



ROUNDABOUTS & TRAFFIC ENGINEERING

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MEMORANDUM

DATE: December 15, 2005

TO: Chris Schneiter, PE, City of Santa Cruz
Jim West, PE, Kimley-Horn & Associates

FROM: Scott Ritchie, PE, Roundabouts & Traffic Engineering

SUBJECT: Beach Area Roundabouts Feasibility Addendum

Based upon the comments received from the public meeting held on November 2, 2005, RTE has revised the conceptual roundabout design at the Beach Area Roundabout per direction from City of Santa Cruz staff. The following numerical list identifies the major concerns and comments from the public as well as brief responses to each. It should be noted that the comments received from the public meeting are not major deterrents for the final recommendation of constructing a modern roundabout at the two study area intersections. The comments and responses below pertain mostly to the Beach Area Roundabout, in which the design has been revised and is shown in [Figure 1](#).

1. **Public Comment:** Please add a crosswalk on the north end of the Beach Area Intersection. **Response:** A crosswalk cannot be placed too close to the intersection due to the proximity of the railroad tracks and pedestrian safety concerns. In addition, the available right-of way is limited. However, a pedestrian crossing has been placed on the north side of the intersection, which will include the installment of tactile strips or truncated domes at all ADA ramp landings and possibly a highly visible textured crosswalks depending on the approval of the City.
2. **Public Comment:** Please separate the pedestrians and bicycles from each other at the Beach Area Intersection. In addition, please provide a mutually exclusive bike lane / bike path through the Beach intersection. **Response:** The roundabout designer has modified the initial conceptual design to include a 10-foot wide mutually

exclusive bike path (two lane bikeway) that is separated from vehicular traffic by 4 feet and separated from pedestrian traffic by 2 feet with raised medians or pavement markings, depending on the location. A 10-foot wide pedestrian path/sidewalk has also been added to accommodate the high pedestrian volumes. This creates a continuous 10-foot bike path and a 10-foot wide pedestrian path in the east west direction along Beach Street as well as connecting to the northeast side of the intersection and sidewalk.

Please note on **Figure 1** below the new bike path, the required yield locations for both vehicles and bicycles, as well as the perpendicular crossing of the railroad tracks on the east side of the roundabout for bicycle safety. However, due to the right-of-way constraints on the north side of the intersection, bicycle traffic must yield to vehicular traffic and share the road along Pacific Avenue for approximately 300 feet until the bike lane again commences on Pacific Avenue (northbound). These modifications are conceptual in nature and may be modified again in the future based on upon input from the City and final design constraints.

3. **Public Comment:** *Please decrease the pedestrian crossing distance on the west side of the Beach roundabout. This is the primary crossing location for most pedestrians with a high volume of pedestrian traffic.* **Response:** Originally, the longer crossing distance was designed to accommodate parking stalls to the west of the roundabout. However, the median or “splitter island” on the west side of the roundabout has been increased in width to decrease the crossing distance. Only about 1 or 2 parking spaces are lost with these revisions. In addition, with respect to the comment about this pedestrian crossing being a high pedestrian volume location, the roundabout designer has increased the width of the pedestrian crossing to 15 feet instead of the standard 10 feet on the west side of the intersection. This will permit a much higher pedestrian volume to cross at one time.
4. **Public Comment:** *Are there any additional pedestrian safety measures that can be added to the roundabout design at Beach Street to improve pedestrian movements in harmony with vehicles?* **Response:** Per direction from City staff, the roundabout designer has added a raised crosswalk on the applicable entering lanes of the roundabout. The raised crosswalk (also known as a table top crosswalk) are raised 2 to 2.5 inches above the asphalt driving surface to create a speed hump for approaching traffic. By slowing off-peak hour entering traffic, the speed differential between the pedestrians and vehicles is extremely low. This results in safer pedestrian conditions for the intersection, however, it also significantly decreases the available vehicular capacity of the roundabout. When traffic volumes are high, the yield condition at the roundabout will automatically create

queues of vehicles at or beyond the crosswalks, at which time the raised crosswalks would not have any effect on the already stopped or slow moving traffic. Therefore, the City should consider these raised crosswalks while traffic volumes remain low (5-10 years).

5. **Public Comment:** *Occasionally throughout the year, a large truck must enter onto the Wharf Pier to replace the existing piers. This requires a "straight shot through" between the tollbooths in order to fit the large truck onto the pier. How will the roundabout accommodate this special design vehicle?* **Response:** The roundabout at the Wharf pier or Beach Intersection can accommodate a large truck onto the pier from Pacific Avenue with a straight ahead line of approach between the tollbooths. However, similar to any other type of intersection control at this location (signal or stop signs), the roundabout must be temporarily closed while the large truck negotiates driving onto the pier. The truck would need to proceed southbound on Pacific Avenue, continue onto the east side of the roadway (opposite direction of travel) just prior to the roundabout, traverse through the exit lanes of the roundabout, across the truck apron (3.5 inch mountable curb), and straight through the tollbooths onto the pier. It is highly recommended (if not required by the City) that this special vehicle utilize this intersection during off-peak hours to disrupt the least amount of traffic possible.
6. **Public Comment:** *Do these roundabouts incorporate design treatments for the blind or people with limited visibility?* **Response:** Current standards for accessibility for the blind have been and will be incorporated into the final design if the City selects the roundabouts for approval. All available design treatments and requirements per the Manual of Uniform Traffic Control Devices and the American Disabilities Act (ADA) for the placement of crosswalks will be incorporated in the final design, including truncated domes / tactile warning strips for the visually impaired.
7. **Public Comment:** *How accurate are the costs estimates for the roundabouts?* **Response:** The cost estimates have been completed for preliminary and planning stages of the feasibility study only. The final cost estimates will depend on the design requirements from the City, the desired landscaping parameters and details in and around the roundabouts, as well as other design details the City may need to address or be interested in completing in the final design phase. Some of the pedestrian facilities and details still need to be worked out under final design of the intersections once an alternative has been chosen for each intersection design. For example the actual bike path or pedestrian sidewalks may vary from the widths described herein.

Figure 1: Revised Conceptual Roundabout Design

