



February 19, 2015

Ms. Marjorie Ferrer  
Executive Director  
Delray Beach Downtown Development Authority  
85 SE 4th Ave, Suite 108  
Delray Beach, FL 33483

**RE: *Delray Beach DDA Christmas Tree - Supplemental Report***

Ms. Ferrer:

The tree structure evaluation was completed and documented in our report dated February 2, 2015. As a follow-up to the recommendations outlined in that report, the City requested an estimate of the cost to implement those recommendations. This supplemental report addresses that request. The estimates are anticipated to be used to establish appropriate repair budgets over the next 2 to 5 years.

In general, the primary cause of the deterioration of the frame is due to the existing frame configuration that does not allow for proper ventilation/drying of the interior of the tubular members.

## **REPAIR SCHEDULE AND SCOPE**

Our recommendations are subdivided into the following phases:

### **PHASE I (2015-2016)**

1. Construct a designated structure (ventilated and preferably insulated) for storage and protection of the frames.
2. Drill drain holes in all the closed vertical leg sections of the frames to prevent trapping water.
3. Replace all fastener components (bolts, washers and nuts) with non-corrosive galvanized or stainless steel assemblies.
4. Patch frames similar to previous repairs to re-use existing frame for at least one more season
5. Develop frame repair tracking system.

After the 2015 Christmas season, replace the existing tree with a new tree or reconstruct the existing frame.

## **PHASE 2 – OPTION 1 (2016-2017)**

Replace the entire tree frame by commissioning a commercially designed outdoor tree from an organization such as Christmas Designers.

If a new frame was commissioned from a specialty supplier as once, there would be savings from reduced mobilization/demobilization, as well as from reducing the interim repairs of the existing. A summary of this anticipated cost is included in **Appendix A**.

## **PHASE 2 – OPTION 2 (2016-2021)**

If refurbishment to save the existing tree is desired, the following timeline could be used:

Begin systematic replacement/improvement of frames by rebuilding sections using hot-dip galvanized sections. Assume 1/5 of the tree is refurbished annually.

### Year 1 (2016-2017)

1. Reconstruct frames to replace/upgrade 1/5 of the tree.
2. Develop a rack system for storage that holds the frames vertical, elevated off the floor.
3. Continue to remove any loose rust and patch, weld or replace severely corroded sections of remaining existing sections, as needed.

### Years 2 through 4 (2017-2020)

1. Reconstruct frames to replace/upgrade 1/5 of the tree.
2. Continue to remove any loose rust and patch, weld or replace severely corroded sections of remaining existing sections, as needed.

### Year 5 (2020-2021)

1. Reconstruct final frames to replace/upgrade the last 1/5 of the tree.

A summary of this anticipated cost is included in **Appendix B**.

These estimates are provided for budget purposes only and are subject to market conditions at the time the services are requested and contracted.

## CLOSURE

The opinions and conclusions expressed in this report are based on a review of the noted material, the limited investigation described above, as well as my education, training, and experience as a licensed, professional engineer, and have been reached within a reasonable degree of engineering probability. These opinions and conclusions are based on the information currently available to me and may be amended or supplemented should new information become available.

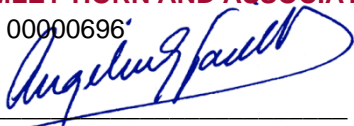
This report has been prepared in accordance with the applicable professional standard of care. No other warranties or guarantees, express or implied, are made or intended. This report has been prepared solely for the Client for the purpose stated herein and should not be relied upon by any other party or for any other purpose. Any reliance on this report by any party other than the Client shall be without liability to Kimley-Horn or its employees.

Please call me at (561) 845-0665 if you have any questions.

Sincerely,

**KIMLEY-HORN AND ASSOCIATES, INC.**

CA 0000696



Angelina G. Fairchild, P.E.

FL License #43958

### Attachments:

- Appendix A – Cost for Tree Replacement plan
- Appendix B – Cost for Tree Refurbishment plan

**PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COSTS**

**Budget Level Detail**

**APPENDIX A**

Delray Beach Steel Frame Christmas Tree Restoration Project PROJECTED COST SUMMARY Engineer's Preliminary Opinion Of Probable Construction Costs ***			
Item	Total Estimate	Phase1	Phase 2
		2015-2016	2016-2017
CONSTRUCT SLAB AND ERECT NEW STORAGE BUILDING FOR TREE FRAMES: Includes removal of existing frame and site restoration. (See attached preliminary estimate.)	\$240,000.00	\$240,000.00	
DRILL DRAIN HOLES IN ALL THE CLOSED VERTICAL LEG SECTIONS OF THE FRAMES TO PREVENT TRAPPING WATER	\$30,000.00	\$30,000.00	
REPLACE ALL FASTENER COMPONENTS (BOLTS, WASHERS AND NUTS) WITH NON-CORROSIVE GALVANIZED OR STAINLESS STEEL ASSEMBLIES	\$50,000.00	\$50,000.00	
PATCH FRAMES SIMILAR TO PREVIOUS REPAIRS: Continue to remove any loose rust and patch, weld or replace severely corroded sections of remaining existing sections, as needed, until new frame is available.	\$50,000.00	\$50,000.00	
DEVELOP A RACK SYSTEM FOR STORAGE THAT HOLDS THE FRAMES VERTICAL, ELEVATED OFF THE FLOOR	\$30,000.00		\$30,000.00
RECONSTRUCT ALL FRAMES OR REPLACE TREE AND MODIFY FOUNDATION	\$400,000.00		\$400,000.00
CONTRACTOR OVERHEAD/GENERAL CONDITIONS/BONDS/INSURANCE (10%)	\$80,000.00	\$37,000.00	\$43,000.00
<b>CONSTRUCTION COST SUBTOTAL</b>	<b>\$880,000.00</b>	<b>\$407,000.00</b>	<b>\$473,000.00</b>
PRE-ENGINEERED BUILDING DESIGN FEE (Manufacturer's design fee)	\$10,000.00	\$10,000.00	
FRAME RE-DESIGN AND DEVELOP REPAIR TRACKING DATABASE	\$25,000.00	\$25,000.00	
ENGINEERING/CONSTRUCTION SUPPORT DESIGN SERVICES FEE (12%)	\$105,600.00	\$48,840.00	\$56,760.00
PERMIT FEES (Allowance)	\$10,000.00	\$5,000.00	\$5,000.00
<b>SUBTOTAL</b>	<b>\$1,030,600.00</b>	<b>\$495,840.00</b>	<b>\$534,760.00</b>
CONSTRUCTION CONTINGENCY (10%)	\$103,060.00	\$49,584.00	\$53,476.00
<b>TOTAL BUDGET</b>	<b>\$1,133,660.00</b>	<b>\$545,424.00</b>	<b>\$588,236.00</b>

Prepared by: Kimley Horn and Associates in cooperation with LeMartec

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

**PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COSTS**

**Budget Level Detail**

**APPENDIX B**

<b>Delray Beach</b> <b>Steel Frame Christmas Tree Restoration Project</b> <b>PROJECTED COST SUMMARY</b> <b>Engineer's Preliminary Opinion Of Probable Construction Costs ***</b>							
Item	Total Estimate	Phase 1	Phase 2				
		2015-2016	2016-17	2017-18	2018-19	2019-20	2020-21
CONSTRUCT SLAB AND ERECT NEW STORAGE BUILDING FOR TREE FRAMES: Includes removal of existing frame and site restoration. (See attached preliminary estimate.)	\$240,000.00	\$240,000.00					
DRILL DRAIN HOLES IN ALL THE CLOSED VERTICAL LEG SECTIONS OF THE FRAMES TO PREVENT TRAPPING WATER	\$30,000.00	\$30,000.00					
REPLACE ALL FASTENER COMPONENTS (BOLTS, WASHERS AND NUTS) WITH NON-CORROSIVE GALVANIZED OR STAINLESS STEEL ASSEMBLIES	\$50,000.00	\$50,000.00					
PATCH FRAMES SIMILAR TO PREVIOUS REPAIRS: Continue to remove any loose rust and patch, weld or replace severely corroded sections of remaining existing sections, as needed	\$130,000.00	\$40,000.00	\$30,000.00	\$30,000.00	\$20,000.00	\$10,000.00	
DEVELOP A RACK SYSTEM FOR STORAGE THAT HOLDS THE FRAMES VERTICAL, ELEVATED OFF THE FLOOR	\$30,000.00	\$30,000.00					
RECONSTRUCT FRAMES TO BE REPLACED (UPGRADE 1/5 OF THE TREE ANNUALLY)	\$500,000.00		\$100,000.00	\$100,000.00	\$100,000.00	\$100,000.00	\$100,000.00
CONTRACTOR OVERHEAD/GENERAL CONDITIONS/BONDS/INSURANCE (10%)	\$107,800.00	\$39,000.00	\$13,000.00	\$13,000.00	\$12,000.00	\$11,000.00	\$10,000.00
<b>CONSTRUCTION COST SUBTOTAL</b>	<b>\$1,087,800.00</b>	<b>\$429,000.00</b>	<b>\$143,000.00</b>	<b>\$143,000.00</b>	<b>\$132,000.00</b>	<b>\$121,000.00</b>	<b>\$110,000.00</b>
PRE-ENGINEERED BUILDING DESIGN FEE (Manufacturer's design fee)	\$10,000.00	\$10,000.00					
FRAME RE-DESIGN AND REPAIR TRACKING DATABASE	\$25,000.00	\$25,000.00					
ENGINEERING/CONSTRUCTION SUPPORT DESIGN SERVICES FEE (12%)	\$130,536.00	\$51,480.00	\$17,160.00	\$17,160.00	\$15,840.00	\$14,520.00	\$13,200.00
PERMIT FEES (Allowance)	\$13,000.00	\$5,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	
<b>SUBTOTAL</b>	<b>\$1,266,336.00</b>	<b>\$520,480.00</b>	<b>\$162,160.00</b>	<b>\$162,160.00</b>	<b>\$149,840.00</b>	<b>\$137,520.00</b>	<b>\$123,200.00</b>
CONSTRUCTION CONTINGENCY (10%)	\$126,633.60	\$52,048.00	\$16,216.00	\$16,216.00	\$14,984.00	\$13,752.00	\$12,320.00
<b>TOTAL BUDGET</b>	<b>\$1,392,969.60</b>	<b>\$572,528.00</b>	<b>\$178,376.00</b>	<b>\$178,376.00</b>	<b>\$164,824.00</b>	<b>\$151,272.00</b>	<b>\$135,520.00</b>

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