

- **Flood Prone Area Characteristics**
- **Record of Historic Flood Events**
- **Potential Impacts of Future Development**

(Draft) Section 5
FLOOD DAMAGE HISTORY

The documentation of historic flooding and stormwater drainage pathways is an important tool in the process of reducing flood hazards. An understanding of the natural waterbodies and drainage pathways in Grayland helped to refine the expectations placed on measures to reduce flooding. With information about high water level elevations in Grayland's main drainage channel, results from the hydrologic and hydraulic modeling were calibrated against historic records and refined to better reflect the reality of the project site. Flood history data and accounts of existing problems were also used to identify potential local improvement projects.

FLOOD PRONE AREA CHARACTERISTICS

In addition to heavy fall and winter precipitation and seasonal high tides, the physical properties of the Grayland area make it prone to flooding. The area is characterized by flat low-lying areas with seasonal and permanent wetlands and lakes. The soils of most of the lowlands are poorly drained, especially the organic soils of the cranberry bogs. Along SR 105, the sandy soils are typically well drained; however, high tides and winter storm winds combine with the heavy seasonal rainfall to create coastal flooding. As shown in Section 3 of this FHRP, portions of the Grayland area have been designated by the 1983 Federal Emergency Management Agency (FEMA) as 100-year or 100- to 500-year flood zones. Longtime residents claim that there were once extensive and nearly continuous shallow lakes throughout the area. A variety of drainage improvements by private individuals and the drainage district have reduced the areas of water and allowed development. Many of these drainage systems are no longer maintained. Because of the lack of maintenance, the natural and man-made drainage channels have become clogged with sand, dirt, and debris. This appears to be at least a partial cause of the local drainage problems. Natural drainage in areas east of SR 105 generally moves towards the main drainage channel, while areas west of SR 105 drain to the ocean. A series of dunes effectively trap runoff on the flat low-lying land between SR 105 and the ocean adding to the local drainage problems.

RECORD OF HISTORIC FLOOD EVENTS

Historic flooding information can often be obtained by reviewing FEMA claims made by federal flood insurance policy holders. Although no claims have been filed by policy holders in the Grayland Basin, it is apparent from the flooding reports voiced by the community and the recollections of longtime residents of Grayland that flooding is a regular occurrence. Anecdotal information gathered during advisory committee and public meetings has provided a valuable record of frequent flooding. When interpreting the flood history it data, the following probabilities should be considered:

- It is likely that no resident present at the meetings has observed the results of a 100-year storm event in Grayland.
- It is possible that no resident present at the meetings has observed the results of a 25-year storm event in Grayland. However, it is likely that some residents present have observed the results of storms including and smaller than the 10-year event.
- Other community members not present at the meetings may be able to provide different information based on their experiences in Grayland.

Areas of flooding in Grayland fall into two categories: those associated with the main drainage channel and local drainage issues. The personal recollections of water levels in the main drainage channel were used to verify and refine the hydrologic and hydraulic modeling results.

Listed in detail in Appendix F, they are summarized here as follows:

- **Grange Road Bridge:** The water level in the main channel is reported to reach the top of this bridge and flow over the bridge section every few years, to as many to three times annually (frequency reports vary).
- **East of Cranberry Road and North of Grange Road:** A homeowner who has lived in this section of Grayland for many years recalls a widespread area of flooding east of Cranberry Road in 1937.
- **Post Office Site:** The depression in the road west of the intersection of Cranberry Road and Schmid Road has been covered with as much as 2 feet of water. This is apparently the result of overbank flow from the main drainage channel (from both upstream and downstream of the Smith Road Bridge). Water historically stood where the post office is now.
- **Post Office Site:** During the large storm event ("Pineapple Express") of November/December 1990, the main channel water level was 10-12 inches below the bottom of the bridge slab. Backwater affected the lateral ditches, some

garages in the area were flooded, and Schmid Road was flooded. The ditch was not as well maintained in 1990 as it is now.

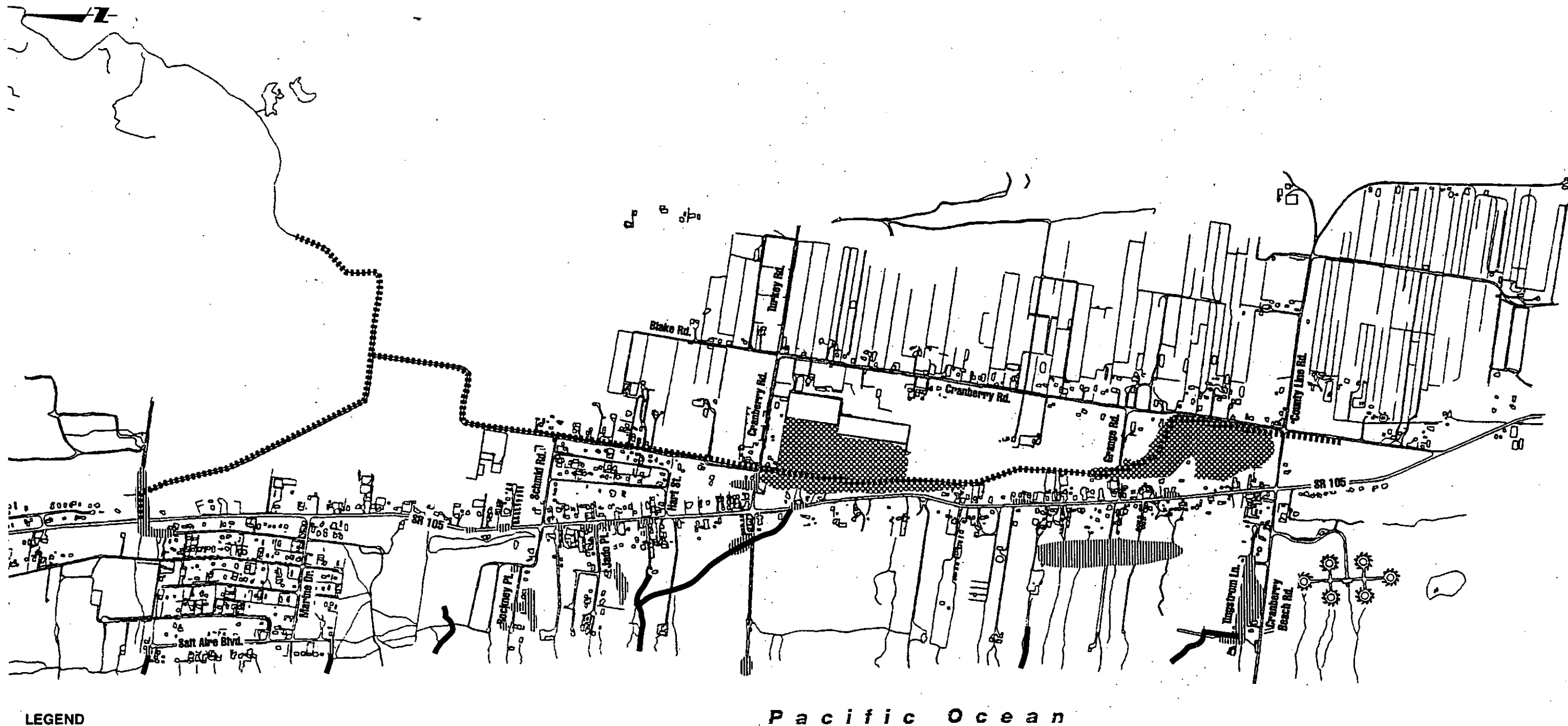
- **Schmid Road Bridge:** The highest water level noted downstream of the bridge was approximately three feet beneath the bottom of the bridge slab.
- **Cranberry Farms:** The farms are used as storage for stormwater during heavy winter rains. The lateral drainage ditches contributing to the main channel annually back up into the fields.

Several locations of less frequent flooding from larger storm events have also been identified. These records are shown in Figure 5-1. The meeting discussions that detail this information are contained in Appendix F.

POTENTIAL IMPACTS OF FUTURE DEVELOPMENT

Because future growth in the area is expected to be minimal during the design life of these FHRP recommendations, large scale impacts to flood hazards are not anticipated. It is extremely important, however, that any development in the area is performed in such a way as to maintain drainage courses. Homes, septic systems, and driveways should be constructed with the minimum amount of fill that will elevate them above flood levels.

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LEGEND

- Main channel
- ▣ Areas subject to a frequent flooding identified by residents due to the main channel
- ▣ Areas subject to frequent flooding identified by residents due to local drainage
- ~ Historic drainage courses to ocean

Figure 5-1
Historic Flooding Areas