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May 12, 1998

Granville Southern Corporation
P.O. Box 2878
Kirkland, WA. 98083-2878

ATTN: Mike Reid

Subject: Revised Traffic Impact Analysis for Pacific Place with New Access Through Choi Parcel

Dear Mike:

The purpose of this letter is to respond to the County's and your request for an analysis of the use of the Choi parcel for access to Pacific Place. The analysis will review an extension of 15th Avenue South to the north to S. 279th Street through Pacific Place and the Choi property. This access revision would eliminate the previously proposed access to SR-99. The analysis also summarizes potential cut-through traffic using the new route. The following summarizes our findings.

1) Background

The traffic impact analysis for the proposed development of Pacific Place reviewed the development of 11.1 acres into 100 owner-occupied units. The development of Pacific Place is expected to generate 586 new trips per day, 55 of which will occur during the PM peak hour. Access to the development was proposed from SR-99 (right-in/right-out) and from an extension of an existing dead-end street, 15th Avenue South, which abuts the south property line and serves the Applewood plat.

Recommended mitigation for the project for the impacts from the development included a contribution to the County's current MPS fee schedule to fund the development's share of off-site road and intersection improvements, a pro-rata share for improvements to the intersection of SR-99/16th Avenue South if/when WSDOT proceeds with the intersection improvements, and the installation of right-turn storage along SR-99 at the site access.

Comments from both WSDOT and the adjacent jurisdictions

(Federal Way and Des Moines) expressed concern over the access to SR-99 and its connection to the local access streets.

2) Revised Access Through Choi Property

The acquisition of the Choi parcel located immediately to the north of Pacific Place, and extending to S. 279th Street, would allow for an alternative access to Pacific Place from S. 279th Street. S. 279th Street is a local access street which serves a limited number of single-family residences. The street has not been upgraded to an urban standard, i.e., no curb, gutter, or sidewalk has been installed.

The construction of this access to serve Pacific Place would eliminate the construction of an access to SR-99 and the impacts along the highway associated with the access. The use of an access to S. 279th Street would provide an alternative means of access to the site to and from the north. In order to better assess the impacts that this new access alternative may have on the intersections in the immediate vicinity, additional AM and PM peak hour counts have been obtained and are shown on Figures 2B and 2C. These volumes will be used in estimating the potential cut-through traffic on this new connection.

The specific changes in the AM and PM peak hour trip assignment resulting from this access alternative have been shown in the attached revisions to Figures 4 and 5. The major change in the assignment would be the routing of northbound trips to S. 279th Street and through the intersection of S. 279th Street/16th Avenue South rather than to the south through the intersection of S. 288th Street/ SR-99 (due to the turn restriction which would have been imposed on the access to SR-99). This also results in fewer trips traveling along SR-99 between S. 272nd Street and S. 288th Street, and more trips traveling along 16th Avenue South between S. 279th Street and S. 272nd Street. It is expected that some of the inbound trips to the project would continue to use SR-99 southbound to access S. 279th Street since a southbound right-turn from SR-99 across 16th Avenue South to S. 279th Street is allowed. The access alternative would also result in a change in the turning movement assignments at the intersection of S. 272nd Street/SR-99, although the total number of trips would not change. These revised intersection turning movements have been shown on Figures 7 and 7A. Additionally, the peak hour volumes at the intersections in the immediate vicinity shown in Figures 2B and 2C have been estimated for the year 2002, with and without the project, and are shown in Figures 6B, 6C, 7B, and 7C.

The level of service analyses for the "with project"

conditions have been revised to reflect the new trip assignments. It should be noted that as a result of the new access to S. 279th Street, most of the site trips will travel between 16th Avenue South and S. 279th Street, rather than on the north and south legs of SR-99 at its intersection with 16th Avenue South. The results of the revised level of service analyses are shown in the tables which follow.

TABLE 5 (REVISED)
2002 LEVELS OF SERVICE
UNSIGNALIZED INTERSECTION

Location	Peak Hour		Level of Service (Delay) Base Condition	W/Project (Original Analysis)	W/Project (New Trip Assignment)
SR-99/ 16th Avenue S.	AM	EBRT -	A (5 sec.)	A (5 sec.)	A (5 sec.)
		NBLT -	B (9 sec.)	B (9 sec.)	B (9 sec.)
		OVERALL -	A (2 sec.)	A (2 sec.)	A (2 sec.)
	PM	EBRT*-	F (551 sec.)	F (602 sec.)	F (577 sec.)
		NBLT -	F (**)	F (**)	F (**)
		OVERALL -	F (119 sec.)	F (131 sec.)	F (126 sec.)

* - Critical gap for subject movement adjusted downward by one second to account for acceleration lane.
** - Calculated delay greater than 999.9 seconds.

Where:

LOS	Delay
A	≤ 5 seconds
B	> 5 & ≤ 10 seconds
C	>10 & ≤ 20 seconds
D	>20 & ≤ 30 seconds
E	>30 & ≤ 45 seconds
F	>45 seconds

TABLE 6 (REVISED)
2002 LEVELS OF SERVICE
SIGNALIZED INTERSECTION

Location	Peak Hour	Base Condition	Level of Service (Delay) W/Project (Original Analysis)	W/Project (New Trip Assignment)
SR-99/ S. 272nd Street	AM	EB - D (37 sec.)	D (37 sec.)	D (38 sec.)
		WB - D (36 sec.)	D (36 sec.)	D (36 sec.)
		NB - D (33 sec.)	D (35 sec.)	D (33 sec.)
		SB - C (16 sec.)	C (16 sec.)	C (16 sec.)
		OVERALL - D (32 sec.)	D (33 sec.)	D (32 sec.)
	PM	EB - E (52 sec.)	E (52 sec.)	E (53 sec.)
		WB - E (52 sec.)	E (55 sec.)	E (55 sec.)
		NB - D (29 sec.)	D (29 sec.)	D (29 sec.)
		SB - E (49 sec.)	E (51 sec.)	E (51 sec.)
		OVERALL - E (45 sec.)	E (47 sec.)	E (47 sec.)

Where:

LOS	Delay
A	$\leq$ 5 seconds
B	> 5 & $\leq$ 15 seconds
C	>15 & $\leq$ 25 seconds
D	>25 & $\leq$ 40 seconds
E	>40 & $\leq$ 60 seconds
F	>60 seconds

The results of the revised level of service analyses indicate that the new access proposal will result in a slightly better level of service at the two intersections previously reviewed as a result of fewer trips through SR-99/16th Avenue South and fewer trips impacting the critical movements at S. 272nd Street/SR-99.

3) Potential Cut-Through Traffic

As noted in the original analysis, the extension of 15th Avenue South to tie into the existing street system would provide a secondary access not only to the residents of the proposed development, but would also serve the existing residents of the area by providing them with an alternative to using S. 288th Street/16th Avenue South when accessing the neighborhood. Emergency service vehicles would also be able to enter the neighborhood (from the north) via a much shorter route.

Figures 8 and 9 of the original report have been revised to

reflect the new access location and expected volumes on 15th Avenue South at three different locations along the route, i.e., just south of S. 279th Street, at the south property line of Pacific Place, and just north of S. 284th Street. These figures show the total estimated trips and the source of these trips, i.e., development trips, Applewood trips, or trips diverted from the surrounding neighborhood. The Applewood trips and diverted trips were estimated from the volumes shown on Figures 7B and 7C. It was assumed that the Applewood and diverted trips using the new connection would be at the same ratio as those neighborhood trips destined to and from the north at the intersection of S. 288th Street/ SR-99, and that there would be a 100% diversion of these trips at the intersection of S. 284th Street/15th Avenue South. (Trips destined to and from the east or south were assumed to continue in their current pattern.) Currently, 66% of the outbound trips and 36% of the inbound trips from the neighborhood in the AM peak hour are destined to and from the north, with 45% outbound and 44% inbound during the PM peak hour. These percentages were applied to the peak hour volumes at the intersection of S. 284th Street/15th Avenue South to estimate the diversion onto 15th Avenue South via S. 279th Street. It is probable that not all of the trips noted as diverted would use this new route, but the 100% diversion has been shown to represent a worst case scenario. The figures show that if the diversions occur as projected, the highest volumes along 15th Avenue South would occur just south of S. 279th Street, where just under 1000 vehicles per day could be expected. (ADT based on a 9.55 to 1.01 ratio of daily to PM peak hour trips.) Further to the south (at the project south property line and near S. 284th Street), approximately 700 to 800 vehicles per day have been estimated. These values fall within the County's recommended maximum daily volumes of 1000 vehicles per day on sub-collectors.

A level of service calculation has been performed for the S. 279th Street access and the intersection of S. 284th Street/ 15th Avenue South to ensure that the diversion of the neighborhood trips does not create a level of service problem. The results of the level of service analyses are as follows:

TABLE 7 (REVISED)
2002 LEVELS OF SERVICE - SITE ACCESSES

Location	Peak Hour	Level of Service (Delay)
S. 279th Street 15th Avenue South	AM	WBLT - A (2 sec.) NB - A (3 sec.) OVERALL - A (2 sec.)
	PM	WBLT - A (2 sec.) NB - A (3 sec.) OVERALL - A (2 sec.)
S. 284th Street 15th Avenue South	AM	EBLT - A (2 sec.) WBLT - A (2 sec.) NB - A (4 sec.) SB - A (4 sec.) OVERALL - A (2 sec.)
	PM	EBLT - A (2 sec.) WBLT - A (2 sec.) NB - A (3 sec.) SB - A (3 sec.) OVERALL - A (2 sec.)

The analyses indicate that the accesses to the site would operate at good levels of service.

4) Other Impacts

The development of an access to S. 279th Street appears as though it will provide a better alternative than the access previously proposed from SR-99. However, the creation of the access to S. 279th Street will result in more trips through the intersection of S. 279th Street/16th Avenue South which also lies contiguous to the intersection of 16th Avenue South/SR-99. Volumes on S. 279th Street are currently very light, with heavier traffic on 16th Avenue South which is typically traveling to or from SR-99. The intersection of S. 279th Street/16th Avenue South has a very odd configuration. Islands have been installed to channelize the traffic and restrict some movements, and stop signs control the southbound, eastbound, and westbound (right-turn from SR-99) movements, while the northbound left-turn from SR-99 onto 16th Avenue South is an uncontrolled movement.

The existing and future estimated volumes through this intersection have been shown on Figures 2B, 2C, 6B, 6C, 7B, 7C, 10, and 11. The extension of 15th Avenue South to S. 279th Street would allow the residents of Pacific Place,

along with existing residents to the south, to access 16th Avenue South via the local street system, rather than using SR-99.

Level of service calculations have been conducted for the intersection of S. 279th Street/16th Avenue South for the existing and future conditions. The intersection has been reviewed as a four-way intersection separate from SR-99/16th Avenue South. The northbound left-turn movement from SR-99 has been analyzed as the northbound through and left-turn at S. 279th Street. The southbound right-turn movement from SR-99 is reviewed as a westbound through and right-turn movement. The southbound movement allows only through and right-turn movements and the eastbound movement allows only left and right-turns. The intersection was analyzed as a two-way stop controlled intersection with the north-south movements as free-flowing, since it is not possible to accurately analyze the current stop control on three of the four legs. If anything, the two-way stop control analysis would result in a worse level of service for the east and west movements than actually occurs since southbound traffic currently is controlled. The results of these analyses are as follows:

LEVEL of SERVICE ANALYSIS
S. 279TH STREET/16TH AVENUE SOUTH

Condition	Peak Hour	Level of Service (Delay)
Existing	AM	EB - B (6 sec.)
		WB - A (5 sec.)
		NBLT - A (2 sec.)
		OVERALL - A (<1 sec.)
	PM	EB - B (6 sec.)
		WB - A (4 sec.)
		NBLT - A (3 sec.)
		OVERALL - A (<1 sec.)
2002 w/out Project	AM	EB - B (6 sec.)
		WB - A (5 sec.)
		NBLT - A (2 sec.)
		OVERALL - A (<1 sec.)
	PM	EB - B (7 sec.)
		WB - A (5 sec.)
		NBLT - A (3 sec.)
		OVERALL - A (<1 sec.)
2002 with Project (no diverted trips)	AM	EB - B (8 sec.)
		WB - B (5 sec.)
		NBLT - A (2 sec.)
		OVERALL - A (1 sec.)
	PM	EB - B (8 sec.)
		WB - B (6 sec.)
		NBLT - A (3 sec.)
		OVERALL - A (<1 sec.)
2002 with Project (and diverted trips)	AM	EB - C (14 sec.)
		WB - B (5 sec.)
		NBLT - A (2 sec.)
		OVERALL - A (3 sec.)
	PM	EB - C (11 sec.)
		WB - B (7 sec.)
		NBLT - A (3 sec.)
		OVERALL - A (1 sec.)

The results of the above analyses indicate that the intersection of S. 279th Street/16th Avenue South, when analyzed as an isolated intersection, would operate at a good

level of service. While the analysis does not take into account that the intersection lies contiguous to another intersection , it does provide a relative level of its operation. Even with the inclusion of the diverted trips, the intersection should still operate adequately.

5) Conclusions

The current proposal of providing secondary access to Pacific Place via S. 279th Street and the Choi property appears to be preferable to providing access from SR-99. The current proposal would be less visible to the motoring public and therefore potentially less likely to be used for cut-through traffic than if it were located along SR-99. Furthermore, the deletion of an access to SR-99 eliminates any need for a permit from WSDOT and their concerns with granting access to SR-99. As we have stated before, the only means of eliminating any possibility of cut-though traffic is by not connecting 15th Avenue South to any other street. However, if it is the intent of the County to provide neighborhood circulation, then the current proposal provides a better alternative to the one previously proposed since the new access will connect to a local street rather than a State highway.

The construction of this access to the internal neighborhood street system would provide a secondary access not only to the residents of the proposed development, but also to the existing residents of the neighborhood and emergency vehicles. This would reduce not only the number of project trips through the intersection of S. 288th Street/SR-99, but also any diverted trips from this same intersection which currently operates at a fairly low level of service. The intersection of SR-99/16th Avenue South would also be impacted by fewer trips.

The reduction of trips through the intersections along SR-99 would conversely result in an increase in trips through the intersection of S. 279th Street/16th Avenue South. While our calculations indicate this intersection could handle the additional trips, we also acknowledge that since this intersection is contiguous to SR-99, its operation is affected by traffic on SR-99 and has some inherent limitations. Ultimately, a re-design of the two intersections is desirable.

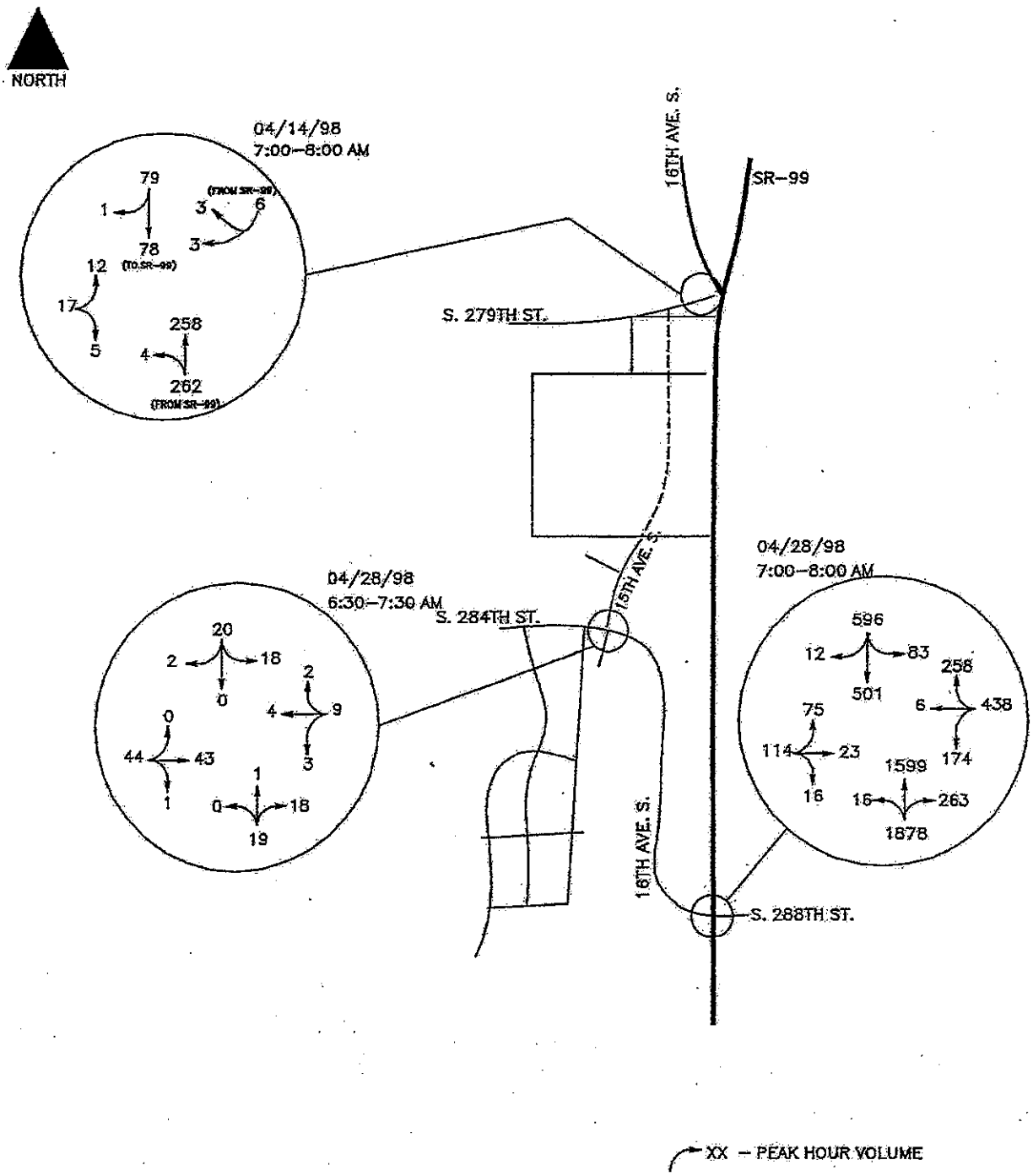
We trust that the above information has sufficiently addressed the County's questions at the present time. After you have had a chance to review the information contained herein, I would recommend that we meet again with the County Staff to further discuss the impacts associated with the access proposal. Please give me a call if you have any questions.

Sincerely,

Geri Reinart, P.E.
David I. Hamlin and Associates

cc: Gary Samek, King County
Aileen McManus, King County

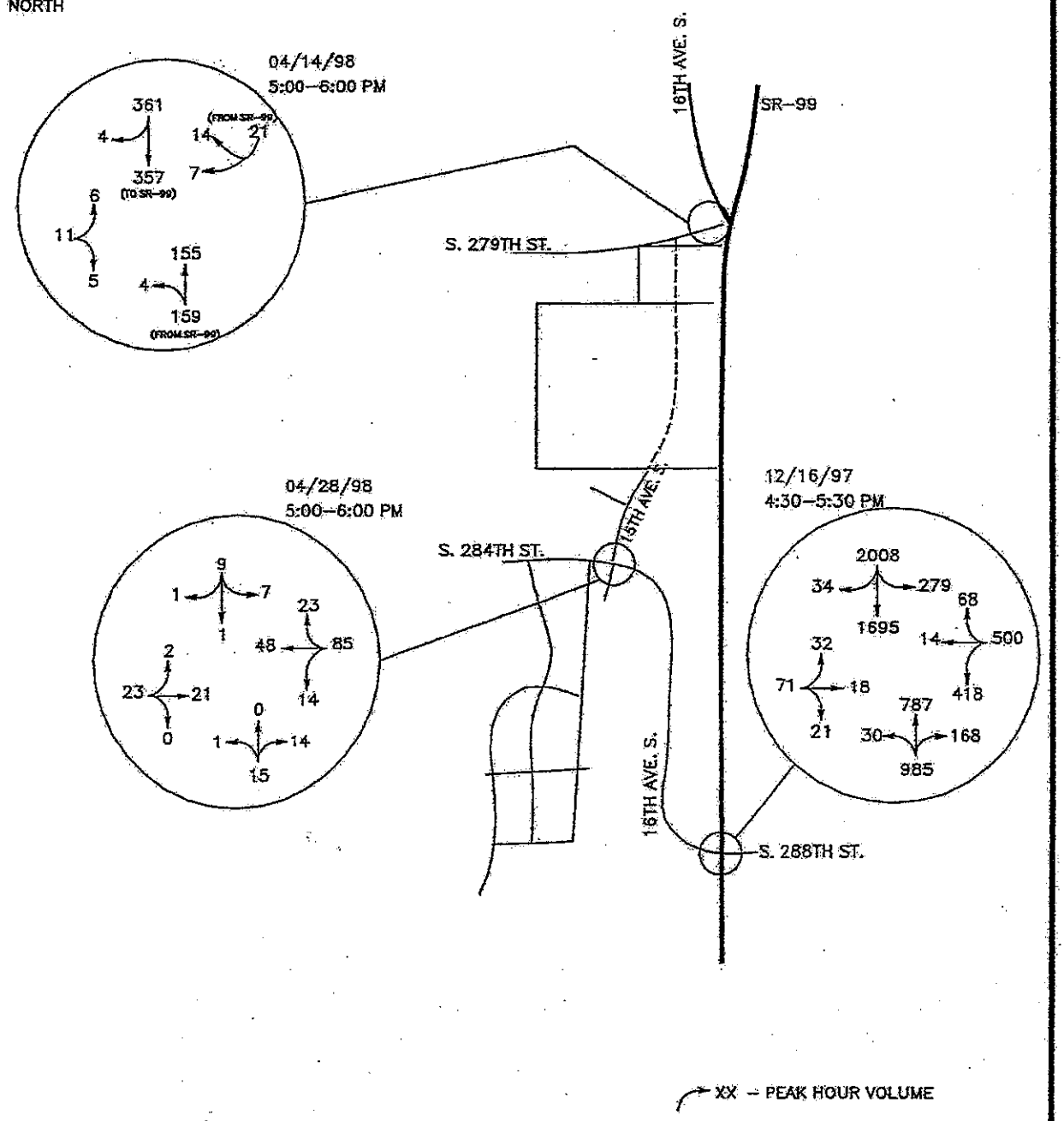
Attachments



EXISTING AM PEAK HOUR VOLUMES

FIGURE 2B

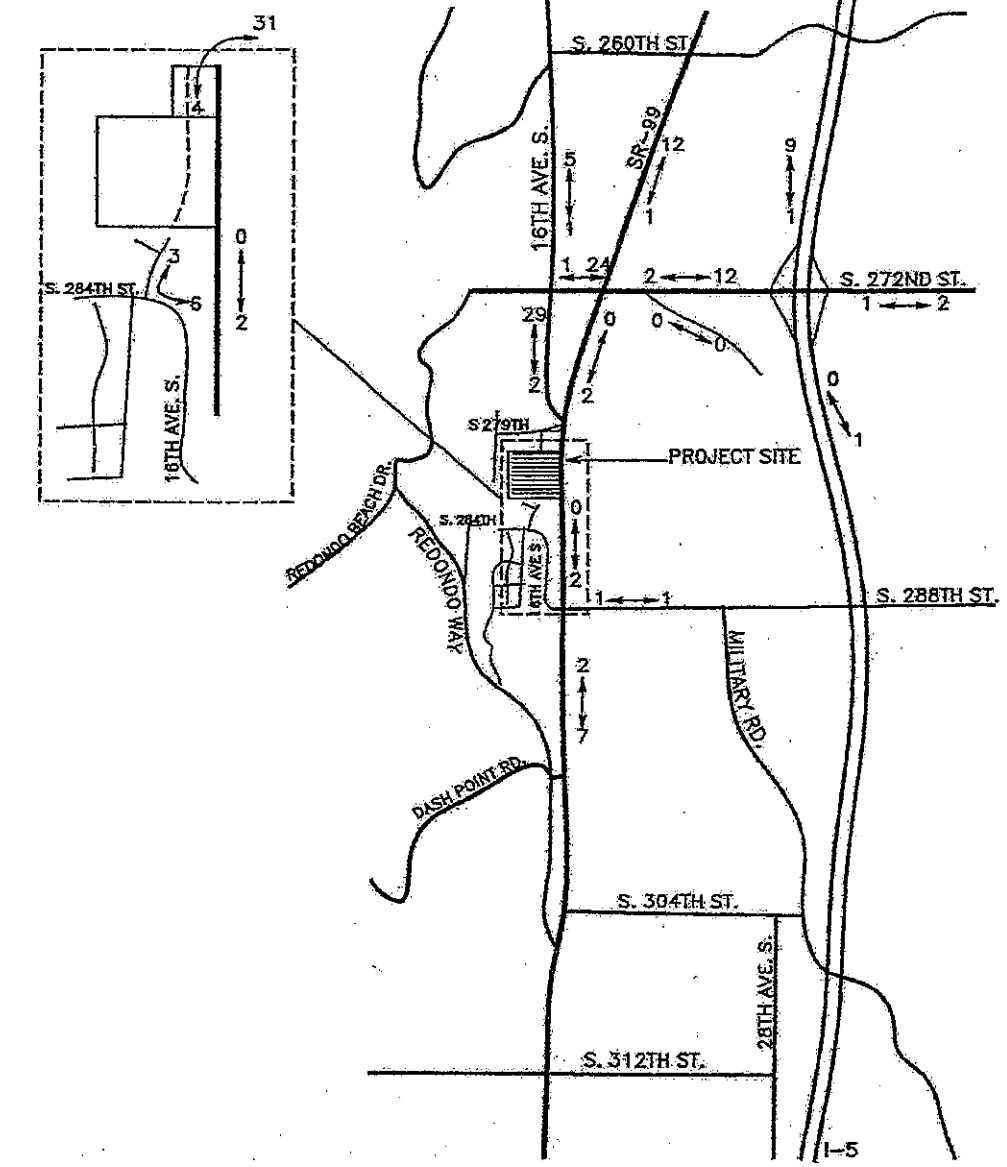
DAVID I. HAMLIN & ASSOCIATES	PACIFIC PLACE	REV. 05/07/98



EXISTING PM PEAK HOUR VOLUMES

FIGURE 2C

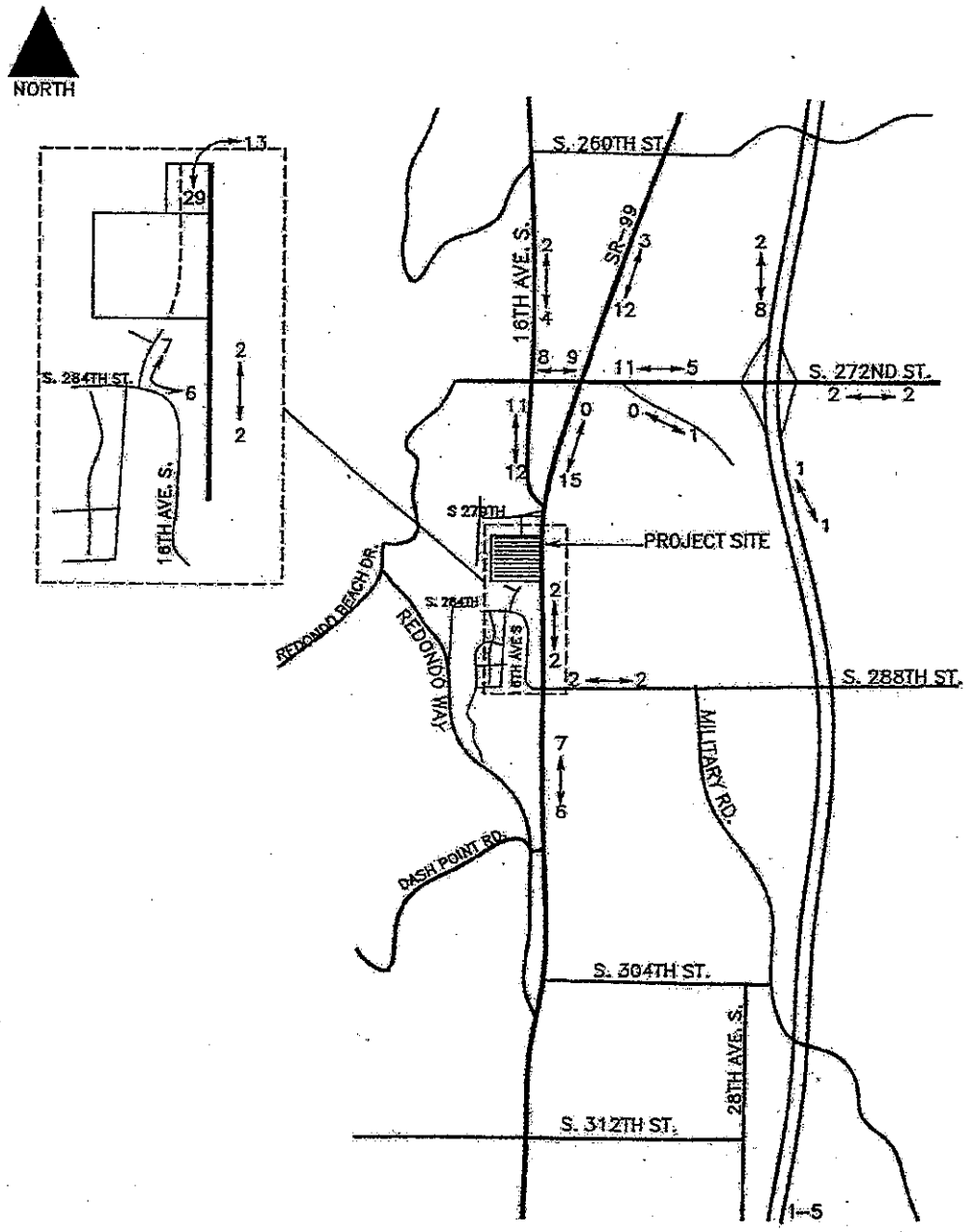
DAVID I. HAMLIN & ASSOCIATES	PACIFIC PLACE	REV. 05/07/98



ESTIMATED AM PEAK HOUR TRIP ASSIGNMENT

FIGURE 4

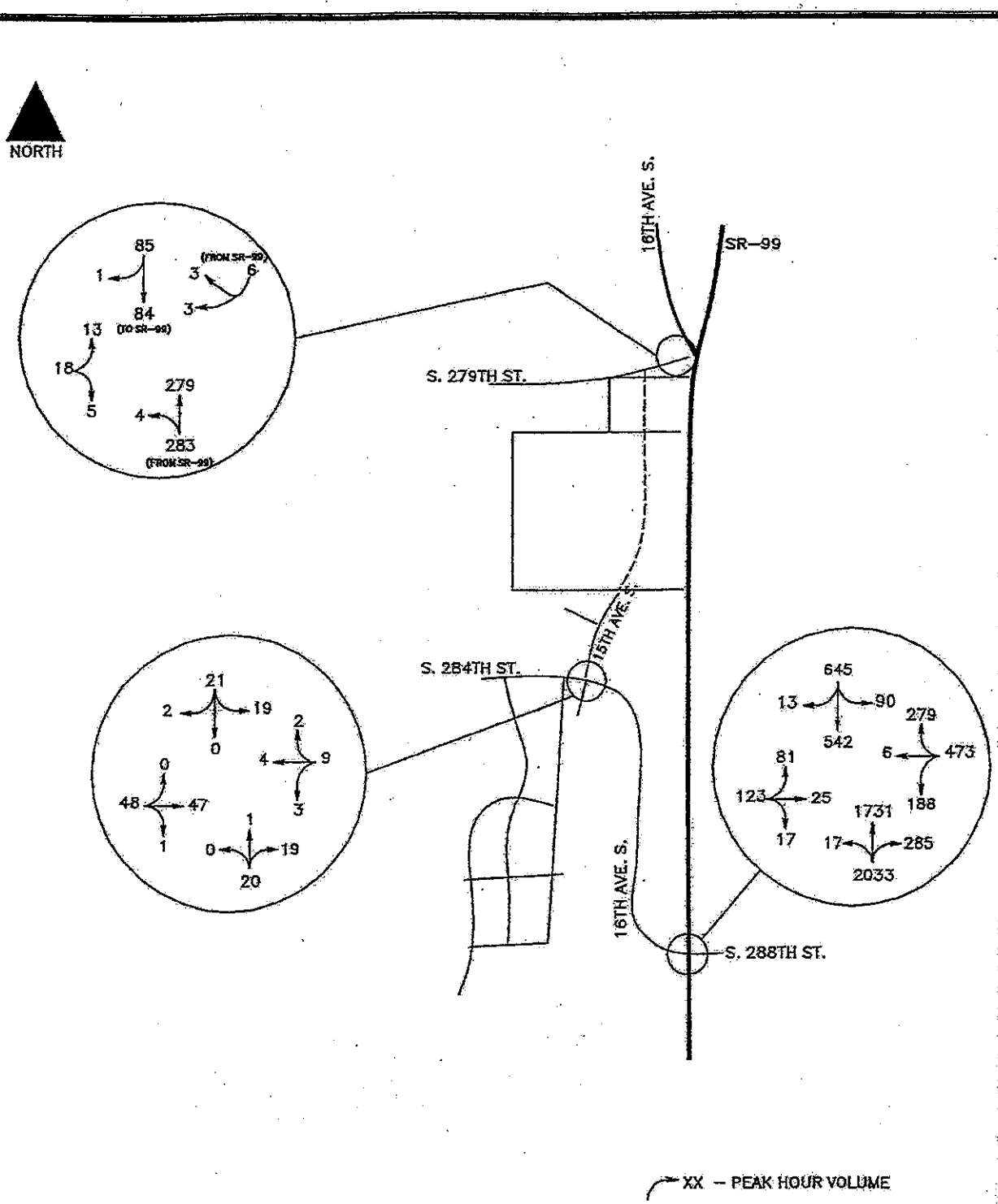
DAVID I. HAMLIN & ASSOCIATES	PACIFIC PLACE	REV. 05/07/98



ESTIMATED PM PEAK HOUR TRIP ASSIGNMENT

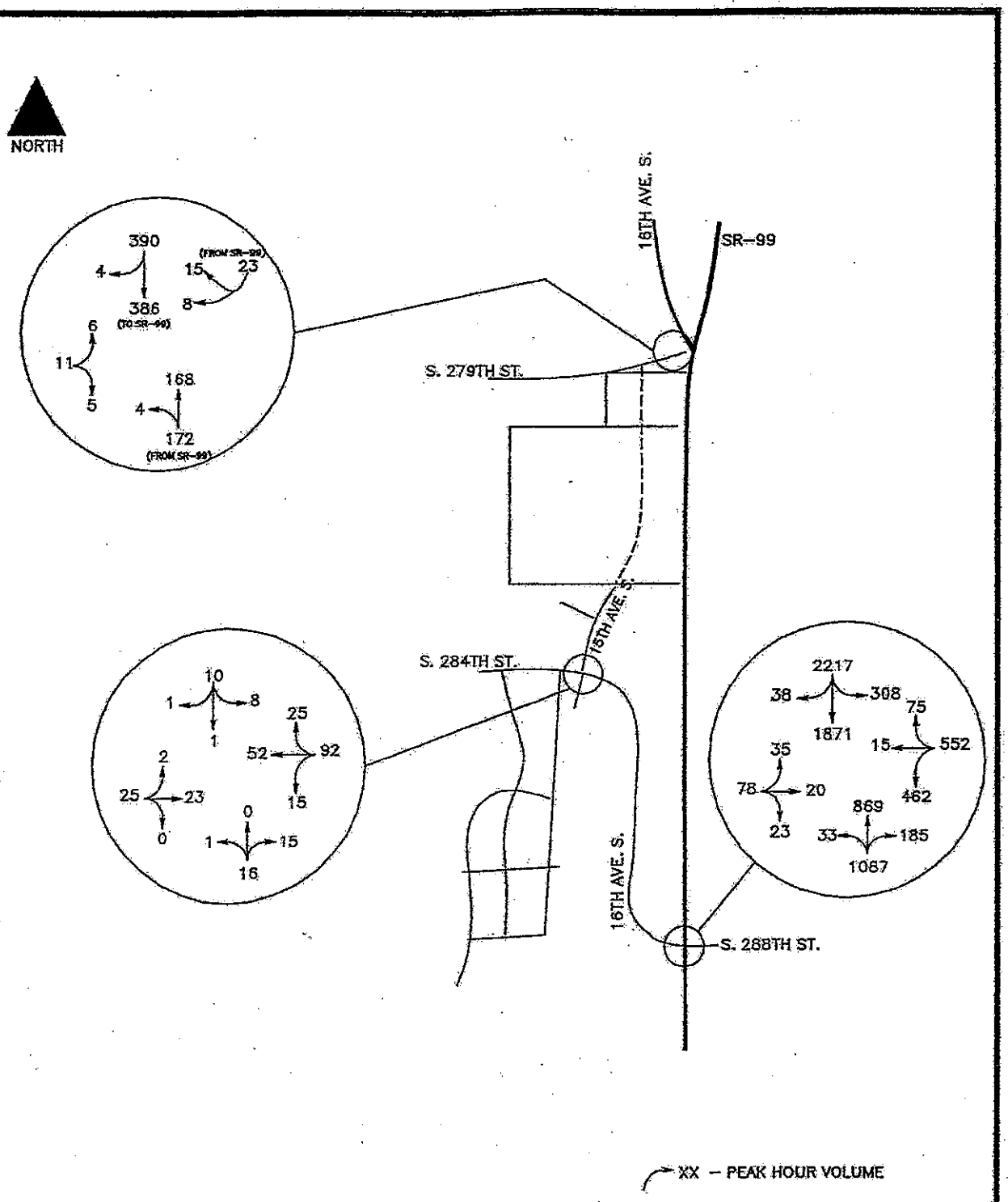
FIGURE 5

DAVID I. HAMLIN & ASSOCIATES	PACIFIC PLACE	REV. 05/07/98



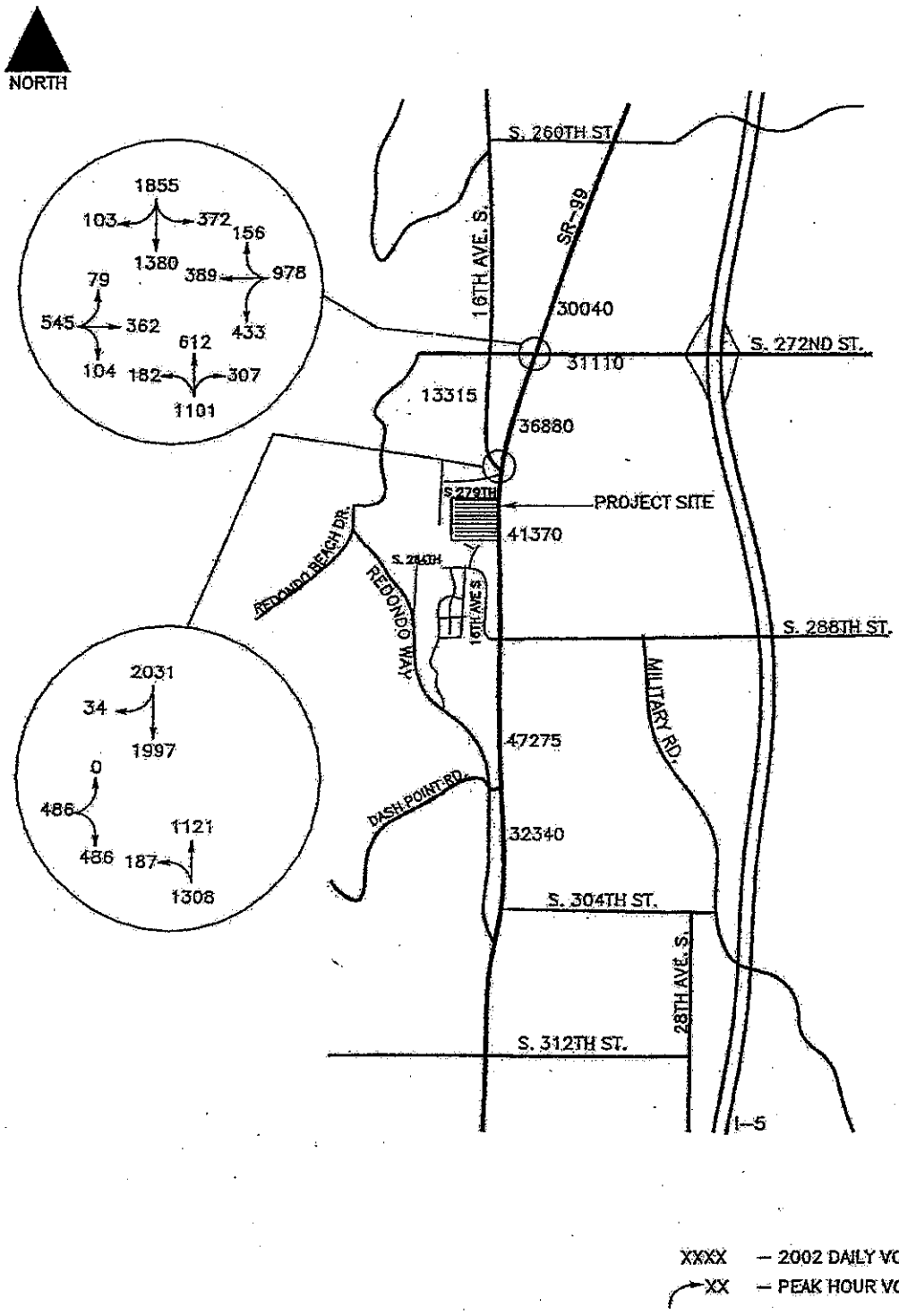
2002 ESTIMATED AM PEAK HOUR VOLUMES
(WITHOUT PROJECT)
FIGURE 6B

DAVID I. HAMLIN & ASSOCIATES	PACIFIC PLACE	REV. 05/07/98



2002 ESTIMATED PM PEAK HOUR VOLUMES
(WITHOUT PROJECT)
FIGURE 6C

DAVID I. HAMLIN & ASSOCIATES	PACIFIC PLACE	REV. 05/07/98

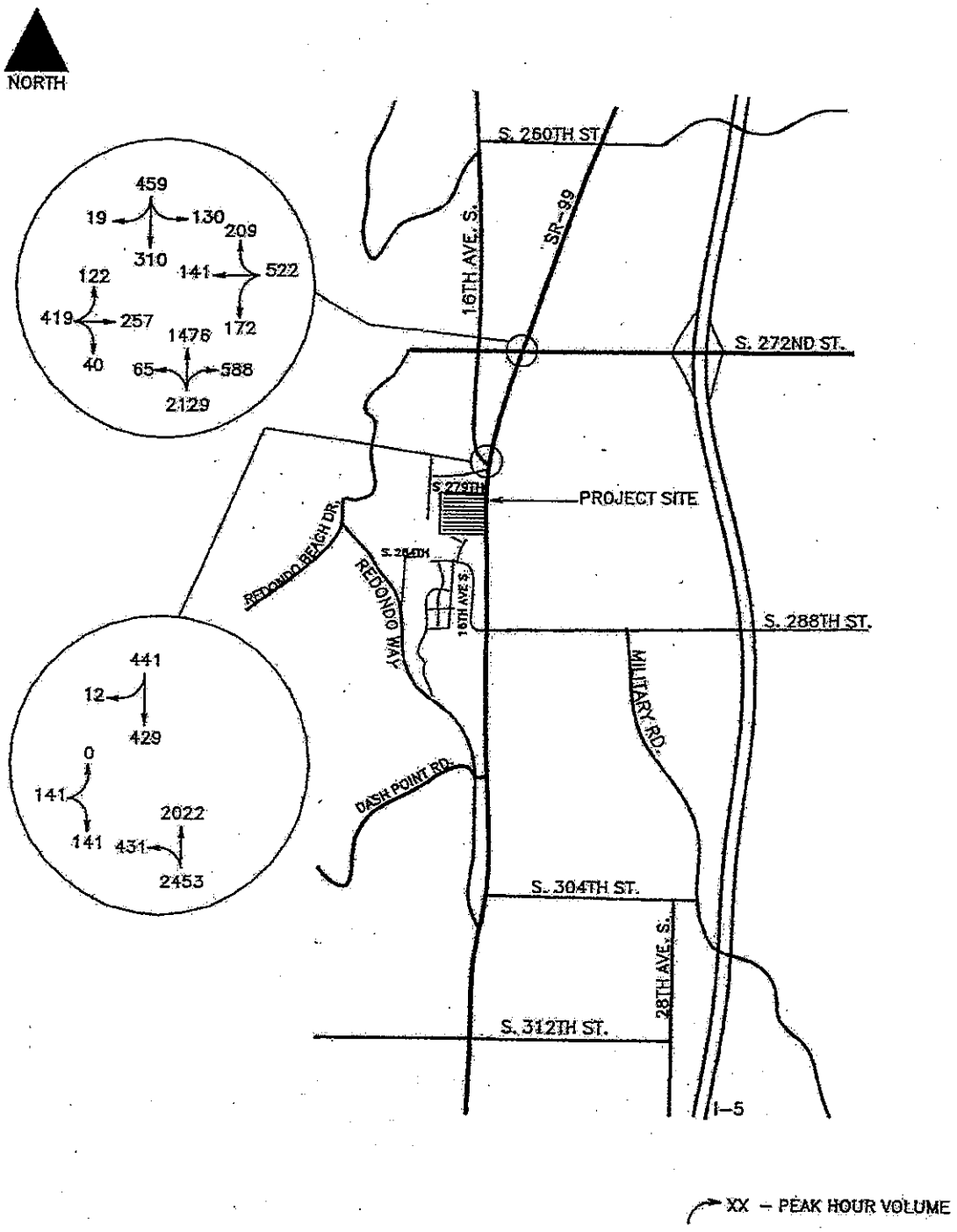


2002 ESTIMATED DAILY & PM PEAK HOUR VOLUMES

(WITH PROJECT)

FIGURE 7

DAVID I. HAMLIN & ASSOCIATES	PACIFIC PLACE	REV. 05/07/98

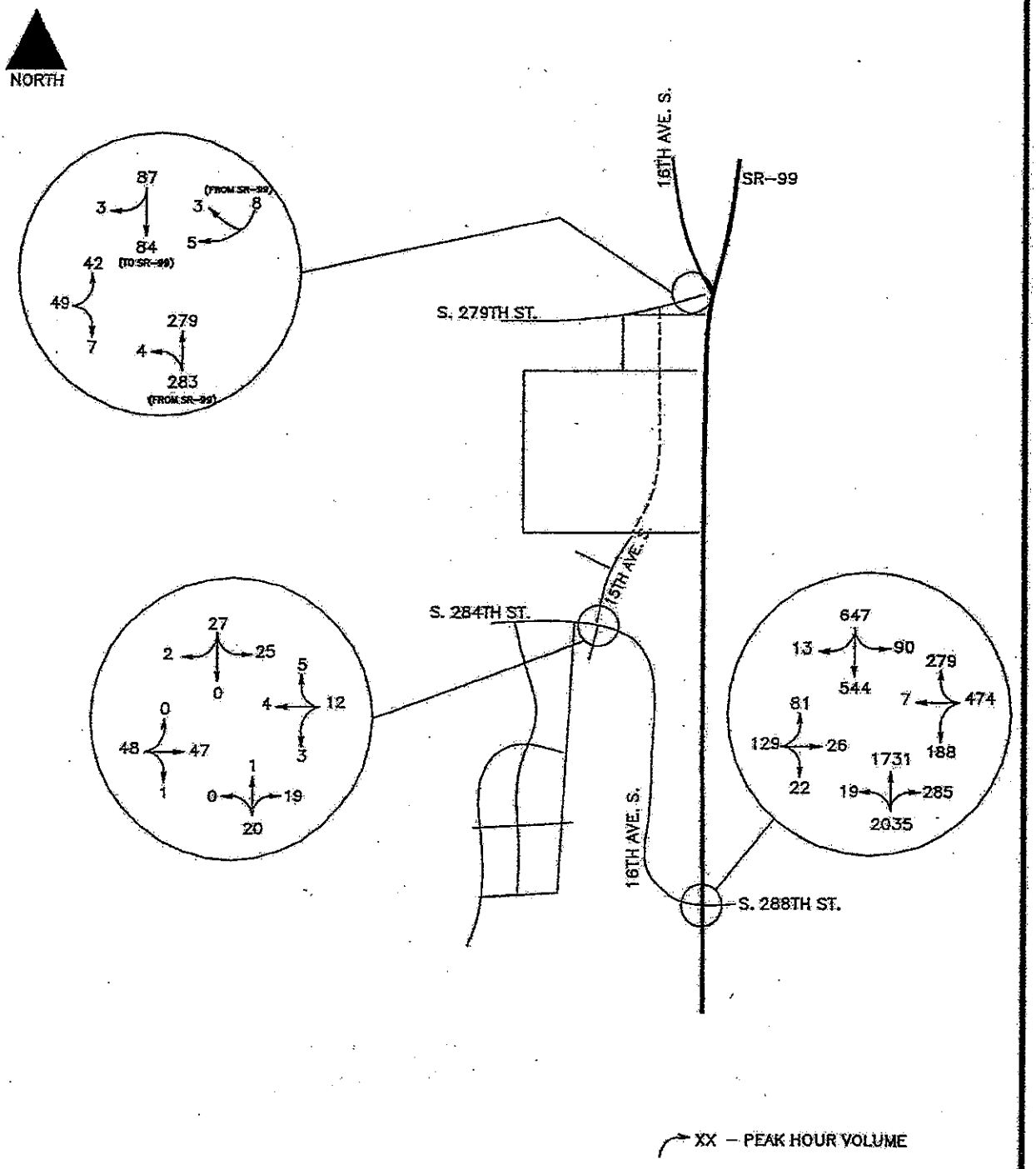


2002 ESTIMATED AM PEAK HOUR VOLUMES

(WITH PROJECT)

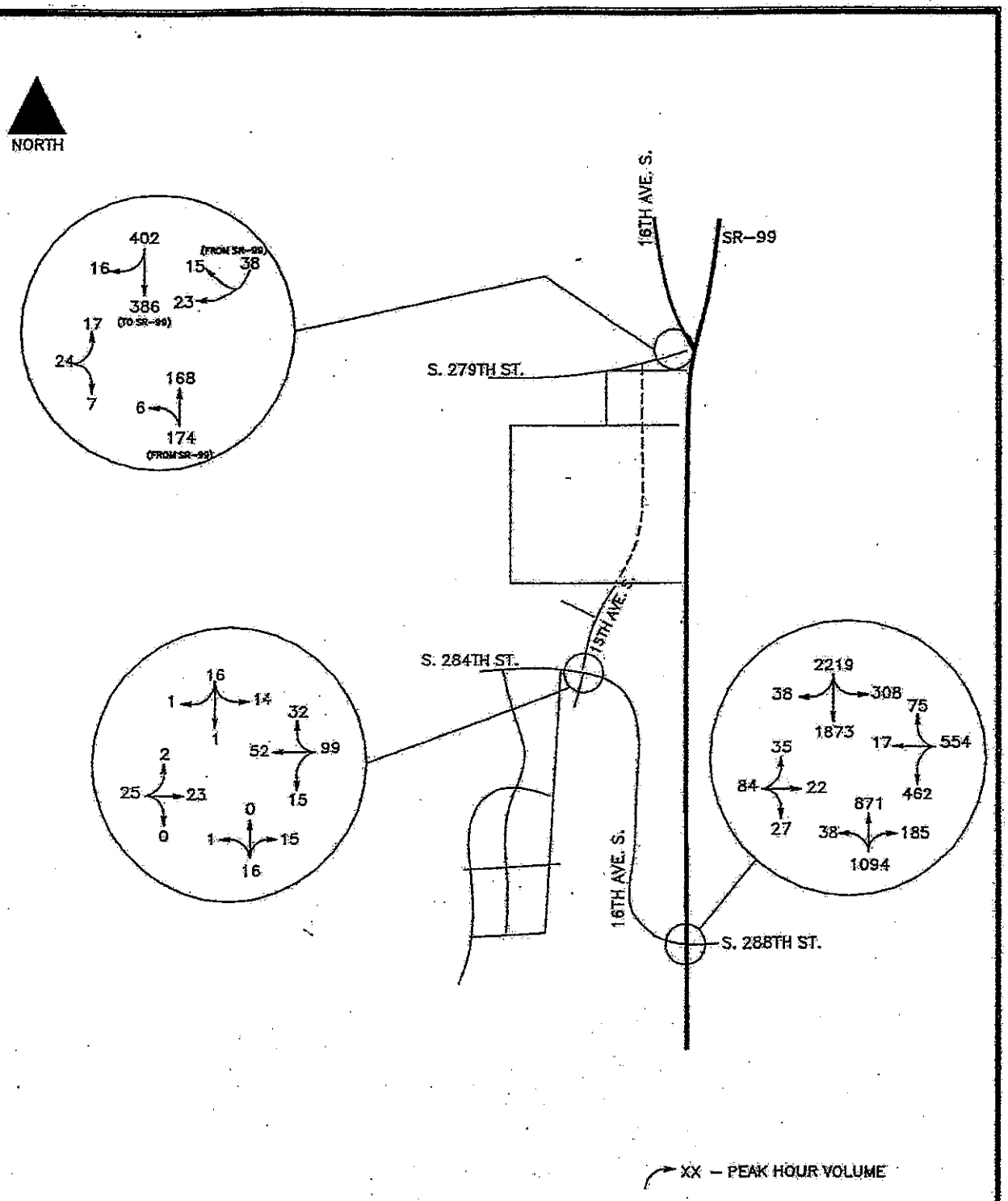
FIGURE 7A

DAVID I. HAMLIN & ASSOCIATES	PACIFIC PLACE	REV. 05/07/98



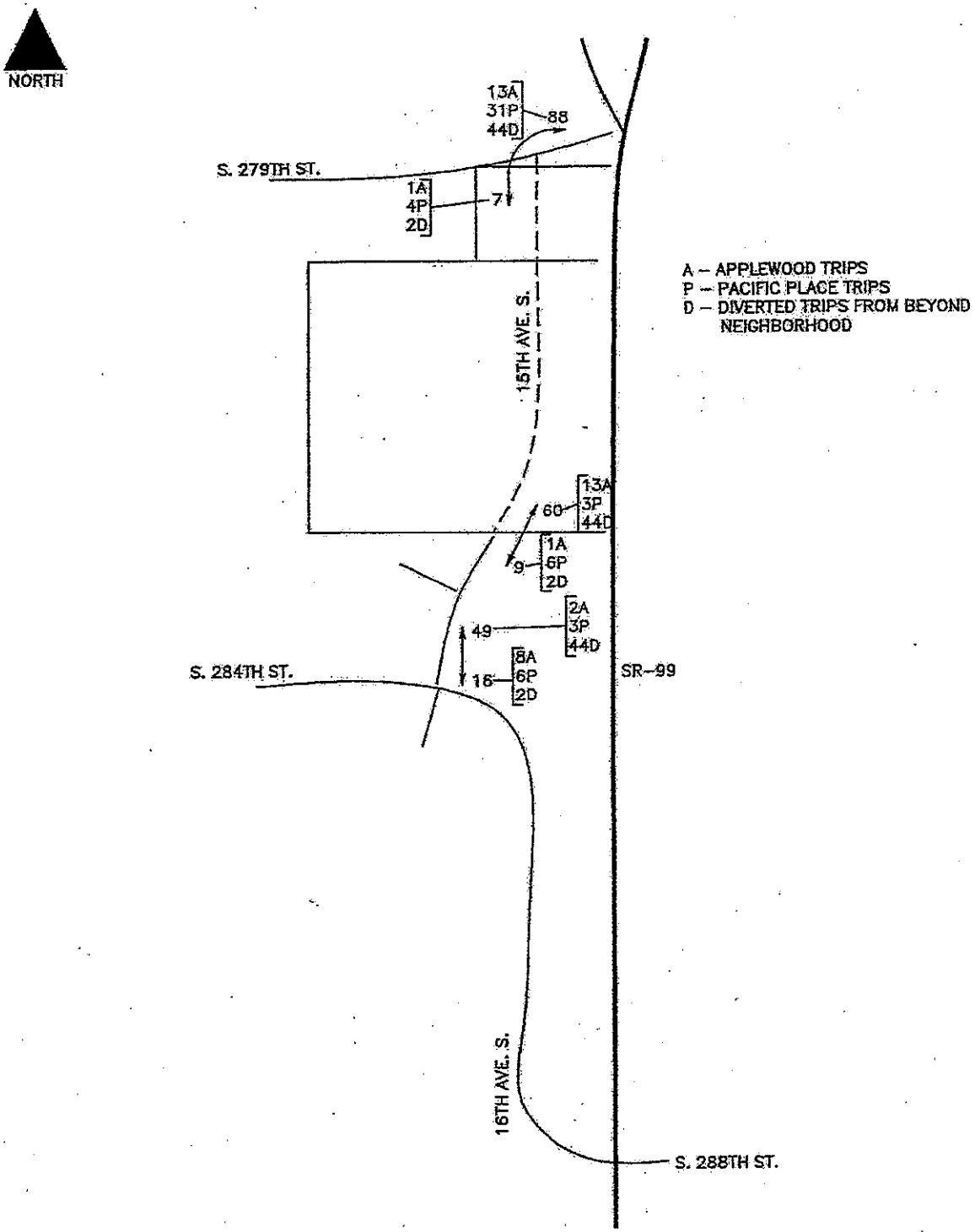
2002 ESTIMATED AM PEAK HOUR VOLUMES
(WITH PROJECT)
FIGURE 7B

DAVID I. HAMLIN & ASSOCIATES	PACIFIC PLACE	REV. 05/07/98



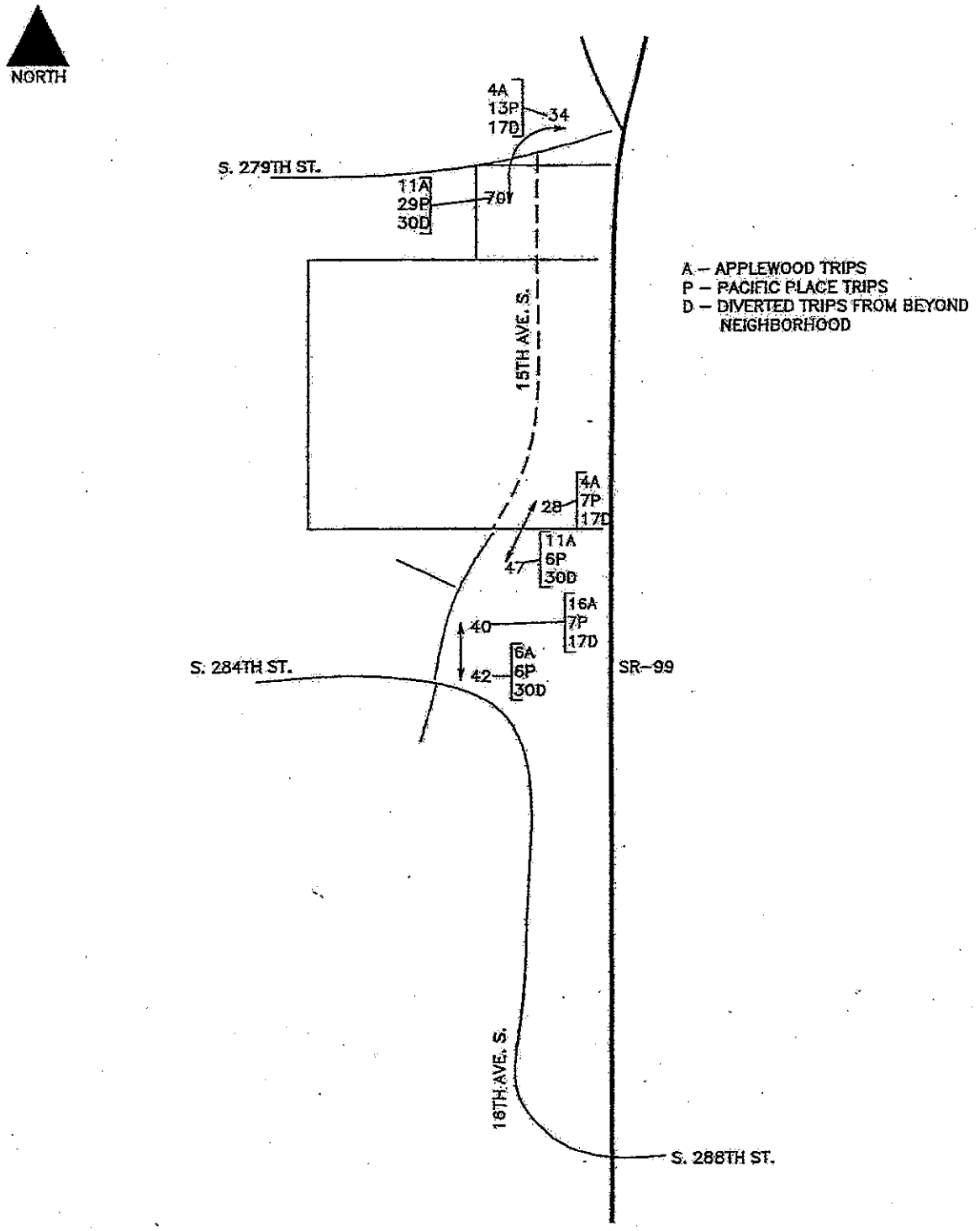
2002 ESTIMATED PM PEAK HOUR VOLUMES
(WITH PROJECT)
FIGURE 7C

DAVID I. HAMLIN & ASSOCIATES	PACIFIC PLACE	REV. 05/07/98



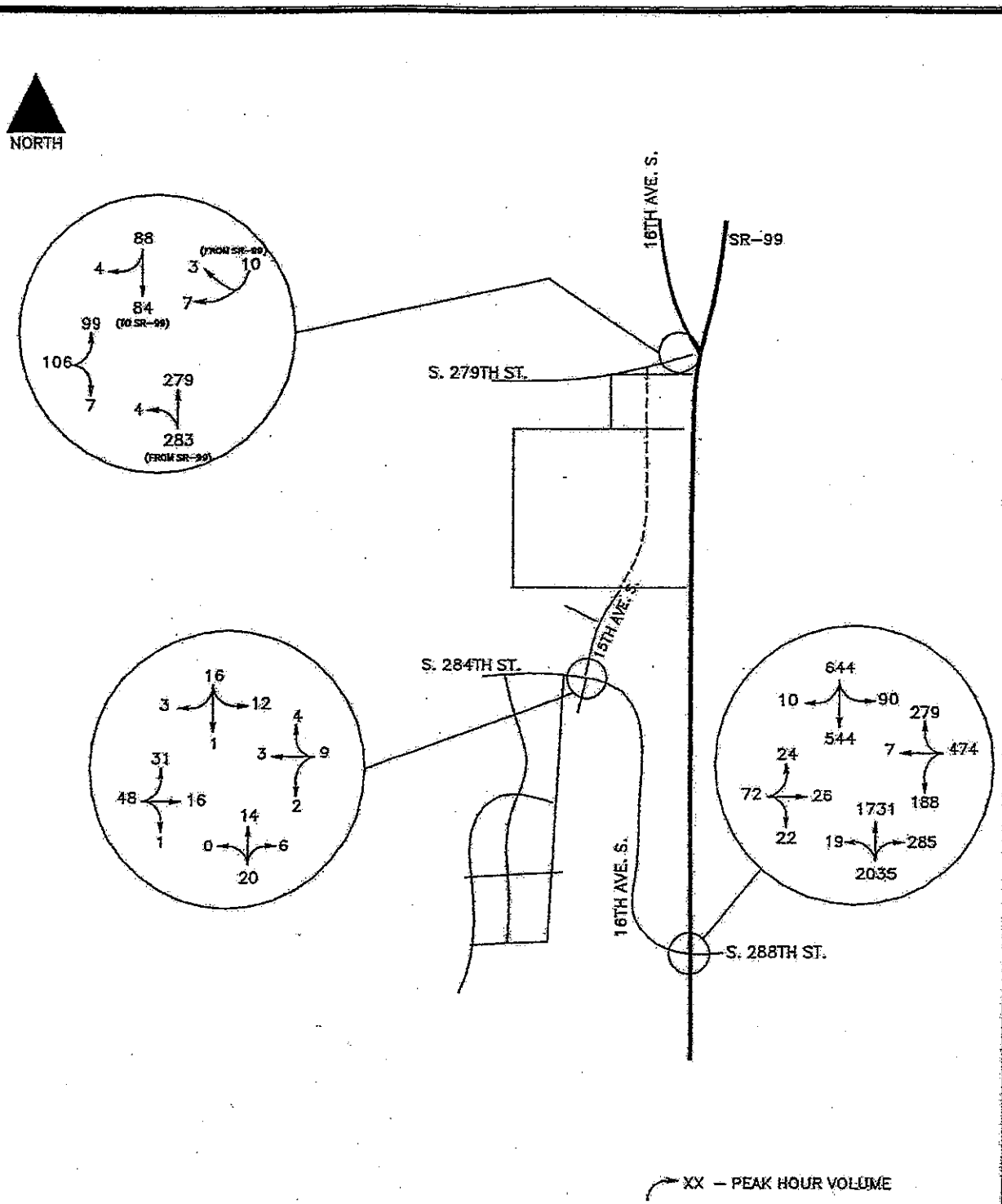
ESTIMATED AM PEAK HOUR NEIGHBORHOOD TRIPS
NEW & DIVERTED
FIGURE 8

DAVID I. HAMLIN & ASSOCIATES	PACIFIC PLACE	REV. 05/07/98



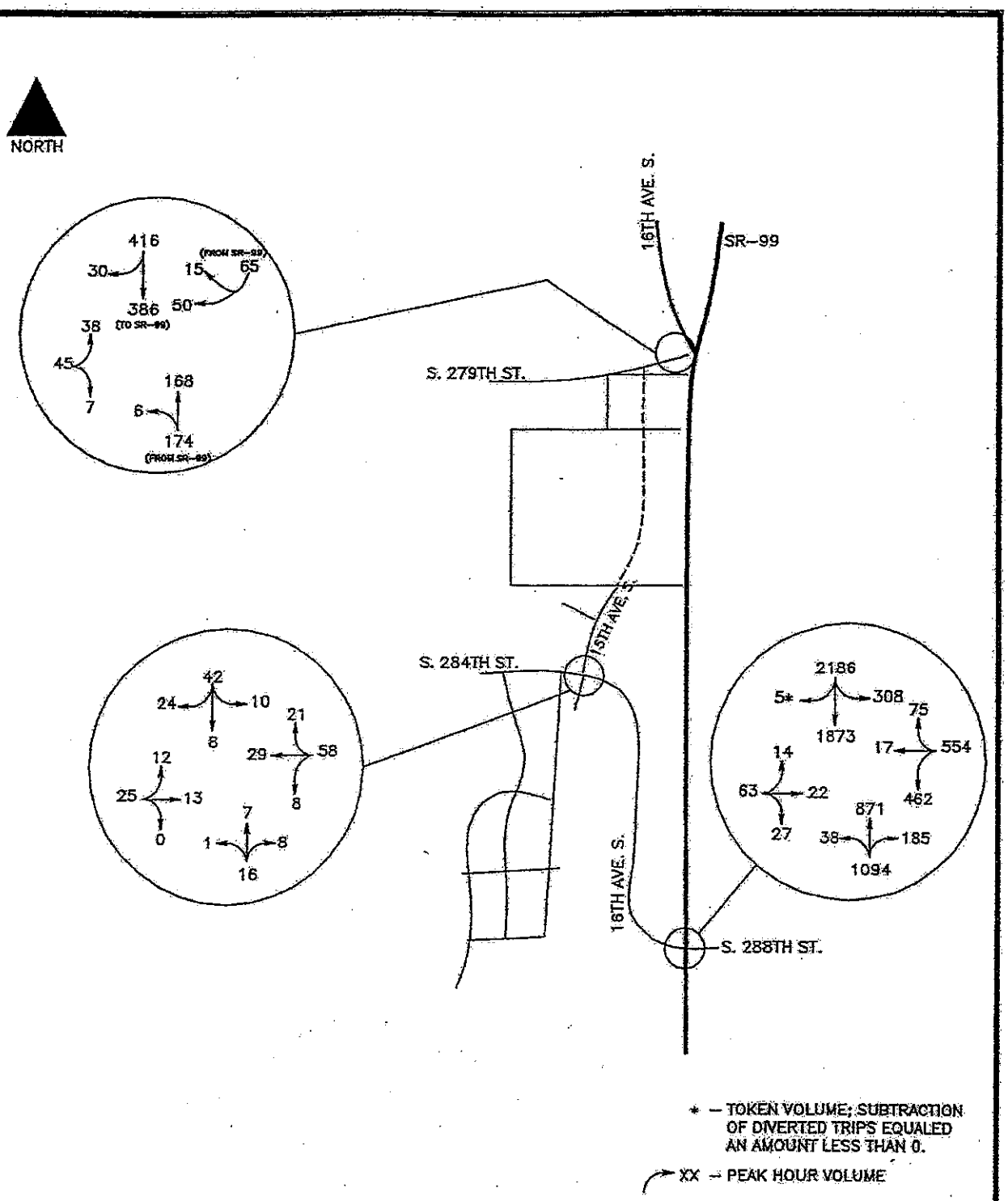
ESTIMATED PM PEAK HOUR NEIGHBORHOOD TRIPS
NEW & DIVERTED
FIGURE 9

DAVID I. HAMLIN & ASSOCIATES		PACIFIC PLACE	REV. 05/07/98



2002 ESTIMATED AM PEAK HOUR VOLUMES
(WITH PROJECT & DIVERTED TRIPS)
FIGURE 10

DAVID J. HAMLIN & ASSOCIATES	PACIFIC PLACE	REV. 05/07/98



2002 ESTIMATED PM PEAK HOUR VOLUMES
(WITH PROJECT & DIVERTED TRIPS)
FIGURE 11

DAVID I. HAMLIN & ASSOCIATES	PACIFIC PLACE	REV. 05/07/98