Garfield Drive

From Anastasia Drive to Elizabeth Place

City of South Daytona

July 23, 2009

Final Sidewalk Feasibility Study

Prepared for:

Volusia County MPO

Transportation Planning

www.VolusiaCountyMPO.com

Prepared by:

HNTB

1. Introduction

What's inside?

The City of South Daytona (South Daytona) has submitted an application to the Volusia County Metropolitan Planning Organization (VCMPO) for the review of the feasibility of a new five foot wide sidewalk along the west side of Garfield Drive, from Anastasia Drive to Elizabeth Place, a distance of approximately 1,050 feet. This application stems from recommendations for the South Daytona Elementary School in the "Bicycle and Pedestrian Safety Review" study. This proposal includes the construction of a five (5) foot wide sidewalk on the west side of Garfield Drive in right-of-way owned by South Daytona as illustrated in Figure 1.

In 2007, the VCMPO completed an update to its 2025 Long Range Transportation Plan (LRTP) for the region. One of the priorities that emerged from the transportation plan was the "importance of providing pedestrian and bicycle facilities as a means of expanding the travel opportunities for residents." The 2025 LRTP also recognizes the importance of bicycle and pedestrian facilities as a tool for economic development and as an expansion of recreational activities for residents and visitors.

The 2025 LRTP describes the performance measures used to analyze and evaluate the need for improved or new bicycle and pedestrian facilities. The measures consider: bicycle and pedestrian injuries per million vehicle miles, connectivity of segments, proximity to attractions (such as: schools, parks, civic centers, etc.) and proximity to transit.

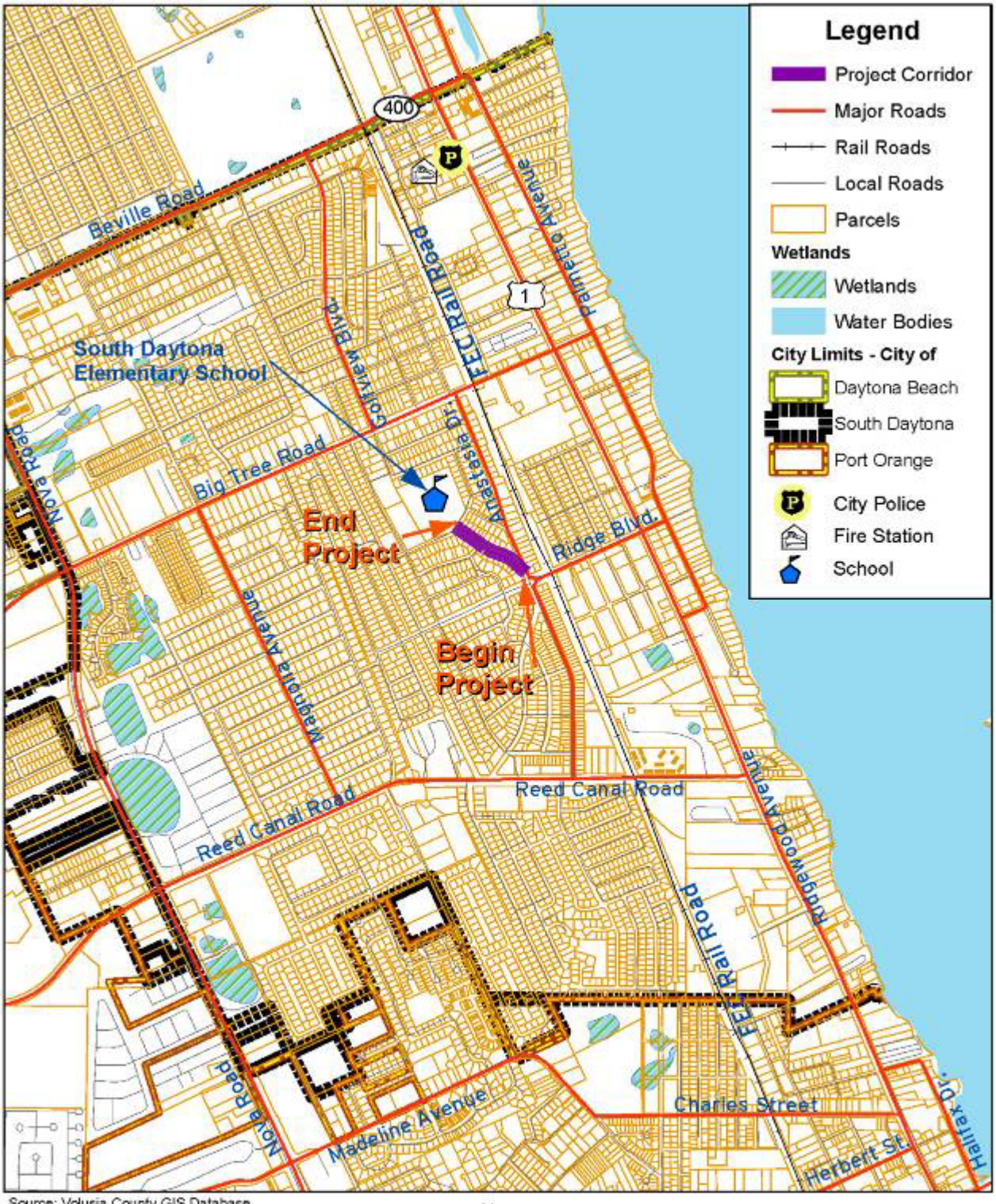
This proposal is critical in terms of safety for the pedestrians and bicyclists

The surrounding area is a residential community served by a network of collector roads, including Anastasia Drive and Ridge Boulevard. A majority of the students living in this area attend South Daytona Elementary School, located on Elizabeth Place, at Garfield Drive. Several students walk or ride bicycles to the school. Currently there are sidewalks along the east side of Garfield Drive and non-continuous sidewalks on the west side. Students use the grid of surrounding roadways to reach the sidewalk and often cross Garfield Drive at places where there are no crossing guards.

This proposal is critical in terms of safety for the pedestrians and bicyclists. This facility will reduce the random crossings of Garfield Drive and will provide safety for the walkers and bicyclists currently utilizing the roadway.

The VCMPO seeks to provide safe ways to school for children throughout their region. As identified in the "Bicycle and Pedestrian Safety Review" study, the VCMPO recognized the need to upgrade the facilities at this location. This project can serve to increase the safety for the students accessing the elementary school.

Figure 1: Project Location Map



Source: Volusia County GIS Database

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1,700 850 0 1,700 Feet

1 inch equals 1,702.33 feet

Volusia County MPO
Transportation Planning

HNTB

2. Project Purpose & Scope

The following sections provide an overview of the Scope of Work completed for this feasibility study.

Study Purpose

This study evaluated the feasibility of constructing a new sidewalk and replacing the existing sidewalks that are less than 5 feet wide along the west side of Garfield Drive, from Anastasia Drive to Elizabeth Place. The goal of this study is to determine the feasibility of the sidewalk considering items such as project need, constructability issues and construction cost estimates.

Physical Inventory & Assessment of Right-of-Way

The application by South Daytona for funds for construction of a sidewalk and parcel maps were reviewed to assess the physical inventory as it relates to the proposed improvements.

Garfield Drive is a two-lane, undivided roadway, approximately 20 feet wide from Anastasia Drive to Elizabeth Place. The parcel map provided by South Daytona shows that the roadway consists of 80 feet of right-of-way and is approximately 1,050 feet in length.

The goal of this study is to determine the feasibility of the Sidewalk considering items such as project need, constructability issues and construction cost estimates.

Upon review of the previously published studies, a field review and analysis was conducted of the proposed corridor. This analysis provided information that was used to make specific recommendations for construction, safety, signing and access. Also identified were potential locations for connections to public facilities, to parking areas and to other facilities that are part of the bicycle and pedestrian network in this area.

Sidewalk Concept Plan

The field analysis and mapping were used as a base for the planning of the proposed construction elements. Mapping of the proposed corridors identified environmental and natural features, surrounding land uses, surrounding roads, community developments and assets and construction element locations. The final graphics include notes, diagrams and callouts identifying the sidewalk and conceptual changes.

A concept plan of the sidewalk project area was prepared and includes all of the features listed, as well as any other proposed enhancements.

Financial Feasibility

Detailed cost estimates for construction were prepared based on American Disabilities Act (ADA) compliance, Florida Department of Transportation Design Standards and past construction bids for related projects.

3. Physical Inventory & Assessment of Right-of-Way

A physical inventory and assessment (via field review) for the corridor was conducted in order to document present conditions, assets and obstacles throughout the area. Three field reviews were conducted during this study process. The following persons attended the field review and represented the respective entities:

- May 6, 2009 – VCMPO – Stephan Harris, City of South Daytona – Les Gillis, P.E. and HNTB Corporation – Colleen Jarrell, P.E.
- June 5, 2009 – HNTB Corporation – Colleen Jarrell, P.E. and Robert Denney, P.E.
- June 15, 2009 - HNTB Corporation – Colleen Jarrell, P.E. and Robert Denney, P.E.

Based on the discussions among the participants, it was determined that the best alternative is to construct a five (5) foot concrete sidewalk on the west side of Garfield Drive that could accommodate pedestrian and bicycle riders, mainly serving the school children.

A photographic inventory of the corridor is presented here to provide an understanding of the physical features of the corridor.

Looking north at potential utility conflict at 2264 Garfield Drive.

Looking west at potential utility, drainage, and landscape conflicts at 2272 Garfield Drive.

Looking north at potential mailbox and drainage structure conflicts at 2246 Garfield Drive.

Looking north from Dixie Avenue at existing sidewalk along Garfield Drive,

Physical Description

The proposed sidewalk corridor begins at Anastasia Drive and continues to Elizabeth Place.

The proposed sidewalk will cross one (1) side street at Dixie Lane as it traverses the corridor. A crossing guard is provided at the school crosswalk at the intersection of Garfield Drive and Elizabeth Place.

Several utilities are present along the length of the corridor, including utility poles with overhead lines, utility boxes, water meters and underground water lines. Some of these features can be seen in the photos to the right.

Currently all property owners have driveways to their property through the corridor area. All easements will be respected during final design, construction and maintenance of the sidewalk network. For purposes of this study, all driveway aprons are assumed to be replaced with the construction of the sidewalk.

Right-of-Way

Throughout the length of Garfield Drive, South Daytona has approximately 80 feet of right-of-way. The 20 feet roadway exists within that right-of-way and is centered about the centerline of the right-of-way.

The existing right-of-way provides enough opportunity for the inclusion of the five (5) foot sidewalk without the need for acquisition of additional land.

4. Sidewalk Concept Plan

Establishing a network of sidewalks along Garfield Drive in the vicinity of the elementary school will offer residents and students a safer connection from their homes to the school.

In order to provide safe, useable facilities along Garfield Drive for the pedestrians and bicycle riders of the surrounding residential community, a five (5) foot sidewalk is proposed on the west side of Garfield Drive, as a sidewalk on the east side exists today.

The Garfield Drive corridor presents some features within the right-of-way which impede the design and construction of a sidewalk on the west side. This section discusses the issues defined during this feasibility study.

The utility poles, mail boxes and sprinkler lines need to be relocated or the sidewalk will need to be realigned at these conflict points. Our recommendation is to jog the sidewalk to avoid these conflict points.

The sidewalk along this corridor offers a feasible option for use by the residents and visitors to the surrounding residential community. The land use is completely residential throughout this portion of the corridor. These land uses are not in conflict with the proposed sidewalk and any potential design challenges can be overcome prior to construction.

This sidewalk has been proposed for use as a safe way to school, as such; the improvements should also include updates to the signing and pavement markings along the corridor. Crosswalk markings and proper signing should be provided on the west approach of Dixie Lane to Garfield Drive. Additionally, the crosswalks and signage at the intersection of Garfield Drive and Elizabeth Place should be updated. The locations for the crosswalks along the proposed sidewalk are shown in the concept plans.

Existing crosswalks at Elizabeth Place

The locations of the crosswalks should be signed on the side streets with School Advance Warning Assemblies (S1-1) and supplemental AHEAD placard (W16-9p). School Crosswalk Warning Assemblies (S1-1) with a supplemental downward pointing arrow placard (W16-7p) should be placed at each approach to each crosswalk.

Table 1 provides a summary of the driveway inventory that was conducted in the field. This table also provides recommendations to consider during the design and construction of the sidewalk. There were several driveway aprons in good condition which were recommended to remain in place rather than incur the cost of removing and replacing the driveway apron

Figure 2 indicates the soil types present in the areas surrounding the proposed sidewalk. This map provided a basis for any considerations given to the infrastructure in this conceptual plan. The soils should be studied in more detail upon undertaking of the design of this system. This sidewalk is designed to enhance safety and beautify the area. It will promote community and neighborhood activities that are healthy for the population. Most of all, this sidewalk, will aide to protect the community's children from harm on their way to and from school.

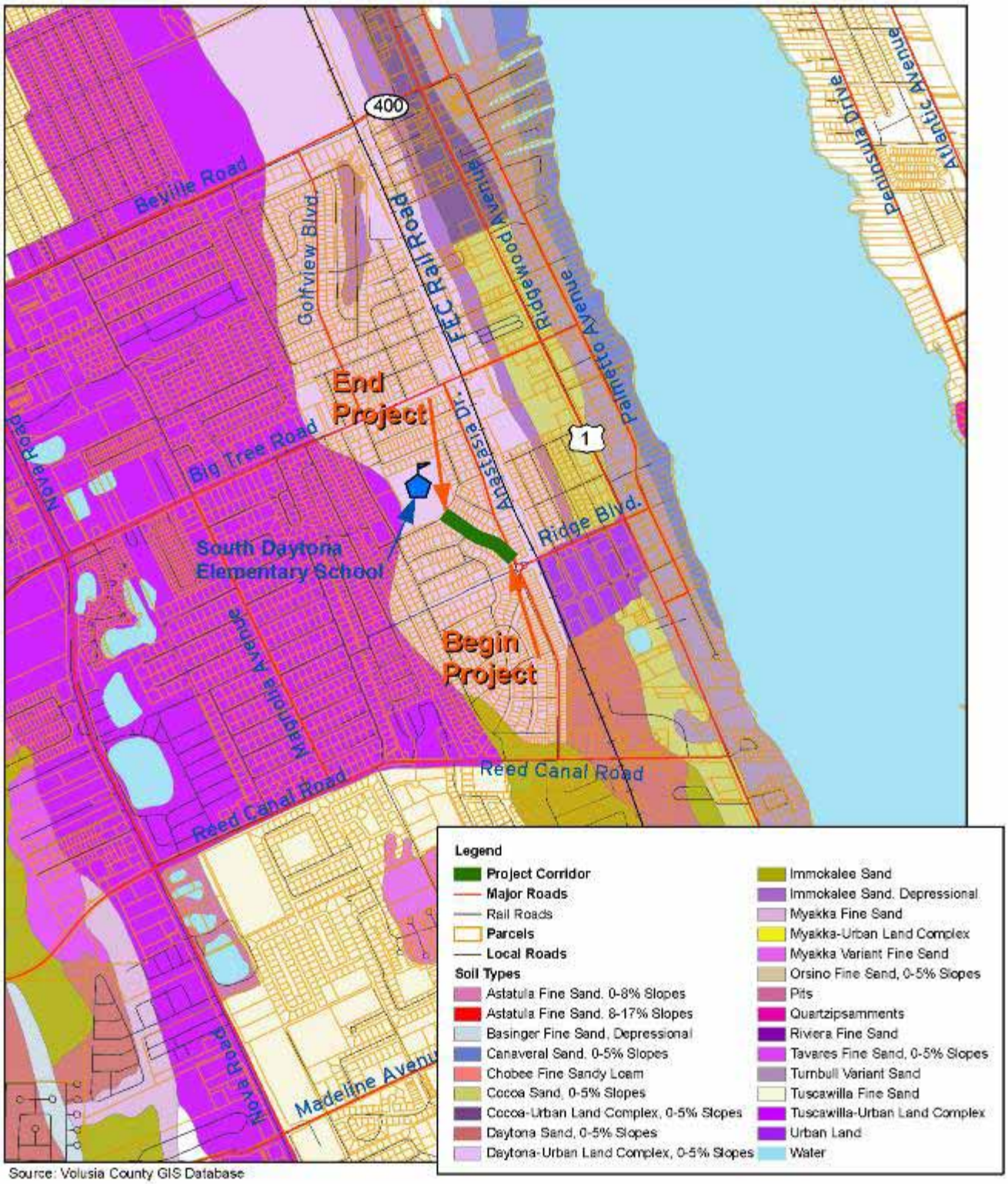
Table 1: Driveway Inventory

	**Driveway #1** Recommendation: Driveway apron to remain. Hold roadside sidewalk expansion joint and construct 5-foot sidewalk towards the house. Sawcut and remove 1-foot of concrete from the driveway to accommodate a 5-foot sidewalk and to eliminate a longitudinal expansion joint within the sidewalk.
	**Driveway #2** Recommendation: Driveway apron to remain. Hold roadside sidewalk expansion joint and construct 5-foot sidewalk towards the house. Sawcut and remove 1-foot of concrete from the driveway to accommodate a 5-foot sidewalk and to eliminate a longitudinal expansion joint within the sidewalk.
	**Driveway #3** Recommendation: Driveway to remain as is. Sidewalk on the left side of the driveway should be reconstructed as to provide a 1.5-foot buffer from the face of the sidewalk to the back of the ditch bottom inlet. Sidewalk shall be constructed 4-feet from the edge of pavement.
	**Driveway #4** Recommendation: Construct a concrete driveway apron with the addition of a 5-foot sidewalk located 4-feet from the edge of pavement. The water valve located 9-feet from the edge of pavement will require a height adjustment (see photo at right). 
	**Driveway #5** Recommendation: Construct a concrete driveway apron with the addition of a 5-foot sidewalk located 4-feet from the edge of pavement. The water valve located 7-feet from the edge of pavement will require a height adjustment. The sidewalk to be constructed on the right side of the driveway shall be located behind the utility pole and the mailbox shall be relocated closer to the edge of pavement.
	**Driveway #6** Recommendation: Construct a concrete driveway apron with the addition of a 5-foot sidewalk located 4-feet from the edge of pavement. The water valve located 5.5-feet and 11-feet from the edge of pavement will require a height adjustment. The sidewalk to be constructed on the right side of the driveway shall be located behind the utility pole and the mailbox shall be relocated closer to the edge of pavement.

Table 1: Driveway Inventory (continued)

	**Driveway #7** Recommendation: Driveway apron to remain. Hold roadside sidewalk expansion joint and construct 5-foot sidewalk towards the house. Sawcut and remove 1-foot of concrete from the driveway to accommodate a 5-foot sidewalk and to eliminate a longitudinal expansion joint within the sidewalk. The 5-foot sidewalk shall be constructed 4-feet from the edge of pavement.
	**Driveway #8** Recommendation: Construct a concrete driveway apron with the addition of a 5-foot sidewalk located 4-feet from the edge of pavement. On the right side of the driveway there is a ditch bottom inlet at the edge of the existing sidewalk, the sidewalk shall be constructed so that it provides 1.5-feet from the back of the inlet to the face of the sidewalk.
	**Driveway #9** Recommendation: Construct a concrete driveway apron with the addition of a 5-foot sidewalk located 4-feet from the edge of pavement.
	**Driveway #10** Recommendation: Construct a concrete driveway apron with the addition of a 5-foot sidewalk located 4-feet from the edge of pavement. By moving the sidewalk closer to the road, a sight distance hazard for pedestrians and bicyclist is eliminated.
	**Driveway #11** Recommendation: Construct a concrete driveway apron with the addition of a 5-foot sidewalk located 4-feet from the edge of pavement. By moving the sidewalk closer to the road, a sight distance hazard for pedestrians and bicyclist is eliminated.

Figure 2: Soils Map of Corridor



5. Financial Feasibility

Table 2 provides cost estimates for the design and construction of the Sidewalk along Garfield Drive. The item number and unit of measure are based on the FDOT Basis of Estimate manual. The unit prices are based on the average costs for each pay item as provided by the FDOT.

As shown in Table 2, the total estimated cost for design and construction of the sidewalk as detailed in the conceptual plan and discussed in this report is $50,478.38.

This project will be planned, designed and constructed with a variety of funds. The project is eligible for federal funds that will flow through the Florida Department of Transportation and will be matched by the City of South Daytona.

This cost is provided in 2009 dollars. Future years cost estimates, using an inflationary factor of 3.0 percent, were applied in each year for 2010 through 2012 and are provided in Table 2.

Table 2: Cost Estimate

ITEM NUMBER	DESCRIPTION	EST QTY	UNIT OF MEASURE	UNIT PRICE	2009 TOTAL PRICE	2010 TOTAL PRICE	2011 TOTAL PRICE	2012 TOTAL PRICE
110-1-1	Clearing & Grubbing	609	SY	$4.50	$2,738.25	$2,820.40	$2,905.01	$2,992.16
110-7-1	Mailbox (Furnish and Install)	9	EA	$129.00	$1,161.00	$1,195.83	$1,231.70	$1,268.66
120-1	Excavation	49.5	CY	$4.20	$207.90	$214.14	$220.56	$227.18
120-6	Embankment	39.6	CY	$6.40	$253.44	$261.04	$268.87	$276.94
700-20-11	Sign Single Post	9	AS	$290.35	$2,613.15	$2,691.54	$2,772.29	$2,855.46
711-11-123	Pavement Marking (Thermoplastic, 12" White)	400	LF	$1.94	$776.00	$799.28	$823.26	$847.96
425-6	Adjust Water Valve	2	EA	$238.00	$476.00	$490.28	$504.99	$520.14
522-1	4" Thick Sidewalk	494.7	SY	$36.10	$17,858.67	$18,394.43	$18,946.26	$19,514.65
522-2	6" Thick Sidewalk	113.8	SY	$45.20	$5,143.76	$5,298.07	$5,457.01	$5,620.73
570-1-1	Performance Sod	620.0	SY	$2.50	$1,550.00	$1,596.50	$1,644.40	$1,693.73
	SUBTOTAL BEFORE MOT AND MOBILIZATION				**$32,778.17**	**$33,761.52**	**$34,774.36**	**$35,817.59**
101-1	Mobilization		LS	10%	$3,277.82	$3,376.15	$3,477.44	$3,581.76
	SUBTOTAL BEFORE DESIGN/CONSTRUCTION/SCOPE CREEP				**$36,055.99**	**$37,137.67**	**$38,251.80**	**$39,399.35**
N/A	Engineering & Design		LS	15%	$5,408.40	$5,570.65	$5,737.77	$5,909.90
999-25	Initial Contingency		LS	5%	$1,802.80	$1,856.88	$1,912.59	$1,969.97
999-99	Scope Creep		LS	20%	$7,211.20	$7,427.53	$7,650.36	$7,879.87
				TOTAL COST	**$50,478.38**	**$51,992.73**	**$53,552.52**	**$55,159.09**

Note: The above cost estimate includes only the items listed and does not include costs associated with permitting and relocating utilities or sprinklers. Per FDOT Basis of Estimates, inverted truncated domes (detectable warning surfaces), for new installations, is included in the cost of the sidewalk.


INSTALL HIGH EMPHASIS CROSSWALK AND INVERTED TRUNCATED DOMES FOR SIDEWALK RAMPS
RELOCATE MAILBOX
RELOCATE SPRINKLER HEAD
INSTALL SCHOOL CROSSWALK WARNING SIGN ASSEMBLY (SI-I & W16-7P) AT CROSSWALK
AHEAD
INSTALL SCHOOL CROSSWALK ADVANCED WARNING SIGN ASSEMBLY (SI-I & W16-9P) 200 FT IN ADVANCE OF CROSSWALK
MAIL BOX NOT IN PLACE AT TIME OF FIELD SERVEY
RELOCATE SPRINKLER HEAD
GARFIELD DRIVE
ANASTASIA DRIVE
RELOCATE MAILBOX
INSTALL INVERTED TRUNCATED DOME
2240
2246
2250
2262
2264
2268
2270
2272
1
2
3
4
5
6
7
8
N
0 10 50
Feet
LEGEND:
SPRINKLER HEAD
PHONE METER
MAIL BOX
SIGN POST
UTILITY POLE
WATER VALVE
CENTERLINE OF GARFIELD DRIVE
40' FROM CENTERLINE TO RIGHT OF WAY
10' LANE
10' LANE
4' GRASS
5' SIDEWALK
RIGHT OF WAY LINE

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GARFIELD STREET
SIDEWALK FEASIBILITY STUDY
CITY OF SOUTH DAYTONA BEACH

PLAN SHEET 1

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Transportation Planning

GARFIELD STREET
SIDEWALK FEASIBILITY STUDY
CITY OF SOUTH DAYTONA BEACH

PLAN SHEET 2