

Shoal Creek Trail – West 5th Street to West Avenue

Closing the gap

The problem

- For years, there has been a gap in the trail along lower Shoal Creek from 5th Street to West Avenue. This has forced hikers and bicyclists to either ford the creek, walking on rock, gravel or a narrow concrete wastewater encasement or to detour, climbing stairs to use street-level sidewalks. Using street-level sidewalks involves waiting at crosswalks.

Shoal Creek today



Shoal Creek today (cont.)



The task

- The Parks and Recreation Department has been tasked with closing the gap from 5th Street to West Avenue. Several possible routes were considered, with the goal of complying with ADA requirements and AASHTO goals for a multi-use trail. The trail is to accommodate pedestrians and bicyclists.

Additional scope of work

- PARD has partnered with Watershed Protection Department for this project
- As part of this project, the west/south streambanks will be stabilized
- The encased wastewater line now in the creek will be relocated under the new trail and the old one removed

The challenges

- Space constraints – private properties close by on either side.
- The existing east side sidewalk is only 6' wide and does not connect to either terminus without crossing the creek.
- Steep slopes on the west/south sides.
- Trying to stay out of the flood zone.

The challenges (cont.)

- The amount of water and debris that is carried to this area.
- Several large trees, including protecte and heritage, that provide shade to the banks of the creek.
- The trail must tie in to the existing trail ends under the 5th Street bridge and at the West Avenue bridge.
- The streambanks are severely eroded and must be stabilized

The options

- Possible routes that have been considered:
- 1. Direct trail from 5th to street-level sidewalk at south side of creek
- 2. Trail parallel to creek from 5th to West Avenue
- 3. Creek crossing(s) to make use of existing sidewalk along the east side

Options (cont.)

- 4. Variation of parallel trail that would ascend to higher elevation, then descend to tie in to existing trail ends at 5th and West
- 5. Narrower trail (6')
- 6. Variation of parallel trail that would place it farther into creek channel

Direct trail

- New trail would proceed north to south, from existing trail under 5th Street bridge to sidewalk at south end by Gables parking garage and pedestrian bridge
- Option 1: 5% grade with stairs at south end
- Option 1A: continuous grade at approx. 8%

Direct Trail Advantages

- Would get most of new section out of the flood zone
- Shortest route possible
- Cheapest route possible

Direct Trail Disadvantages

- Option 1: 5% grade would comply with ADA requirements, but stairs would not; stairs also hinder bicyclists
- Option 1A: continuous grade, but steeper gradient would be challenge for kids and older citizens and would require handrails
- Options 1 and 1A: south terminus would be very close to pedestrian bridge, causing line-of-sight problems

Direct Trail Disadvantages (cont.)

- Once users were on street-level sidewalks, they would have to cross streets; southbound users would have to descend after crossing West Avenue to get back on the trail
- Requires removal of trees, including protected and heritage trees

Parallel Trail

- Parallel Trail would run along the west side of Shoal Creek southward, then along the south bank eastward and tie in to the existing trail and maintenance access at West Avenue

Parallel Trail Advantages

- Trail could be installed in compliance with ADA requirements
- Trail could be installed in compliance with AASHTO guidelines
- Tie-ins to existing trails would allow users to continue in both directions without climbing to street-level routes or crossing streets

Parallel Trail Disadvantages

- New trail would be in flood zone
- More than twice as long, more expensive
- Requires retaining walls for steeper slopes
- Requires removal of trees, including protected and heritage trees
- Requires removal and replacement of relatively new mechanically stabilized earth embankment (MSE)

Creek Crossings

- Low-water crossing would be placed south of 5th Street and west of West Avenue
- Low-water crossings would tie in to existing sidewalk along east/north bank of Shoal Creek

Creek Crossing Advantages

- Scope of work would be much smaller, making use of existing sidewalk
- Crossings would not require tree removal
- Crossings could be installed to comply with ADA requirements and AASHTO guidelines

Creek Crossings Disadvantages

- Would be extremely susceptible to sedimentation during normal rain events or creek flow, requiring frequent maintenance
- Could possibly impede creek flow, creating undesirable results elsewhere
- Existing sidewalk on east/north bank is only 6' wide – not safe for bicycle/pedestrian traffic going both directions

Variation of Parallel Trail

- New trail section would parallel Shoal Creek, but would be at higher elevations and then descend to tie in to existing trail ends

Variation of Parallel Trail

Advantages

- Most of new trail would be out of flood zone

Variation of Parallel Trail

Disadvantages

- New trail section would either be routed farther up the slope, necessitating removal of more trees or would be placed on support columns, which would be difficult to install and would be likely to catch debris
- Handrails would be required
- Clearance may be problem when crossing under pedestrian bridge
- Bank stabilization would still require removal of trees

Narrower Trail

- Install trail at 6' width to run parallel to Shoal Creek

Narrower Trail Advantages

- Trail width would be consistent with existing trail sections at 5th and West

Narrower Trail Disadvantages

- 6' width is not safe for bicycle/pedestrian traffic
- May still require removal of trees due to bank stabilization work

Variation of parallel trail (into channel)

- New trail section would be rerouted farther into the creek channel (up to 4') to keep it farther from protected and heritage trees
- Trail section would still proceed parallel to creek
- Transition into channel would be gradual

Variation of parallel trail (into channel - Advantages)

- This variation would keep the trail farther away from protected and heritage trees at its designed width (12').
- Armoring below the trail would be the same
- Trail could meet ADA requirements and AASHTO guidelines

Variation to parallel trail (into channel – Disadvantages)

- New route protruding into creek channel would change the creek flow; mitigation must be made on the opposite side of the channel, so as not to impede or hinder the flow
- East side of the creek has an existing sidewalk and gabion wall next to private property which would have to be removed and/or replaced to mitigate
- Streambank stabilization would still require tree removal

Tree removal

- Tree survey has identified for removal:
- One Heritage tree (American Elm)
- Three Protected trees (2 American Elms; 1 Mulberry)
- Several Unprotected and Non-Native Invasive Species (Twenty-Six)
- Tree removal is required primarily due to the need to stabilize the streambank

Tree removal (cont.)

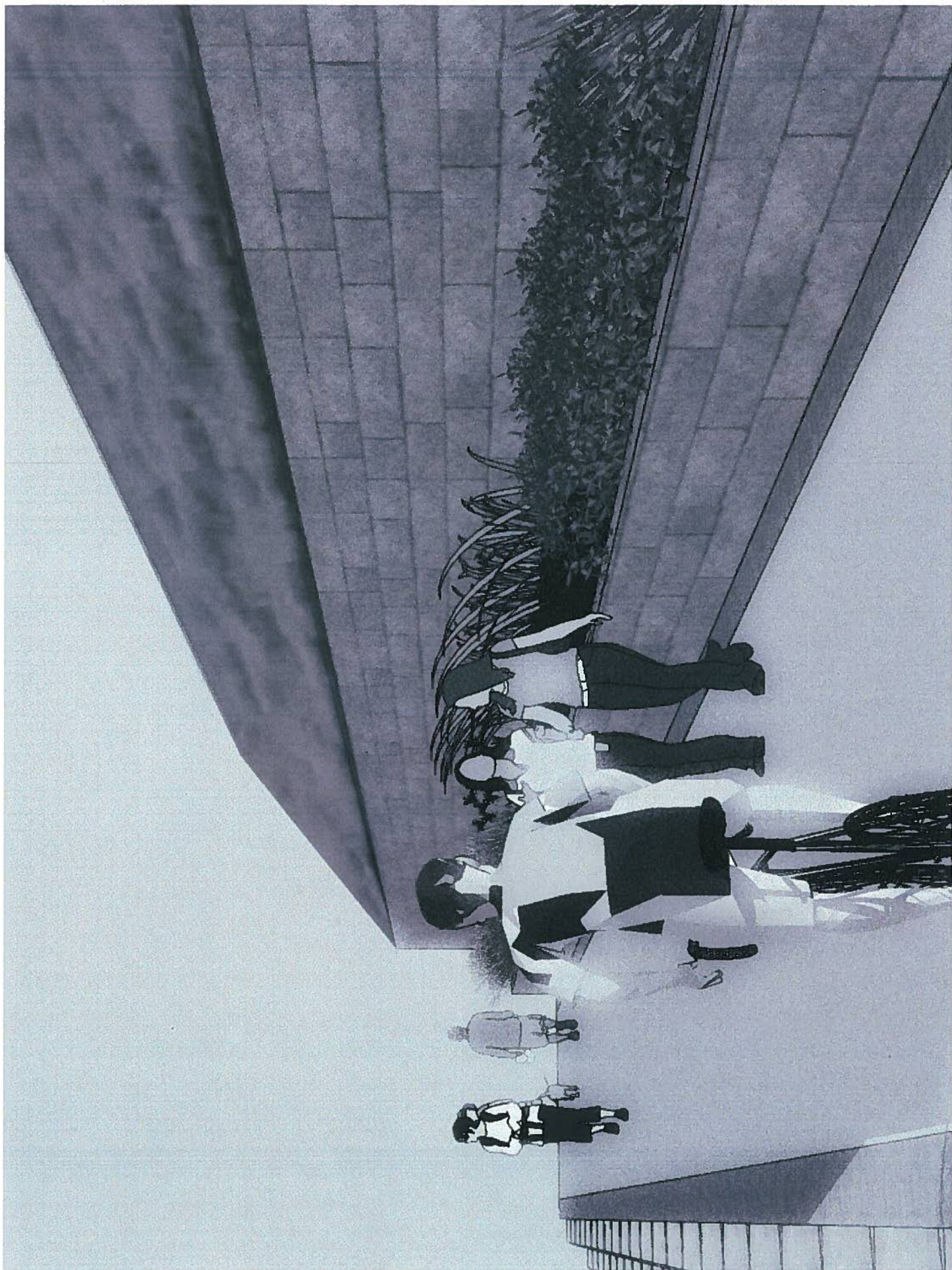
- Trees were assessed by Michael Embesi, City Arborist
- Heritage Tree in poor condition
- Mulberry tree in poor condition
- Trees to be removed will be mitigated
- Project team still exploring ways to plant more trees

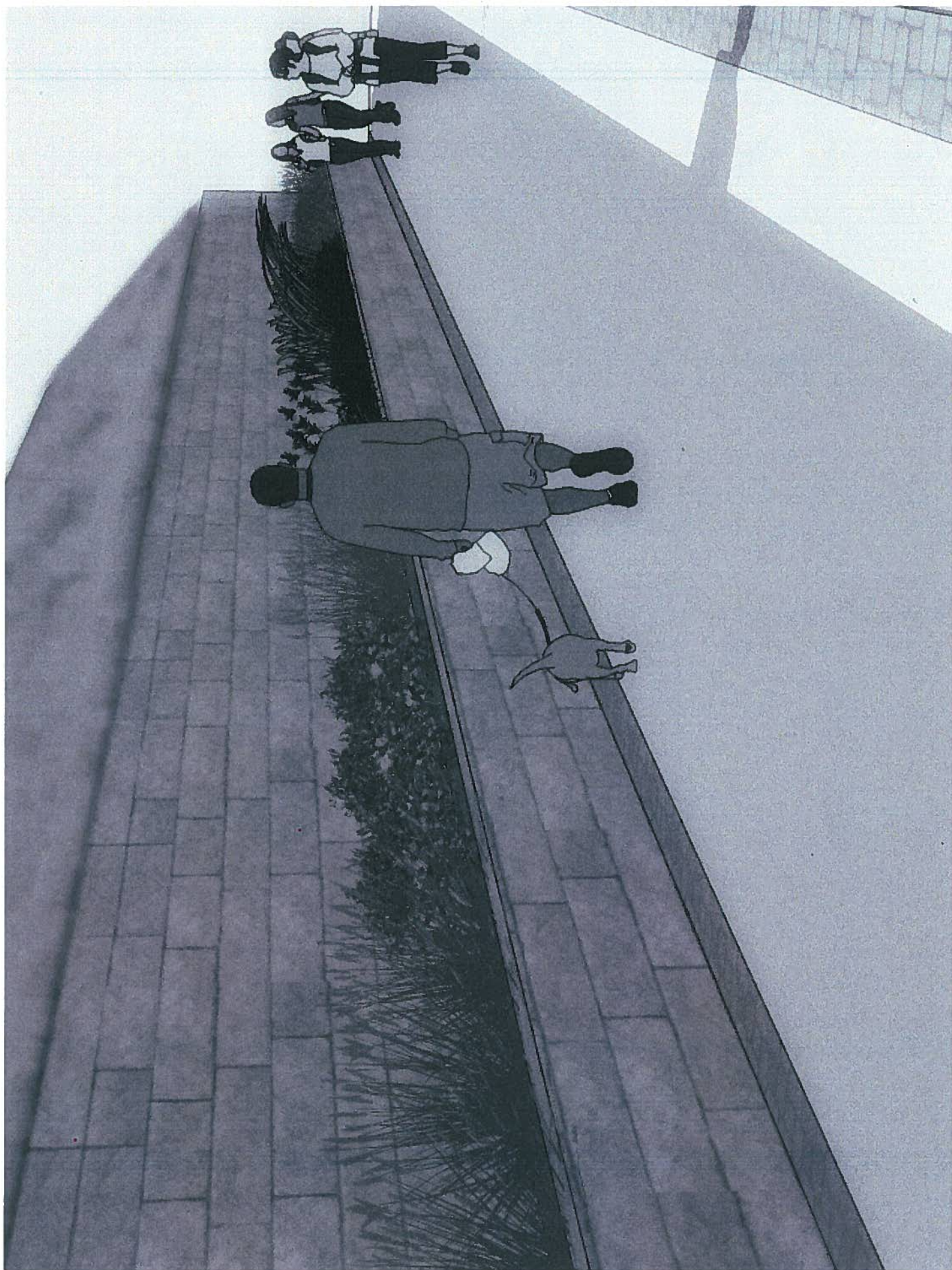
Considerations summary

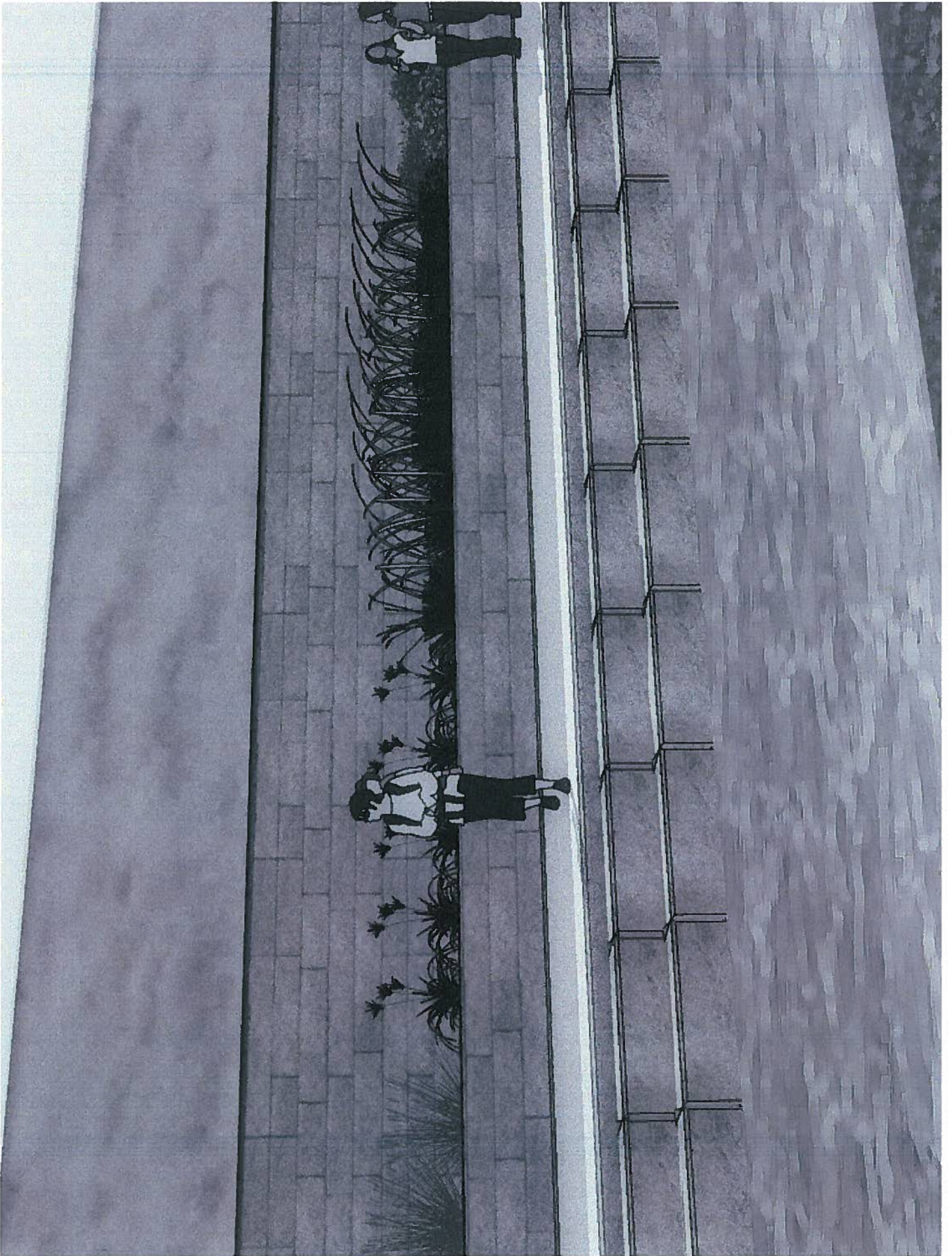
- Smooth tie-in to existing trail ends
- Tree removal
- Streambank stabilization
- Channel flow
- Sedimentation
- ADA requirements
- AASHTO guidelines for hike and bike trails

Preferred route

- Parallel route to the creek is preferred
- It meets ADA and AASHTO
- It is smoother transition and tie-in to existing trail ends
- No routing to street-level trails and street crossings
- No change in creek flow
- Less maintenance than low-water crossings







Status and next steps

- 90% plans under review
- Review of tree conditions performed by City arborist
- Parks & Recreation Board briefing
- Urban Forestry Board
- Completion of Temporary and Permanent Easement

Construction

- Advertisement for Bids anticipated late October/early November, 2011
- Begin construction, spring 2012
- Completion, early 2013