



Harbor Town

Physical Needs Assessment

AUGUST 26, 2010



prepared for:

The Harbortown Community
Association
Memphis, Tennessee

prepared by:



The
Reaves
Firm
INCORPORATED

Table of Contents

Section One:

Introduction

The Reaves Firm
Project Team Members
Harbor Town Project Experience

Section Two:

Project Methodology

Method of Data Collection
Description of Common Area Elements

Section Three:

Needs Assessment

Current Needs
Common Area Element Matrix
Matrix Assumptions and Sources
Long Range Items
Phasing Map

Appendix I:
Appendix II:

Disclaimer
Project Photos

Introduction

Harbor Town sparked the resurgence of the Traditional Neighborhood Development concept in the Memphis area. The community consists of approximately 500 single-family homes, multi-family areas, two small schools, condominiums and a commercial area anchored by restaurants, shops, a hotel and a neighborhood grocery mart.

One of the more unique aspects of Harbor Town is that virtually all the infrastructure is owned and maintained by the property owners association. As approximately 70% of the common facilities have been in place for nearly 20 years, it is imperative the association understands the magnitude of its future responsibility relative to maintenance and ultimate replacement of all the various common area elements.

The purpose of this report is to provide the association with the base information necessary to project short and long term expenditures and to logically adjust membership fees commensurate with overall financial and daily cash flow requirements.

The Reaves Firm, Inc.

Founded by Sam N. Reaves in 1976, The Reaves Firm, Inc., maintains a strong presence in the Mid-South as a multi-discipline consulting firm. It provides clients with a wide array of services in civil and structural engineering, surveying, land planning and landscape architecture. The Reaves Firm, Inc. has a staff of nineteen and is located at 5880 Ridge Bend Road in Memphis, Tennessee.

The Reaves Firm has a strong working knowledge of the local climate with regard to site analysis, permitting and approvals. This has earned the firm a high level of repeat clientele for major industrial and commercial developers and contractors. Landmark projects include: Peabody Place Entertainment Center, Casino Center (Horseshoe / Goldstrike / Sheraton Casinos) – Tunica, Harbor Town Planned Development, Goodlett Farms Office Park, and Federal Express World Headquarters.

Reaves professionals are well versed in all facets of land development services including:

- Site Design Layouts & Concepts
- Master Planning
- Development Feasibility Analysis
- Zoning and Special Permits
- On-site Improvement Plans
- Grading Plans
- Erosion Control Plans
- Drainage Plans
- Paving Plans
- Final Site Plans
- Utility Plans
- Off-Site Improvement Plans
- Parking Planning and Design
- Parcel Maps
- Bridge & Structural Design
- Construction Staking
- Full CADD Capabilities
- Traffic Impact Analysis
- Transportation Planning
- Street & Highway Design
- Construction Administration
- Permitting & Approval Process
- Agency Processing / Permitting
- Traffic Engineering

Senior staff team members strive to ensure the client quality of design, economics and time/budget schedules are closely monitored throughout the life of the project. Technology is a critical component in the delivery of these services so the firm's professionals work in a fully networked environment, supported by the latest engineering software and hardware.

Reaves professionals provide clients with seamless coordination of services between disciplines through intricate public approval processes. Guiding projects through the complexities of the various governmental approvals and permitting agencies often decreases the number of hours spent on design, which equates to substantial savings for the client.

Project Team Members

Lee Davidson, P.E.
Partner / Vice President

Mr. Davidson offers a unique understanding of Harbor Town gained from his continued involvement as engineering principal in charge, beginning with the initial design of the site to subsequent studies, analysis and designs to support the continued growth of Harbor Town. He has more than four decades of experience in civil engineering design and has served as Principal in Charge and Project Manager for multi million dollar developments for residential, commercial and industrial clients in the mid south. His most recent assignment is the site design for the construction of the 600,000 SF. McKesson Distribution Center in Olive Branch, Mississippi. Mr. Davidson has led the civil engineering efforts of the firm on many large scale projects that include: Rivermark Towers, Lexington Place, Barbaro Alley Flats, Distriplex Distribution Center and Prologis Park – DeSoto.

Mr. Davidson is a graduate of Vanderbilt University where he received his Bachelor of Science in Civil Engineering. He is a licensed Professional Engineer in the states of Tennessee and Mississippi.

Mike Davis, ASLA
Landscape Architect

Mr. Davis provides project management for land planning, civil engineering, site rezoning efforts, graphic presentations and site development packages. With regard to Harbor Town, he served as project landscape architect in charge of landscape design, irrigation design, lake edge treatment, walking trail and urban streetscape treatment for the Harbor Town condominiums. His twenty seven years of professional experience includes interaction with a wide spectrum of clientele, as well as homeowner associations, special interest groups and governmental officials. In addition to his experience with the Reaves Firm, Mr. Davis developed in excess of 2,000 residential lots for a regional homebuilder (2002 – 2007). During that time he developed a strong knowledge of residential and commercial infrastructure through the eyes of the developer and various lending institutions. Recent project experience includes Tiger Lane (Liberty Bowl Tailgating facilities), Hernando West – 350 acre residential / commercial planned development; and the Gardens of Gray's Creek, a bank-owned distressed community.

He is a graduate of Mississippi State University and a licensed landscape architect in the states of Tennessee and Mississippi.

Jim Schumpert, ASLA
Landscape Architect

Mr. Schumpert has 26 years experience the management, design and construction of a diverse range of projects for both public and private clients. Project types include public spaces, retail centers, commercial and industrial parks, educational campuses, residential subdivisions, parks, walking trails and athletic fields.

He brings to this project an in-depth understanding of the Harbor Town and served as co-project landscape architect for initial site design. His design responsibilities also included the linear park which containing ponds, naturalistic areas, jogging trails and three faux vehicular bridges bisects the development and forms a motif and unifying element for the project.

Recent design accomplishments include the new Triad Building III (Memphis' first LEED certified office building; The Lexington, Lausanne Collegiate School Expansion; Hyatt Place Hotel – Germantown and the Second Presbyterian Day School Expansion.

Mr. Schumpert is a graduate of Mississippi State University where he earned his Bachelor of Landscape Architecture. He is a licensed landscape architect in the states of Tennessee and Mississippi. He is also certified by the State of Tennessee as a Level I Erosion Protection Sediment Control Specialist.

Sammy D. Watkins, P.E.
Civil Engineer

Mr. Watkins has provided project management and civil engineering design for thirty plus years. He offers strong experience in the design of infrastructure (roadways, drainage, water / sewer) to support residential, commercial and industrial developments. Mr. Watkins is part of the TRF Harbor Town engineering team whose experience with Harbor Town began with the initial planning and design of development. He has worked extensively on grading, drainage and sanitary sewer systems in most of the residential areas.

He is a graduate of Memphis State University, where he received his Bachelor's of Science in Civil Engineering. Mr. Watkins is a licensed professional engineer in the State of Tennessee.

Harbor Town Project Experience

The Reaves Firm was selected as the civil engineering consultant for the Harbor Town Development in 1988. The firm's first assignment was to assist in the preparation of the planned development package and to establish conditions for development of the property. This included preparation of an outline plan incorporating the street and lot layout, streetscape designs and land use concepts developed by RTKL of Baltimore Maryland.

In 1989, the final plat and construction plans for Phase I was prepared by the firm including some 60 acres of land, over 200 residential lots, and the basic backbone street layout for the bulk of the property. The construction plans included design of the streets, storm drainage, sanitary sewer, and site grading including the excavation of the interconnected ponds and the marina harbor. The Reaves Firm also provided detailed landscape design based on the RTKL streetscape concept, as well as hardscape and landscape design for several park areas located in Phase I. The Reaves Firm worked with the developers and MLG&W to coordinate the installation of water, gas and electric service.

Over the next 20 years, The Reaves Firm prepared final plats and construction plans for Phases 2 through 21. These phases included single family residential, apartments, commercial and retail areas, the marina, the school and daycare facilities.

Method of Data Collection

Between July 1 and July 17, 2010 Dave Watkins, P.E., Jim Schumpert, R.L.A and Mike Davis, R.L.A of The Reaves Firm, Inc., under contract with the Harbor Town Community Association, visited the Harbor Town Development in Memphis, Tennessee on several occasions to visually inspect and document the condition of above ground common area elements. The inspection was carried out entirely on foot and encompassed the entire single-family portion of the property. All street elements including curb and gutter, pavement, drainage inlets, sidewalks, street trees, sidewalk ramps, bridges, signs, mailboxes, and street lights were examined for irregularities and wear. Areas of concern were photographed, roughly measured and their location keyed to a master plan for in-house use. Landscape and hardscape elements within common area parks were examined and their condition assessed.

Site data was then separated by phase and compared to recording dates to determine the relative age of improvements. Since Phase I of the development was inordinately large, representative individual lot deed transfers were researched within that phase to better understand home construction sequencing and its potential effect on the street system. That data combined with historical maintenance information provided by the association allowed the Reaves Firm to make logical projections as to the remaining life of the community common area components.

Description of Common Area Elements

For more detailed descriptions, refer to the Operations Manual for Harbor Town Planned Community prepared by Bologna Consultants, LLC, dated May 19, 2010.

Streets

Streets were examined for signs of base failure due to heavy construction traffic, lack of proper compaction during initial construction of the streets or utility trench failure. In general, the street system has withstood home construction very well, with only a few areas of failure due predominately to high traffic volumes at intersections. Several areas of isolated failures have been repaired over the years, primarily over utility trench failures and where street tree root systems have inundated the street system.

The vertical curb and gutter lining all non-alley streets is primarily in good condition with only a few areas of minor settlement or major cracking, primarily at storm inlet transitions. However, street tree root systems have caused significant vertical and horizontal displacement of curb and gutter in certain areas, a situation that will spread as street trees throughout the development reach their maturity.

The condition of mountable curb in the rear alleys varies significantly from location to location. It appears excessive cracking in certain areas is tied to original workmanship rather than wear and while the cracking does not currently affect the function of the alleys or trap surface water, it is unsightly and will worsen in the future due to the freeze/thaw process.

The asphalt wearing surface throughout the development is in good shape with exception of high traffic areas such as the development intersections with Island Drive, where wear cracking is evident. The entire development has been seal-coated in recent years to freshen the appearance and lightly seal hairline asphalt cracking.

Paved Sidewalks

Sidewalks throughout the development, typically 4' wide, comprised of 3000 PSI broom finish concrete and separated from the street curb by a narrow landscape strip, are generally in good shape. As adjacent street trees have matured, sections of the sidewalk system have been displaced vertically by tree roots and in some instances have been replaced. This report quantifies walk sections currently in need of replacement due to tree root infiltration and forecasts future areas of potential replacement that will likely precede lifespan expectancy of the entire system due to adjacent tree maturation.

At street intersections, sidewalks are terminated by solid areas of brick pavers dry laid on sand. Most of the paver areas are contoured to include handicap ramps with exception of certain streets constructed early in the development. None of the paver areas are contained by edging of any sort where adjacent to non-paved areas. Almost all brick paver areas have settled and/or suffered lateral movement to some extent over the years. This report quantifies, in a somewhat subjective manner, paver areas in need of immediate repair due to potential tripping hazard, excessive settlement at curbs or obvious aesthetic deficiencies. Recommended repairs range from partial repair of individual paver areas to total demolition and reconstruction of others. In all cases, the existing pavers can be reused, and where entire areas are to be reconstructed, the addition of a compacted crushed limestone base and a metal edge containment border is recommended for long term stability.

With regard to ADA (American Disabilities Act) accessibility issues, site inspections conducted pursuant to this report did not include comprehensive slope measurements of existing paver curb ramps. Although the Harbor Town street system is private, it is not immune from ADA standards and requirements. All repair work outlined in this report should be accomplished under ADA guidelines. The extent of repairs and reconstruction could potentially exceed that proposed in this report if the existing ramps are found to be non-ADA compliant. Immediate repair quantities shown in this report did not include installation of new handicap ramps where ramps are not currently present in older sections of the development. However, the Harbor Town Community Association should consider construction of ramps in those areas to assure ADA compliance.

Sanitary Sewer

The sanitary sewer gravity collection system for the development is private, but was installed using City of Memphis design standards using SDR 26 pipe. Pipe sizes within the system range from 8" to 18". Two small areas within the southeastern quadrant of the development could not be sewered using a gravity system, so each has a small lift station that is maintained by the Association. Two major city-owned force mains cross the Harbor Town Development in public utility easements and empty into a major public gravity line under River Park Drive within the development. The City of Memphis has conducted recent repairs to one of their large force mains and in doing so demolished and repaired surface conditions at the connection point in River Park Drive and nearby in Harbor Bend Road, Harbor Isle Circle and Marina Point Lane.

Storm Drainage

The Harbor Town storm drainage system is privately owned but built to City of Memphis standards using primarily gasket-jointed reinforced concrete pipe. During site inspection, isolated runs of plastic pipe were observed. The typical street section sheds water to the outside curbs and collects the surface water in standard 6-72 curb inlets. Rear alleys have an inverted crown, typically collecting water down the center line and to standard #10 inlets. Storm water exits the underground system into either internal ponds, the Wolf River Harbor or the Mississippi River.

For the purposes of this report, it was assumed the underground pipe system was in good working condition, so no subsurface testing or inspection was undertaken. Results of visual surface condition inspection related to drainage structures are included in this report. Generally, the drainage structures appeared to be in good shape, with exception of several inlets that appear to have settled slightly over time.

Ponds

Within the central common area strip of the development is located a series of ponds fed by a combination of storm drainage and well water. These ponds serve as the focal point of the common areas and are highly landscaped and stocked with fish. They were constructed with bentonite clay bottoms and hold water without significant loss, with exception of Skating Pond which occasionally loses water because of a leaking storm drainage pipe located under the bottom of the pond. The ponds are otherwise unlined. Dry laid cobblestone pavers are located at the flow entry/exit points at each pond and a dry fieldstone swale carries overflow water from Cricket Song Pond at the north end of the pond chain through a wetlands area and ultimately into the Wolf River Harbor.

Except for Skating Pond, all ponds are tied together at the same elevation by a series of connecting 12" pipes under road crossings. Ponds are held at a constant elevation through water provided by a 4" well located at the south end of Skating Pond. A water level float in Purple Martin pond controls the well operation. Due to health department horizontal buffer requirements, a backup well cannot be constructed within the Harbor Town community, so the association must keep maintenance of the existing well as a high priority. Without the well, the only makeup source is city water.

Due to constant wave action, the edges of Skating Pond have eroded to the point of exposing a drainage pipe on the east side and endangering the building edge of the condominium building on the west side. This report recommends the addition of a 4' wide rip-rap edge around the entire perimeter of the pond using 6" stone placed on filter fabric to negate further erosion. Purple Martin pond has a significant buildup of bottom silt that needs to be removed.

Landscape

Aside from street trees, informal landscaping is present at entrances, in boulevards and in common area parks throughout the Harbor Town development. A general maintenance budget item covers yearly replacement of shrubs and trees that sporadically die for various reasons. However, since much of the landscape is now mature, a replacement program should be contemplated for some point in the future to replace aging, unhealthy and overgrown landscape material. Logically, this should coincide with major renovations to the development irrigation system.

Irrigation

Irrigation systems tend to be one of the most dynamic maintenance items addressed by owner associations. Irrigation heads are damaged through lawn maintenance, vehicular traffic and pedestrian interaction. A certain number of irrigation head replacements can be expected over the course of a growing season and is typically budgeted as part of a comprehensive maintenance program.

All park areas and primary streets within the Harbor Town development are irrigated using automatic timers and City of Memphis metered water. Each individual system has a separate meter, backflow device and controller and each has an electric meter. Main street irrigation extends around the curb radius at street intersections with minor streets and continues down the minor street to a point even with the first street tree.

The lifespan of an automatic underground irrigation system varies greatly, depending on quality of initial installation and materials, weather, maintenance and surrounding uses but twenty to thirty years seems to be an industry yardstick. With that in mind, much of the irrigation at Harbor town is likely reaching the end of its useful life. Given the sandy soil characteristics of the property, irrigation is mandatory to ensure a quality appearance.

Limestone Trails

4' wide dry limestone walking trails ribbon through the interior lake system common areas and along common areas adjacent to the Wolf River Harbor. The trail limestone is installed on a filter fabric base and has no edge containment system. The trail sections adjacent to the harbor are inundated with flood water on a semi-regular basis and therefore require more maintenance than the balance of the trail system. This report assumes limestone must be added every year to maintain the desired thickness

of the trail and to prevent grass and weed growth within the boundaries of the trail. It also assumes the harbor sections must in essence be totally replaced over time as receding waters carry a certain percentage of limestone material away during every flood event. In addition, this report quantifies an average trash/tree limb cleanup effort with each flood event.

Brick Paver Walks

Paver walks are located at Settlers Point, Christmas Tree and Nursery Parks leading from the street system to pavilions and/or bench locations. Paver bench pads are scattered throughout the development. In all cases, the pavers are dry laid on sand without edging. Some of the walks are contoured to handicap ramps at intersections with curb and gutter. This report designates areas in need of immediate repair that may pose a tripping hazard or are aesthetically unappealing. Should the association at some point decide to replace all pavers at these locations, strong consideration should be given to adding a compacted crushed limestone base and edging material to ensure vertical and horizontal stability.

Street Trees

Trees of varying species line the street system, all typically planted in the landscape strip between the street curb and the sidewalk. The trees planted during the initial street construction of Phase 1 have now reached a relative maturity in terms of their location and have begun to damage sidewalk, curb, and pavement because of a limited area for root growth. London Plane and Bald Cypress trees seem to have caused the most damage to surrounding street elements, while the slower growing Ginkgo and the smaller Little Leaf Linden and Crape Myrtle trees have been less problematic. Maple and Ash trees have yet to reach a maturity that will damage adjacent site improvements, but as they grow older problems can be expected.

In terms of health, the London Plane trees, plagued with anthracnose, seem to have suffered the most. Crabapple trees, found in several boulevard median strips, have a relatively short life span, so their gradual decline can be expected over the next decade. All other trees throughout the project are generally in good shape and should be expected to fare well in the foreseeable future. During site inventory, several spots were noted where trees had been removed and never replaced.

Gazebos

Two gazebos are located within common areas of Harbor Town, one at Settlers Point and one at Nursery Park. The gazebo at Nursery Park is open-framed and unroofed, constructed of treated wood and painted. At the time of this report it was in need of painting, but appeared structurally sound. The gazebo at Settlers Point is also open framed, but is topped with a copper roof, constructed of a combination of treated and non-treated wood and painted. This gazebo is in immediate need of rotten wood removal and replacement, particularly around the base of the supporting posts. Otherwise, it is structurally sound and needs only paint touchup.

Arbors

Wood arbors with brick bases are located at the north boundary of the development on Island Drive and at the Harbor Town Boulevard entrance off Island Drive. Both arbors are in good condition and structurally sound.

Bridges

The bridges on the boulevards are essentially decorative elements and not really bridges at all. The road surface is a concrete slab on grade with a brick paver wearing surface bedded on sand. The roadway is supported by a reinforced concrete retaining wall on each side with arch shaped reliefs to emphasize the bridge concept. There are concrete light bollards and painted steel rails on each side of the structures.

Benches

Benches located at various sites within the development are constructed of steel and feature an 'Alligator Gar' cast into the back supports and legs. Seating and backrests are of wooden slats. Repairs and additional/replacement benches are available from TFC Metals and Security Co. in Memphis (phone 412-7469).

Bike Racks

Bike racks are located in the parks, commercial area and along the walking paths. They are fabricated of steel by Grinder Steel Fabricators, painted dark green.

Lighted Bollards

Bollards are located along the crushed limestone walking path in the parks. They are of two different designs, one being a fluted traditional style and the other a more modern, anodized aluminum design.

Mail Boxes

Mailboxes are constructed of heavy gauge steel, painted dark green and feature a hinged finial which covers a semi-spherical steel bubble which serves as the outgoing mail flag. They are generally paired between two residences and located on the property line dividing two homes near the curb. They are fabricated by Grinder Steel Fabricators, located on 3333 Fite Road in Millington (phone 358-4558).

Street Lights

Harbor Town streetlights rest on decorative cast iron poles, ranging from 9' to 17' tall. The poles and the screw anchors are the responsibility of the Association. All other parts of the fixtures, including replacement bulbs, are the responsibility of Memphis Light Gas and Water as part of the Private Outdoor Lighting program. The street lights are unmetered and the association pays a set monthly rental fee as part of the P.O.L program. The street lights are manufactured by Antique Street Light Manufacturing Company.

Current Needs

Item	Quantity	Unit	Unit Cost	Extension	Footnotes
Add Wearing Surface to Common Area 'Y'	270	sy	\$5.50	\$1,485.00	A
Replace Street/Alley Curb and Gutter	1274	sf	\$20.00	\$25,480.00	
Excavate and Patch Street Failures	1432	sy	\$23.00	\$32,936.00	B
Repair Drainage Structures	3	ea	\$500.00	\$1,500.00	C
Repair Inlet Transitions	2	ea	\$300.00	\$600.00	
Mill and Replace Asphalt Wearing Surface	2161	sy	\$8.00	\$17,288.00	D
Repair Concrete Handicap Ramps	100	sf	\$4.00	\$400.00	
Repair Heavy Duty Concrete Flatwork	625	sf	\$10.00	\$6,250.00	E
Repair Alley Drive Aprons	1400	sf	\$4.00	\$5,600.00	F
Repair Mortared Pavers	766	sf	\$10.00	\$7,660.00	G
Repair Pavers on Sand	2856	sf	\$3.00	\$8,568.00	H
Repair Pavers on Sand adding Limestone Base	2276	sf	\$6.00	\$13,656.00	I
Add Inlet and 75 Lf Drain Line to Traffic Circle	1	ls	\$6,000.00	\$6,000.00	J
Replace Shadowbox Fence	320	lf	\$12.00	\$3,840.00	K
Replace Damaged Sidewalk	1100	sf	\$4.50	\$4,950.00	L
Install Rip Rap Around Skating Pond	440	tons	\$50.00	\$22,000.00	M
De-Silt Purple Martin Lake	1	ls	\$10,000.00	\$10,000.00	
Repair Limestone Trail @ Wetlands	1500	sf	\$2.00	\$3,000.00	
Totals				\$171,213.00	

Footnotes:

- A. *Wearing surface on this alley never installed (1" Thick).*
- B. *Assumes average of 8" CTB base and full asphalt section.*
- C. *Curb Inlets.*
- D. *Assumes 1 1/2" mill and replacement on Harbor Village Circle & River Park/Island Dr. Intersection only.*
- E. *Majority is in new concrete cross walk adjacent to hotel.*
- F. *Primarily alley aprons but some private aprons included.*
- G. *Includes demolition related to drainage addition in traffic circle.*
- H. *Assumes existing pavers will be reused.*
- I. *Occurs only where entire paver areas are re-installed.*
- J. *Excluded paver work.*
- K. *Assumes fence will be replaced with similar fence or landscape of equal value.*
- L. *Primarily due to tree damage.*
- M. *Eroding lake edge endangering condo foundation.*

Common Area Matrix

PHASE 2	Unit	Quantity	Approx. Age	Ant. Life Exp.	Proj. Rem. Life	Unit Cost	Ext.	Notes
Curb & Gutter-recently replaced	L.F.	0	2-5 years	50 years	45-48 years	\$20.00	\$0.00	Concrete
Curb & Gutter-need replacement	L.F.	0	20 years	50 years	0 years	\$20.00	\$0.00	Concrete
Curb & Gutter-nd repl. In 5 years	L.F.	0	20 years	50 years	5 years	\$20.00	\$0.00	Concrete
Curb & Gutter - bal. of orig. total	L.F.	550	20 years	50 years	30 years	\$20.00	\$11,000.00	Concrete
Street Lights	EA.	5	20 years	50 years	30 years	\$2,650.00	\$13,250.00	Provided by TAM electric - pole, screw anchor only
TOTAL:							\$24,250.00	

PHASE 3	Unit	Quantity	Approx. Age	Ant. Life Exp.	Proj. Rem. Life	Unit Cost	Ext.	Notes
Curb & Gutter-recently replaced	L.F.	0	2-5 years	50 years	45-48 years	\$20.00	\$0.00	Concrete
Curb & Gutter-need replacement	L.F.	0	20 years	50 years	0 years	\$20.00	\$0.00	Concrete
Curb & Gutter-nd repl. In 5 years	L.F.	0	20 years	50 years	5 years	\$20.00	\$0.00	Concrete
Curb & Gutter - bal. of orig. total	L.F.	972	20 years	50 years	30 years	\$20.00	\$19,440.00	Concrete
Sidewalks-recently replaced	S.F.	0	2-5 years	50 years	45-48 years	\$5.00	\$0.00	Concrete, 4" thickness
Sidewalks -Need replacement	S.F.	0	20 years	50 years	0 years	\$5.00	\$0.00	Concrete, 4" thickness
Sidewalks -nd repl. In 5 years	S.F.	0	20 years	50 years	5 years	\$5.00	\$0.00	Concrete, 4" thickness
Sidewalks -Bal. of orig. total	S.F.	1,620	20 years	50 years	30 years	\$5.00	\$8,100.00	Concrete, 4" thickness
TOTAL:							\$27,540.00	

PHASE 4	Unit	Quantity	Approx. Age	Ant. Life Exp.	Proj. Rem. Life	Unit Cost	Ext.	Notes
Curb & Gutter-recently replaced	L.F.	0	2-5 years	50 years	45-48 years	\$20.00	\$0.00	Concrete
Curb & Gutter-need replacement	L.F.	0	20 years	50 years	0 years	\$20.00	\$0.00	Concrete
Curb & Gutter-nd repl. In 5 years	L.F.	0	20 years	50 years	5 years	\$20.00	\$0.00	Concrete
Curb & Gutter - bal. of orig. total	L.F.	1,466	20 years	50 years	30 years	\$20.00	\$29,320.00	Concrete
Street Lights	EA.	3	20 years	50 years	30 years	\$2,650.00	\$7,950.00	Provided by TAM electric - pole, screw anchor only
Mailboxes-single	EA.	3	20 years	30 years	10 years	\$500.00	\$1,500.00	Manu. by Grinder Fabricating
Mailboxes-double	EA.	7	20 years	30 years	10 years	\$750.00	\$5,250.00	Manu. by Grinder Fabricating

Common Area Matrix

Landscaping

Street Trees-New, <6" cal.	EA.	0	0-5 years	30 years	25-30 years	\$350.00	\$0.00	
Street Trees-healthy, 6-21" cal.	EA.	6	5-20 years	30 years	10-25 years	\$350.00	\$2,100.00	
Street Trees-remove	EA.	0	20 years	30 years	0 years	\$350.00	\$0.00	Removal due to size, disease or conflict w/ infrastructure
Purple Martin Houses	EA.	1	10 years	20 years	10 years	\$500.00	\$500.00	metal houses on metal post

TOTAL: \$46,620.00

PHASE 5	Unit	Quantity	Approx. Age	Ant. Life Exp.	Proj. Rem. Life	Unit Cost	Ext.	Notes
Curb & Gutter-recently replaced	L.F.	0	2-5 years	50 years	45-48 years	\$20.00	\$0.00	Concrete
Curb & Gutter-need replacement	L.F.	0	19 years	50 years	0 years	\$20.00	\$0.00	Concrete
Curb & Gutter-nd repl. In 5 years	L.F.	0	19 years	50 years	5 years	\$20.00	\$0.00	Concrete
Curb & Gutter - bal. of orig. total	L.F.	1,807	19 years	50 years	31 years	\$20.00	\$36,140.00	Concrete
Street Lights	EA.	2	19 years	50 years	31 years	\$2,650.00	\$5,300.00	Provided by TAM electric - pole, screw anchor only
Mailboxes-single	EA.	0	19 years	30 years	11 years	\$500.00	\$0.00	Manu. by Grinder Fabricating
Mailboxes-double	EA.	8	19 years	30 years	11 years	\$750.00	\$6,000.00	Manu. by Grinder Fabricating
Street Signs	EA.	2	19 years	30 years	11 years	\$200.00	\$400.00	Manu. by Grinder Fabricating
Traffic Control Signage	EA.	2	19 years	30 years	11 years	\$200.00	\$400.00	Posts manuf. by Grinder Fabricating

Street Trees-New, <6" cal.	EA.	0	0-5 years	30 years	25-30 years	\$350.00	\$0.00	
Street Trees-healthy, 6-21" cal.	EA.	7	5-19 years	30 years	11-25 years	\$350.00	\$2,450.00	
Street Trees-remove	EA.	0	19 years	30 years	0 years	\$350.00	\$0.00	Removal due to size, disease or conflict w/ infrastructure
Purple Martin Houses	EA.	1	10 years	20 years	10 years	\$500.00	\$500.00	metal houses on metal post

TOTAL: \$51,190.00

PHASE 7	Unit	Quantity	Approx. Age	Ant. Life Exp.	Proj. Rem. Life	Unit Cost	Ext.	Notes
Curb & Gutter-recently replaced	L.F.	0	2-5 years	50 years	45-48 years	\$20.00	\$0.00	Concrete
Curb & Gutter-need replacement	L.F.	0	19 years	50 years	0 years	\$20.00	\$0.00	Concrete

Common Area Matrix

Curb & Gutter-nd repl. In 5 years	L.F.	0	19 years	50 years	5 years	\$20.00	\$0.00	Concrete
Curb & Gutter - bal. of orig. total	L.F.	3,174	19 years	50 years	31 years	\$20.00	\$63,480.00	Concrete
Street Lights	EA.	2	19 years	50 years	31 years	\$2,650.00	\$5,300.00	Provided by TAM electric - pole, screw anchor only
Mailboxes-single	EA.	1	19 years	30 years	11 years	\$500.00	\$500.00	Manu. by Grinder Fabricating
Mailboxes-double	EA.	10	19 years	30 years	11 years	\$750.00	\$7,500.00	Manu. by Grinder Fabricating
Benches	EA.	1	19 years	50 years	31 years	\$1,300.00	\$1,300.00	Avail. from Ornamental Metal Museum; may need slat repl.
Street Trees-New, <6" cal.	EA.	7	0-5 years	30 years	25-30 years	\$350.00	\$2,450.00	
Street Trees-healthy, 6-21" cal.	EA.	6	5-20 years	30 years	10-25 years	\$350.00	\$2,100.00	
Street Trees-remove	EA.	0	19 years	30 years	0 years	\$350.00	\$0.00	Removal due to size, disease or conflict w/ infrastructure
Purple Martin Houses	EA.	1	10 years	20 years	10 years	\$500.00	\$500.00	metal houses on metal post

TOTAL: **\$83,130.00**

PHASE 8	Unit	Quantity	Approx. Age	Ant. Life Exp.	Proj. Rem. Life	Unit Cost	Ext.	Notes
Curb & Gutter-recently replaced	L.F.	0	2-5 years	50 years	45-48 years	\$20.00	\$0.00	Concrete
Curb & Gutter-need replacement	L.F.	0	19 years	50 years	0 years	\$20.00	\$0.00	Concrete
Curb & Gutter-nd repl. In 5 years	L.F.	0	19 years	50 years	5 years	\$20.00	\$0.00	Concrete
Curb & Gutter - bal. of orig. total	L.F.	391	19 years	50 years	31years	\$20.00	\$7,820.00	Concrete
Street Lights	EA.	2	19 years	50 years	31 years	\$2,650.00	\$5,300.00	Provided by TAM electric - pole, screw anchor only
Mailboxes-single	EA.	1	19 years	30 years	11years	\$500.00	\$500.00	Manu. by Grinder Fabricating
Mailboxes-double	EA.	4	19 years	30 years	11years	\$750.00	\$3,000.00	Manu. by Grinder Fabricating
Purple Martin Houses	EA.	1	10 years	20 years	10 years	\$500.00	\$500.00	metal houses on metal post

TOTAL: **\$17,120.00**

PHASE 10	Unit	Quantity	Approx. Age	Ant. Life Exp.	Proj. Rem. Life	Unit Cost	Ext.	Notes
Curb & Gutter-recently replaced	L.F.	0	2-5 years	50 years	45-48 years	\$20.00	\$0.00	Concrete
Curb & Gutter-need replacement	L.F.	0	18 years	50 years	0 years	\$20.00	\$0.00	Concrete
Curb & Gutter-nd repl. In 5 years	L.F.	0	18 years	50 years	5 years	\$20.00	\$0.00	Concrete

Common Area Matrix

Curb & Gutter - bal. of orig. total	L.F.	586	18 years	50 years	32 years	\$20.00	\$11,720.00	Concrete
Sidewalks-recently replaced	S.F.	0	2-5 years	50 years	45-48 years	\$5.00	\$0.00	Concrete, 4" thickness
Sidewalks -Need replacement	S.F.	0	18 years	50 years	0 years	\$5.00	\$0.00	Concrete, 4" thickness
Sidewalks -nd repl. In 5 years	S.F.	0	18 years	50 years	5 years	\$5.00	\$0.00	Concrete, 4" thickness
Sidewalks -Bal. of orig. total	S.F.	976	18 years	50 years	32 years	\$5.00	\$4,880.00	Concrete, 4" thickness
Mailboxes-single	EA.	1	18 years	30 years	12 years	\$500.00	\$500.00	Manu. by Grinder Fabricating
Mailboxes-double	EA.	7	18 years	30 years	12 years	\$750.00	\$5,250.00	Manu. by Grinder Fabricating
Street Trees-New, <6" cal.	EA.	2	0-5 years	30 years	25-30 years	\$350.00	\$700.00	
Street Trees-healthy, 6-21" cal.	EA.	7	5-18 years	30 years	12-25 years	\$350.00	\$2,450.00	
Street Trees-remove	EA.	0	18 years	30 years	0 years	\$350.00	\$0.00	Removal due to size, disease or conflict w/ infrastructure
TOTAL:							\$25,500.00	

PHASE 12	Unit	Quantity	Approx. Age	Ant. Life Exp.	Proj. Rem. Life	Unit Cost	Ext.	Notes
Street Lights	EA.	22	18 years	50 years	32 years	\$2,650.00	\$58,300.00	Provided by TAM electric - pole, screw anchor only
Mailboxes-single	EA.	1	18 years	30 years	12 years	\$500.00	\$500.00	Manu. by Grinder Fabricating
Mailboxes-double	EA.	0	18 years	30 years	12 years	\$750.00	\$0.00	Manu. by Grinder Fabricating
Street Signs	EA.	2	18 years	30 years	12 years	\$200.00	\$400.00	Manu. by Grinder Fabricating
Traffic Control Signage	EA.	2	18 years	30 years	12 years	\$200.00	\$400.00	Posts manu. by Grinder Fabricating
Street Trees-New, <6" cal.	EA.	10	0-5 years	30 years	25-30 years	\$350.00	\$3,500.00	
Street Trees-healthy, 6-21" cal.	EA.	18	5-18 years	30 years	12-25 years	\$350.00	\$6,300.00	
Street Trees-remove	EA.	0	18 years	30 years	0 years	\$350.00	\$0.00	Removal due to size, disease or conflict w/ infrastructure
TOTAL:							\$69,400.00	

PHASE 13	Unit	Quantity	Approx. Age	Ant. Life Exp.	Proj. Rem. Life	Unit Cost	Ext.	Notes
Sidewalks-recently replaced	S.F.	0	2-5 years	50 years	45-48 years	\$5.00	\$0.00	Concrete, 4" thickness
Sidewalks -Need replacement	S.F.	0	17 years	50 years	0 years	\$5.00	\$0.00	Concrete, 4" thickness
Sidewalks -nd repl. In 5 years	S.F.	0	17 years	50 years	5 years	\$5.00	\$0.00	Concrete, 4" thickness

Common Area Matrix

Sidewalks -Bal. of orig. total	S.F.	1,132	17 years	50 years	33 years	\$5.00	\$5,660.00	Concrete, 4" thickness
TOTAL:							\$5,660.00	
PHASE 14	Unit	Quantity	Approx. Age	Ant. Life Exp.	Proj. Rem. Life	Unit Cost	Ext.	Notes
Curb & Gutter-recently replaced	L.F.	0	2-5 years	50 years	45-48 years	\$20.00	\$0.00	Concrete
Curb & Gutter-need replacement	L.F.	0	16 years	50 years	0 years	\$20.00	\$0.00	Concrete
Curb & Gutter-nd repl. In 5 years	L.F.	0	16 years	50 years	5 years	\$20.00	\$0.00	Concrete
Curb & Gutter - bal. of orig. total	L.F.	3,751	16 years	50 years	34 years	\$20.00	\$75,020.00	Concrete
Sidewalks-recently replaced	S.F.	600	2-5 years	50 years	45-48 years	\$5.00	\$3,000.00	Concrete, 4" thickness
Sidewalks -Need replacement	S.F.	140	16 years	50 years	0 years	\$5.00	\$700.00	Concrete, 4" thickness
Sidewalks -nd repl. In 5 years	S.F.	40	16 years	50 years	5 years	\$5.00	\$200.00	Concrete, 4" thickness
Sidewalks -Bal. of orig. total	S.F.	7,372	16 years	50 years	34 years	\$5.00	\$36,860.00	Concrete, 4" thickness
Street Lights	EA.	18	16 years	50 years	34 years	\$2,650.00	\$47,700.00	Provided by TAM electric - pole, screw anchor only
Mailboxes-single	EA.	8	16 years	30 years	14 years	\$500.00	\$4,000.00	Manu. by Grinder Fabricating
Mailboxes-double	EA.	14	16 years	30 years	14 years	\$750.00	\$10,500.00	Manu. by Grinder Fabricating
Street Signs	EA.	6	16 years	30 years	14 years	\$200.00	\$1,200.00	Manu. by Grinder Fabricating
Traffic Control Signage	EA.	2	16 years	30 years	14 years	\$200.00	\$400.00	Posts manu. by Grinder Fabricating
Street Trees-New, <6" cal.	EA.	4	0-5 years	30 years	25-30 years	\$350.00	\$1,400.00	
Street Trees-healthy, 6-21" cal.	EA.	20	5-16 years	30 years	14-25 years	\$350.00	\$7,000.00	
Street Trees-remove	EA.	2	20 years	30 years	0 years	\$350.00	\$700.00	Removal due to size, disease or conflict w/ infrastructure
TOTAL:							\$188,680.00	
PHASE 15	Unit	Quantity	Approx. Age	Ant. Life Exp.	Proj. Rem. Life	Unit Cost	Ext.	Notes
Curb & Gutter-recently replaced	L.F.	0	2-5 years	50 years	45-48 years	\$20.00	\$0.00	Concrete
Curb & Gutter-need replacement	L.F.	0	16 years	50 years	0 years	\$20.00	\$0.00	Concrete
Curb & Gutter-nd repl. In 5 years	L.F.	0	16 years	50 years	5 years	\$20.00	\$0.00	Concrete
Curb & Gutter - bal. of orig. total	L.F.	187	16 years	50 years	34 years	\$20.00	\$3,740.00	Concrete
TOTAL:							\$3,740.00	

Common Area Matrix

PHASE 16	Unit	Quantity	Approx. Age	Ant. Life Exp.	Proj. Rem. Life	Unit Cost	Ext.	Notes
Curb & Gutter-recently replaced	L.F.	0	2-5 years	50 years	45-48 years	\$20.00	\$0.00	Concrete
Curb & Gutter-need replacement	L.F.	0	16 years	50 years	0 years	\$20.00	\$0.00	Concrete
Curb & Gutter-nd repl. In 5 years	L.F.	0	16 years	50 years	5 years	\$20.00	\$0.00	Concrete
Curb & Gutter - bal. of orig. total	L.F.	1,732	16 years	50 years	34 years	\$20.00	\$34,640.00	Concrete
Sidewalks-recently replaced	S.F.	340	2-5 years	50 years	45-48 years	\$5.00	\$1,700.00	Concrete, 4" thickness
Sidewalks -Need replacement	S.F.	80	20 years	50 years	0 years	\$5.00	\$400.00	Concrete, 4" thickness
Sidewalks -nd repl. In 5 years	S.F.	80	16 years	50 years	5 years	\$5.00	\$400.00	Concrete, 4" thickness
Sidewalks -Bal. of orig. total	S.F.	4,096	16 years	50 years	34 years	\$5.00	\$20,480.00	Concrete, 4" thickness
Street Lights	EA.	6	16 years	50 years	34 years	\$2,650.00	\$15,900.00	Provided by TAM electric - pole, screw anchor only
Mailboxes-single	EA.	1	16 years	30 years	14 years	\$500.00	\$500.00	Manu. by Grinder Fabricating
Mailboxes-double	EA.	10	16 years	30 years	14 years	\$750.00	\$7,500.00	Manu. by Grinder Fabricating
Street Signs	EA.	1	16 years	30 years	14 years	\$200.00	\$200.00	Manu. by Grinder Fabricating
Traffic Control Signage	EA.	1	16 years	30 years	14 years	\$200.00	\$200.00	Posts manu. by Grinder Fabricating
Street Trees-New, <6" cal.	EA.	3	0-5 years	30 years	25-30 years	\$350.00	\$1,050.00	
Street Trees-healthy, 6-21" cal.	EA.	9	5-16 years	30 years	14-25 years	\$350.00	\$3,150.00	
Street Trees-remove	EA.	0	16 years	30 years	0 years	\$350.00	\$0.00	Removal due to size, disease or conflict w/ infrastructure
TOTAL:							\$86,120.00	

PHASE 18	Unit	Quantity	Approx. Age	Ant. Life Exp.	Proj. Rem. Life	Unit Cost	Ext.	Notes
Curb & Gutter-recently replaced	L.F.	0	2-5 years	50 years	45-48 years	\$20.00	\$0.00	Concrete
Curb & Gutter-need replacement	L.F.	0	12 years	50 years	0 years	\$20.00	\$0.00	Concrete
Curb & Gutter-nd repl. In 5 years	L.F.	0	12 years	50 years	5 years	\$20.00	\$0.00	Concrete
Curb & Gutter - bal. of orig. total	L.F.	1,278	12 years	50 years	38 years	\$20.00	\$25,560.00	Concrete
Sidewalks-recently replaced	S.F.	20	2-5 years	50 years	45-48 years	\$5.00	\$100.00	Concrete, 4" thickness
Sidewalks -Need replacement	S.F.	0	12 years	50 years	0 years	\$5.00	\$0.00	Concrete, 4" thickness
Sidewalks -nd repl. In 5 years	S.F.	80	12 years	50 years	5 years	\$5.00	\$400.00	Concrete, 4" thickness

Common Area Matrix

Sidewalks -Bal. of orig. total	S.F.	4,456	12 years	50 years	38 years	\$5.00	\$22,280.00	Concrete, 4" thickness
Street Lights	EA.	9	12 years	50 years	38 years	\$2,650.00	\$23,850.00	Provided by TAM electric - pole, screw anchor only
Mailboxes-single	EA.	1	12 years	30 years	18 years	\$500.00	\$500.00	Manu. by Grinder Fabricating
Mailboxes-double	EA.	7	12 years	30 years	18 years	\$750.00	\$5,250.00	Manu. by Grinder Fabricating
Street Signs	EA.	2	12 years	30 years	18 years	\$200.00	\$400.00	Manu. by Grinder Fabricating
Traffic Control Signage	EA.	0	12 years	30 years	18 years	\$200.00	\$0.00	Posts manu. by Grinder Fabricating
Street Trees-New, <6" cal.	EA.	8	0-5 years	30 years	25-30 years	\$350.00	\$2,800.00	
Street Trees-healthy, 6-21" cal.	EA.	6	5-12 years	30 years	18-25 years	\$350.00	\$2,100.00	
Street Trees-remove	EA.	0	12 years	30 years	0 years	\$350.00	\$0.00	Removal due to size, disease or conflict w/ infrastructure

TOTAL:

\$83,240.00

PHASE 20	Unit	Quantity	Approx. Age	Ant. Life Exp.	Proj. Rem. Life	Unit Cost	Ext.	Notes
Curb & Gutter-recently replaced	L.F.	0	2-5 years	50 years	45-48 years	\$20.00	\$0.00	Concrete
Curb & Gutter-need replacement	L.F.	0	11 years	50 years	0 years	\$20.00	\$0.00	Concrete
Curb & Gutter-nd repl. In 5 years	L.F.	0	11 years	50 years	5 years	\$20.00	\$0.00	Concrete
Curb & Gutter - bal. of orig. total	L.F.	3,650	11 years	50 years	39 years	\$20.00	\$73,000.00	Concrete
Sidewalks-recently replaced	S.F.	0	2-5 years	50 years	45-48 years	\$5.00	\$0.00	Concrete, 4" thickness
Sidewalks -Need replacement	S.F.	0	11 years	50 years	0 years	\$5.00	\$0.00	Concrete, 4" thickness
Sidewalks -nd repl. In 5 years	S.F.	0	11 years	50 years	5 years	\$5.00	\$0.00	Concrete, 4" thickness
Sidewalks -Bal. of orig. total	S.F.	7,528	11 years	50 years	39 years	\$5.00	\$37,640.00	Concrete, 4" thickness
Street Lights	EA.	16	11 years	50 years	39 years	\$2,650.00	\$42,400.00	Provided by TAM electric - pole, screw anchor only
Mailboxes-single	EA.	7	11 years	30 years	19 years	\$500.00	\$3,500.00	Manu. by Grinder Fabricating
Mailboxes-double	EA.	16	11 years	30 years	19 years	\$750.00	\$12,000.00	Manu. by Grinder Fabricating
Street Signs	EA.	6	11 years	30 years	19 years	\$200.00	\$1,200.00	Manu. by Grinder Fabricating
Traffic Control Signage	EA.	0	11 years	30 years	19 years	\$200.00	\$0.00	Posts manu. by Grinder Fabricating
Street Trees-New, <6" cal.	EA.	19	0-5 years	30 years	25-30 years	\$350.00	\$6,650.00	
Street Trees-healthy, 6-21" cal.	EA.	11	5-11 years	30 years	19-25 years	\$350.00	\$3,850.00	
Street Trees-remove	EA.	0	11 years	30 years	0 years	\$350.00	\$0.00	Removal due to size, disease or conflict w/ infrastructure

TOTAL:

\$180,240.00

Common Area Matrix

PHASE 21	Unit	Quantity	Approx. Age	Ant. Life Exp.	Proj. Rem. Life	Unit Cost	Ext.	Notes
Curb & Gutter-recently replaced	L.F.	0	2-5 years	50 years	45-48 years	\$20.00	\$0.00	Concrete
Curb & Gutter-need replacement	L.F.	0	8 years	50 years	0 years	\$20.00	\$0.00	Concrete
Curb & Gutter-nd repl. In 5 years	L.F.	0	8 years	50 years	5 years	\$20.00	\$0.00	Concrete
Curb & Gutter - bal. of orig. total	L.F.	2,066	8 years	50 years	42 years	\$20.00	\$41,320.00	Concrete
Street Lights	EA.	16	8 years	50 years	42 years	\$2,650.00	\$42,400.00	Provided by TAM electric - pole, screw anchor only
Mailboxes-single	EA.	0	8 years	30 years	22 years	\$500.00	\$0.00	Manu. by Grinder Fabricating
Mailboxes-double	EA.	6	8 years	30 years	22 years	\$750.00	\$4,500.00	Manu. by Grinder Fabricating
Street Signs	EA.	6	8 years	30 years	22 years	\$200.00	\$1,200.00	Manu. by Grinder Fabricating
Traffic Control Signage	EA.	1	8 years	30 years	22 years	\$200.00	\$200.00	Posts manu. by Grinder Fabricating
Street Trees-New, <6" cal.	EA.	2	0-5 years	30 years	25-30 years	\$350.00	\$700.00	
Street Trees-healthy, 6-21" cal.	EA.	24	5-8 years	30 years	22-25 years	\$350.00	\$8,400.00	
Street Trees-remove	EA.	0	20 years	30 years	0 years	\$350.00	\$0.00	Removal due to size, disease or conflict w/ infrastructure
TOTAL:							\$98,720.00	

Common Area Element Matrix

1

Matrix Assumptions and Sources

(Note: All prices shown on the Common Area Matrix and the Current Needs Summary assume today's dollars and do not include an inflation factor for future cost projections. Pricing is based on information supplied by association representatives, local contractors and The Reaves Firm's knowledge of historical pricing.)

The following are assumptions, rationale and methods used by The Reaves Firm in development of the attached Common Area Element Matrix and the Current Needs Spreadsheet.

Curb and Gutter

The street and alley curb and gutter system is considered to be a long-life item, so it was given an arbitrary 50-year lifespan. Overall curb and gutter calculations were taken off electronic AutoCAD master plan drawings. Most of the vertical curb and gutter is in good condition, with exception of that cracked and displaced by street tree root systems and/or utility maintenance work. The condition of rear alley curb varies greatly from area to area, the difference having more to do with initial construction quality than home construction wear and weathering. Curbs in several alleys are cracked every six feet or so but are not impeding surface water or creating tripping hazard and are therefore excluded from the Current Needs category. The Association may wish to replace them in the future from a cosmetic standpoint.

Curb work included in the Current Needs spreadsheet is in need of immediate replacement because of significant vertical or horizontal displacement where storm water is impeded, pavement is being displaced or where tripping hazards are present. This typically occurs adjacent to street trees, at storm inlet transitions or in areas of pavement settlement. Several sections of curb and gutter throughout the development adjacent to street trees and in need of replacement are excluded from the Current Needs Spreadsheet because it appears unfeasible to replace the curb and gutter without destroying the adjacent trees. All on-site measurements of curb and gutter in need of replacement are approximate, calculated by pacing.

Asphalt Paving

Asphalt quantities were compiled by electronically creating and measuring areas on AutoCAD master plan drawings. Representatives of The Reaves Firm contacted APAC, Inc., the primary paving contractor for past work in the development to ascertain relative ages of the street system wearing surfaces to establish approximate lifespan expectations. Asphalt paving repairs shown in the Current Needs spreadsheet include areas of eminent failure, areas "alligating" because of poor initial road bed compaction, areas where the proper flow of surface water is impeded by uneven surfaces or areas likely to be damaged during curb and gutter replacement. None of the asphalt repairs suggested in the Current Needs spreadsheet are emergency or hazardous situations. However, if the issues listed are not addressed in the near future further deterioration can be expected due to weathering and routine traffic wear. Normal asphalt cracking was noted throughout the development, and while this item is not included in the Current Needs matrix and is not considered a vital item, the association might consider a sealing program to avoid unnecessary infiltration of moisture into the pavement section, particularly if there are major delays in wearing surface replacement. The technique assumed for future pavement replacement is a 1 1/2" mill followed by a new wearing surface of the same depth. The replacement cost shown on the Common Area Elements matrix does not include replacement of the limestone gravel road base or the base course of asphalt. The area most in need

of attention, Harbor Town Circle, is omitted from the Current Need Matrix because, according to association representatives, the adjacent hotel is soon to undertake a project to replace the existing curb and gutter, narrow the street and repave at no cost to the association.

Sidewalks

Concrete sidewalk areas were calculated using an electronic AutoCAD master plan of the development and given an arbitrary 50-year life expectancy from approximate date of installation. The condition of street side sidewalks is generally good throughout the development except where adversely affected by nearby street trees. Sidewalk areas uplifted by tree roots have been repaired by the association on an as-needed basis during the last ten years. The Current Needs Spreadsheet identifies areas of sidewalk in need of replacement due to tree root damage in addition to a small amount of handicap ramp repair. The Common Area Element Matrix identifies areas of recent replacement, areas likely to need replacement in 5 years due to tree maturity (assuming 20' long replacement sections), and the project balance assumed to survive the entire life expectancy.

Brick Pavers (on sand)

The majority of pedestrian ramps and landings throughout the development are composed of solid brick pavers resting on sand bases. In nearly all cases, the pavers have settled over time and created varying degrees of unevenness. At the direction of the management company, this report identifies areas for repair where reasonably possible and replacement of total areas where repair is unfeasible. Areas identified for partial repair would involve reuse of the existing pavers on a newly smoothed sand base. Areas of total replacement would involve reuse of the existing pavers on a new crushed and compacted limestone base with metal edging for containment.

Street Lights

Street lights were physically counted during the on-site inventory and a replacement price assigned to each pole based on historical replacement cost adjusted for inflation as provided by the local installer. It has been three years since the last pole replacement, so this can be looked on as an infrequent expense. Memphis Light Gas and Water handles replacement of the luminarie package as part of the private lighting rental program. Periodic painting of the poles is covered under the association's maintenance program.

Mailboxes

The matching wrought iron residential mailboxes, both single and double-loaded, were counted on site and examined for wear. According to association representatives, the major replacement item is the hinged finial that doubles as a mail flag. The mailboxes are replaced or reset on an individual basis when damaged by cars, vandalism or adjacent tree roots. Pricing was provided by the manufacturer.

Street Signage

For the purposes of this report, street identification and traffic control signage throughout the development were considered long-life items. However, periodic isolated replacement can be expected due to vehicular traffic mishaps and over the projected average lifespan the association can

expect to replace a large majority of the poles. Painting and other maintenance of the decorative sign poles are part of the ongoing association program.

Bridges

The faux vehicular bridges were reviewed by individual component, each assigned a likely lifespan and each examined for wear and failure. The bridge surfaces, dry-laid brick pavers on a poured in place concrete base, are generally in good shape except for several areas near the end of several bridges. These repairs are included in the Current Needs Matrix. The bridge rail supports (precast concrete light bollards) are in good shape but need caulking at all joints and one or two of the concrete panels show beginning signs of wear or disintegration. The remaining life of the bollards might be extended with minor maintenance.

Fire Hydrants

According to MLG&W, most of the fire hydrants at Harbor Town are referred to as easement hydrants. The hydrants are served by waterlines located in private easements, not public streets. A monthly fee is paid to MLG&W for maintenance of the hydrants. The only hydrants not maintained by MLG&W are located in the apartment communities, areas not included in this report.

Sanitary Sewer Lift Stations

The two sanitary sewer lift stations at Harbor Town should be near the end of their useful lives at 20 years of service. A lift station is a system of pumps, floats and other mechanical elements used to raise waste water to an elevation where it can be discharged into the relatively maintenance free gravity sewer system. Typically components of a lift station do not all wear out at the same time. Barring the influence of outside forces, the wet well could likely have two to three times the lifespan of the mechanical components. The project management group has a routine maintenance program in place for the mechanical elements of the stations. The projected replacement cost, based on input from a pump supplier is listed in the Phase One Common Element Matrix.

Pond Aerators, Well and Transfer Pump

For the purposes of this report, it was assumed the mechanical portions of these elements have a relatively short life span, given the typical high maintenance involved in keeping them constantly operational. The lifespan in the Common Area Element Matrix assumes that over a ten to twenty year period, each item will essentially be replaced part by part. This is done within the context of the association maintenance program.

Lake Overflow Spillways

At the low end of each common area lake are cobblestone pavers that have, in some instances, heaved significantly or been displaced by water flow. This report assumes a certain percentage of those pavers will be reset over the next 30 years using the existing materials on site.

Limestone Walking Paths

Walking paths that surround the lakes in the central amenity area are typically 4' wide while those bordering the Wolf River Harbor average 5' in width. This report assumes the trail system along the

Harbor will need replacement every 2 years, while the remaining limestone trails system will need replacement every 5 years. Replacement cost is based on an average depth of 5". Any filter fabric underlayment, if present, is excluded from the replacement cost.

Tree Lights and Lighted Bollards

Ground-mounted tree up lights and light bollards, found around the common area lake system, were counted during a site tour and their condition graded. Replacement pricing was provided by a local electrical engineering firm.

Park Benches and Bike Racks

These items were counted during a site tour and a complete replacement cost provided by the manufacturer is included in the Common Area Element Matrix. Ongoing replacement of wood slats and touchup painting is carried out through the normal association maintenance program.

Roadway Striping

Roadway stripes and markings on the streets of Harbor Town are painted. The majority of the markings are 4" wide parking space delineators. The areas of other elements such as stop bars and directional arrows were converted to an equivalent length of 4" wide stripe for determining quantities. The unit price applied was based on recent site work cost bid sheets with a premium applied for working in confined conditions. For the purpose of this report all striping is associated with Phase One. The reasoning for this is based on input from the property manager's office stating the asphalt pavement in the entire development was seal coated approximately 2 years ago, thereby making the estimated remaining life a constant throughout the community.

Pavilions, Gazebos, Arbors, and Entry Signage

For the purposes of this report, these items were given a life expectancy of 30 to 50 years, assuming good maintenance practices are carried out by the association. The price shown on the Common Element Matrix would be for total one time replacement. Some rotted wood was noted in areas, particularly on the Settler's Point Pavilion, but it is assumed this minor cosmetic work will be carried out as part of normal association maintenance.

Playgrounds

According to association representatives, the large playground at Settler's Point was recently replaced at a cost of \$50,000. The two remaining playgrounds will be replaced during the next year at a total budget price of \$50,000, all of which is reflected in the Common Area Element Matrix.

Storm Drainage

The storm drainage system is another long-life item and was assigned a 100-year life span as such. Most of the system is underground with no practical way for inspection. Observable elements in need of repair are defined in the Current Needs outline. Typically these will be structure tops that need re-seating.

Quantities for applicable pipe sizes and structure types were tabulated by reviewing the grading and drainage plans for each phase. A unit price was associated for each item. The unit prices were derived from recent site work cost bid sheets and are to be considered a current price estimate for each item. A street repair cost of \$20 per linear foot was assessed along with the infrastructure cost. A weighted average of pipe size and depth along with the pavement design of the streets impacted by the repair were factors considered when determining the associated street repair cost. A breakdown of the projected cost by phase is summarized on the Long Range Items outline.

Sanitary Sewers

The sanitary sewer system is a long-life item with an assumed 100-year life span. The methodology for assessing the sanitary sewer system is essentially the same as that used for the storm drainage. Quantities for applicable pipe sizes and structures were tabulated by reviewing the sanitary sewer plans for each phase. A unit price was associated for each item. The unit prices were derived from recent site work cost bid sheets and are to be considered a current price estimate for each item. A street repair cost of \$20 per linear foot was assessed along with the infrastructure cost. A weighted average of pipe size and depth along with the pavement design of the streets impacted by the repair were factors considered when determining the associated street repair cost. A breakdown of the projected cost by phase is summarized on the Long Range Items outline.

Street Trees

Street Trees were inventoried based on size and assigned an appropriate life expectancy based on surrounding conditions. An average replacement cost was then applied.

Remaining Landscape

Aside from scattered replacement of problematic landscape throughout the development under the association maintenance program, it is assumed that at some point in the future a wholesale renovation of the landscape in all common area will occur at some level. For budget purposes, this report includes an arbitrary lump sum amount to cover this work in the Long Range Items table.

Irrigation

Given that the irrigation system may be nearing the end of its life expectancy, this report included an estimate of overall replacement. For estimation purposes, it was assumed all narrow irrigation strips were equipped with spray heads at 15' on center and all large open irrigated areas were equipped with rotor heads at 30' on center. Using the resulting number of heads, a unit price per head was established (\$80/spray head and \$130/rotor head) that typically would cover installation of all associated components of the system including piping, wiring and controllers.

Purple Martin Houses

This report attaches a best guess estimate at to the replacement value of the martin houses. The unit price listed in the Common Area Elements Matrix does not include yearly maintenance.

Park Signage

During a site visit all park identification signs were counted and assessed for wear. The price shown on the Common Area Element Matrix is an estimate and is intended as a one-time replacement cost, exclusive of normal association maintenance.

Harborside Erosion Control

For the purposes of this report an arbitrary amount of money was included in the Common Area Element matrix for earthwork, debris removal and bank repair that might be needed because of an infrequent high water event along the Wolf River Harbor once every few years.

Shadow Box Fence (Village Drive)

The existing fence separating the multi-family use from the single-family area is worn and in need of replacement. The fence was measured using an aerial photograph and a unit price assigned based on industry standards. The money allotted could also be used to plant a landscape buffer, if the association chose not to replace the fence.

Lake Edge Treatment

This report recommends lining Skating Pond with a limestone edging as part of the Current Needs Matrix because of deterioration of the banks from wave action. No action on the remaining ponds is recommended, as there is no evidence of significant bank erosion on those.

Disclaimer

The elements discussed in this report are based on observations made on-site between the dates of July 1st and July 17th of this year, available plans and input from the association. No tests were conducted. The information contained herein is deemed to be reliable but should not be considered an audit or a quality control inspection.

Long Range Items

Storm Drainage (100-year lifespan)

Phase	Pipe Length	# Structures	Est. Installation Cost	Street Repair	Total Est. Replacement Cost)	Age
1	12000	157	\$927,307.00	\$244,820.00	\$1,172,127.00	20
4	135	2	\$8,570.00	\$2,700.00	\$11,270.00	20
5	460	8	\$30,090.00	\$7,200.00	\$37,290.00	19
11	90	1	\$5,800.00	\$0.00	\$5,800.00	18
14	1025	19	\$76,398.00	\$20,500.00	\$96,898.00	16
18	151	3	\$10,277.00	\$3,020.00	\$13,297.00	12
20	897	8	\$43,439.00	\$16,140.00	\$59,579.00	11
21	837	7	\$45,099.00	\$13,540.00	\$58,639.00	8
Totals	15595	205	\$1,146,980.00	\$307,920.00	\$1,454,900.00	

Sanitary Sewer (100-year lifespan)

Phase	Pipe Length	# Structures	Est. Installation Cost	Street Repair	Total Est. Replacement Cost)	Age
1	4743	77	\$524,624.00	\$248,320.00	\$772,944.00	20
4	885	2	\$24,090.00	\$8,500.00	\$32,590.00	20
5	677	0	\$14,894.00	\$10,700.00	\$25,594.00	19
7	795	4	\$26,990.00	\$15,900.00	\$42,890.00	19
8	135	0	\$2,430.00	\$2,700.00	\$5,130.00	19
9	168	0	\$3,024.00	\$3,360.00	\$6,384.00	18
10	281	0	\$5,558.00	\$5,620.00	\$11,178.00	18
13	152	0	\$2,736.00	\$3,040.00	\$5,776.00	17
14	1358	6	\$43,968.00	\$27,160.00	\$71,128.00	16
18	531	5	\$11,682.00	\$10,620.00	\$22,302.00	12
20	1114	9	\$49,708.00	\$22,280.00	\$71,988.00	11
21	444	3	\$17,884.00	\$8,880.00	\$26,764.00	8
Totals	11283	106	\$727,588.00	\$738,977.00	\$1,094,668.00	

Sitewide Landscape Renovation

Lump Sum Estimate: \$300,000.00

Notes:

All estimates are in current dollars.

Street repairs assume 6' wide cut over all pipe.

Force mains and lift stations are excluded.

All ages shown refer to plat recordation dates.



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