

# Trails Condition Assessment

September 21, 2017

Kimley»Horn



# Introductions

- Lindsay Smart, AICP, CPD/CPTED  
– Durham Parks & Recreation (DPR)
- Chad Beck, P.E. – Kimley-Horn
- Matt Pool, P.E. (TX) – Kimley-Horn

# Background

- The project objective is to improve the safety and functionality of the City's paved trail network and create a secure, enjoyable, and comfortable environment for all users.
- Recommendations in the report will be used by DPR to inform and prioritize future Half Penny Maintenance projects and any Capital Improvement Project (CIP) requests.

# Purpose of Project

- Inventory trail facilities
  - Approximately 30 miles evaluated
  - Data collected approximately every 100 feet
- Identify deficiencies:
  - Trail standards
  - Maintenance
  - Safety
- Recommend & prioritize improvements
- Update the GIS database

# Assessment Report

- Two components of the Report
  - General Condition Assessment
  - ADA Compliance Assessment

# General Condition Assessment

- Inventoried locations and conditions of existing trail amenities:
  - Pavement Conditions
  - Bridges
  - Lighting
  - Benches
  - Waste Receptacles
  - Pavement Markings and Signing
  - Fencing

# General Condition Assessment

- Pavement Conditions



Minor Pavement Cracking



Pavement Cracking Noted In ADA Assessment

# General Condition Assessment

- Bridges



Heaved Board on Bridge



# General Condition Assessment



Bench



Sign



Lighting

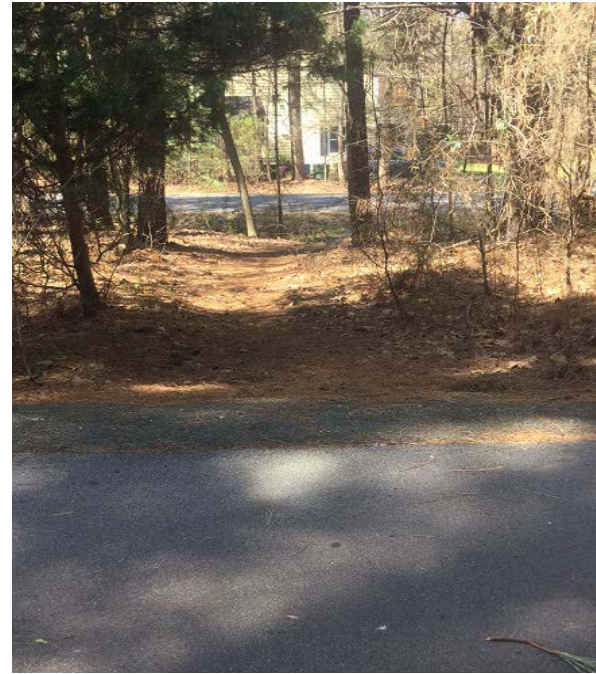
# General Condition Assessment

- Additional items noted:
  - Access points
  - Overgrown vegetation
  - Sight line issues
  - Debris on trail

# General Condition Assessment



Neighborhood Access Point

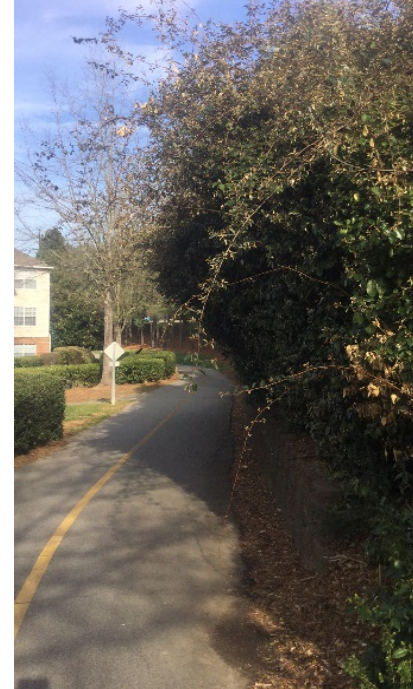


Unpaved Access Point

Both are examples of informal access points.



# General Condition Assessment



Overgrown Vegetation/Sight Line Issues

# General Condition Assessment



Water



Sediment

Debris on Trail

# General Condition Assessment

- Amenity data compiled into single GIS database
- Report contains mapping with locations of amenities
- GIS database can be updated as improvements are made

# General Condition Assessment

Corridor ID	Corridor	Corridor Length (Miles)	Count of Inventory Items												
			Bridge	Lighting	Cameras	Benches	Waste Receptacles	Mile Markers	Sign	Fencing (ft)	Parking Area	Public Transit	Retail Location	Paved Access Points	
9	ATT - Phase A+B	3.38	4	0	2	5	5	12	33	8,737	0	5	0	1	
10	ATT - Phase C	3.16	0	0	0	4	0	12	35	2,039	3	1	1	2	
11	ATT - Phase D	0.66	0	0	0	0	1	3	10	103	1	0	1	2	
12	ATT - Phase E	4.54	2	41	0	5	7	16	33	9,834	3	1	1	5	
13	Rock Quarry Spur	0.46	1	6	0	0	1	0	2	0	2	0	0	0	
14	West Ellerbe Creek Trail	0.53	2	0	0	4	2	0	17	0	3	0	0	1	
15	Duke Park Connector Trail	0.39	0	3	0	0	0	0	2	481	2	0	0	1	
16	Bryant Bridge	0.29	1	2	0	0	3	0	2	2,010	0	0	0	1	
17	Pearsonstown Trail	0.97	0	2	0	0	3	0	23	526	1	0	0	0	
18	Rocky Creek Greenway	0.75	0	2	0	0	0	0	4	110	0	0	0	3	
19	Riddle Road Spur Trail	1.49	0	0	0	0	0	5	9	658	1	1	0	1	
20	Sandy Creek Trail	0.54	0	0	0	2	0	0	4	0	0	0	0	0	
21	New Hope Creek Trail	0.51	0	0	0	1	4	0	2	918	1	0	0	1	
22	Third Fork Creek Greenway	3.96	20	0	0	3	7	0	63	3,634	0	1	0	7	
23	Renaissance Parkway Sidepath	1.20	0	0	0	0	0	0	1	0	0	2	0	0	
<b>Total Trail Summary</b>		29.67	36	71	2	31	47	52	308	31,595	23	12	3	28	

# General Condition Assessment

Corridor ID	Corridor	Corridor Length (Miles)	Count of Inventory Issue Items					
			Unpaved Access Points	Vegetation Issues	Debris	Illegal Dumping	Minor Cracking	Other
7	South Ellerbe Creek Trail	1.06	4	10	0	0	44	3
8	Downtown Trail	1.31	0	0	0	0	19	1
9	ATT - Phase A+B	3.38	13	4	2	1	82	5
10	ATT - Phase C	3.16	19	5	0	0	59	0
11	ATT - Phase D	0.66	0	2	0	0	0	2
12	ATT - Phase E	4.54	12	1	22	1	109	2
13	Rock Quarry Spur	0.46	2	3	0	0	13	0
14	West Ellerbe Creek Trail	0.53	8	0	3	0	19	0
15	Duke Park Connector Trail	0.39	1	2	4	0	16	0
16	Bryant Bridge	0.29	1	3	0	0	6	1
17	Pearsontown Trail	0.97	0	3	0	0	29	0
18	Rocky Creek Greenway	0.75	1	1	1	0	28	1
19	Riddle Road Spur Trail	1.49	1	1	0	0	59	0
20	Sandy Creek Trail	0.54	2	0	12	0	13	0
21	New Hope Creek Trail	0.51	1	1	3	0	15	0
22	Third Fork Creek Greenway	3.96	4	0	26	0	73	0
23	Renaissance Parkway Sidepath	1.20	1	6	2	0	113	0
<b>Total Trail Summary</b>		29.67	79	57	89	2	835	15



# General Condition Assessment

Corridor	Bench	Light	Sign	Waste Receptacle	Camera
Poor	1	1	12	0	0
Fair	3	1	18	5	0
Good	27	69	278	42	2
Total	31	71	308	47	2

Summary of Condition Assessment for Inventoried Amenities

# General Condition Assessment

- Recommendations made for the following items:
  - Lighting
  - Benches
  - Waste Receptacles
  - Signing and Markings
  - Access Points
  - Vegetation Management

# ADA Compliance Assessment

- U.S. Access Board Standards applicable to trail assessments:
  - Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG)
    - Proposed supplement for shared-use paths
  - Outdoor Developed Areas Accessibility Standards

# ADA Compliance Assessment

- Data obtained at approximately 100' intervals along trail
  - Trail condition data collection, including:
    - Material type (i.e., asphalt vs. concrete)
    - Slopes
    - Width
    - Connections through driveways, cross streets, and route connectivity
    - Photo documentation of issues:
      - Cracking, sinking, heaving, ponding, permanent and temporary obstructions, and missing segments

# ADA Compliance Assessment

- Intersections and connection points
  - Curb ramp data collection, including:
    - Existing conditions photo
    - Orientation and ramp type
    - Edge type (i.e., curbed vs. flared)
    - Texture/color contrast
    - Landing presence, slopes, and dimensions
    - Ramp slopes and dimensions
    - Construction limitations
    - Issues such as:
      - Cracking, sinking, heaving, ponding, permanent and temporary obstructions, and missing segments

# ADA Compliance Assessment



Cracking in Pavement

# ADA Compliance Assessment



Sinking in Pavement

# ADA Compliance Assessment



Utility Obstruction in Pavement



# ADA Compliance Assessment



Acceptable Texture and Color Contrast Curb Ramp

# ADA Compliance Assessment



Ramp width is less than trail width

# ADA Compliance Assessment



Missing flush transition

# ADA Compliance Assessment

- Compiling Results
  - Trail network divided into trail corridors
  - Instances of non-compliance noted in reports either by corridor or by intersection
    - Each trail corridor report contains estimate to bring entire corridor into compliance
    - Detailed report for each intersection with estimate to bring into compliance

# ADA Compliance Assessment

<b>Client:</b> --	City of Durham	<b>Date:</b> 05/30/17
<b>Program:</b>	ADA Trail Condition Assessment	<b>Prepared By:</b> CMP
<b>KHA No.:</b>	0611494098	<b>Checked By:</b> EPE

<b>Corridor:</b>	Eno River Bridge	<b>GPS ID:</b> 1
<b>City:</b>	Durham	

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost <i>Includes Engineering (15%) and Contingency (20%)</i>
6895000000-E	RAIL (HANDRAIL)	0	LF	\$ 100.00	\$ -
2591000000-E	4" CONCRETE SIDEWALK	0	SY	\$ 45.00	\$ -
2612000000-E	6" CONCRETE DRIVEWAY	0	SY	\$ 65.00	\$ -
0163000000-E	REMOVAL OF EXISTING CONCRETE PAVEMENT	0	SY	\$ 10.00	\$ -
---	REMOVING CONC (SIDEWALKS)	0	SY	\$ 20.00	\$ -
2600000000-N	RETROFIT EXISTING CURB RAMP	0	EA	\$ 50.00	\$ -
---	CONCRETE RAILROAD PANEL	0	LS	\$ 36,000.00	\$ -
---	DRIVEWAYS (ASPHALT CONC PAV)	0	SY	\$ 65.00	\$ -
---	WELDED STEEL GRATE	0	EA	\$ 1,300.00	\$ -
5672000000-N	RELOCATE FIRE HYDRANT	0	LS	\$ 5,500.00	\$ -
---	ADJUST UTILITY ELEVATION	0	LS	\$ 1,000.00	\$ -
---	REMOVE OBSTRUCTION	3	LS	\$ 1,000.00	\$ 4,050.00
---	REMOVE TEMPORARY OBSTRUCTION	0	LS	\$ 500.00	\$ -
---	RAILROAD COMPANY FLAGGER	0	Day(s)	\$ 1,000.00	\$ -
---	REMOVE CONCRETE RAILROAD PANEL	0	LS	\$ 1.00	\$ -
---	REMOVING STAB BASE AND ASPH PAV (6")	272	SY	\$ 5.00	\$ 1,837.04
---	INSTALLATION OF ASPHALT PAVEMENT (6")	631	SY	\$ 5.00	\$ 4,259.36

<b>Basis for Cost Projection</b>	<input checked="" type="checkbox"/> No Design Completed	<b>Subtotal:</b> \$	10,146.41
	<input type="checkbox"/> Preliminary Design	<b>Estimated Project Cost:</b> \$	11,000.00
	<input type="checkbox"/> Final Design	Engineering: (% +/-)	15% \$ 1,127.38
		Contingency: (% +/-)	20% \$ 1,503.17

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

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# ADA Compliance Assessment

Client:	City of Durham	Date: 5/30/17
Program:	ADA Trail Condition Assessment	Prepared By: CMP
KHA No.:	0611494098	Checked By: EPE

Corridor :	Stadium Drive Trail	GPS ID: 1
Project Name:	Intersection of Stadium Drive Trail and N Duke St	
City:	Durham	

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
0022000000-E	UNCLASSIFIED EXCAVATION	0	CY	\$ 15.00	\$ -
2549000000-E	2'-6" CONCRETE CURB AND GUTTER	0	LF	\$ 18.00	\$ -
2591000000-E	4" CONCRETE SIDEWALK	0	SY	\$ 45.00	\$ -
2605000000-N	CONCRETE CURB RAMP (STANDARD WIDTH)	2	EA	\$ 1,600.00	\$ 3,200.00
2600000000-N	RETROFIT EXISTING CURB RAMP	0	EA	\$ 50.00	\$ -
---	REMOVING CONC (SIDEWALKS)	15	SY	\$ 20.00	\$ 300.00
4870000000-E	REMOVAL OF PAVEMENT MARKING LINES (24")	0	LF	\$ 3.00	\$ -
4710000000-E	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	90	LF	\$ 16.00	\$ 1,440.00
---	REPAVE ROADWAY	1	LS	\$ 5,000.00	\$ 5,000.00
---	FIX PONDING	0	LS	\$ 2,000.00	\$ -
---	FIX CURB RAMP TRANSITION	2	LS	\$ 1,000.00	\$ 2,000.00
---	MEDIAN NOSE MODIFICATION	0	LS	\$ 5,000.00	\$ -
---	REMOVE TEMPORARY OBSTRUCTION	1	LS	\$ 500.00	\$ 500.00
---	FIX CURB RAMP COUNTER SLOPE	0	LS	\$ 2,000.00	\$ -

Basis for Cost Projection

- No Design Completed
- Preliminary Design
- Final Design

Subtotal:	\$	12,440.00
Engineering: (% +/-)	15%	\$ 1,954.29
Contingency: (% +/-)	20%	\$ 2,605.71
<b>Estimated Project Cost:</b>	<b>\$</b>	<b>17,000.00</b>

# ADA Compliance Assessment

- Prioritizing Improvements
  - Developed system to prioritize improvements
  - Separate prioritization lists for intersections and corridors
  - Prioritization based on ADA guidelines and input from City staff
  - Priority listings summarized in final report

# ADA Compliance Assessment

Line Type	Length (miles) by Priority				
	1 (high)	2 (medium)	3 (low)	Compliant	Total
Trail	2.49	5.15	0.21	17.09	24.94
Trail Issues (including missing trail)	2.88	0.16	0.55	-	3.59
Driveways	0.05	0.10	0.07	0.07	0.29
Cross Streets	0.19	0.13	0.30	0.23	0.85
<b>Total</b>	<b>5.61</b>	<b>5.54</b>	<b>1.13</b>	<b>17.39</b>	<b>29.67</b>

Prioritization Summary for all Trail Corridors



# ADA Compliance Assessment

Priority	Number of Intersections
0 (Compliant)	6
1 (high)	-
2 (high)	38
3 (high)	1
4 (high)	-
5 (medium)	38
6 (medium)	-
7 (medium)	1
8 (medium)	-
9 (low)	1
10 (low)	-
11 (low)	-
12 (low)	-
13 (low)	10
<b>Total</b>	<b>95</b>

Prioritization Summary for Intersections

# ADA Compliance Assessment

Facility Type	High	Medium	Low	Total
Intersections	\$768,000	\$610,000	\$104,000	\$1,482,000
Trail Corridors	\$800,141	\$797,942	\$83,918	\$1,682,000
City Totals	\$1,568,141	\$1,407,942	\$187,918	\$3,164,000

Summary of Facility Opinion of Probable Construction Costs

# Questions?

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Kimley»Horn

