

MEMORANDUM

To: Dan Brewer, PE, Asst. Public Works Director
From: Katherine Casseday PE, PTOE, Mirai Transportation Planning and Engineering
Subject: Traffic Impacts Review for Pacific Heights Development
Date: November 21, 2007

Mirai Associates provided technical assistance for the review of a renewed development proposal called Pacific Heights. Pacific Heights is a proposed 77-unit development of zero-lot-line single family houses located within both Des Moines and Federal Way with access to S 279th Street and to S 284th Street. The original development proposal, 100 multi-family condominium housing units called Pacific Place, was filed with King County since the area was unincorporated. When the area was annexed into Des Moines and Federal Way in the late 1990s, a 3-party agreement between the cities of Des Moines and Federal Way and the developer was established to preserve the work completed towards approval for the original development. The original development did not go through a development hearing process in either City.

This memorandum documents the traffic differences between the original proposal for Pacific Place and the current project known as Pacific Heights. This memorandum also identifies changes in traffic impacts that can be expected with the current proposal.

Comparison of Pacific Heights with Original Pacific Place

There are four areas where changes have been identified between the Pacific Place and Pacific Heights proposed developments:

1. The total daily traffic generated by the development
2. Changes to the street network planned to support the development
3. Project traffic assignment to the street network
4. The magnitude of the traffic impacts on neighboring communities

When these four areas of differences and disparity are combined the resulting traffic impacts would justify the need for additional mitigating measures. **Table 1** shows the comparison between the two development proposals.

We observed the following differences between these two development proposals:

- While the original Pacific Place consisted of more housing units, the current proposal, Pacific Heights would generate more trips than the original proposal: 151 trips more daily traffic and 23 trips more PM peak hour traffic.
- Two points of access are proposed for each project, however the street network has changed to the north. Originally the north connection was to S 279th Street, a dead-end roadway with full access to 16th Avenue S. **Figure 1** shows the map from 1999 with the street network as it was for the original proposal. **Figure 2** shows the site access for Pacific Heights. Note that under the original development proposal, no project traffic would flow through the Redondo Riviera neighborhood; a single family neighborhood of approximately 170 homes. Recently, the access to 16th Avenue S has been reconfigured to limit traffic on S 279th Street to a right-turn movement into or from Pacific Highway South (PHS). There is now a single full access point into the Redondo Riviera neighborhood at S 276th Street and 16th Avenue S (S 279th Street and 13th Avenue S have been connected).
- The original distribution of site traffic was estimated as 75 percent to and from the north and 25 percent to and from the south. The traffic analysis for Pacific Place was conducted by Hamlin & Associates and is attached for reference. The trip distribution is expected to remain similar for Pacific Heights, although access to the arterial network has changed.
- Traffic assignment to the street network for the original development proposal was expected to be strongly oriented to the north access point, S 279th Street and 16th Avenue S for Pacific Place. With the changed street network and limited connections to both Pacific Highway S and to 16th Avenue S, the Pacific Heights project trip assignment is more likely to be roughly even between the two access points for the development. See **Figure 3** for the expected trip assignment for Pacific Heights.
- Site traffic would flow through the Redondo Riviera neighborhood to access 16th Avenue S at S 276th Street. Previously, site traffic and impacts had not been identified for the Redondo Riviera neighborhood because at that time there was no connection to S 276th Street. The Pacific Heights project could send 40 to 60 percent of the site traffic through the Redondo Riviera neighborhood. The local streets within the neighborhood carry from 270 to 1620 daily trips. The addition of half of the Pacific Heights site traffic to Redondo Riviera neighborhood streets could more than double the traffic on some street segments. At 276th Street just west of 16th Avenue S the daily traffic could increase by about 25 percent due to the Pacific Heights project. Based on recent counts along 16th Avenue S and the intersection at S 276th Street and 16th Avenue S, additional morning and evening peak hour traffic is expected to operate at LOS D or better under the current proposal. The added traffic from Pacific Heights is not likely to cause breakdown at S 276th Street and 16th Avenue S intersection, however, there would be some added delays for exiting traffic from Redondo Riviera.

- Another development under review by City of Des Moines is Crestwood Park which would provide another connection into the Redondo Riviera neighborhood at the north end of 12th Place S. This new connection to 16th Avenue S would provide alternate access options for some residents of Redondo Riviera.
- More traffic would flow through the Applewood neighborhood (in Federal Way) than originally expected (originally 25 percent of 586 daily trips, or approximately 145 daily trips – up to possibly 50 percent of 737 daily trips, or 368 daily trips). This could be more than double the originally expected site traffic through Applewood.

Findings and Recommendations

- Pacific Heights proposes 23 fewer housing units but generates a greater number of daily traffic trips from the project, 151 more daily trips.
- The two access points are the same for the two developments, however, due to neighborhood street network changes between 1998 and 2007, the site traffic from Pacific Heights would result in traffic impacts to both the Redondo Riviera and Applewood neighborhoods, even with a roughly balanced flow of site traffic north and south.
- There could be between 220 and 440 daily trips (40 to 60%) added to the street system in Redondo Riviera which was developed incrementally and was likely intended to provide for local access. This additional traffic would shift the function of S 276th Street from a local access street to a neighborhood collector street, with well over 1,000 vehicles per day.

The differences identified between the original proposal Pacific Place and the current proposal Pacific Heights are enough to justify off-site mitigation for the Redondo Riviera neighborhood. I recommend that the SEPA conditions for the new development include traffic calming treatments along S 279th Street east of 13th Avenue S, along 13th Avenue S between S 279th Street and S 276th Street, and along S 276th Street from 13th Avenue S to 16th Avenue S. The Redondo Riviera neighborhood should be involved in the process to select and locate the traffic calming devices for the community.

The limitations in access to 16th Avenue S from these neighborhoods will continue to be a challenge for circulation. While not directly a mitigating measure, I suggest that the City explore other options to manage circulation and to expand access for the Redondo Riviera community west of Pacific Highway South.

Attachments:

Table 1. Pacific Heights Traffic Comparison

Figure 1. 1999 Street Network

Figure 2. Pacific Heights Access Points

Figure 3. Pacific Heights Project Traffic Assignment

Revised Traffic Impact Analysis for Pacific Place with New Access Through Choi Parcel, David I. Hamlin & Associates, May 12, 1998

Table 1. Pacific Heights Traffic Comparison

	1998 Proposal and Study			2007 Proposal			Changes from Original Proposal		
	Total Trips	Inbound Trips	Outbound Trips	Total Trips	Inbound Trips	Outbound Trips	Total Trips	Inbound Trips	Outbound Trips
Project Size, Number of Units	100 units			77 units					
Land Use	Owner-occupied condominiums			Zero lot-line single family homes					
ITE Land Use Code	230			210					
Daily Trips		586			737				
AM Peak hour trips (Total, In, Out)		44	7		58	14		44	
PM Peak hour trips (Total, In, Out)		55	37		78	49		29	
Roadway Access	Two points of access, to the north and to the south Northern link had full access to both 16th Avenue S and SR 99 Pacific Highway S Northern link connected to cul-de-sac, S 279th Street			Two points of access, to the north and to the south Northern link to 16th Avenue S and S 279th Street is now constrained to right in and right out.					7 more trips in and out from development in the morning peak and 11 more trips in and out (respectively) from the development in the evening peak
Trip Distribution	75 percent oriented to the north via SR 99/Pacific Highway South and S 272nd Street (access to I-5) 25 percent oriented to the south via S 288th Street intersection with Pacific Highway South			Northern link now connected to extended neighborhood, with outlet to S 276th Street and 16th Avenue S Same trip distribution					Project traffic would flow through Redondo Rivera and Applewood neighborhoods for full access to and from the north.
Trip Assignment	Trip assignment similar to trip distribution, with 76 percent assigned to S 279th Street and 16th Avenue S and Pacific Highway S			Trip assignment is more likely to be evenly split between north and south access points, since both would now require travel through developed neighborhoods, low speed on local streets, to reach full access to Pacific Highway S					



City of Des Moines

1999 Aerial Photo

Des Moines City Limits

Crestwood Park PUD

- Proposed Lot Lines
- PUD Boundaries

Pacific Heights PUD

- Proposed Lot Lines
- PUD Boundaries

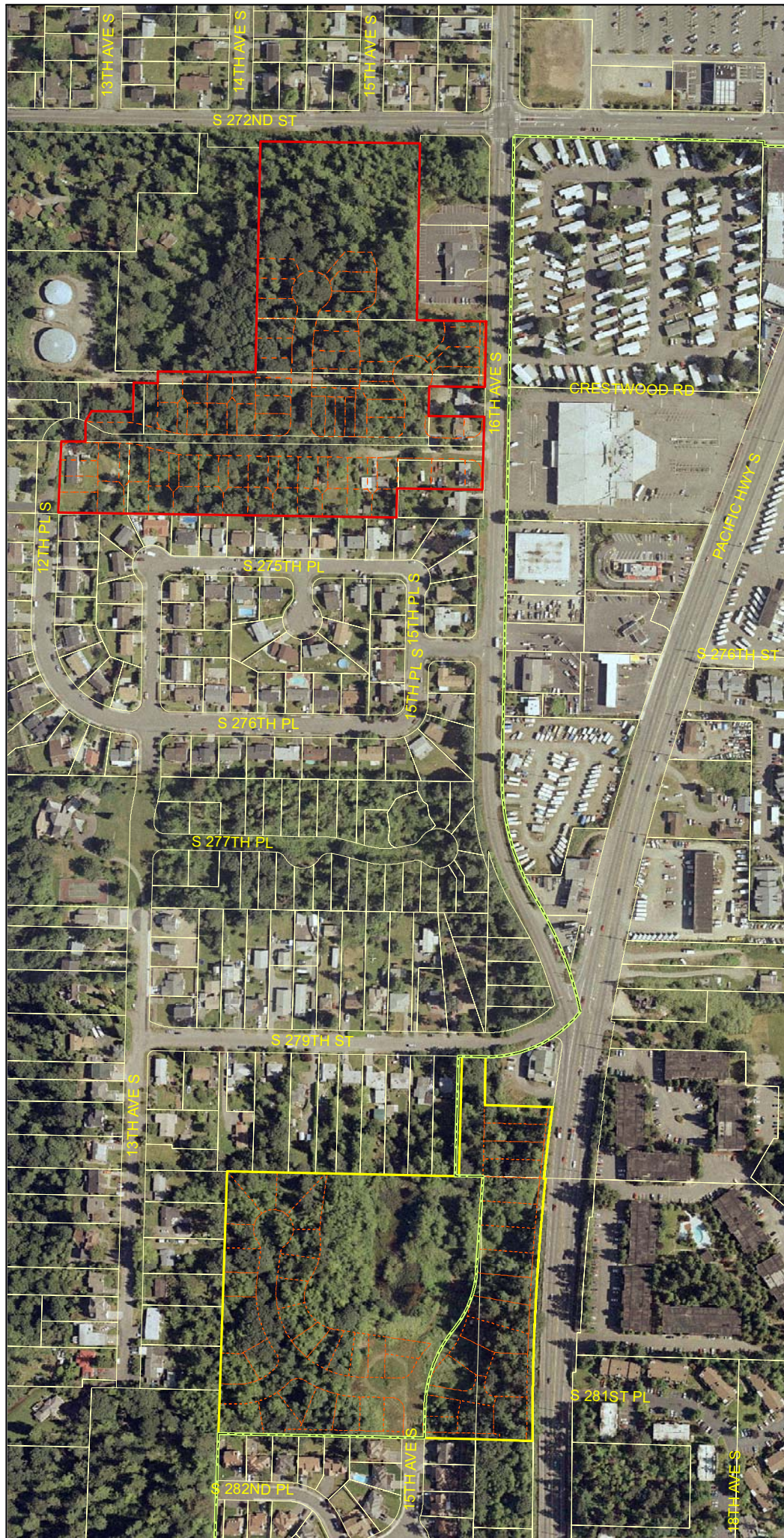


Figure 1 1999 Street Network



21630 11th Ave S
 Des Moines, WA 98198-6398
 PHONE: (206) 878-4595 | FAX: (206) 870-7626
 WEB: <http://www.desmoineswa.gov>

File: 16b_PacHwy.mxd
 Map Generated: Nov 13, 2007
 Product of City of Des Moines GIS





City of Des Moines

Redondo Rivera & Proposed PUDs

Des Moines City Limits

Crestwood Park PUD

- Proposed Lot Lines
- PUD Boundaries
- Wetland

Pacific Heights PUD

- Proposed Lot Lines
- PUD Boundaries
- Wetland

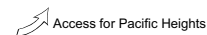
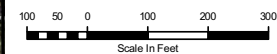
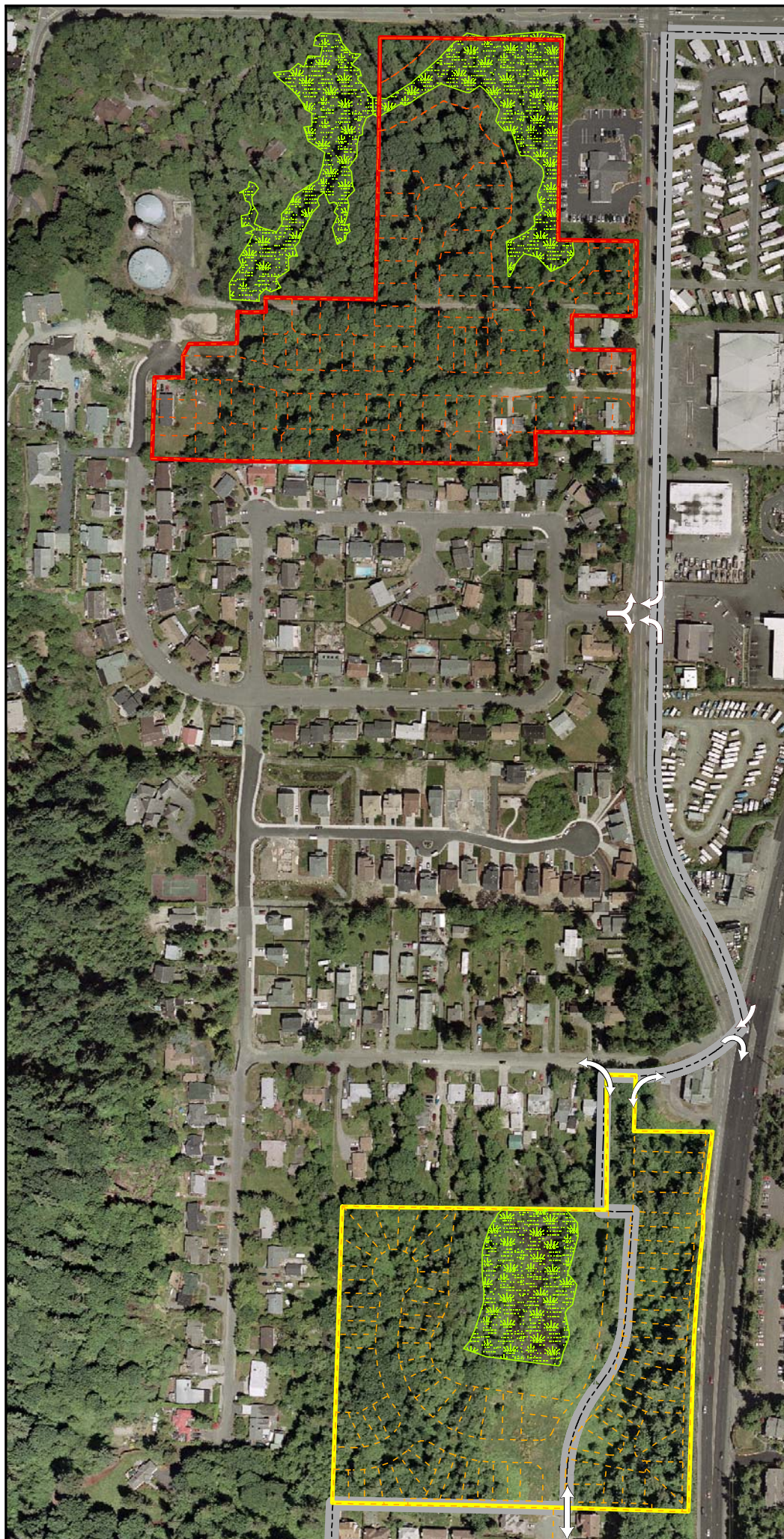


Figure 2 Access for Pacific Heights



21630 11th Ave S
Des Moines, WA 98198-6398
PHONE: (206) 878-4595 | FAX: (206) 870-7625
WEB: <http://www.desmoineswa.gov>

File: Redondo_Riveria.mxd
Map Generated: Nov 1, 2007
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City of Des Moines

Redondo Rivera & Proposed PUDs

Des Moines City Limits

Crestwood Park PUD

- Proposed Lot Lines
- PUD Boundaries
- Wetland

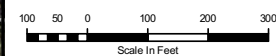
Pacific Heights PUD

- Proposed Lot Lines
- PUD Boundaries
- Wetland

Pacific Heights Project Traffic Assignment



Figure 3 Pacific Heights Project Traffic Assignment



21630 11th Ave S
Des Moines, WA 98198-6398
PHONE: (206) 878-4595 | FAX: (206) 870-7625
WEB: <http://www.desmoineswa.gov>

File: Redondo_Riveria.mxd
Map Generated: Nov 1, 2007
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David I. Hamlin & Associates

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transportation planning

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Seattle, Washington 98109

285 (206) 285-9035
235 FAX 285-6345

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

<u>Location</u>	<u>Peak Hour</u>	<u>Base Condition</u>	<u>Level of Service (Delay)</u>		
			<u>W/Project (Original Analysis)</u>	<u>W/Project (New Trip Assignment)</u>	
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:

<u>LOS</u>	<u>Delay</u>
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**

<u>Location</u>	<u>Peak Hour</u>	<u>Base Condition</u>	<u>Level of Service (Delay)</u>	
			<u>W/Project (Original Analysis)</u>	<u>W/Project (New Trip Assignment)</u>
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:

<u>LOS</u>	<u>Delay</u>
A	≤ 5 seconds
B	> 5 & ≤ 15 seconds
C	>15 & ≤ 25 seconds
D	>25 & ≤ 40 seconds
E	>40 & ≤ 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 ACCESSSES

<u>Location</u>	<u>Peak Hour</u>	<u>Level of Service (Delay)</u>
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**

<u>Condition</u>	<u>Peak Hour</u>	<u>Level of Service (Delay)</u>
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-through 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.

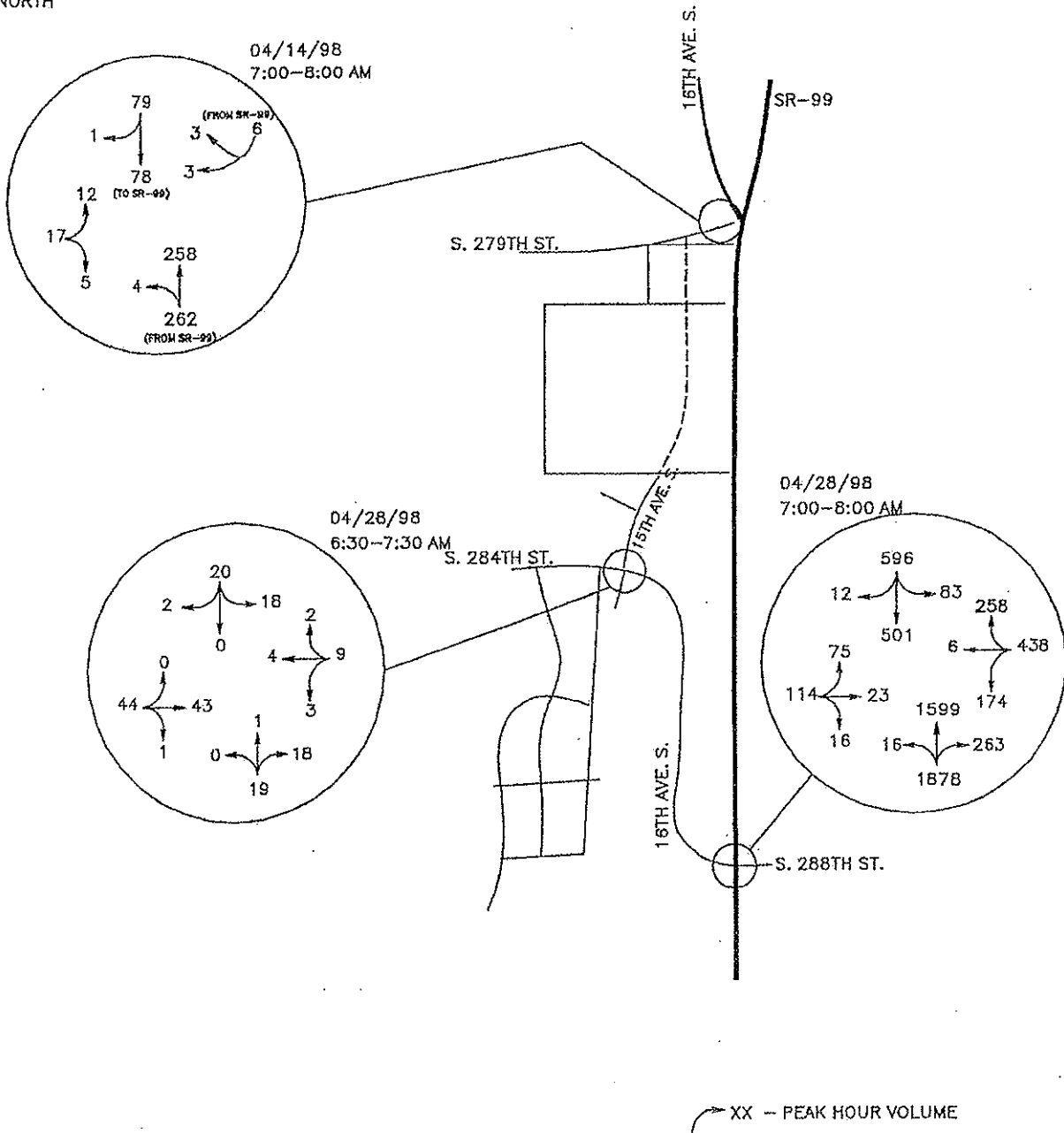
Sincerely,



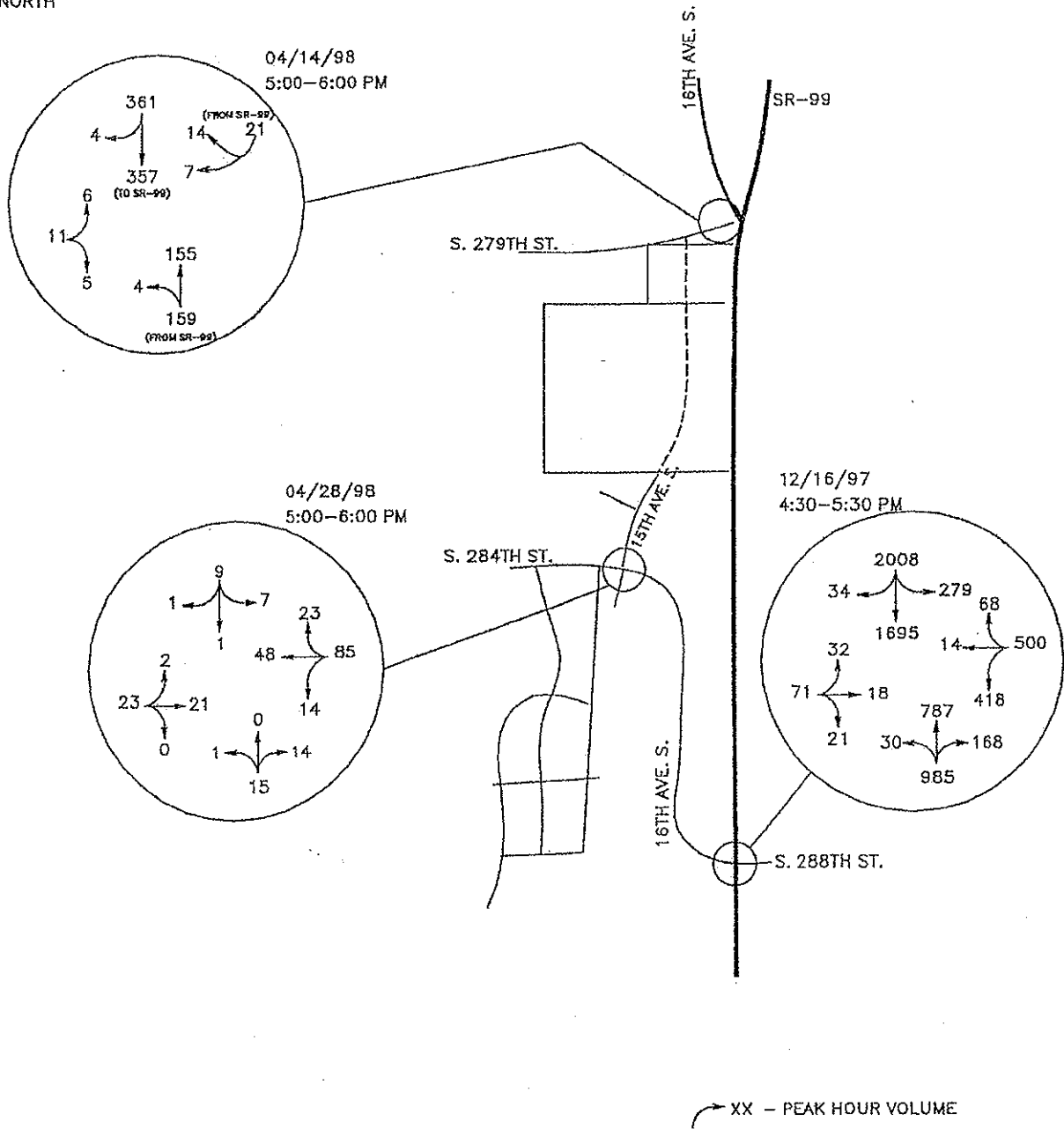
Geri Reinart, P.E.
David I. Hamlin and Associates

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

Attachments



EXISTING AM PEAK HOUR VOLUMES
FIGURE 2B

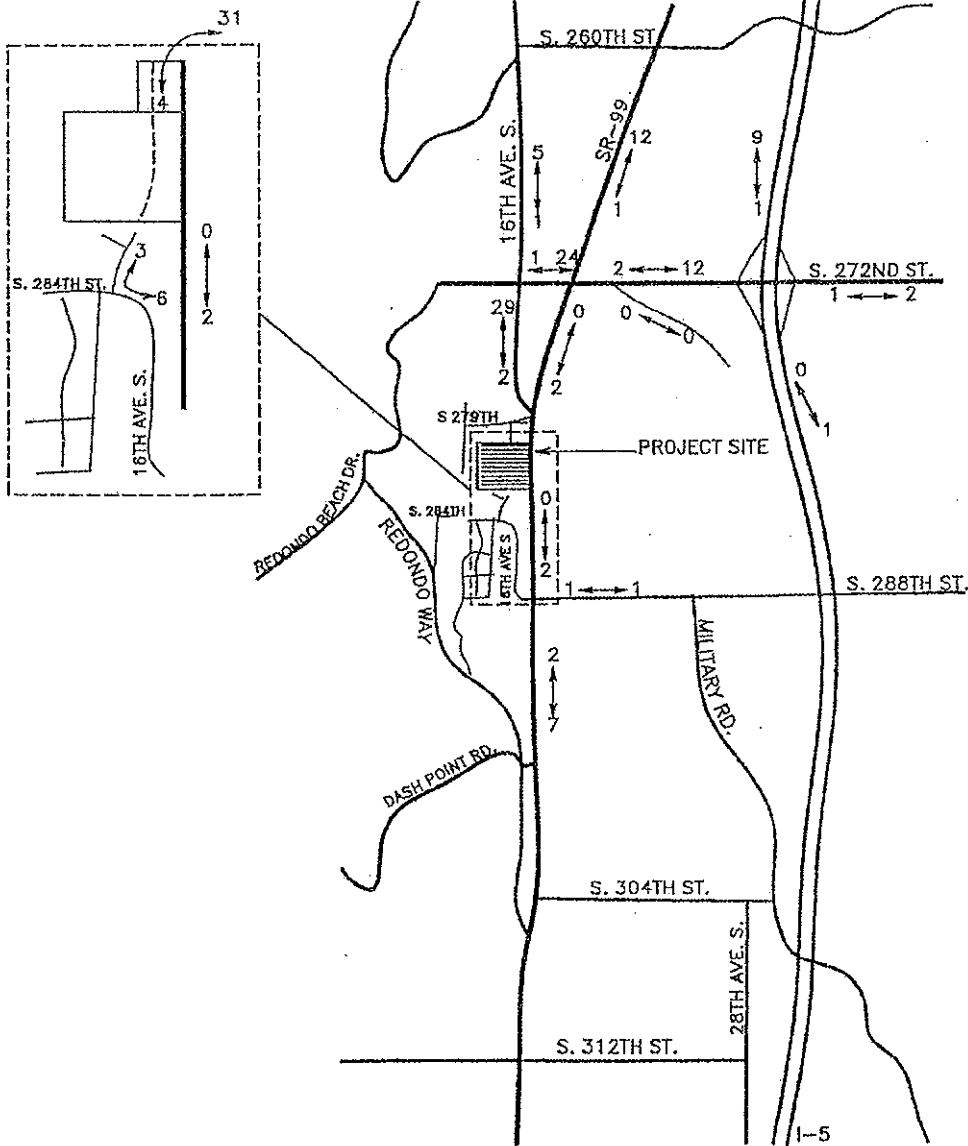


EXISTING PM PEAK HOUR VOLUMES

FIGURE 2C

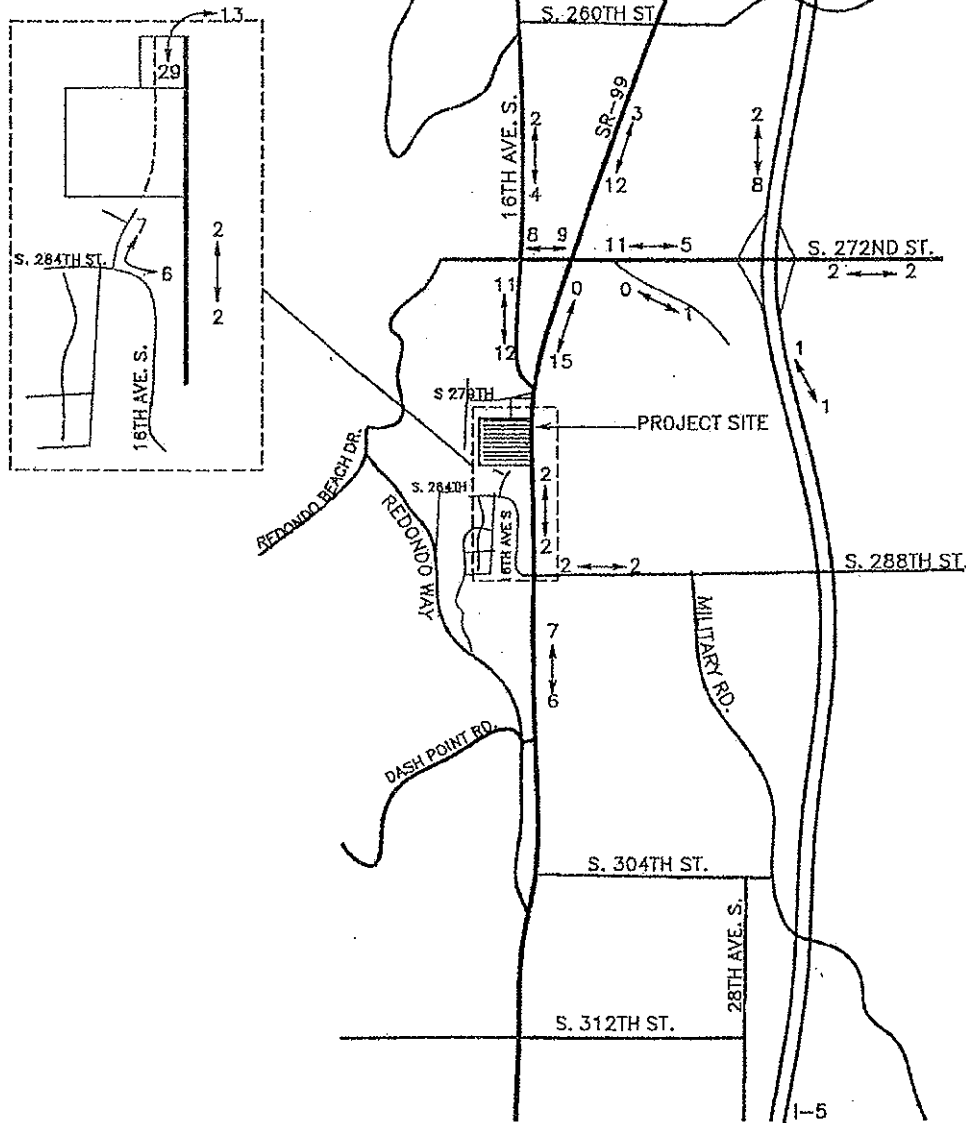
DAVID I. HAMLIN & ASSOCIATES

PACIFIC PLACE
REV.
05/07/98



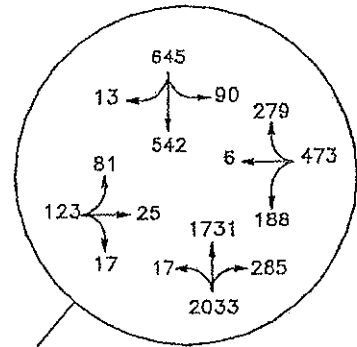
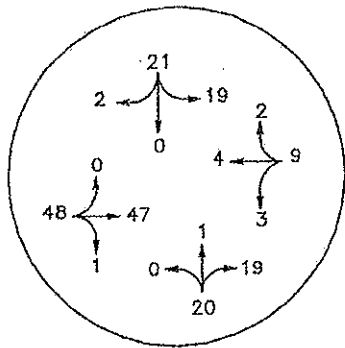
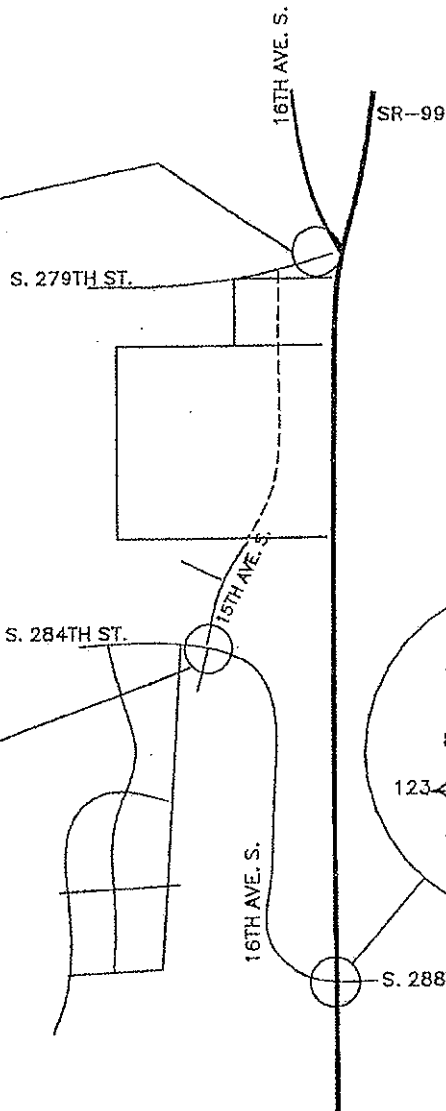
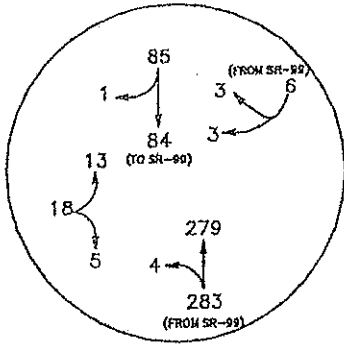
ESTIMATED AM PEAK HOUR TRIP ASSIGNMENT

FIGURE 4



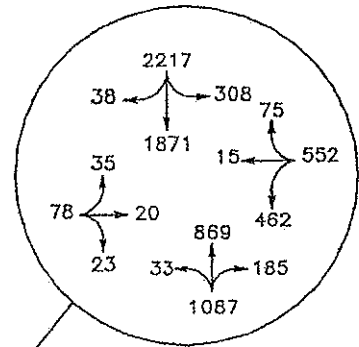
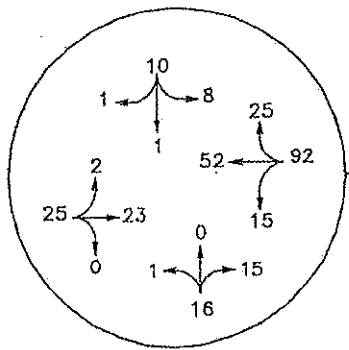
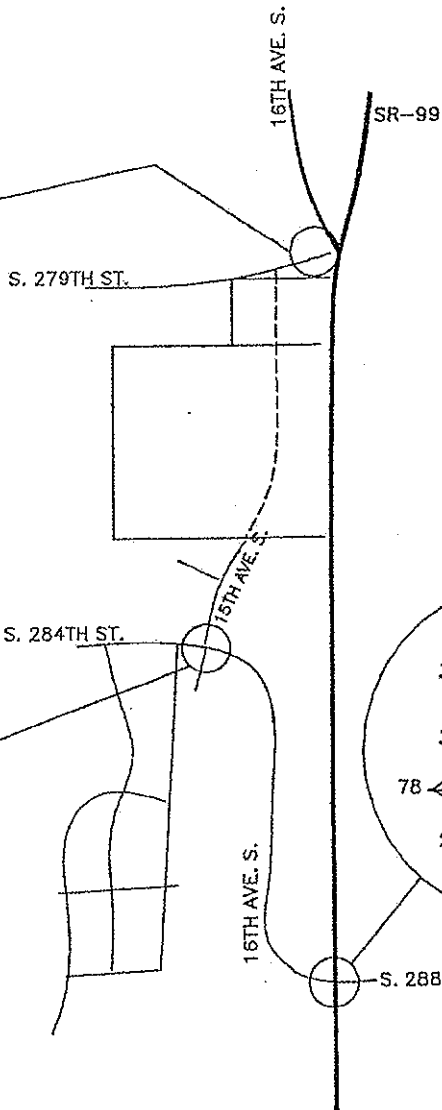
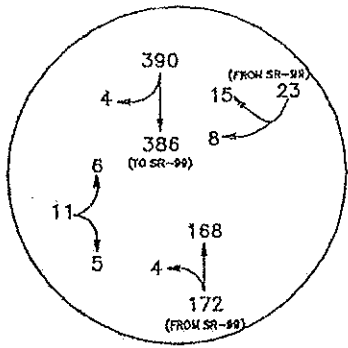
ESTIMATED PM PEAK HOUR TRIP ASSIGNMENT

FIGURE 5



XX - PEAK HOUR VOLUME

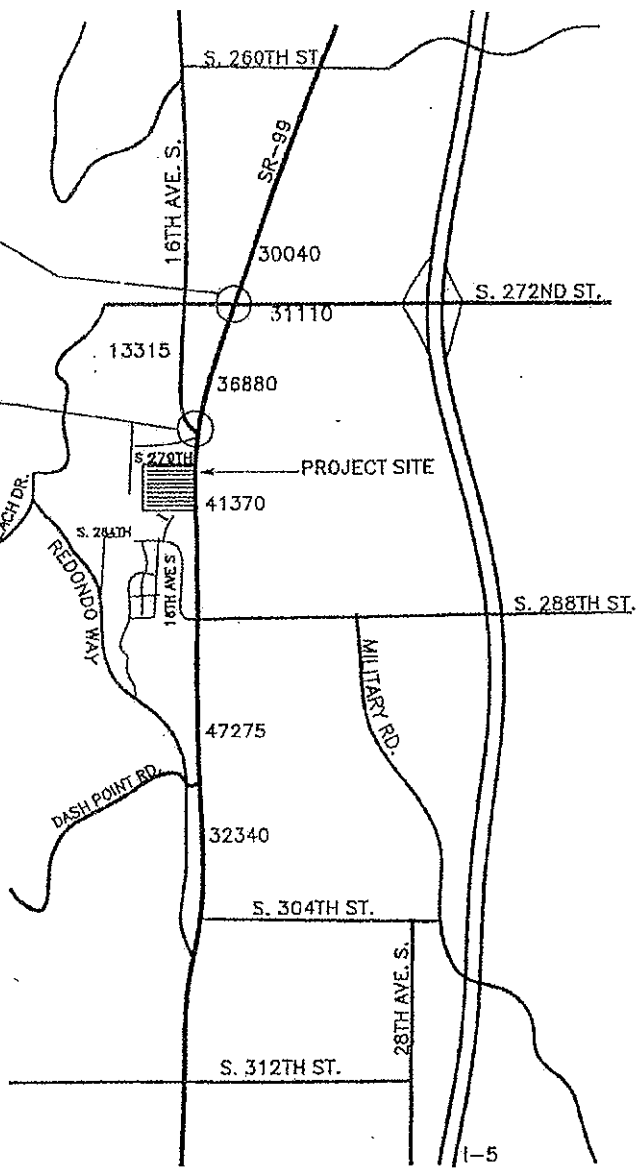
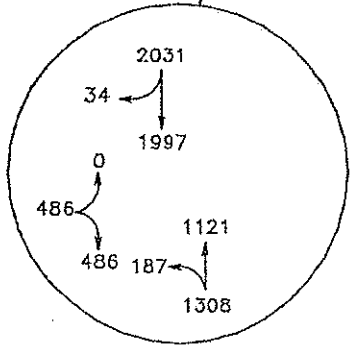
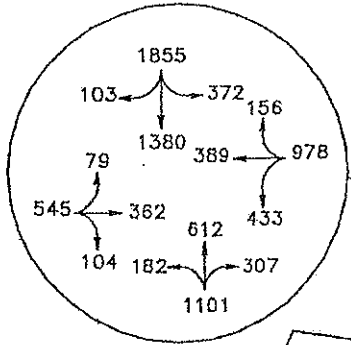
2002 ESTIMATED AM PEAK HOUR VOLUMES
(WITHOUT PROJECT)
FIGURE 6B



XX - PEAK HOUR VOLUME

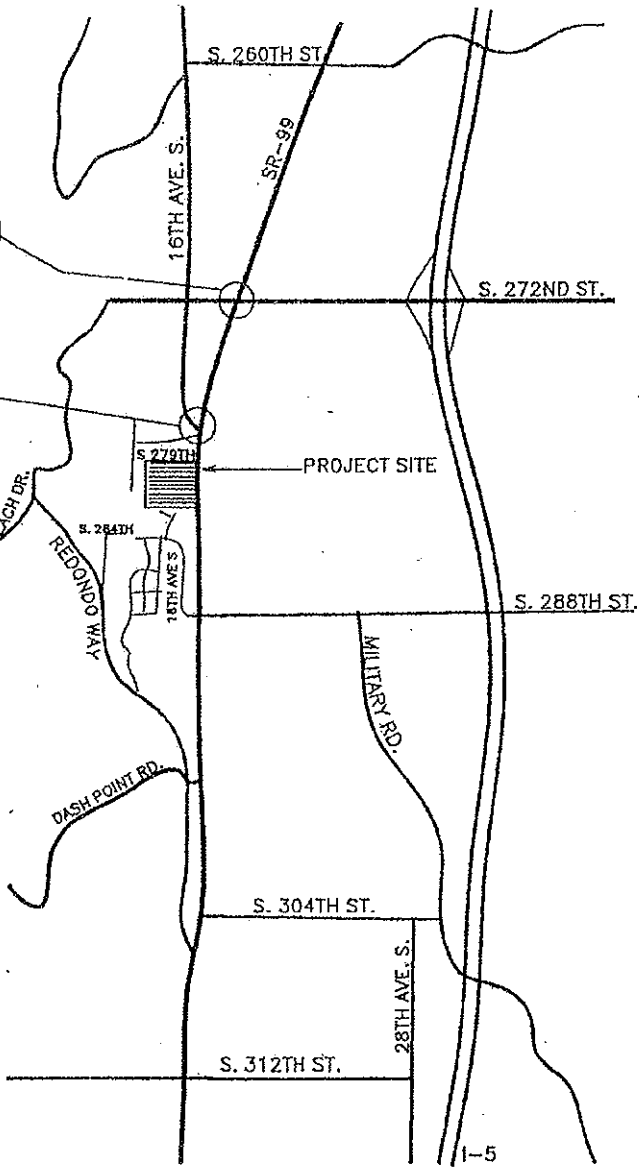
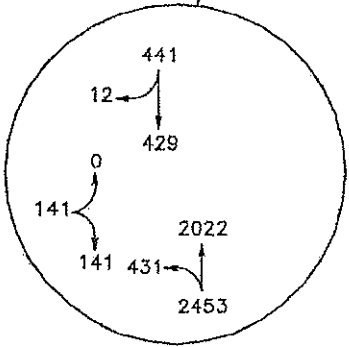
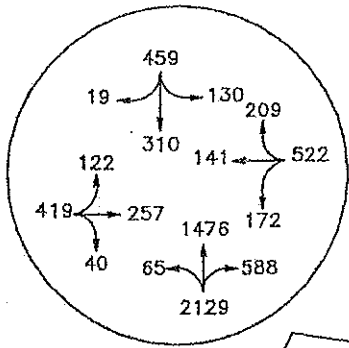
2002 ESTIMATED PM PEAK HOUR VOLUMES
(WITHOUT PROJECT)

FIGURE 6C



XXXX - 2002 DAILY VOLUME
XX - PEAK HOUR VOLUME

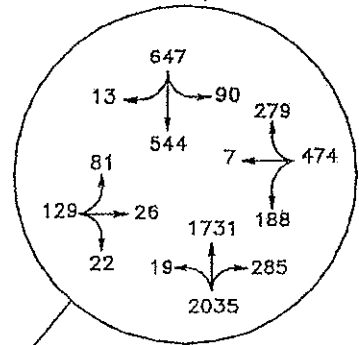
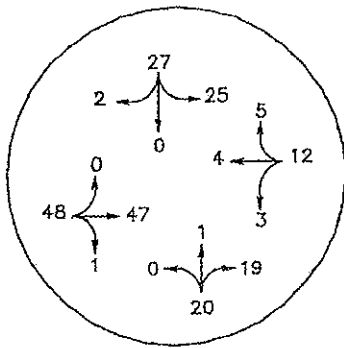
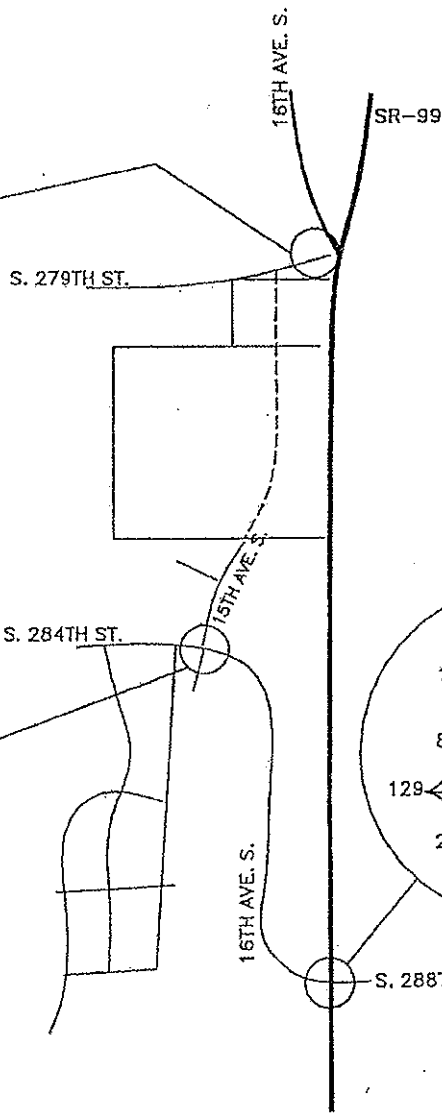
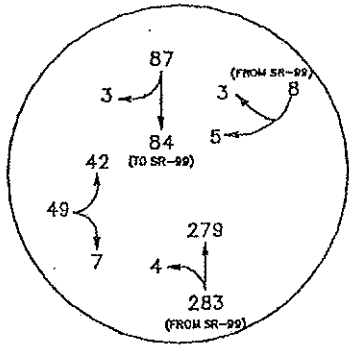
2002 ESTIMATED DAILY & PM PEAK HOUR VOLUMES
(WITH PROJECT)
FIGURE 7



XX — PEAK HOUR VOLUME

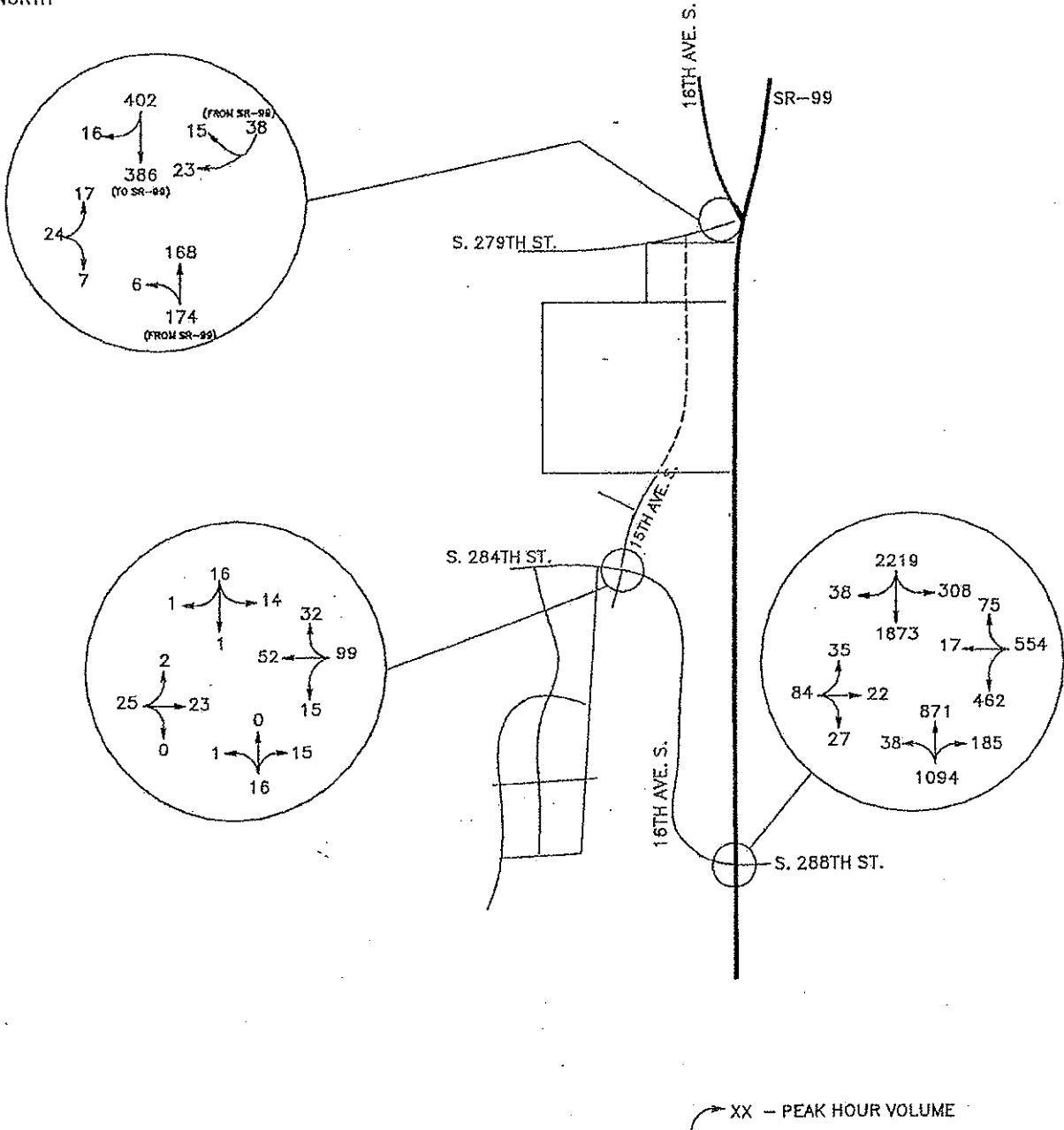
2002 ESTIMATED AM PEAK HOUR VOLUMES
(WITH PROJECT)

FIGURE 7A



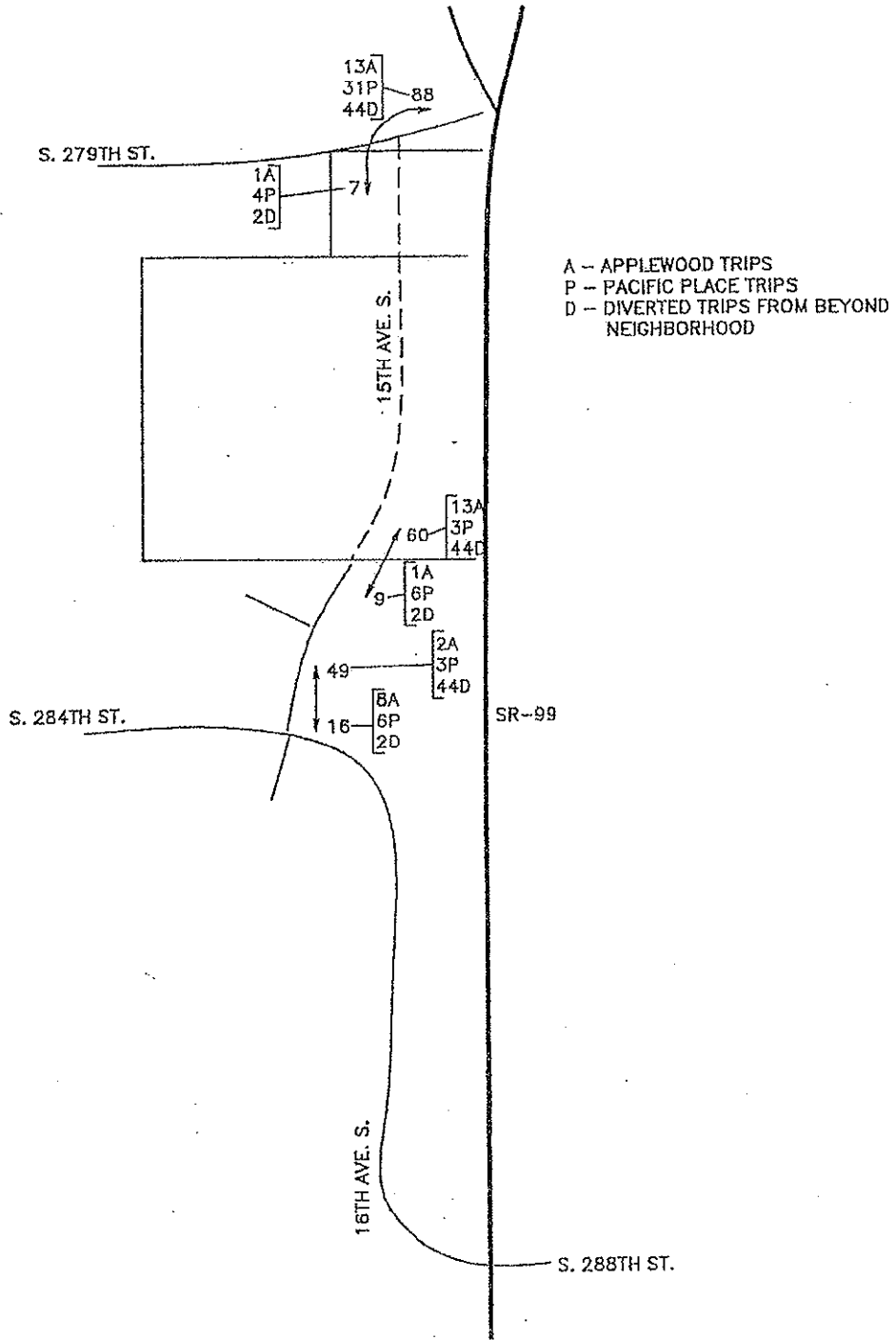
XX - PEAK HOUR VOLUME

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



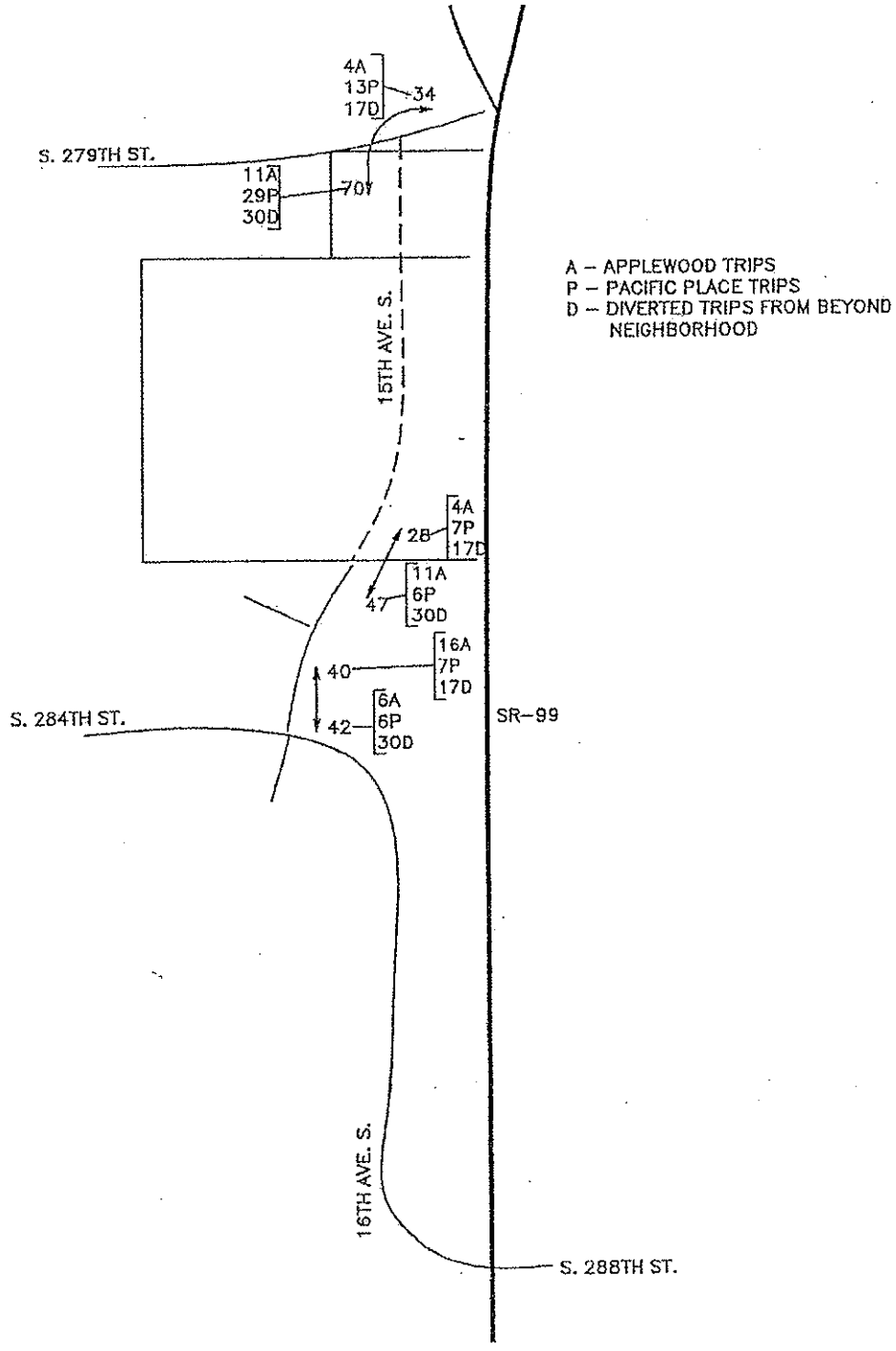
2002 ESTIMATED PM PEAK HOUR VOLUMES
(WITH PROJECT)

FIGURE 7C



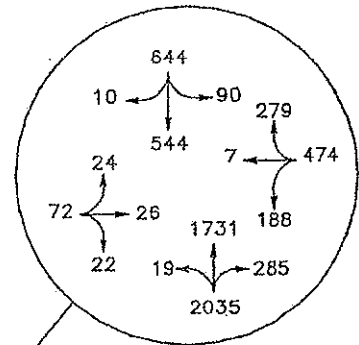
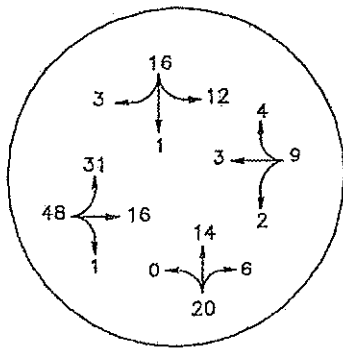
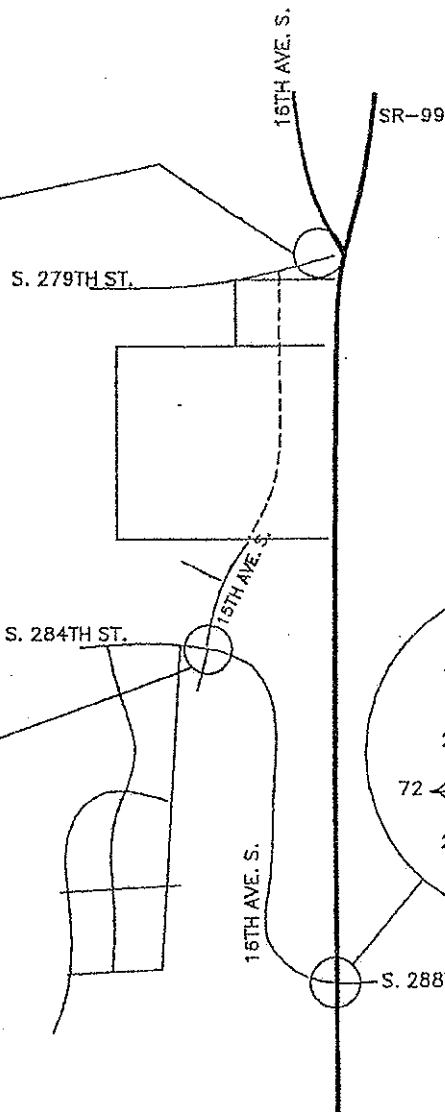
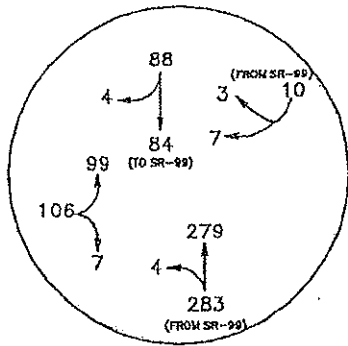
A - APPLEWOOD TRIPS
P - PACIFIC PLACE TRIPS
D - DIVERTED TRIPS FROM BEYOND NEIGHBORHOOD

ESTIMATED AM PEAK HOUR NEIGHBORHOOD TRIPS
NEW & DIVERTED
FIGURE 8



A - APPLEWOOD TRIPS
P - PACIFIC PLACE TRIPS
D - DIVERTED TRIPS FROM BEYOND NEIGHBORHOOD

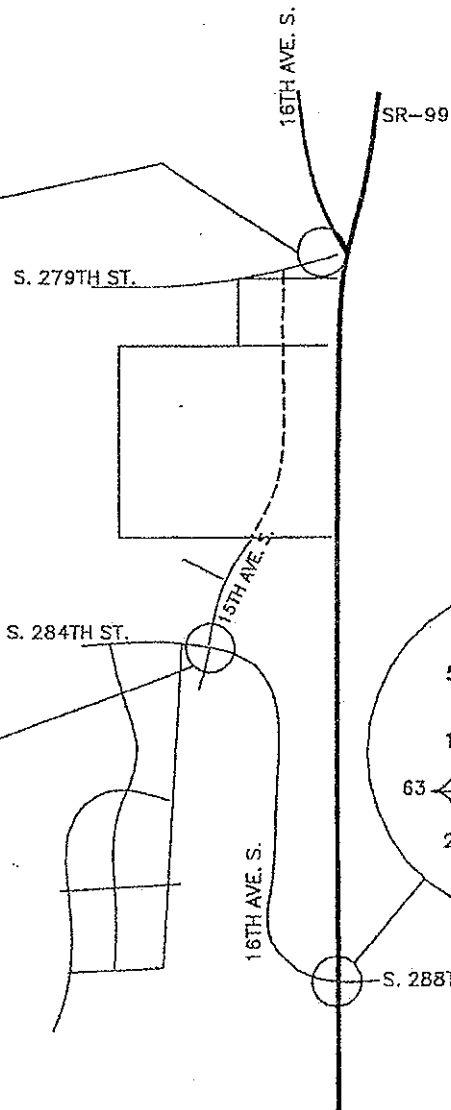
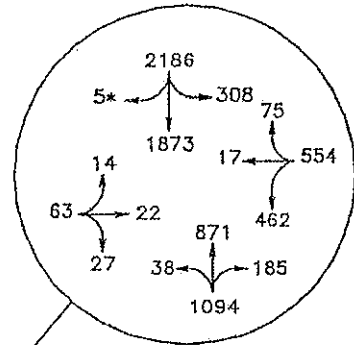
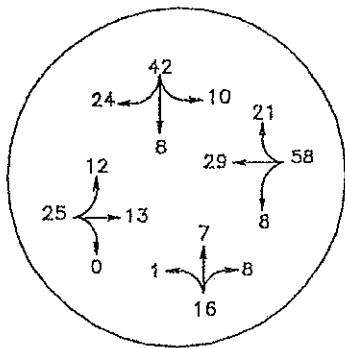
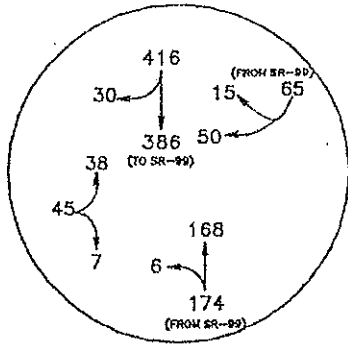
ESTIMATED PM PEAK HOUR NEIGHBORHOOD TRIPS
NEW & DIVERTED
FIGURE 9



XX - PEAK HOUR VOLUME

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

FIGURE 10



* - TOKEN VOLUME; SUBTRACTION OF DIVERTED TRIPS EQUALED AN AMOUNT LESS THAN 0.

XX - PEAK HOUR VOLUME

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

FIGURE 11