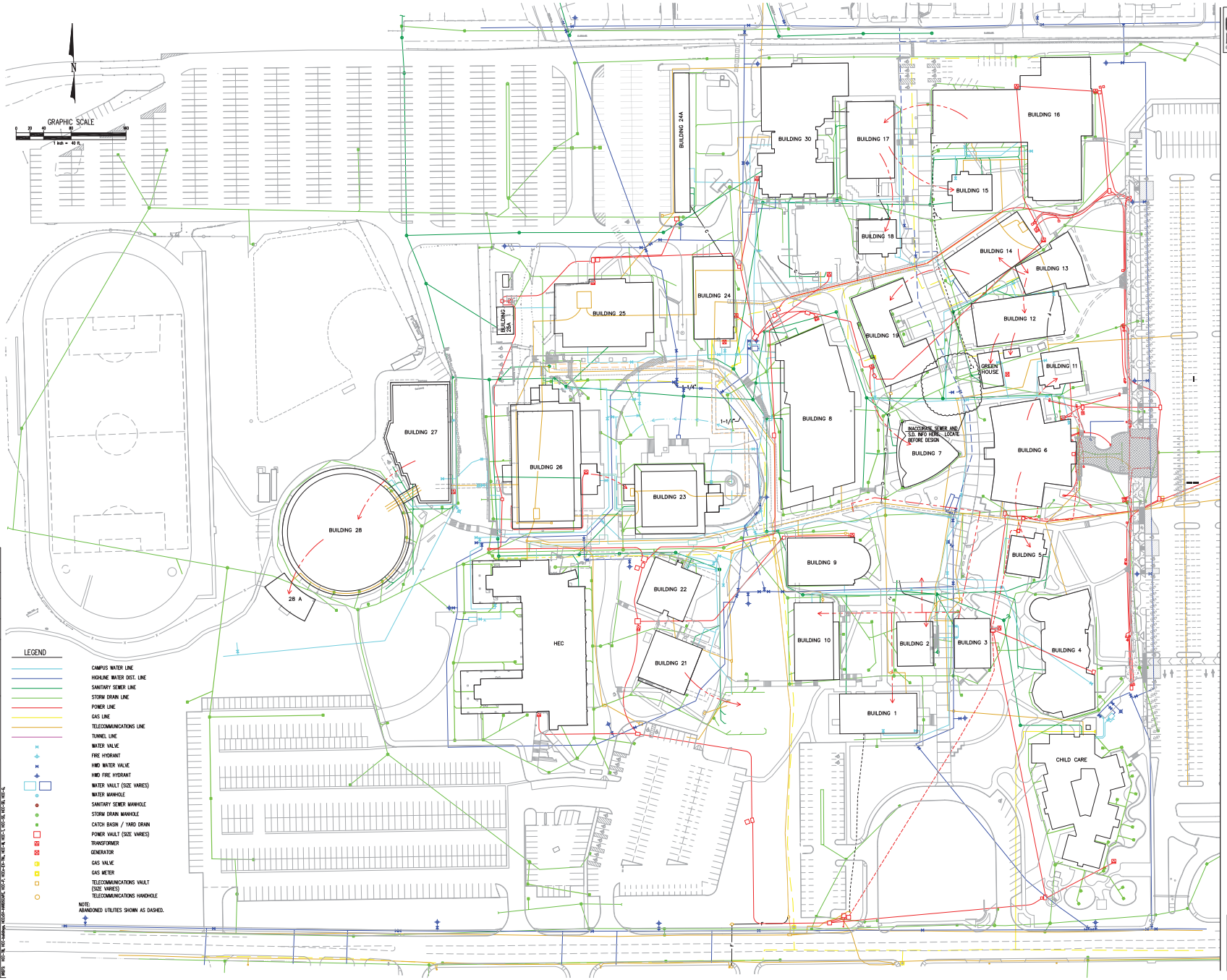
Highline College Stormwater Detention Bank

Updated 7/27/05

	Pond Volume	TIR 4/3/03 Building 30	TIR 4/3/03 Childcare	TIR 4/3/03 Student Union	TIR 4/3/03 HEC/Tunnel/ S. Parking Lot	TIR 8/4/04 North Parking Lot	TIR 7/18/05 2005 Campus Projects	7/27/05 memo Projects deleted	Sum	Balance
	9.490									
Forest to Existing	5.337	0.110	0.175	0.653	0.514	0.099	0.122	-0.122	1.551	3.786
Existing to Developed	4.153	0.014	0.275	0.179	0.641	0.130	0.087	-0.087	1.239	2.914

Notes:
1) Pond designed at 5.93 ac-ft with 10% allowed for future development and 90% for dealing with existing development
2) Pond as constructed is 9.49 ac-ft, allowing more for future development
3) Bank volume now at 5.337 ac-ft for existing development and accomodating DOE forested predevelopment criteria
and 4.153 for future development (new impervious surfaces)
4) Once existing volume is used up, the new development is charged for both. If new development volume is used up first, a new facility is required.

F EXISTING SITE UTILITIES



HIGHLINE COMMUNITY COLLEGE

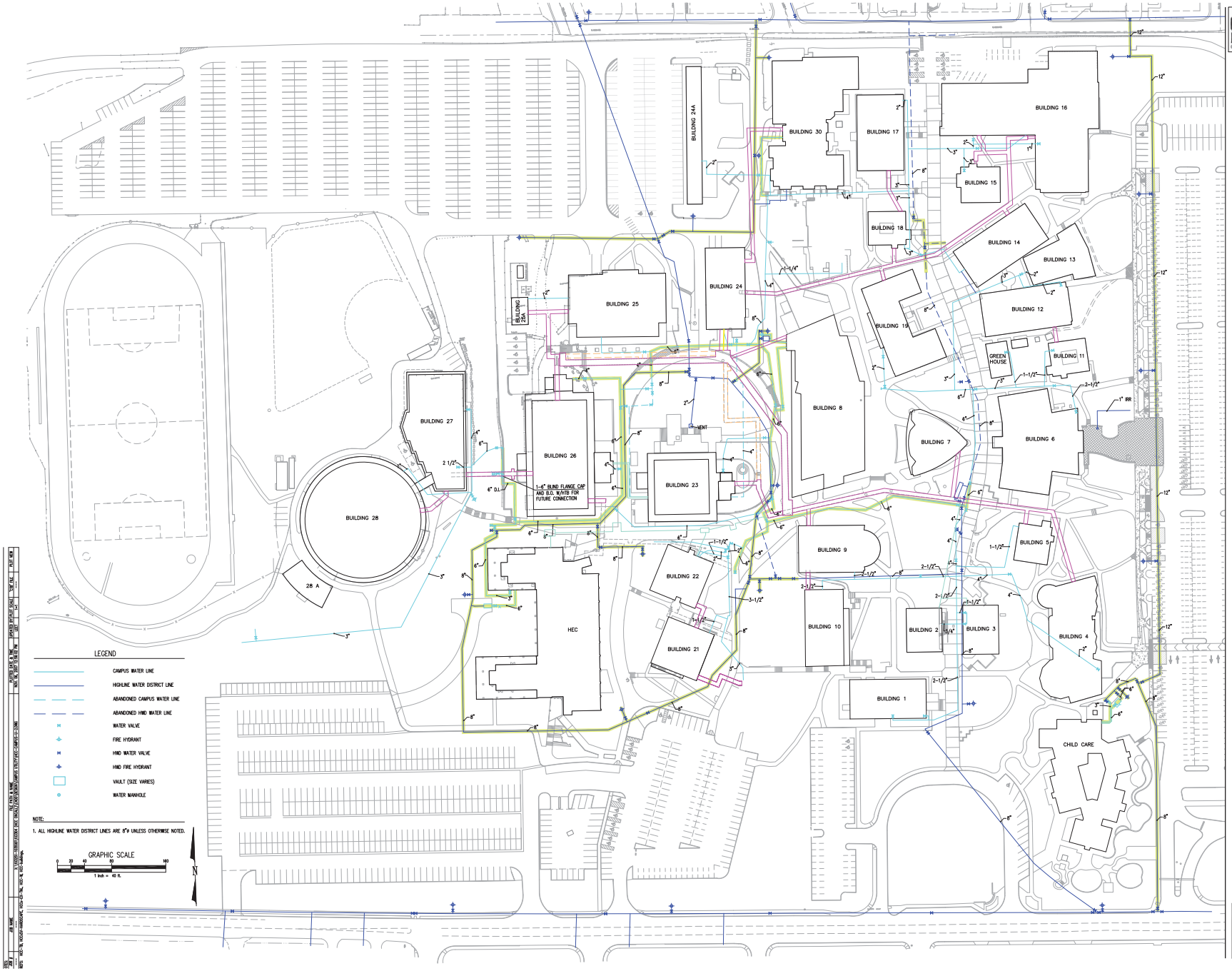
HIGHLINE COMMUNITY COLLEGE UNDERGROUND UTILITY MAPPING

CITY OF DES MOINES, WASHINGTON

ISSUED
11-06-07

CAMPUS UTILITY PLAN

U-1



HIGHLINE COMMUNITY COLLEGE

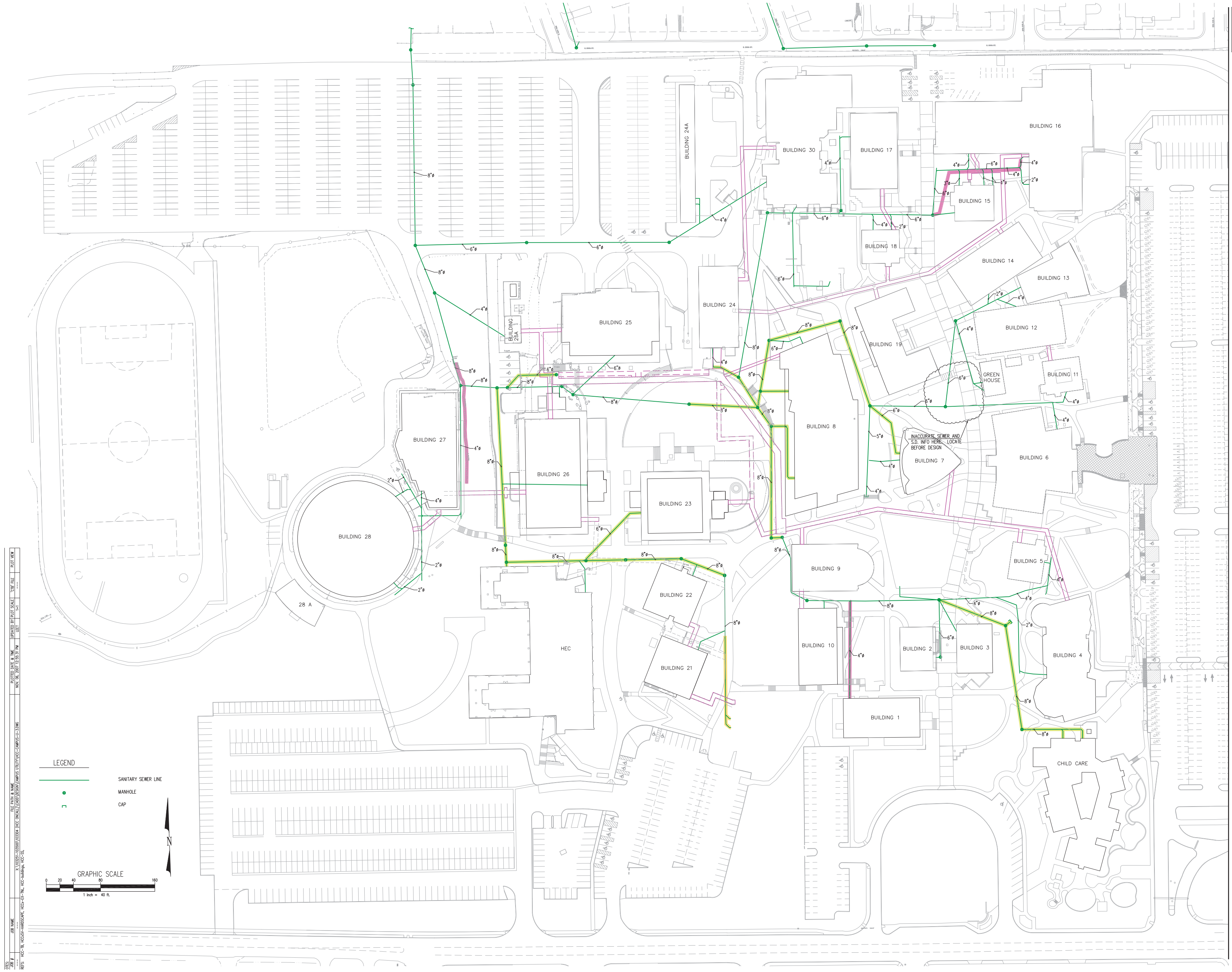
HIGHLINE COMMUNITY COLLEGE UNDERGROUND UTILITY MAPPING

CITY OF DES MOINES, WASHINGTON

ISSUED 11-06-07

CAMPUS / HWD WATER PLAN

U-2



HIGHLINE COMMUNITY COLLEGE

HIGHLINE COMMUNITY COLLEGE UNDERGROUND UTILITY MAPPING

CITY OF DES MOINES, WASHINGTON

ISSUED 11-06-07

CAMPUS SANITARY SEWER PLAN

U-3

HIGHLINE COMMUNITY COLLEGE

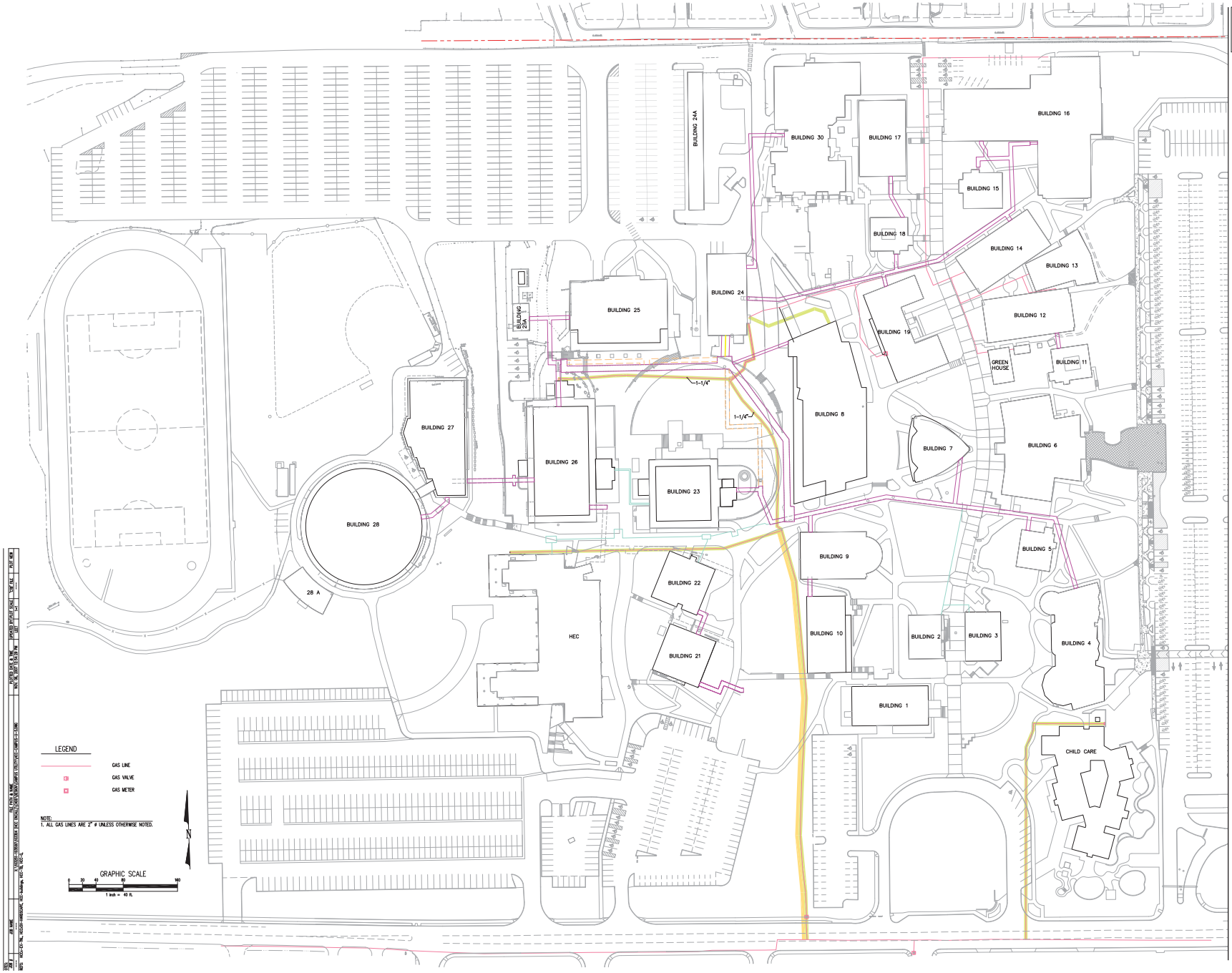
HIGHLINE COMMUNITY COLLEGE
UNDERGROUND UTILITY MAPPING

CITY OF DES MOINES, WASHINGTON

ISSUED
11-06-07

CAMPUS STORM DRAIN PLAN

U-4



HIGHLINE COMMUNITY COLLEGE

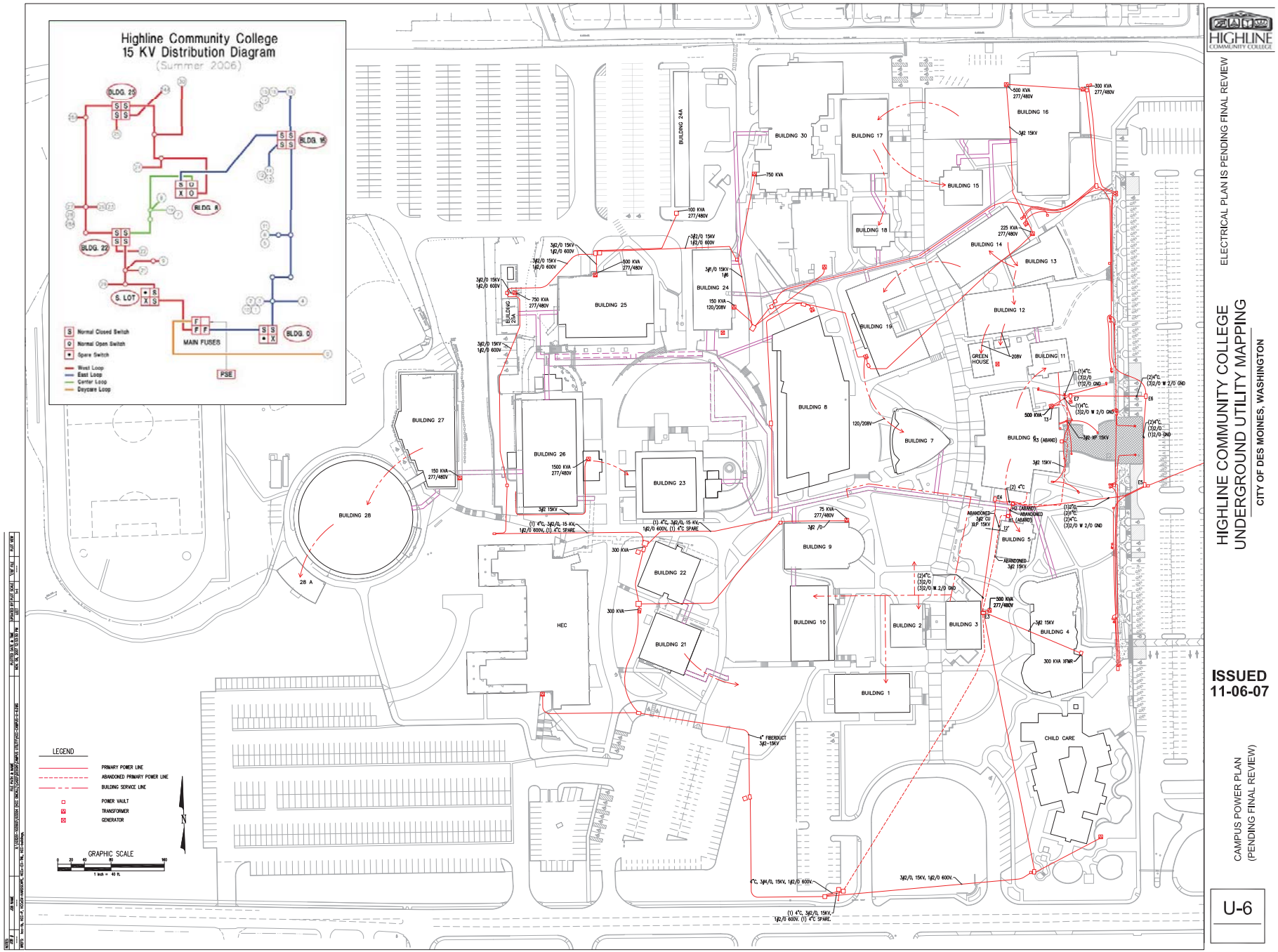
HIGHLINE COMMUNITY COLLEGE UNDERGROUND UTILITY MAPPING

CITY OF DES MOINES, WASHINGTON

ISSUED
11-06-07

CAMPUS GAS PLAN

U-5



HIGHLINE COMMUNITY COLLEGE

ELECTRICAL PLAN IS PENDING FINAL REVIEW

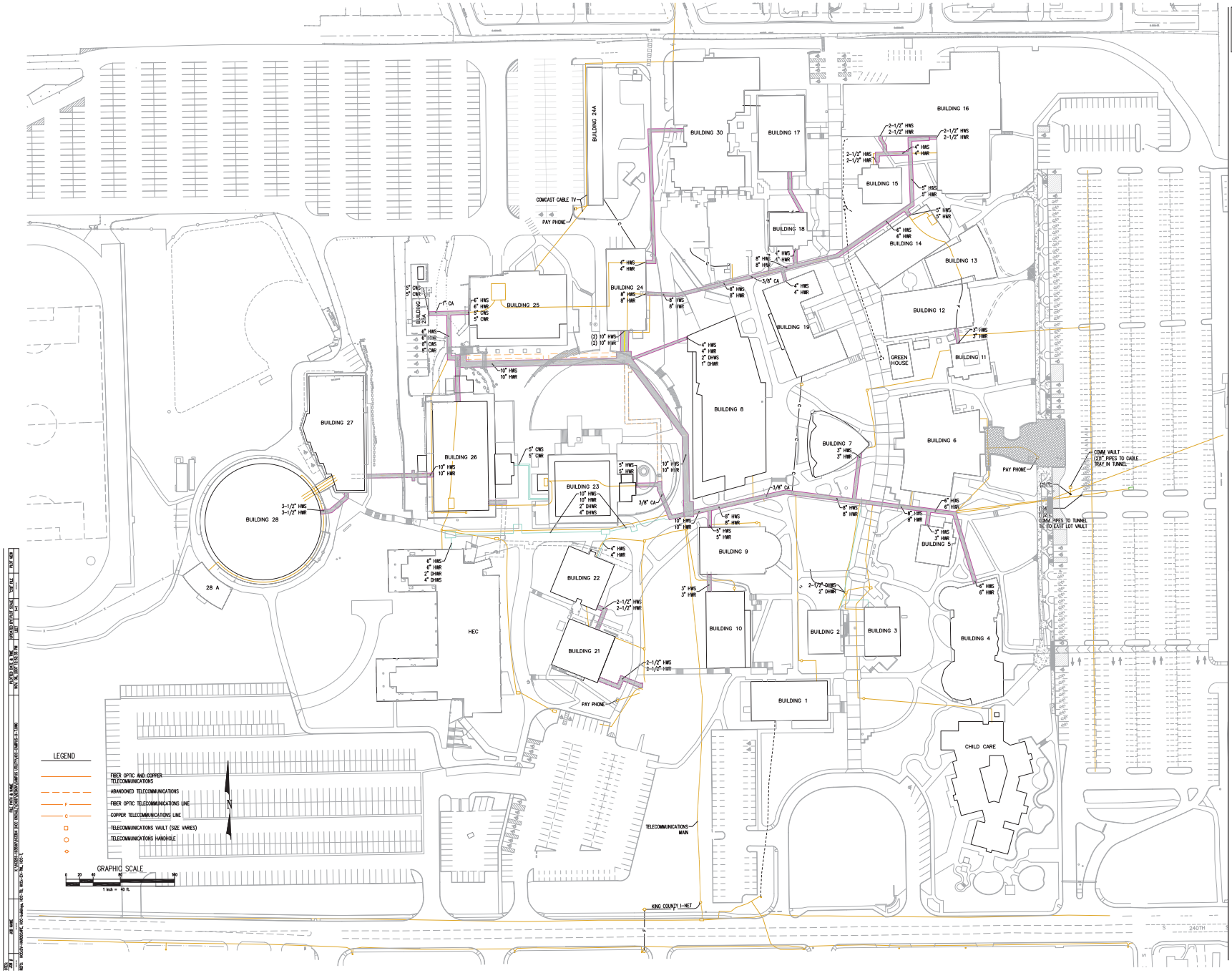
HIGHLINE COMMUNITY COLLEGE
UNDERGROUND UTILITY MAPPING

CITY OF DES MOINES, WASHINGTON

ISSUED
11-06-07

CAMPUS POWER PLAN
(PENDING FINAL REVIEW)

U-6



HIGHLINE COMMUNITY COLLEGE

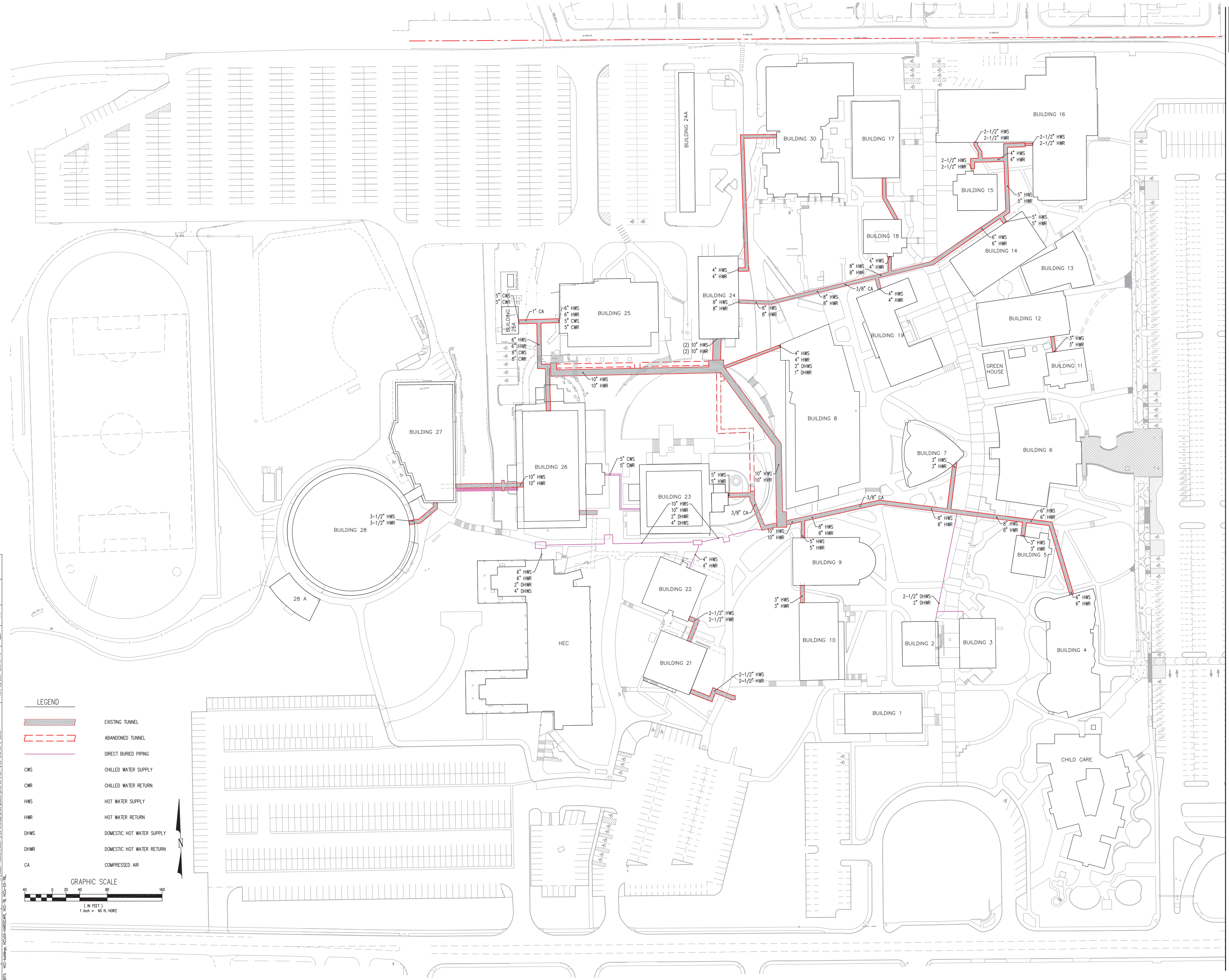
HIGHLINE COMMUNITY COLLEGE UNDERGROUND UTILITY MAPPING

CITY OF DES MOINES, WASHINGTON

ISSUED
11-06-07

CAMPUS TELECOMMUNICATIONS PLAN

U-7



HIGHLINE COMMUNITY COLLEGE

HIGHLINE COMMUNITY COLLEGE UNDERGROUND UTILITY MAPPING

CITY OF DES MOINES, WASHINGTON

ISSUED 11-06-07

CAMPUS MECHANICAL PLAN

U-8

G INFRASTRUCTURE REPAIR RECOMMENDATION

TBS
Engineering, Inc.

FACILITY REPAIR RECOMMENDATION

INFRASTRUCTURE

HEATING WATER DISTRIBUTION PIPE REPLACEMENT & REPAIR

BACKGROUND AND EXISTING CONDITIONS

Mechanical systems in the utility tunnels and utilidors at Highline Community College consist of Heating Water Supply and Return (180°F), Domestic Hot Water Supply and Return, Compressed Air and DDC wiring for building HVAC controls, and Chilled Water Supply and Return (serving buildings 25 and 26). Two previous major campus utility projects were utilized to address system deficiencies at the West end of the HCC campus. In 2001 there was the Emergency tunnel repair project in the aftermath of the Nisqually Earthquake which replaced approximately 500 feet of tunnel and in 2003, the Utility Extension project supporting the new HEC building added a combination of approximately 450 feet of buried pipe and new tunnel to the system.

The utility distribution system at the East end of campus consists of two separate sections: The North Tunnel (serving buildings 11 – 19) and The South Tunnel/Utilidor (serving buildings 1-7, 9). The distribution system has not changed significantly since it was originally installed more than 30 years ago, but other projects have negatively impacted the tunnel/utilidor system. The tunnel system is now intersected by gravity systems (Storm and Sanitary Sewer) in a number of locations. These create obstructions impeding access, egress, and the ability to work in the space. Accordingly, these tunnels have been classified as confined spaces with limited access as defined by OSHA with the associated monitoring and safety-related requirements.

The Process (Building) Heating Water piping was installed in the mid 1970's using mechanical grooved-joint couplings manufactured by Victaulic. Gasket materials installed with the pipe thirty years ago have not held up well when subjected to the high temperatures of the process water. The rubber gaskets in these joints have degraded, hardened, cracked, and deteriorated to the point where there are failures (leaks) occurring frequently throughout the system. The limited access and confined space conditions in the tunnels make repairs physically challenging or impossible, extremely labor/manpower intensive, and a risky and dangerous procedure. There is a history of past catastrophic failures resulting in serious injury to facility staff.

Water from leaks and general conditions in these tunnels has had a significant impact on the pipe structural supports and on the pipe insulation. The majority of the pipe insulation shows signs of severe water damage and much of it is wet a good portion of the year (which implies an associated reduction in R value). It should be replaced. The structural supports for the piping systems are in very poor condition. Water induced damage is clearly visible and much of the supports are distorted from structural failure and/or movement of the tunnel walls and floor.

7302 Pearl Ct. Bainbridge Island, WA 98110 Email: rp@tbs-engineering.com
Phone: 206 842 0143 Fax: 206 855 1063

IMPACT ON THE COLLEGE

Welded pipe systems replaced the old pipe and couplings in previous repair projects (2001, and 2003). In those areas where improvements in the distribution system have been completed, repairs and maintenance of the piping has been practically eliminated. The remaining mechanical grooved-joint couplings leak chronically and are a constant drain and excessive burden on the operating (maintenance and repair) budget.

In the event of a failure, the lack of accessibility to the affected areas significantly extends the time required for repair(s). If the necessary repairs cannot be made in a timely fashion, the campus remains unheated longer, impacting classroom and laboratory availability.

The following summary of multiple failures and repairs of the Heating Water Distribution System demonstrates the scope of the problem.

From June 2005 thru January, 2008:

6/21/05 Piping repaired between Bldg 17 and 18 tunnel
6/21/05 Replaced Victolic joints in inaccessible for Bldg 23 pipe chase by contractor
6/24/05 Replaced 2 isolation valves in tunnel for Bldgs 9 and 10
4/15/06 Repaired 2" Union leak in south tunnel for Bldg 2
6//24/06 Replaced 6 (5") Victolic gaskets in tunnel lines for Bldg 4 heating water
9/16/07 Replaced sump pump in Bldg 14 tunnel due to pipe leaks
9-10/07 For Bldg 26 North, replaced non-accessible piping & Victolics by contractor
10/20/07 Repaired 2 (4") unions in tunnel between Bldgs 17 & 18
10/24/07 Repaired 4 (5") Victolics for bldg 25 booster pump room.
11/10/07 Replaced 2 (6") butterfly valves in bldg 25 tunnel
12/19/07 Replaced tunnel sump pump between Bldgs 27 & 28
1/13/08 Replaced sump pump in Bldg 9 tunnel

From August of 1997 thru May of 2005, ***139 heating water system repairs were required***.

Repairs of leaks in the system require:

1. Isolation of affected building's heating water system.
2. Draining (and cooling if possible) of system.
3. Staging, asbestos removal & confined space work preparation.
4. Repair or replacement of valves, joints, piping, etc.
5. Refilling system and verifying that repairs stopped the leaks
6. Replacing insulation.
7. Checking chemistry of the heating water and adding chemicals as needed.

Repairs require a minimum of 2 man days to complete and may take as much as a week for major and extensive work. All repairs require a partial shut down of the heating and cooling system and a shut down of that part of the campus during the heating season, which significantly impacts the College's program delivery and availability of classroom space.

SAFETY CONSIDERATIONS

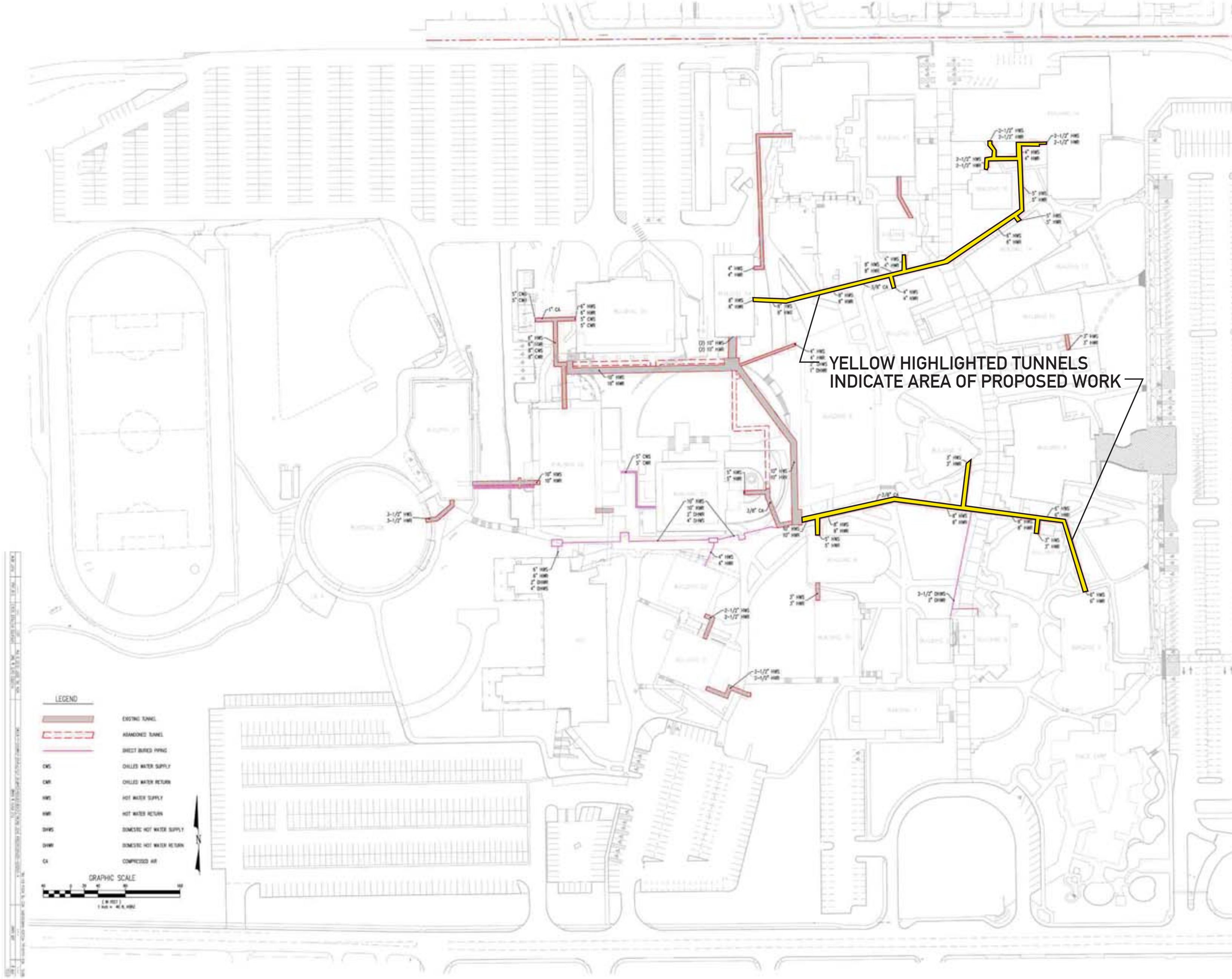
There are a number of scenarios with regard to safety for workers in the tunnels that add to the college's risk and liability. The proximity of workers to 180°F water in a confined space is in itself a problem. Add to that the condition of the pipe and fittings and you have the potential for a major accident. One example is a catastrophic pipe (or joint) failure while someone is in the tunnels for a maintenance related purpose, resulting in sudden exposure to an onrush of 180°F water. Death or serious life-threatening injury is a real possibility. Given the history of system component failures (couplings and gaskets), the risk here is a significant one for the college to assume. In addition, the confined space/limited access constraints make extracting the injured worker from the space a major challenge, significantly adding to the time before treatment can begin. Again, this is a risk that can become a real liability for the college.

PROPOSED REMEDIATION

Those areas identified as in most need of immediate repair are shown on the attached campus map. The proposal is to replace the sections of 8" distribution pipe with new welded pipe, supports and expansion devices. Where possible, the smaller (6" and 4") pipe joints may be replaced, with welded-in-place metal spool-pieces, designed to fit the existing pipe (either butt-welded or slip-on) while re-using all existing pipe which is still in good working condition. The appropriate pipe expansion devices and structural supports would be added as necessary. Where economically feasible, gravity systems intersecting the tunnels would be relocated or reconfigured as necessary to improve accessibility. The welded joints provide for a more reliable system, improving employee safety and almost eliminating associated maintenance costs. In some locations, the reliability of a welded pipe system will be taken into account and the gravity system left in place.

The intention is to drastically reduce the need to enter the tunnel sections for emergency maintenance and pipe repair. The recent repair history for welded pipe systems on the HCC campus indicates that a reduction in required maintenance is a reasonable assumption. For this proposed project, the utilidors at the South sections of the system can be opened from above for access to the pipe and fittings. However, some of the work in the tunnels – primarily in the North sections East of Building 24 - would still need to take place in a confined space. Weighing the additional cost of working in a confined space against the cost of replacing those sections of tunnel and utilidor, this appears to be the most economical approach. Much consideration was given to just replacing couplings on all pipe but the additional costs for welding, manpower, permitting, etc. eliminated any savings that may have been realized.

Please see attached site plan drawing of proposed work, detailed cost estimate, and photographs of existing conditions.



HIGHLINE COMMUNITY COLLEGE

HIGHLINE COMMUNITY COLLEGE UNDERGROUND UTILITY MAPPING

CITY OF DES MOINES, WASHINGTON

ISSUED 11-06-07

CAMPUS MECHANICAL PLAN

U-8

H GREENHOUSE GAS EMISSION REDUCTION PLAN

Highline Community College

Strategy for Reducing Greenhouse Gas Emissions

June 30, 2011

1. Background

In 2009, the Legislature and Governor adopted the State Agency Climate Leadership Act (Engrossed Second Substitute Senate Bill 5560 – Chapter 519, Laws of 2009). The Act committed state agencies to lead by example in reducing their greenhouse gas (GHG) emissions to:

- 15 percent below 2005 levels by 2020.
- 36 percent below 2005 by 2035.
- 57.5 percent below 2005 levels (or 70 percent below the expected state government emissions that year, whichever amount is greater.)

The Act, codified in RCW 70.235.050-070 directed agencies to annually measure their greenhouse gas emissions, estimate future emissions, track actions taken to reduce emissions, and develop a strategy to meet the reduction targets. The strategy is required by law in RCW 70.235.050 section (3):

> *By June 30, 2011, each state agency shall submit to the department a strategy to meet the requirements in subsection (1) of this section* [greenhouse gas reduction targets]. *The strategy must address employee travel activities, teleconferencing alternatives, and include existing and proposed actions, a timeline for reductions, and recommendations for budgetary and other incentives to reduce emissions, especially from employee business travel.*

Starting in 2012 and every two years after each state agency is required to report to Ecology the actions taken to meet the emission reduction targets under the strategy for the preceding biennium.

- Highline Community College will commit to operate in a sustainable manner that simultaneously meets the economic, environmental, and social equity responsibilities of the College. The College will actively pursue currently implemented and innovative methods of sustainability in all three areas. Such practices will be applied throughout the campus, as a part of College's relevant instructional practices, purchasing procedures, and resource management.

2. Greenhouse Gas Emissions from Agency Operations

A. Direct sources of GHG emissions from building and fleet energy use

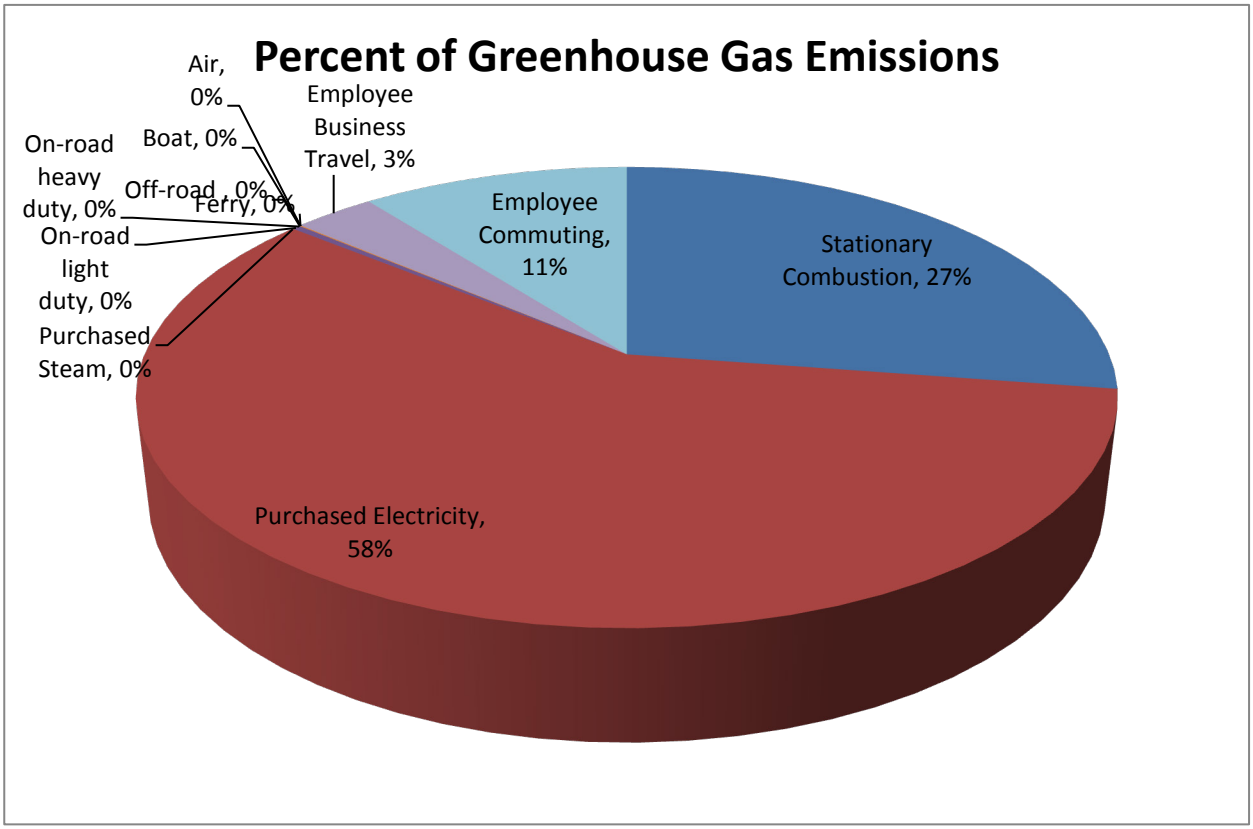
Year	Greenhouse Gas Emissions (metric tons carbon dioxide equivalent, $MTCO_2e$)
2005	6,286.3
2009 (or most recent year)	(Do not include business travel or commuting emission here) 6,773.8
2020 (projected)	7,763.1
2035 (projected)	9,006.7

(Note: Figures do not include GHG emissions from buildings owned by General Administration. However, they do include GHG emissions from use of the GA Motor Pool.)

The projected 2020 and 2035 GHG emission levels can be found on the projection tool. Or agencies can use their internal agency estimates.

B. Main sources of direct GHG emissions

- **Insert pie chart or briefly describe source and percent of GHG emissions from building and fleet energy use for 2009 or the most recent year**



C. Greenhouse Gas Reduction Targets

Year	GHG Reduction Target ($MTCO_2e$)
2020 (15% below 2005)	**5,343.4**
2035 (36% below 2005)	**4,023.2**
2050 (57.5% below 2005)	**3,671.7**

D. Level of GHG Reduction Needed to Meet Targets

Note 2050 is not included below because the estimate would be highly uncertain. This strategy should focus on meeting the 2020 and 2035 targets.

Agencies that are not expecting to grow need to reduce from the most current year to the targeted level. Subtract the most recent year emissions (2009 or 2010) from the targets in part C above.

Agencies that are growing need to account for future growth to achieve the targets. These agencies should use the projected 2020 and 2035 emissions from the projection tool, or use internal agency projection estimates to determine the amount of GHG reduction needed.

Year	Amount of GHG Reduction Needed to meet Targets ($MTCO_2e$)
2020	**1,430.4**
2035	**2,750.6**

3. Overarching Strategies (if applicable)

The agency identified several cross-cutting strategies to help in reducing GHG emissions:

(Examples may include the following)

- Improve tracking of information used to quantify GHG emissions
- Integrate GHG reduction goals and actions into sustainability efforts and track progress
- Monitor progress, implementation, and develop strategies
- Education/Outreach

4. Greenhouse Gas Reduction Strategies for Direct Emission Sources (Building and Fleet Energy Use)

A. Strategies and Actions with Low to No Cost

Where possible, include estimates of GHG reduction, cost, payback using emission reduction tool. Add the reduction and cost estimates and insert totals.

Strategies and Actions	GHG Reduction Estimate Annual ($MTCO_2e$)	Upfront Cost Estimate ($)	Payback Period Estimate (Years)	Date to Imple-ment Estimate
Building Energy Use				
Reduce energy consumption by 9.5% • Behavioral changes • RCM program • Set environment temp/set temp pts./ loading bldgs./scheduling • Sub-metering • Utilizing Energy Star IT software	597.2	$5,000	2	11-13 biennium
Fleet Energy Use				
TOTALS:	597.2		N/A	N/A

B. Strategies and Actions with Payback up-to Twelve Years (or other time period determined by your agency)

Strategies and Actions	GHG Reduction Estimate ($MTCO_2e$)	Upfront Cost Estimate ($)	Payback Period Estimate (Years)	Date to Imple-ment Estimate
Building Energy Use				
Reduce energy consumption by 9%				
• 3% DDC Upgrade	188.59	$320,000	12	11-13 biennium
• 2% VFD Replacement/high efficiency motors/pumps	125.73	$133,943	10	10-11
• 2% Recommission selected bldgs.	125.73	$70,000	6	13-15 biennium
• 2% Replacement w/CFL bulbs & sink aerators	125.73	$4,000	5	10-13
Fleet Energy Use				

TOTALS:	565.78		N/A	N/A

C. Strategies and Actions with High Cost and Long Payback (more than 12 years or other time period determined by your agency)

Strategies and Actions	GHG Reduction Estimate ($MTCO_2e$)	Upfront Cost Estimate ($)	Payback Period Estimate (Years)	Date to Imple-ment Estimate
Building Energy Use				
Reduce energy consumption by 4%				
• 3% Adopting LEED Principles – Bldg. 4 Remodel	188.59	$100,000	15	11-13 biennium
• 1% Alternative Energy Programs: Solar pre-heat water	62.86	$100,000	15	15-17 biennium
Fleet Energy Use				
TOTALS:	251.45		N/A	N/A

5. Greenhouse Gas Reduction Strategies for Other Emission Sources (Employee Business Travel and Commuting)

The agency also quantified greenhouse gas emissions from employee commuting and business travel. GHG emissions from these sources were not included in the 2005 baseline because of insufficient data, and are therefore are not included in the reduction targets. Also, the agency has less operational control over these sources. The agency evaluated these sources separately in this strategy and identified reduction strategies for these sources.

Source of GHG Emissions	GHG Emissions, 2009 (or most recent year) ($MTCO_2e$)
Business Travel	250.6
Employee Commuting	827

Note that finding information on GHG reduction, cost, and payback may be difficult. If you don't have rough information leave these blank.

Strategies and Actions	GHG Reduction Estimate ($MTCO_2e$)	Upfront Cost Estimate ($)	Payback Period Estimate (Years)	Date to Imple-ment Estimate
Employee Business Travel				
Employee Commuting				
Reduce commuting by 2% based on CTR Survey 2009-10	16.54	$0	2	11-13 biennium
TOTALS:	16.54		N/A	N/A

6. Additional Sustainability Strategies and Actions (if applicable)

If applicable, include additional sustainability actions related to waste reduction, recycling, composting, environmentally preferred purchasing, water use reduction, reduction of toxic products, or any other sustainability efforts.

Strategies and Actions	Co-benefits for GHG Reduction	Implementation Date Estimate

7. Next Steps and Recommendations

Highline Community College was built in 1964 as the least expensive community college. By design with inexpensively built one-two story buildings spread throughout an open campus, the cost to maintain and capture building efficiencies is difficult. With that stated, the College will need capital funding to reach any real level of renovation/replacement that meets any sort of energy efficient measurement. In the effort to do the best we can to meet the goals of this unfunded Senate Bill 5560 –Chapter 519, laws of 2009/ RCW 70.235.050-070 Highline Community College is committed to CO_2e reduction targets as stated in our plan.

The next steps that the College will take will be a mix of behavioral change (how users use energy), mechanical (building systems) and structural improvements (capital renovations/replacements) and other activities. Behavioral changes will include programs like the PSE RCM program, creation of a college "Green" team, participation in the Commute Trip Reduction (CTR) and employee/student outreach and educational programs which attempt to change the way people use energy on/off campus or commute to and from work/classes. The College has already implemented an Executive level review for training travel and will continue to adopt technology as an alternative to physical travel.

As a compliment to the behavioral changes, the College has already begun evaluating buildings and energy related systems to understand how energy is being used and developing ongoing "Facility Action Plans" aimed at reducing energy, waste streams and water management. These building and mechanical system improvements will take some funding above the normal operational budgets presently in place to implement. The costs of these energy related projects, even with rebates, are typically high cost activities that have ROI's outside of 5 but more likely 10-15 years to payback on investments. With the Senate Bill 5560 the College will be looking to the state to help either through operational or capital budget funding to assist with implementing these higher cost goals. The College has already begun investigating the use of a State ESPC (performance based contracting) in concert with Federal or State matching energy grants as another supplemental program to aid in meeting our stated goals. It will be imperative that grants and state funding be provided to assist Highline Community College with meeting its aggressive reduction goals. Lastly, the College is committed to LEED principles and, if appropriated dollars to renovate, build or replace facilities, the College is committed to the purchasing of high efficiency systems that use/require less energy that will also aid with reducing greenhouse gas emissions and create a more sustainable campus.

Costs for this specific campus to accomplish this reduction of ~1500 MTCO2e by 2020 is estimated to be in the range of $500,000- $1,500,000 dollars.

This plan is not published and still being addressed over time. The Facilities Department is the spearhead for the campus CO_2e reductions but will continue to work with and rely on cooperation from employees, students and guests in order to be successful.

Barry Holldorf
Director of Facilities
Highline Community College
PO BOX 98000
MS 24-1
Des Moines WA 98198-9800
206-878-3710, X3793
bholldorf@highline.edu

When finalized, e-mail to joanna.ekrem@ecy.wa.gov, Hedia.adelsman@ecy.wa.gov, and Karisa.duffey@ecy.wa.gov . The file name should include the agency acronym, the word GHG strategy, and the submission date – for example, ECY GHG Strategy June 30 2011.doc.

Preliminary for 2015-17 Project Requests
CAPITAL ANALYSIS MODEL (CAM) GENERATED SPACE

COLLEGE: **Highline**
TYPE: **Community College**

All FTE *		**FALL 2012**	**FALL 2022**	**Growth**	**Percent**
Academic		3,424	3,489	65	2%
Vocational		1,425	1,452	27	2%
Basic Skills/Dev Ed		2,459	2,506	47	2%
	TOTAL	**7,308**	**7,447**	**139**	**2%**

Type 1 FTE		**FALL 2012**	**FALL 2022**	**Growth**	**Percent**
Academic		2,601	2,650	49	2%
Vocational		955	973	18	2%
Basic Skills/Dev Ed		1,466	1,494	28	2%
	TOTAL	**5,022**	**5,117**	**95**	**2%**

Type 2 FTE		**FALL 2012**	**FALL 2022**	**Growth**	**Percent**
Academic		3,088	3,147	59	2%
Vocational		1,268	1,292	24	2%
Basic Skills/Dev Ed		1,506	1,535	29	2%
	TOTAL	**5,862**	**5,974**	**112**	**2%**

* All funding sources, all ages, all intents (excluding community service), all enrollments (excluding DOC)
Type 1 = Day On-Campus (excludes Online)
Type 2 = Day On-Campus + Online

Preliminary for 2015-17 Project Requests
CAPITAL ANALYSIS MODEL (CAM) GENERATED SPACE

COLLEGE: **Highline**
TYPE: **Community College**

TYPE OF SPACE	FAE CODING	FTE TYPE	2012 SPACE AVAILABLE	COMMITTED CHANGES 2012-2022	2022 SPACE AVAILABLE	2022 CAM ALLOWANCE	2015-17 SPACE DEFICITS SHORTAGE	2015-17 SPACE DEFICITS OVERAGE	SHORTAGE AS % OF 2015-17 CAM ALLOWANCE
GEN. CLASSROOM	A1	1	88,004		88,004	40,158	0	47,847	0%
BASIC SKILLS LABS	A2	1	4,410		4,410	41,234	36,824	0	89%
SCIENCE LABS.	B1	2	12,892		12,892	29,897	17,005	0	57%
COMPUTER LABS.	B2,B4,B5	2	41,194		41,194	30,211	0	10,983	0%
ART	C1	2	5,894		5,894	6,000	106	0	2%
MUSIC	C2	2	4,686		4,686	4,000	0	686	0%
DRAMA	C3	2	6,373		6,373	5,000	0	1,373	0%
Subtotal Instruction			**163,453**	**0**	**163,453**	**156,500**	**53,935**	**60,888**	**34%**
AUDITORIUM	C4	2	3,761		3,761	9,000	5,239	0	58%
LIBRARY/LRC	E1	2	38,487		38,487	75,679	37,192	0	49%
PHYS. EDUCATION	H3	2	36,947		36,947	39,470	2,523	0	6%
FACULTY OFFICE	F1	2	28,807		28,807	51,878	23,071	0	44%
Subtotal Instructional Support			**108,002**	**0**	**108,002**	**176,027**	**68,025**	**0**	**39%**
Total Instructional Space			**271,455**	**0**	**271,455**	**332,526**	**121,960**	**60,888**	**37%**
ADMIN./STU.SERV.	G1,G2	2	38,342		38,342	42,197	3,855	0	9%
STU.CTR.& RELATED	H1,H2	2	34,616		34,616	63,273	28,657	0	45%
C.STORES/MAINT.	I1	2	27,260		27,260	29,896	2,636	0	9%
CHILD CARE	H4	2	11,142		11,142	20,312	9,170	0	45%
Subtotal Student Service/Other			**111,360**	**0**	**111,360**	**155,677**	**44,317**	**0**	**28%**
TOTAL CAM SPACE			**382,815**	**0**	**382,815**	**488,203**	**166,277**	**60,888**	**34%**

TOTAL ASSIGNED	542,605
CAM/TOT. ASSIGN.	71%