

RENO DRAINAGE STUDY

ANALYSIS OF THE
MARKET STREET AND MIAMI WAY
DRAINAGE DEFICIENCY AREA

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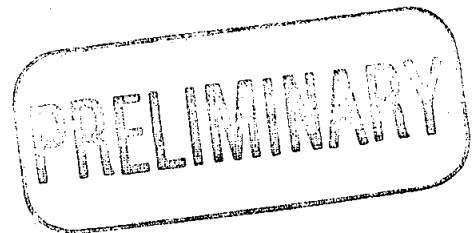
ANALYSIS OF THE
MARKET STREET AND MIAMI WAY
DRAINAGE DEFICIENCY AREA

Area 6 of 21

July 1985

Prepared for:

City of Reno



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A. INTRODUCTION

The Market Street/Miami Way drainage deficiency area is a small drainage basin of approximately 90 acres. The drainage basin is located between U.S. 395 and Kietzke Lane, north of Vassar Street and south of Market Street. (Refer to Figure 1.)''

B. FIELD ANALYSIS

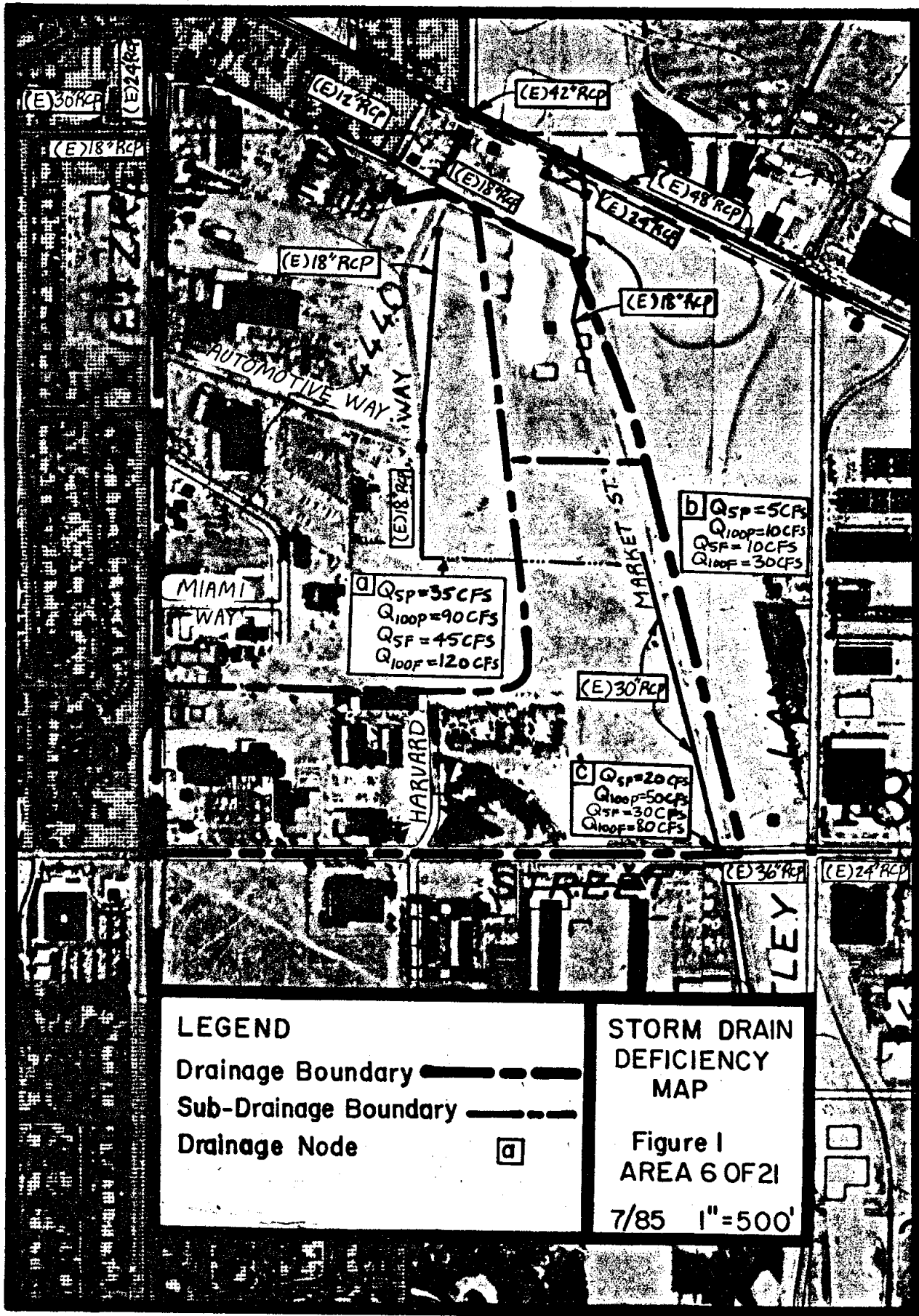
The Present Lane Use Map shows the drainage area to consist of 50% vacant and 50% commercial. There has been recent development along Market Street, although there is presently still a large open field between Market Street, where it runs north-south, and Harvard Way.

The Future Land Use Map shows the area as mixed multi-residential/community commercial.

It is expected that runoff will significantly increase from its present level once the area develops, unless attempts are made to contain increased runoff on site during the design and construction phases.

The area is relatively flat. It presently consists of three smaller subdrainages. The largest subbasin consists of approximately 53 acres. Flows from Kietzke Lane flow east, north of Miami Way and enter an 18-inch RCP storm drain system located on Harvard Way. This drain starts at the intersection of Harvard Way and Market Street and runs south, turning east on Yale Way (which is only a right-of-way at this time with no actual through street). These flows enter a ditch that proceeds east into a large open field. Fill in the area has covered any signs of the existing drainage ditch approximately halfway across the field. Much of the present field is higher than the ditch flow line, thus the flows tend to back up the system before they can spill out into the field.

A second drainage system is located east of Harvard Way and north of Yale Way. Flows in this field basically flow northeast to Market Street. A manhole is located on the northwest side of Market Street at the bend where it turns west towards Kietzke. An 18-inch RCP storm drain system runs both directions on Market Street, north and east, tying to this manhole with flows exiting out of the manhole to the north to a D. I. on the east side of the Mill Street 395 south on-ramp. Flows cross to the west side of the on-ramp and then turn north in what appears to be a 24-inch RCP tying to the 42-inch storm drain in Mill Street.



A third drainage system is located essentially west of Kietzke and south of Miami Way and south of Yale Way. These flows travel southeast reaching Vassar Street, and continue east on Vassar Street. There is a 30-inch RCP storm drain in Market Street south of Yale Way that carries flows south to Vassar Street. At the intersection of Vassar Street the storm drain turns east as a 36-inch RCP. This system was installed by the State Highway Department as part of the 395 improvements. It ties to a 24-inch RCP system at the intersection of Vassar and Matley Lane, which ties to a 30-inch RCP on Terminal Way.

C. ESTIMATED STORM RUNOFF

Estimated storm runoff is calculated for both the 5-year and the 100-year storm at selected nodes. These nodes are shown on Figure 1, the project boundary map. Table 1 summarizes these nodes, giving location, description of node, capacity of node and estimated storm runoff at the node. The existing capacity assumes inlet control. Generally, a range is given. The lower value assumes no head at the inlet while the higher value is at maximum head on the culvert.

It should be noted that the storm runoffs are based on summer storms which give more conservative values than the winter storms (refer to the wet and dry isopleth maps in the Reno Drainage Study Preliminary Report: Deficiency Areas Within the City Limits, December 1984).

D. CONCLUSIONS

The 18-inch storm drain system on Harvard Way is significantly undersized. At the present time there is no place for the runoff from this system to go except the field between Harvard Way and Market Street. This field has been filled so it is generally higher than the ditch flow line from Harvard Way so it does not serve well as a storage reservoir without first backing up the flows on Harvard Way.

It is recommended that either a ditch or pipe system be installed to carry the flows to Market Street where they can be discharged to one or both systems on Market Street, either to Vassar Street or to Mill Street.

If flows are directed to Vassar Street, it should be noted that the times of concentrations for the two systems are very similar, thus peak flows from the two drainages would arrive at Vassar and Market Streets at approximately the same time. The existing system on Vassar Street is somewhat undersized at the

TABLE 1. Harding Way and Gulling Road Existing Drainage Facilities Summary

Node and Location	Existing Storm Drainage System	Existing Capacity (cfs)	Estimated Flows		Estimated Flows	
			Q_5 (cfs)	Q_{100} (cfs)	Present Land Use	Future Land Use
a - Automotive and Yale	18" RCP	7-10	35	90	45	120
b - MH by freeway 395 on-ramp (close to Mill intersection)	18" RCP	7-12	5	10	10	30
c - Market and Vassar	30" RCP to 36" RCP to 24" RCP (at Matley Lane)	35-45 13-20	20	50	30	80

not used

present time, especially downstream where the 36-inch storm drain ties to a 24-inch storm drain. Thus the system would need to be upsized to handle the additional flows from Harvard Way at least to the intersection of Terminal Way and perhaps even farther downstream.

Therefore, it makes more sense to route the flows towards Mill Street. The 18-inch storm drain in Market Street is adequate for present and future land use flows. However, it is undersized if the flows from Harvard Way are routed to it. It would require upsizing to the intersection with the 42-inch storm drain in Mill Street.

The adequacy of the storm drain in Mill Street is evaluated in a separate drainage deficiency study (Longley Lane/McCarran Blvd. - area 16 of 21). However, it is certainly adequate for the flows from a storm near Harvard Way and Market Street would be through the Mill Street system before peak flows arrived from farther up the Mill Street drainage west of Kietzke.