

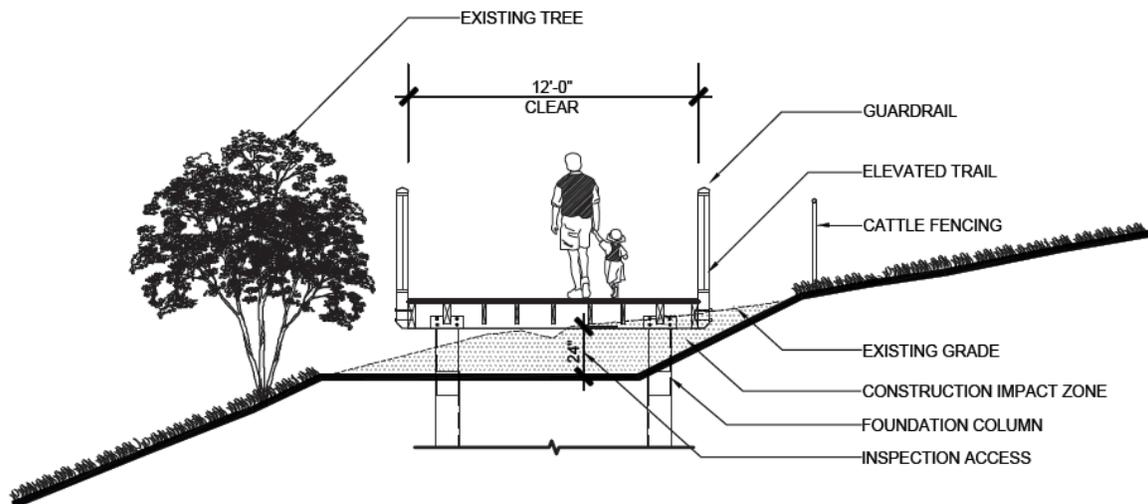
Boardwalk

CNPS representatives expressed their preference for a boardwalk structure along the length of their proposed alignment. Their assumption is that there will be fewer impacts with a boardwalk style trail construction. The City's direct knowledge and experience, and that of the City's trail designer, RRM Design Group, illustrates that there are numerous impacts and limitations on the use of a timber structure. That is why boardwalks are typically limited to small structures or used over water or wet areas, where there are no other solutions. The impacts and limitations that we have addressed are shown below:

- Greater slope constraints to achieving ADA access.
- Slippery surface on wood or plastic deck from fog, rain and moss growth.
- Creating an illegal camping environment.
- Limited longevity from weathering and vandalism.
- Construction and maintenance impacts and costs.

Standards for a multi-use trail require an 8 foot wide minimum accessible surface and 2 feet clear width on each side. Therefore the deck will need to have a 12 foot clear interior width and also require 4-1/2 foot high safety railings. A boardwalk structure is limited to a 3-5% grade, with a strong preference for a flat surface due to limited slip resistance and in consideration of wheelchair/wheeled users limitations, rather than up to 10% slopes allowed for the other surface materials.

A boardwalk section is shown below at Section D2 of the CNPS alignment.



ALTERNATE SECTION D2

A boardwalk for the CNPS alignment will become longer and will require grading (notching into the hillside) due to the existing topography. Grading will also be required to bring in equipment to drill piers and to haul in materials. These conditions will modify existing drainage patterns creating the need for swales, laying back the slope and greater

erosion control measures. The surface of the boardwalk must be raised above the soil by a minimum 2 feet for foundation inspection and the ability to maintain the structure. The space created below the structure will have to be closed off to minimize illegal camping and will become an ongoing maintenance problem, as experienced by the City on other structures.

Longevity of a boardwalk structure in the coastal environment is typically 5 years, after which major maintenance is required to the deck, railings and foundation system. This will require construction vehicles hauling materials and equipment to access the work area on an annual maintenance cycle through the coastal prairie habitat as the boardwalk can not be used for service vehicle access.

Nearby Lagoon is a real world example of an appropriate use and cost of boardwalks. On the average the City replaces approximately 500 L.F. of 2x6 yellow cedar lumber on the Nearby Lagoon boardwalk. Labor and material costs are approximately \$5,000/yr. Most years require total replacement and/or structural repairs to some sections of boardwalk ranging from \$5,000 to \$25,000 per year depending on the section needing replacing.