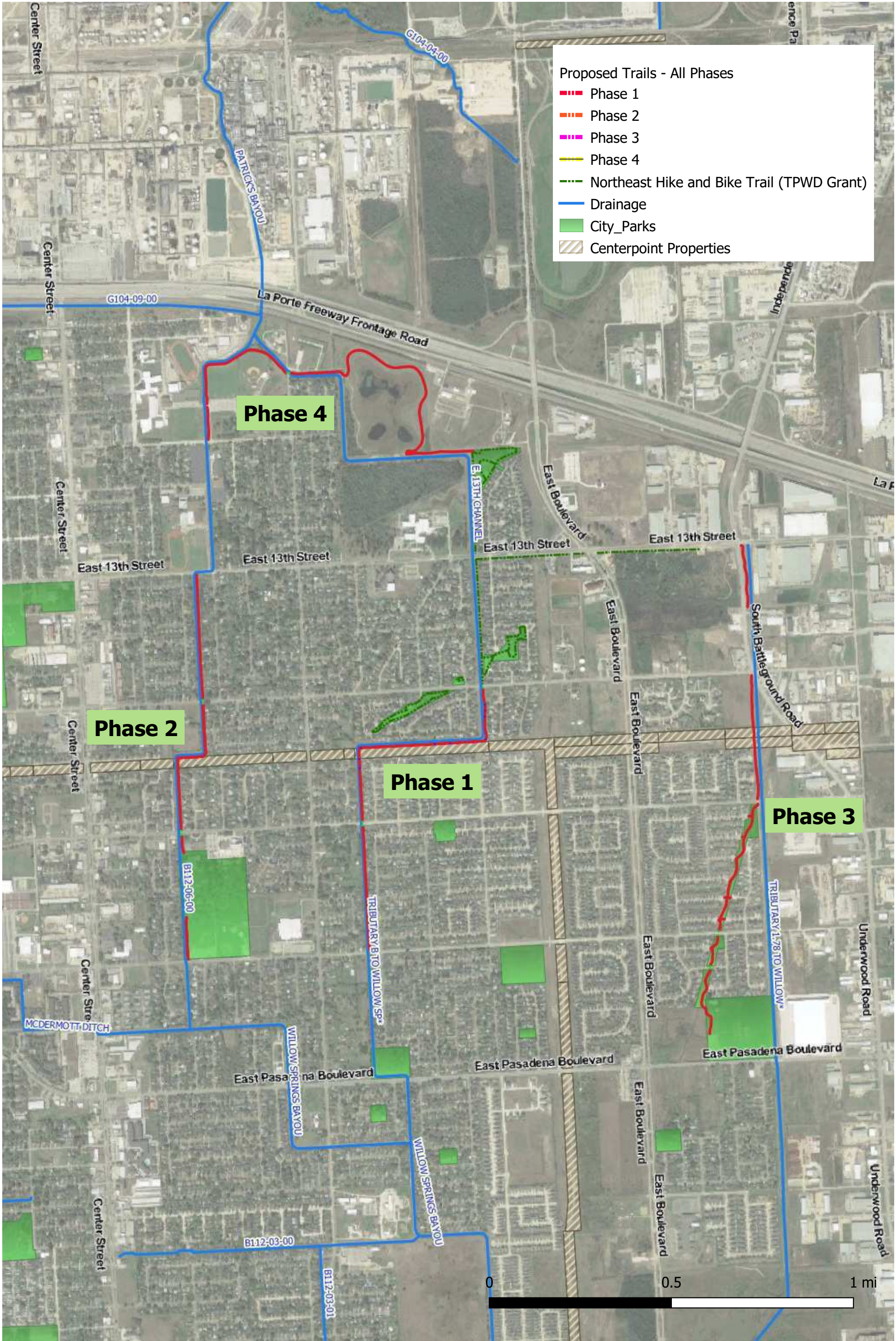


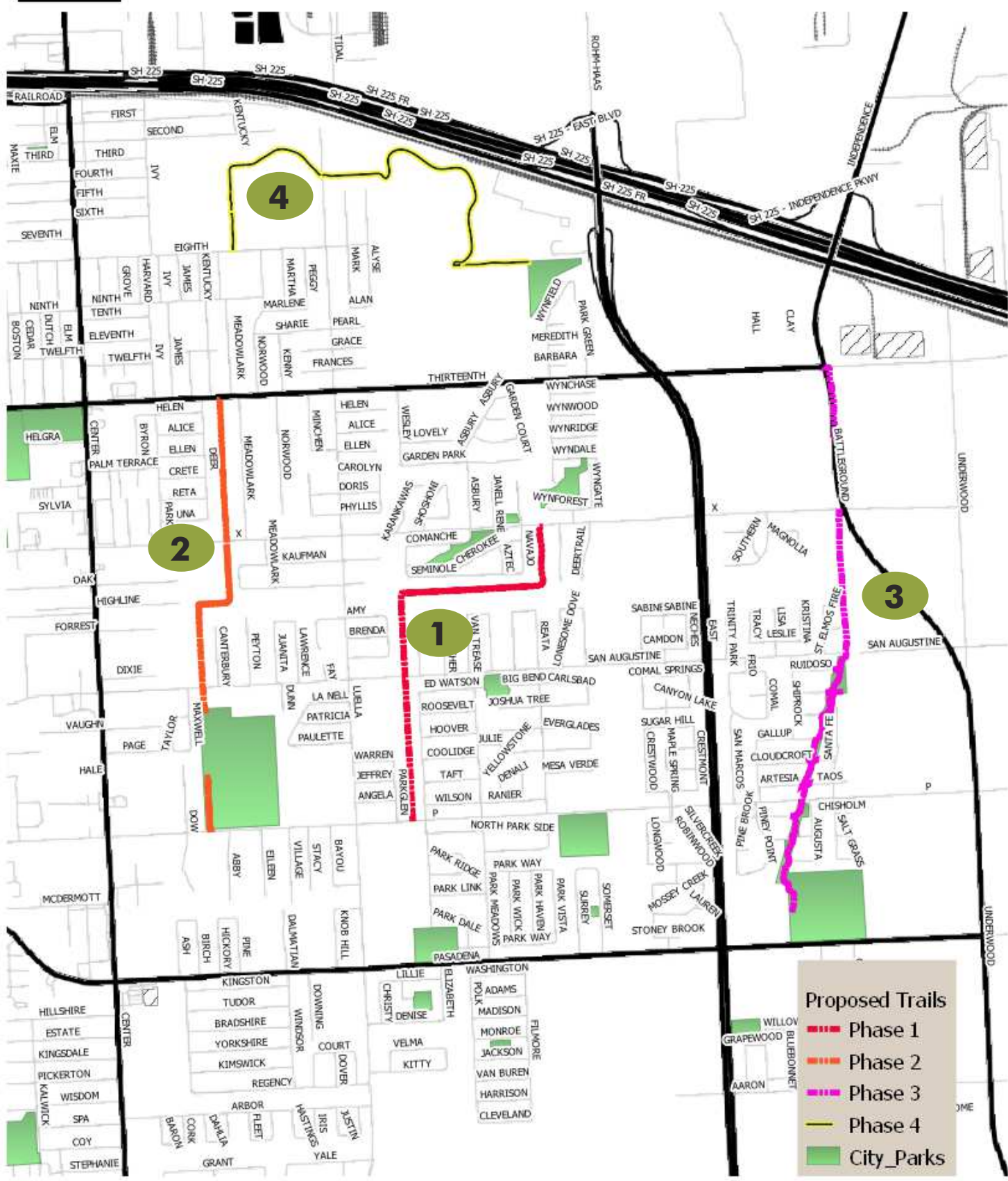
DEER PARK

PHASE 2 HIKE AND BIKE TRAIL
FEASIBILITY STUDY
STEERING COMMITTEE UPDATE
JULY 2019





Proposed Hike and Bike Trails City of Deer Park, Texas

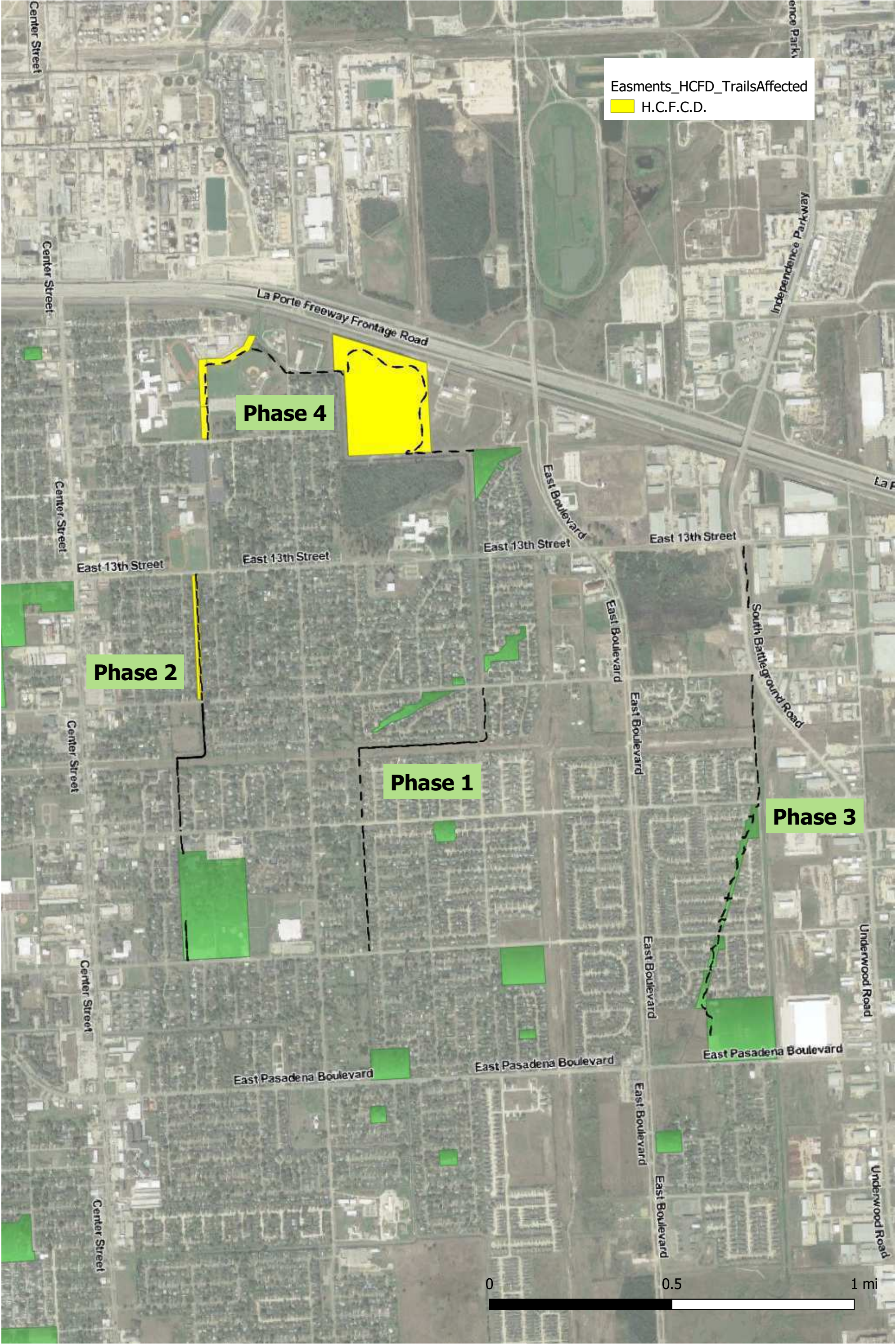


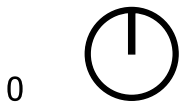
Recommended Projects

- 1 Phase 1 - Tributary B to Willow Springs (1.04 miles)**
Connects East X Street to East P Street and connections to Tiffany Amber Park, Wynnfield Park, and Running Brook Park by way of existing sidewalks.
- 2 Phase 2 - Patrick's Bayou (0.95 miles)**
Connects Dow Park to 13th Street along Patrick's Bayou, terminating at Deer Park Junior High School
- 3 Phase 3 - P Street Right-of-Way (1.21 miles)**
Connects the Pasadena Boulevard to 13th Street, utilizing the existing park land known as the P Street Right-of-Way, a drainage easement adjacent to Battleground Road, and an existing sidewalk segment along Battleground Road. The trail also connects to the Adult Softball Complex on Pasadena Boulevard.
- 4 Phase 4 - Patrick's Bayou to East 13th Channel (1.33 miles)**
Connects the Phase 2 trail from Deer Park High School, utilizing the Patrick's Bayou drainage channel. The trail continues with a connection to the East 13th Channel, around the East 13th Regional Stormwater Detention Pond and wetland, and ultimately to Park Green Park.



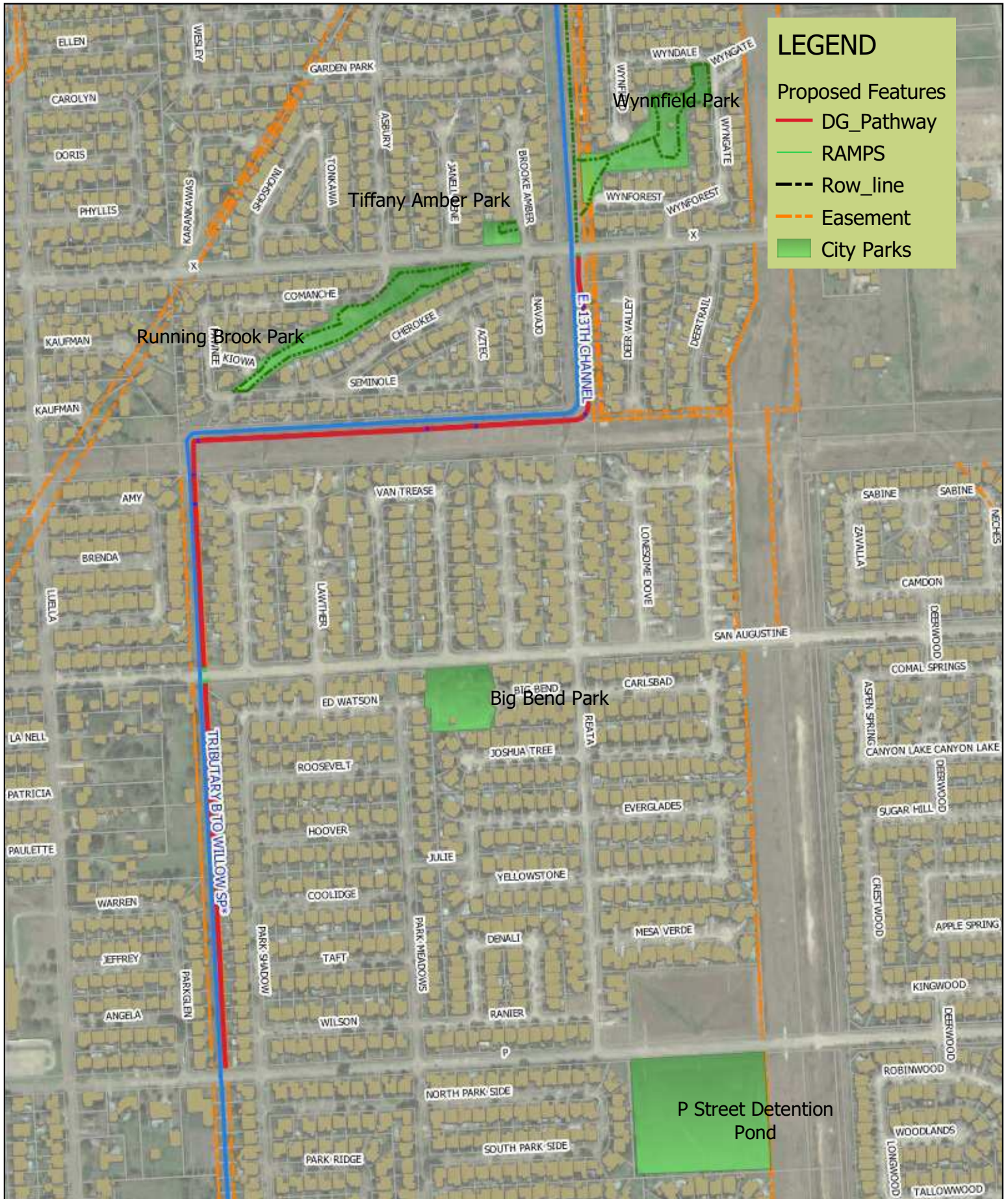
Proposed Trail Alignments Affected by HCFCD
Deer Park Hike and Bike Trail Feasibility
Study





Phase 1 Trail Alignment

Deer Park Hike and Bike Trail Feasibility Study



Phase 1 Trail Opportunity

The proposed trail alignments are planned for phased development as budget allows. A priority route has been identified that takes advantage of an easement along a drainage corridor that is owned and maintained by the City of Deer Park.

The proposed route connects East X Street to East P Street by way of the drainage easements, creating a linear linkage between Dow Park, Tiffany Amber Park, and Running Brook Park, as well as a connection to the future Northeast Hike and Bike Trail being developed in partnership with the Texas Parks and Wildlife Department. The trail will take advantage of existing sidewalks along East X Street, East P Street, and East San Augustine Boulevard to complete the connections to area parks and neighborhoods.

Some obstacles or challenges must be considered for the implementation of the Phase 1 Trail. The southernmost easement, “Tributary B to Willow Springs” (B112-04-00-01-002.0), provides approximately 16 feet of available space between the property line and the high bank of the ditch. This section also has moderate slopes that will need to be addressed in order to facilitate trail installation that meets accessibility requirements. Design considerations are as follows:

- 1. Modification of existing guardrail along East P Street to accommodate trail entrance.
- 2. Crossing of the Centerpoint utility right-of-way may necessitate an access agreement.
- 3. Crosswalks and ramps at East X Street, East P Street, and East San Augustine Boulevard.
- 4. Retaining walls and cut/fill operations to address slopes.



The existing guardrail at the intersection of the drainage easement and East P Street will need to be modified in order to provide access for the proposed trail.



Some grading will be required to reduce the slope along the easement in order to enhance accessibility and safety for users.

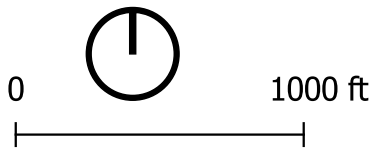


Pedestrian ramps and crosswalks will be needed at the road crossings along the length of the trail.



View of Centerpoint utility right-of-way that crosses the proposed trail alignment.





Phase 2 Trail Alignment

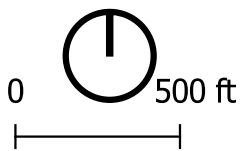
Deer Park Hike and Bike Trail Feasibility Study





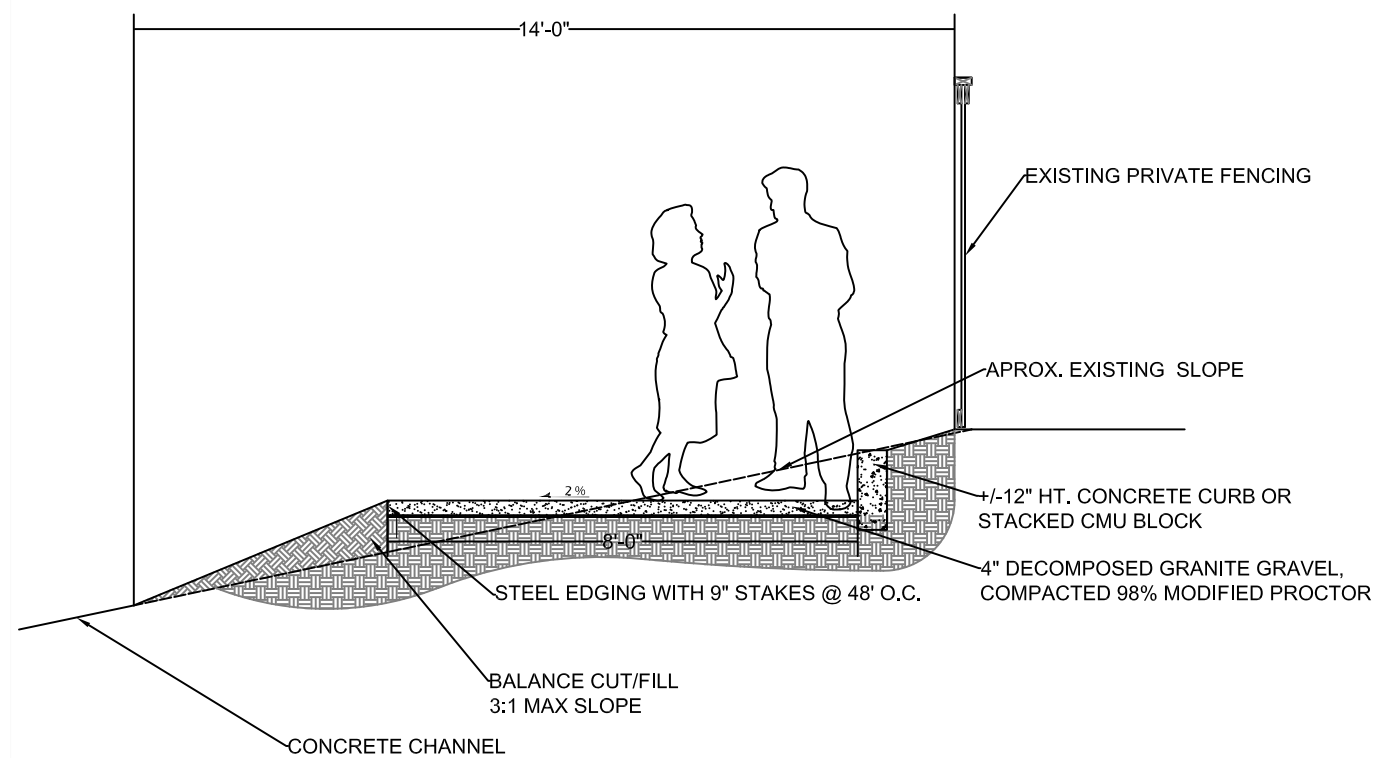
Phase 3 Trail Alignment



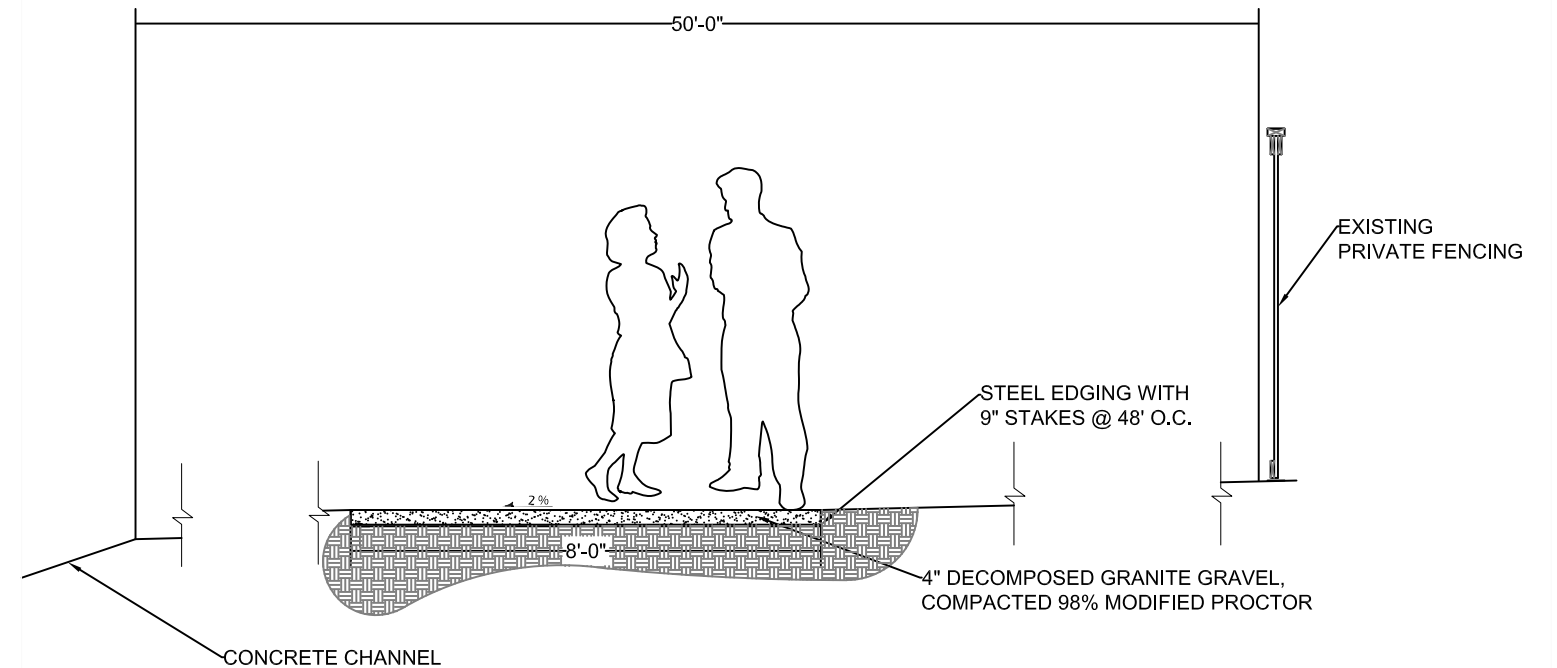


Phase 4 Trail Alignment Deer Park Hike and Bike Trail Feasibility Study

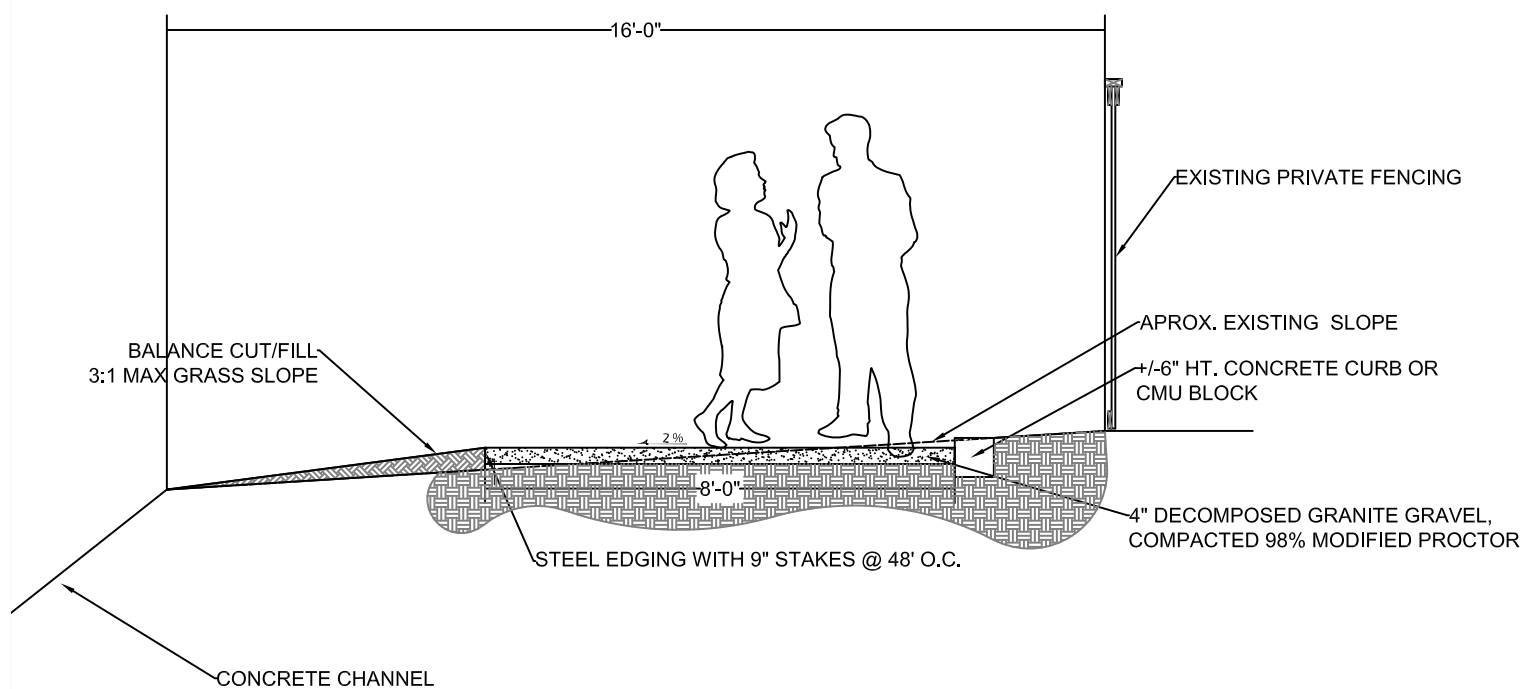




TYPICAL TRAIL CROSS SECTION A
N.T.S.



TYPICAL TRAIL CROSS SECTION C
N.T.S.



TYPICAL TRAIL CROSS SECTION B
N.T.S.

Preliminary Statement of Probable Costs
Deer Park Hike and Bike Trail Feasibility Study

Phase 1						
Item	Unit	Length (ft)	Width (ft)	Area (ft)	Unit Cost(\$)	Total Base Cost
Decomposed Granite Trail	lf	5,477.5	8	43,820	\$ 4.00	\$ 175,280
Drainage Culverts (6x12')	ea	8.0			\$ 250.00	\$ 2,000
Concrete Curbs (6-8" ht)	lf	540.0			\$ 20.00	\$ 10,800
Concrete Curbs (12-18" ht)	lf	1,800.0			\$ 30.00	\$ 54,000
Demolition	allow	5,000.0				\$ 5,000
Wheelchair Ramps	ea	2.0			\$ 1,500	\$ 3,000
Crosswalk Striping	ea	1			500	500
Base Construction Cost						\$ 250,580
General Conditions, Contingency and G.C. Markup						
5% Contingency						\$ 12,529
25% G.C. Markup, Overhead and Profit						\$ 62,645
Total Construction						\$ 325,754
Surveying (1%)						\$ 3,258
GeoTech (1%)						\$ 3,258
Professional Service Fees (9%)						\$ 29,318
Total Opinion of probable Costs						\$ 325,754

Phase 2						
Item	Unit	Quantity	Width (ft)	Area (ft)	Unit Cost(\$)	Total Base Cost
Decomposed Granite Trail	lf	4,965	8	39,720	\$ 4.00	\$ 158,880
Concrete Curbs (12-18" ht)	lf	1,800			\$ 30.00	\$ 54,000
Demolition	allow	5,000				\$ 5,000
Wheelchair Ramps	ea	4			\$ 1,500	\$ 6,000
Crosswalk Striping	ea	2			\$ 500	\$ 1,000
Base Construction Cost						\$224,880
General Conditions, Contingency and G.C. Markup						
5% Contingency						\$11,244
25% G.C. Markup, Overhead and Profit						\$56,220
Total Construction						\$292,344
Surveying (1%)						\$2,923
GeoTech (1%)						\$2,923
Professional Service Fees (9%)						\$26,311
Total Opinion of probable Costs						\$292,344

Phase 3						
Item	Unit	Quantity	Width (ft)	Area (ft)	Unit Cost(\$)	Total Base Cost
Decomposed Granite Trail	lf	7,023	8	56,184	\$ 4.00	\$ 224,736
Demolition	allow	5,000				\$ 5,000
Wheelchair Ramps	ea	7			\$ 1,500	\$ 10,500
Crosswalk Striping	ea	3			\$ 500	\$ 1,500
Base Construction Cost						\$241,736
General Conditions, Contingency and G.C. Markup						
5% Contingency						\$12,087
25% G.C. Markup, Overhead and Profit						\$60,434
Total Construction						\$314,257
Surveying (1%)						\$3,143
GeoTech (1%)						\$3,143
Professional Service Fees (9%)						\$28,283
Total Opinion of probable Costs						\$314,257

Phase 4						
Item	Unit	Quantity	Width (ft)	Area (ft)	Unit Cost(\$)	Total Base Cost
Decomposed Granite Trail	lf	7,077	8	56,616	\$ 4.00	\$ 226,464
Demolition	allow	5,000				\$ 5,000
Wheelchair Ramps	ea	4			\$ 1,500	\$ 6,000
Crosswalk Striping	ea	2			\$ 500	\$ 1,000
Base Construction Cost						\$238,464
General Conditions, Contingency and G.C. Markup						
5% Contingency						\$11,923
25% G.C. Markup, Overhead and Profit						\$59,616
Total Construction						\$310,003
Surveying (1%)						\$3,100
GeoTech (1%)						\$3,100
Professional Service Fees (9%)						\$27,900
Total Opinion of probable Costs						\$310,003

Burditt Consultants has no control over the cost of labor, materials, equipment, or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions. Burditt Consultants cannot and does not guarantee that proposals, bids or actual construction will not vary from opinion of probable costs.