PRE-CONSTRUCTION TREE EVALUATION FOR LARK STREET CORRIDOR IMPROVEMENTS

Prepared for:

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SUMMARY

On March 9, 2023 City Engineer Randy Milano sent me the plans for the Lark Street Corridor Improvements (GNP-1-4 & MSD-1) and requested my input. The Plans, drawn up by CHA and plot dated 3/3/2023, seemed to focus on elevations, grades, crosswalks, while viewing the trees as being more or less just another feature of the street scape, like utility poles or signage. When it came to trees, the emphasis seemed to be on preserving as many existing trees as possible—regardless of their condition, species, location, or how construction would impact their vitality and/or viability.

After reviewing the plans and comparing it with the City's Tree Inventory, I came to very different conclusions about the existing trees in the project area. My initial recommendations, based solely on the plans and the City's Tree Inventory, were to remove 21 Trees (18 Pears, 1 Red Oak, 1 Tree Lilac and 1 Hedge Maple) as part of this project. I also recommend planting 18 new trees and improving/expanding tree wells where feasible and within the current scope of work.

My Recommendations prompted Deputy Commissioner Zeoli to request that I prepare this formal report on the existing trees in the project area of the Lark Street Corridor Improvements. After reviewing the Plans once more and conducted a site visit of the Corridor on 3/24/2023, my recommendations have changed somewhat. My initial recommendations neglected to include in the final tally the removal of the 5 ash trees or a 'Pacific Sunset" maple. After the site visit, it became clear that a little leaf linden and another 'Pacific Sunset' maple should be removed based on condition. This brought the total tally for removals up to 29 trees. I recommend planting of 23 (+1) trees (in existing and new wells) and the abandoning of 12 (-1) tree wells that are in unsuitable locations.

INTRODUCTION

Background & History

Lark Street was once lined with many large oak trees. In 2002, as part of a complete renovation of the Corridor, and amid much public outcry, most of these large trees were removed. Some large oaks still remain on the edges of the project area, such as the large red oaks (DBH: 30" & 24") at 242 & 244 Lark and the English oak (DBH: 28") at 410 Hamilton.

One of the legacies of the 2002 Corridor Improvements were new sidewalks with quite small, decorative tree wells. These wells were inadequate to provide the resources trees need (water, nutrients, roots space, gas exchange) to grow and thrive. A majority of the trees planted to replace the oaks were Callery Pears, a small flowing ornamental native to China and Vietnam known for its hardiness. 20 years later, these are the dominant species growing in the Corridor, totaling 38 trees, followed by 9 red oaks and 5 white ash planted at the same time. These large form shade trees have struggled, with not one of the eight oaks on Lark attaining a diameter at breast height (DBH) greater than 10". These trees are not producing the kind of canopy (or benefits) they were intended to.

Purpose & Use of this Report

The purpose of this report is to provide the Deputy Commissioner, City Engineer and other stake holders with information regarding the composition and health of existing trees within the project area as well as to provide information on the effects construction will have on the long-term viability of these trees and to make recommendations to decision makers.

OBSERVATIONS

There are a total of 74 Tree planting sites identified within the current project area. 68 currently have trees growing in them. Of these 68 trees, only 2 trees were found to be in Good condition when the trees were last evaluated in the summer of 2021 (one of these, the sole 'Canada Red' Choke Cherry was just recently planted). It is unlikely that the condition of any of these trees has improved. On the contrary, we can assume that the trees in the Corridor have continued to suffer and decline. The species distribution, is heavily skewed, with reliance on only a few key species. It looks like this:

Callery Pear:	37
Red Oak	9 (1*)
White Ash	5
Hedge Maple	5
'Pacific Sunset' Maple	4
Honey Locust	2*
American Elm	1
Flowering Crab Apple	1*
'Canada Red' Choke Cherry	1
Little Leaf Linden	1*
Japanese Tree lilac	1
English Oak	1*

*On a side street east of Lark Street

Callery Pears:

Native to China and Vietnam, these trees were first introduction in 1909 to the Arnold Arboretum in Boston, MA. By the 1950's these tough and durable trees began to be used in street tree plantings because of their tolerance of alkaline soils, road salt, and drought resistance. Over and against this, Callery Pear branches tend to form narrow, weak crotches which leave them vulnerable to wind, snow and ice damage. They have flowers that many find smell offensive (although often quite beautiful to the eye). As of the New Year, Ohio banned callery pear entirely. Pennsylvania and South Carolina soon followed. No many states are considering doing the same thing, making it illegal to sell, grow, or plant Callery Pears due to its invasive tendencies. With this in mind, the Lark Street Corridor Improvements seem to provide a good opportunity to reduce the pear tree population on the street. I recommend removing 18 pear trees: 196 Washington Avenue; 189 Lark; 353 State; 348 State; 226 Lark; 229 Lark; 240 Lark; 215 Lancaster; 204 Lancaster, 244 Lark, 231 Jay; 259 Lark, 267 Lark; 269 Lark, 358 Hudson; 286 Lark; 425 Madison, 439 Madison.

Red Oaks:

Red Oaks comprise the second most common tree species in the project area. 8 of these were planted on Lark Street after the last Improvements, however none have grown to a DBH greater than 10". They are struggling and stunted, with very dense branching and very short intervals between buds. There are all kinds of potential reasons for this, from drought stress, poor soil nutrition, compacted soils, to the impacts of artificial light on plant biology. There is no easy answer. I recommend removing the tree at 231 Lark Street due to construction.

Small Form Maples:

There are 9 small form maples planted in the project area (5 Hedge Maples, 4 'Pacific Sunset'). Some look good and vigorous, others terrible. I recommend removing the hedge maple at 258 Lark because of condition and two Pacific Sunset Maples, one at 287 Lark because of construction and another at 439 Madison due to its condition.

White Ash:

There are five white ash planted in two groups with the project area. These at least 3 of these are infested with Emerald Ash Borer (EAB) and are in decline. All five should be removed due to EAB: 230, 232, 236, 283, 285 Lark.

Japanese Tree Lilac.

There is only one tree lilac in the project area at 284 Lark Street. Tree lilacs are another very hardy introduction from Asia that is now viewed as highly invasive. This tree is slated for removal due to location/construction.

Little leaf linden.

There is only one of these in the project area at 358 Hudson Avenue. It has been topped multiple times by line clearance trimming and has heaved the sidewalk in multiple places. A classic example of the wrong tree in the wrong place, it should be removed.

DISCUSSION

The trees in the Lark Street Corridor are not in great condition—most are "Fair" at best. They are stressed and face many challenges, most notably drought stress as a result of heat island effect, soil salinity and high pH from de-icing salts, the biological constraints of small planting sites…the list goes on. The important thing to bear in mind is that trees that are already stressed do not respond well to being disturbed and definitely will decline if damaged during construction.

Removing concrete sidewalks is not a gentle process. A single sidewalk panel often weigh in excess of 400 lbs. They don't come up easily, and often they move and load the ground in different ways as they are removed by heavy equipment. There is no way around this. And for trees, there is no way to get out of the way. Their roots are under those walks, and are vulnerable to being crushed or cut. If it doesn't happen when the sidewalks are removed, it likely will before the new concrete has cured. Some trees can handle this better than others. Elms, Apples, and Honey Locusts are notoriously durable, so there is a strong likelihood that they will recover quickly from whatever damage they incur. The large red and English oak may struggle; and could conceivably go into decline due to this work, but their value and stature makes it worth taking the risk to preserve them.

On the other hand, the trees I have recommended be removed are not worth preserving for a handful of reasons. Some, like the ash are infested and dying. Others are already in terrible condition. But the majority are growing in areas where sidewalk, crosswalk and bump outs are being installed and where there is a high probability that they will suffer construction damage. This group consists of 22 smaller trees (18 pears (4"-11" DBH),; 1 red oak (DBH: 7"), 1 Tree Lilac (DBH: 3"); 1 Hedge Maple (DBH: 4"); 1 'Pacific Sunset' Maple (DBH: 10")). The smaller the tree, the more vulnerable it is to even minor damage since they depend on a smaller root zone.

What's more is that with the planned new bump outs and crosswalks, some of these trees are going to be in the way. If the construction doesn't kill them, their new habitat is likely to.

CONCLUSION:

There is little sense in performing the Lark Street Corridor Improvements without paying some mind to the trees. They are an important and integral part of the streetscape—I think everyone will agree. But we also need to be thoughtful about where trees belong—and where they don't. The current Lark Street design, which dates back to 2002, seems to "shoe-horn" trees in at every opportunity, almost as if the designers tried to compensate for the removal of the large trees with a greater number: "we are putting 70 trees back!" 20 years down the line, it seems clear that approach didn't produce the most robust tree cover in the Corridor. With these new Corridor Improvements, we should take the opportunity to learn from past mistakes and correct what we can. We will be better off with fewer quality trees and planting sites than senselessly preserving trees and sites that are, frankly, just not working.

APPENDIX A, Minimum Spacing for Street Trees Detail