

General Services



City of Charlotte Sidewalk Feasibility Studies 2024 Grier Road – Equitable Place to Newell-Hickory Grove Road

December 18, 2024



Grier Road

Equitable Place to Newell-Hickory Grove Road

Project Summary

Project Type: Sidewalk Program

 Project Goals: Fill in gap in existing sidewalk network along south side of Grier Road from west of Equitable Place to Newell-Hickory Grove Road.

• **Project Description:** Construct 1,871 feet of 6-foot sidewalk along the south side of Grier Road along with necessary road improvements.

Background

This section of Grier Road is designated as an Avenue on the Charlotte Street Map developed by the Charlotte Department of Transportation (CDOT). Based on the Charlotte Street Map, the recommended cross section for this segment of Grier Road includes buffered or separated bike lanes with 6' sidewalk and 8' planting strips on both sides of the road. However, the scope of this project is to only construct a sidewalk on one side of the road; therefore, the design goal for this segment of Grier Road was identified as a 6' sidewalk with 8-foot planting strip to be added along the south side of Grier Road. This portion of Grier Road is a city-maintained road.

Feasibility Conclusions & Recommendations

Based on our projects team's review of existing constraints, construction of the Six -foot (6') sidewalk and 8' planting strip on the south side of Grier Road appears to be feasible for most of the project length. The study considered the following impacts that contributed to the feasibility:

- Avoid major impact to overhead utilities.
- Minimize impacts to adjacent properties.
- Minimal impact to dense vegetation and viable large maturing trees.
- Underground private utilities, if in conflict, could affect the construction schedule with no or minor impact to the construction cost.



 City arborist recommendation to remove existing trees due to signs of decay, approximately from stations 12+00 to 15+00.

With those considerations in mind, there were five locations where it is recommended to deviate from the standard typical by either decreasing to a 4-foot planting strip, going to the back of curb and increasing the sidewalk to 7', or by varying the planting strip width to avoid the obstruction. These deviations are described below and shown on the attached concept plans.

The first deviation occurs at the beginning of the project to avoid a utility pole. It involves increasing the planting strip width to 10' while transitioning from an existing 4' sidewalk to a proposed 6-foot sidewalk on an alignment that takes the sidewalk behind the pole. Once the sidewalk passes the utility pole, the planting strip transitions to an 8' width.

The next deviation occurs around station 16+00 and consists of transitioning to a 7-foot sidewalk at the back of curb to avoid the removal of a healthy tree (18" to 24" dia). Between stations 16+00 and 19+50, where a building is within 30 feet of the existing edge of pavement, a 4-foot planting strip is recommended.

The next two deviations are both to avoid utility poles, approximately at stations 22+50 and 26+50. The recommendation for both locations is a 7-foot sidewalk at the back of the curb. It is also recommended to increase the cut slope to 2:1 for the pole at approximately 22+50 to keep the pole out of the sidewalk grading limits. The pole at approximately 26+50 will require a vertical adjustment due to grading impacts.

At all other locations the recommendation is the standard typical section.



Project Cost Estimate

	ESTIMATE		
Planning Phase	\$292,000		
Engineering Planning /Consultant Fee	\$125,000		
Project Administration (8%)	\$100,000		
Survey Cost (Survey, mapping)	\$67,000		
Design Phase	\$377,000		
Engineering Design /Consultant Fee	\$200,000		
Project Administration (12%)	\$150,000		
Miscellaneous Fees (printing, postage, public meetings, etc.)	\$2,000		
Permitting Fees (EC, Encroachment, 401/404, etc.)	\$15,000		
Survey Cost (plats, soft digs)	\$10,000		
Real Estate Phase	\$200,000		
RE Costs (R/W, easements, agent fees, appraisals, legal, staff costs)	\$200,000		
Construction Phase	\$1,923,000		
Construction Cost	\$1,470,000		
Construction Inspection and Project Admin (25%)	\$367,500		
Geotechnical (Borings, testing, exploration, design, etc.)	\$50,000		
Survey Construction Staking	\$75,000		
NCDOT Admin	\$0		
Public Art Contribution	\$0		
PROJECT SUB TOTAL for contingency (without Public Art or NCDOT Admin)	\$2,792,000		
Project Contingency(35%)	\$977,200		
PROJECT TOTAL	\$3,769,200		

TOTAL PROJECT ESTIMATE \$3,770,000

Notes and Assumptions:

- 1) All quantities and construction dimensions are based on GIS aerial photography data.
- 2) Permitting fees are based on historic data from 2013 to present (City of Charlotte).
- 3) Surveying and utility fees are based on project location.
- 4) Installing a 6-foot sidewalk with 8-foot planting strip and replacing approximately 60% of existing 2'-6" curb and gutter.
- 5) Construction Cost Estimate is provided at the end of this report.
- 6) Real estate cost based on 2024 land tax value as an average of impacted properties



Existing Conditions

The project team made the following observations during the November 14, 2024, field review:

- Commercial properties on either side, a few single-family homes on both sides, and an apartment complex on either side at Newell-Hickory Grove Road intersection with Grier Road.
- There is an existing closed storm drainage system containing catch basins meeting old standards. Any upgrades or damage may require replacement.
- The existing gutter about 4 inches below existing asphalt for approximately half of project length.
- Ponding can be seen occurring at various locations in gutter along length of project.
- Known existing underground utilities include Water, Gas and AT&T Fiber.
- Signs of rock removal.
- The street is sloping down from Equitable Place towards Newell-Hickory Grove Road with a highpoint before Newell-Hickory Grove Road.
- Street length is approximately 1,871 FT.
- CDOT maintained road, speed limit 35 MPH.
- Grier Rd AADT: 11,500 vpd in 2022 based on NCDOT's AADT Web Map

Feasibility Issues

Wetlands - there were no wetlands located within the project limits, so the constraint was assigned as low.

Environmental - there did not appear to be any environmental concerns, so the constraint was assigned as low.

PCSO – The 6-foot width of sidewalk is exempt. However, replacement of the curb and gutter and associated pavement replacement could trigger PSCO mitigation requirements. Therefore, the assigned exemption status for this project is "To Be Determined". Mitigation costs are included in the estimate.



Drainage - due to the existing gutter showing various ponding and vegetation growing throughout the length of the project it shows there's an existing drainage problem, along with the existing pavement overlay being as much as 4 inches over the lip of the gutter the constraint was assigned as moderate. The cost of replacing the existing curb and gutter and drainage structures was added as a potential solution. Other solutions would be to mill and overlay of the existing roadway is another while keeping the existing drainage structures in place. Also only replacing the existing curb and gutter section showing signs of ponding.

Traffic Volumes - based on the AADT, the traffic volumes constraint was assigned to be low.

Political Environment - was assigned as low because there did not seem to be any major concerns. There is also no NCDOT coordination required.

Building Impacts - was assigned as low because there did not seem to be any major concerns.

Right-of-Way - was assigned as moderate because of two parcels. The first is a commercial property located at 7500 Grier Rd. The corner of the existing building is located less than 30 feet from the back of the curb, and there is also a drop inlet located in between that space that cannot be removed. However, decreasing the planting strip to 4-foot should leave enough space for a buffer between the grading limits and the building and stay out of the drop inlet.

The second parcel is a residential property located at 7530 Grier Rd. The house is located approximately 50 feet from the edge of travel with the driveway located in the front of the house. Once the sidewalk is put in there needs to be enough space for the residents to park their vehicles. Reducing the planting strip to a 4' planting strip will help minimize the impacts to the driveway.

Structures - there are no structures located on this project, so the constraint was assigned as low.

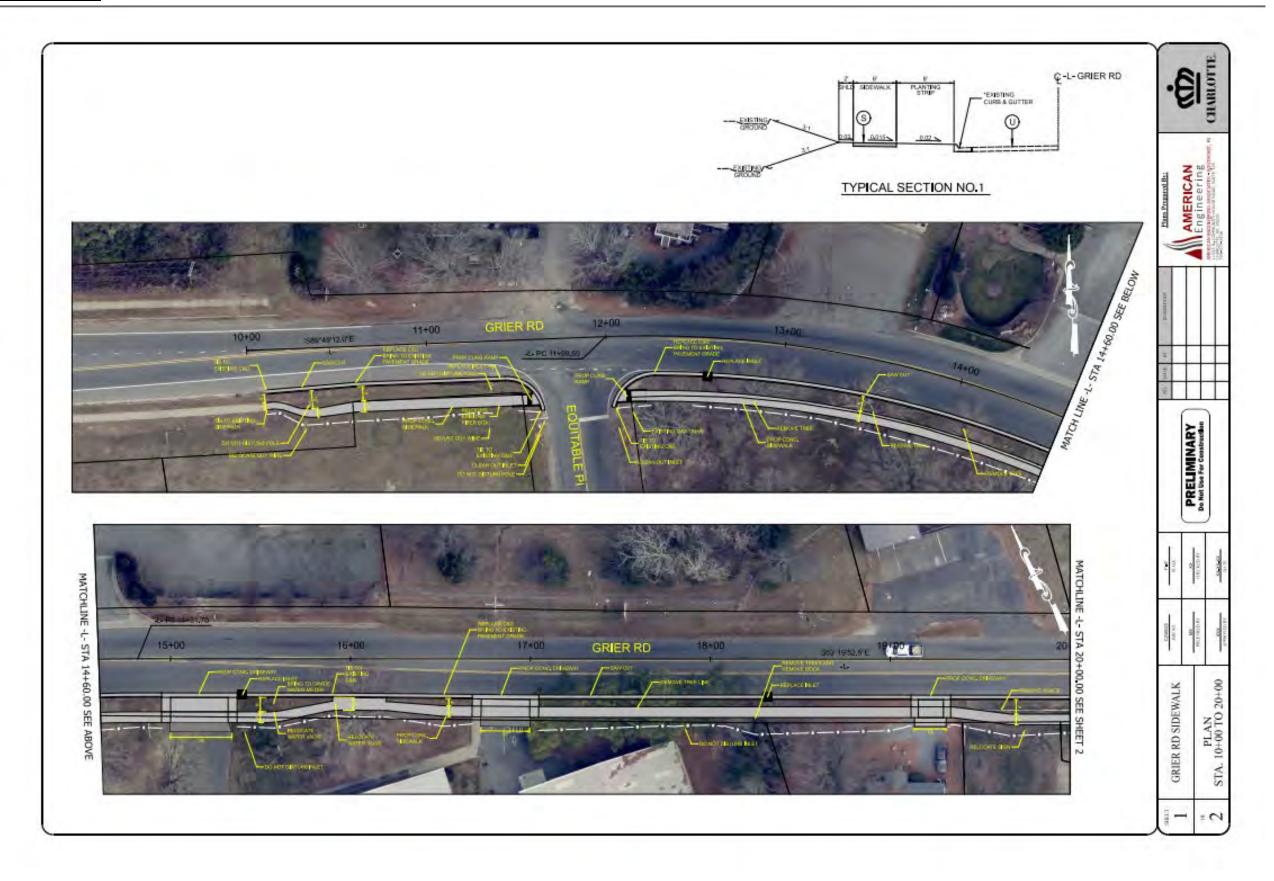


Utilities - there are 3 poles that would have to be relocated with the proposed typical. Of the 3 poles, 2 of the poles could be avoided by either going to the back of the curb or around on the other side and is reflected on the plan. The guy wires may be avoided. The pole at STA 10+40 would require coordination for the guy wire relocation, otherwise the SUP can be placed at the back of curb. However, the last pole at STA 26+50 would still be impacted because moving the sidewalk to the back of the curb and tying in with a 2:1 cut slope, the pole would still falls within the grading limits and would be undercut. To avoid the cost of relocating the pole, a small wall could be constructed. There were also plenty of valves and meters observed that would need to be raised to grade or relocated. Therefore, the constraint was assigned as moderate.

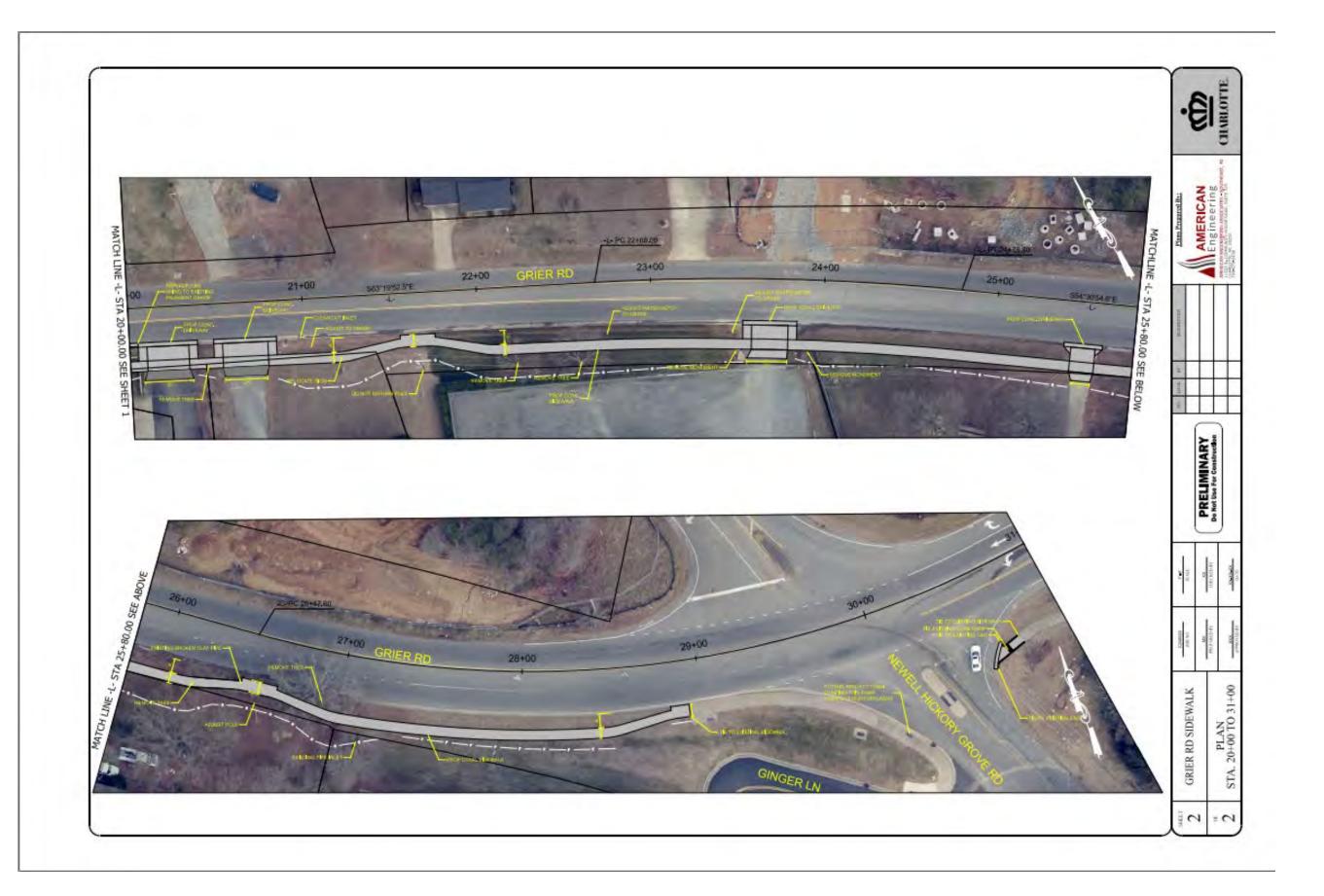
Constraints	High	Moderate	Low
Wetlands			X
Environmental			X
Drainage		Х	
Traffic Volumes			X
Political Environment			Х
Building Impacts			X
Right-of-Way		Х	
Structures			Х
Utilities		X	

- PSCO mitigation requirements to be determined (Mitigation cost included in the estimate)
- Underground utilities exist.











Site Photos



Existing vegetation along Grier Road STA 11+75 looking east



Existing vegetation along Grier Road STA 17+00 looking east





Existing vegetation along Grier Road STA 26+00 looking east



Existing vegetation and boulder along Grier Road STA 18+25 looking east





Existing grade difference along Grier Road STA 23+50 looking east



Existing grade difference and sign along Grier Road STA 21+00 looking east





Existing fence and sign along Grier Road STA 19+00 looking west



Existing monument along Grier Road STA 23+75





Existing catch basin along Grier Road with ponding occurring STA 12+50



Existing catch basin along Grier Road STA 11+50





Existing drop inlet STA 17+50



Existing drop inlet and existing sidewalk near STA 29+75 intersection with Newell Hickory Grove Rd





Existing inlet STA 27+25



Existing clay pipe





Existing utilities STA 26+50



Existing utilities STA 21+50





Existing underground utilities STA 12+50



Existing sidewalk near Equitable PI STA 10+00





Existing curb ramp at intersection with Newell Hickory Grove Road STA 30+50



Existing bus stop near intersection Newell Hickory Grove Road STA 29+00



Construction Cost Estimate

Pre-Planning Construction Cost Estimate

PROJECT: Grier Road Sidewalk Feasibility Study

NUMBER: N/A

EST. BY: M. Sharpe DATE: 12/19/2024 CHECK BY: B. Pickering DATE: 12/19/2024

Item#	Section	CIC	Item Description	Quantity	Unit	Unit Price	Amount
1	800	10800.000	Mobilization	1	LS	\$40,300.00	\$40,300.00
2	SP-01	80000.000	Comprehensive Grading	1	LS	\$231,100.00	\$231,100.00
3	SP-02	80136.000	Rock Removal	50	CY	\$215.00	\$10,750.00
4	607	10607.101	Milling	630	SY	\$30.00	\$18,900.00
5	610	10610.051	Asphalt Concrete Base Course, Type B 25.0C	255	TN	\$220.00	\$56,179.20
6	610	10610.451	Asphalt Concrete Intermediate Course, Type I 19.0C	28	TN	\$280.00	\$7,944.53
7	610	10610.451	Asphalt Concrete Surface Course, Type S 9.5C	73	TN	\$220.00	\$16,098.13
8	610	10620.000	Asphalt Binder for Plant Mix	21	TN	\$800.00	\$17,131.52
9	620	10846.052	2' 6" Concrete Curb and Gutter	1120	LF	\$45.00	\$50,400.00
10	846	10848.000	4 " Concrete Sidewalk	1060	SY	\$80.00	\$84,800.00
11	848	10848.051	6" Concrete Driveways	370	SY	\$110.00	\$40,700.00
12	848	80218.000	6" Concrete Wheelchair Ramps	30	SY	\$280.00	\$8,400.00
13	SP-03		Storm Drainage (35%)	1	LS	\$106,000.00	\$106,000.00
14	SP-04		PCSO	1	LS	\$50,000.00	\$50,000.00
15	SP-05		Erosion Control	1	LS	\$33,300.00	\$33,300.00
16	SP-06	80001.000	Traffic Control (10.0%)	1	LS	\$74,000.00	\$74,000.00
				Subtotal			\$772,003.39
			35.0%	Construction Contingency			\$270,201.19
			7% inflation 5 years, 5% inflation				.
			after 5 years	Inflation	7	yr period	\$425,627.25
				Engineer's Estimate			\$1,467,831.82

SAY

Notes and Assumptions:

Drainage cost is based on replacing 3 CB approximately 600 If on 18-inch pipe class IV pipe

Miscellaneous milling added along proposed cog replacement

PCSO is based on sand filter construction



\$1,470,000.00

Appendix:

- 1. Field Meeting Minutes
- 2. Full Size Plan Sheets
- 3. Critical Cross sections

