

To: Members of Dublin City Council
From: Dana L. McDaniel, City Manager
Date: July 21, 2020
Initiated By: Matt Earman, Director of Parks and Recreation
Shawn Krawetzki, Landscape Architect Manager
Re: South High Street Streetscape Improvements Update

Background

As a follow up to the South High Street Improvements presented at the February 10th, 2020 Council meeting, the following is a summary of the subsequent project developments and staff's recommendation.

Phase I – "Treescape" Plan for South High Street

There was discussion and consensus among City Council to move this specific phase forward prior to the relocation of utility poles and lines that exist along the street. The opinion was that they would be repositioned prior to any conflict with the immediate planting and future growth of the larger trees.

Since the last meeting, staff has researched tree species' availability and overall site location requirements of the trees and determined that the Tuliptree (fastigiatum/emerald city) species is the preferred option to establish a uniform, symmetrical, single-species streetscape along South High Street. Staff has proactively and individually selected 53 trees from a nursery to ensure each tree is from the appropriate climate zone origin, optimum diameter, height and overall high quality.

Engineering design proposals for the modular suspended pavement sections (Silva Cells / Strata Vault) have been requested from multiple engineering firms. The scope of work for the design includes the entire streetscape from West Bridge Street, south to John Wright Lane to accommodate competitive bidding for components of the streetscape that are to be replaced and improved.

The initial estimated cost of performing the installations along both sides of South High Street is approximately \$1.3 million. The estimated costs to only construct certain sections of these modular systems will increase if the sections are reduced and phased in over time. The cost increase is related to the joining of some cells to the end of the previously installed cells, which requires oversized excavations in order to connect the cell to the previously installed system. Not connecting the cell systems in certain circumstances would reduce the shared root zones between the trees.

Based on these additional costs and the disruption to the existing pavement, local businesses and traffic patterns, it is staff's opinion that replacing all of the trees on both west and east sides of the street in one phase would provide the most symmetrical streetscape at the completion of this phase of work and be the most cost effective and efficient implementation.

An initial site plan showing trees planted along both sides of South High Street at optimal spacing distances as site conditions allow has been developed and is attached for reference as Appendix A.

South High Street Phase II – Landscaping

With the expressed desire to incorporate “Dublin-style” limestone walls, staff has pursued the addition of walls as part of the treescape and overall landscape design process. It is staff’s opinion that in the three southwestern blocks where the tree lawn is sloping downward from the sidewalk to the street level, the construction of retaining walls would be most advantageous to allow the trees to be planted at the same, lower street elevation, to take full advantage of the soil volumes added by the cell systems, structurally retain the sidewalk and provide public seating areas along the walkway, (Appendices B1 and B2.) The total length of the walls is approximately 600 linear feet, to include brick steps intermittently installed at the greater elevation changes on the southern end. Estimated cost of installation of the walls is approximately \$300,000 (\$450-\$500/lf.)

As a future phase of the landscape detail, additional Dublin-style stone seat walls with decorative column ends could be added along additional streetscape blocks at various lengths to provide additional seating and continue the desired Dublin style stone wall aesthetic. The estimated cost is approximately \$450-\$500 per linear feet.

In order to address the erosion issues associated with the building downspouts on the west side of the street, it is staff’s opinion that each of the individual properties would be able to substantially mitigate the issues by installing diffusing systems at the sites of discharge. Rather than installing drain piping under the sidewalk and discharge directly into the street or into the strata cell of the tree, it is staff’s opinion that this option would be too costly and unnecessary given the direct discharge diffusion would be sufficient to significantly mitigate landscape erosion issues.

If Council decides to proceed with the design and construction of Phase 1 and a portion of Phase 2 as described above in 2020, an appropriation for \$1.6 million would be included in the third quarter supplemental ordinance. Funding for this project would be made available by reallocating funding currently appropriated in 2020 for a project that will not be occurring until 2021.

Recommendation

Staff recommends proceeding with the design and bidding for Phase 1 and a portion of Phase 2 as described above to include the suspended pavement systems and tree installation for the east and west sides of the street, and the installation of the 600 feet retaining walls and steps along the southwest blocks.

With Council’s approval, the removal of the existing trees on the east side of the street, installation of the retaining wall and planting of trees could occur this fall. Construction could resume in the spring of 2021 with the installation of the strata cells and paving of South High Street.

Future design and installation of decorative seating walls along South High Street would be programmed as part of the City’s five-year Capital Budget programming process.

To: Members of Dublin City Council
From: Dana L. McDaniel, City Manager
Date: February 4, 2020
Initiated By: Matt Earman, Director of Parks and Recreation
Re: South High Street Streetscape Improvements - Community Development Committee Recommendations

Background

As a follow up to the Community Development Committee/South High Street visioning memo dated December 31, 2019 (attached,) the following is a summary of the subsequent Committee meeting held on Friday, January 17, 2020.

The main takeaways from the meeting are generally represented by three phases.

Phase I – “Treescape” Plan for South High Street

There was discussion and consensus among the Committee to move this specific phase forward as soon as possible. The discussion regarding the relocation of elevated utility lines led to the opinion they would be repositioned prior to any conflict with the immediate planting of larger trees. In order to accommodate this decision, it was requested that staff provide additional information to determine a preferred species.

Staff presented four species for consideration to achieve the desired effect, from which the Committee selected two: Tuliptree (fastigiatum/emerald city) and Hardy Rubber Tree. From these two options, one species will be selected as the single tree to be planted in order to achieve the desired aesthetics. The determination will be based on the available inventory of trees and the quality of trees readily available. Each tree will be individually selected based on the climate zone origin, optimum diameter at breast height (DBH), height and overall quality of each tree.

Trees will be planted along both sides of South High Street at optimal spacing distances as site conditions permit. As for the potential removal and replacement of the existing mature trees along the northwest segment of South High Street, further evaluation of the trees was conducted by staff and a third party consultant to determine overall health and estimated lifespan. Based on the analyses, findings showed varying degrees of tree health issues (Appendix A – Tree Assessment Findings Summary.) The life expectancy of these trees is estimated within a wide range, spanning from approximately five to fifteen years. Based on these reports, there is no imminent danger noted; however, a few trees may need to be removed over the next few years to minimize potential future risk. It is preferred that only the least healthy trees be removed that pose a greater safety concern and/or a shorter life expectancy in order to temporarily maintain the existing tree canopy until the remaining trees require replacement.

A soil volume analysis was also conducted in order to compare variances with desired soil volume for the replacement trees. In general, existing soil quantity per tree is an estimated 400 cubic feet.

The desired quantity for the desired tree canopy for a 16-foot, 32-inch diameter tree is approximately 1,000 cubic feet – a deficiency of 600 cubic feet of soil per tree.

The desired approach in order to achieve the 1,000 cubic feet of soil at each planting site is to remove the existing soil, extend the planting bed into and under the existing roadway pavement and install a suspended pavement system (i.e.: Silva Cells.) Each suspended system will only be installed under the road pavement in order to minimize challenges and future issues with existing buried utility lines and walkways. Further feasibility and engineering analyses will be required for this option.

South High Street Phase II – Landscaping

In addition to the “treescape” along South High Street, there was discussion regarding the general landscape conditions alongside of South High Street which included inconsistencies and improvements that needed to be addressed.

Along the west side of the street, there is an existing stone wall that the Committee expressed a desire to extend the length of the wall toward the south to accommodate additional seating areas and aesthetic landscaping opportunities. The Committee also expressed an interest in studying additional sites at which new walls could be constructed along the street.

Another area of concern is with multiple building downspouts discharging directly into mulched beds, creating erosion problems. As part of the landscape plan, it is the Committee’s desire to analyze each situation and design mitigation plans that will improve storm water runoff. Such plans include directly channeling the water under the sidewalks to the street/curb and in cases where this was not feasible, installing dispersion areas to mitigate erosion issues.

In order to achieve the desired landscape design, “Assistance Programs” were discussed. It is the preference of the Committee that Staff offer a Landscape Design Assistance service to businesses along the street and include the current City sponsored “Façade Improvement Grant Program” as an additional incentive for property owners to enhance landscaping along South High Street.

Phase III – Long Term Plan/Policy for all Urban Streets throughout the City

It was the desire of the Committee to develop more specific policies regarding the current Street Tree Code, to include an additional component that would address urban environments.

At the request of the Committee, staff provided a list of preferred tree species for varying size of canopies, less than forty feet in diameter and greater than forty feet in diameter. For each category, the following species were preferred by the Committee:

Less Than Forty Feet in Diameter:

- Tuliptree
- Hardy Rubber Tree
- Basswood
- Dawn Redwood
- Miyabe Maple
- Sweetgum

Greater than Forty Feet in Diameter

Bur Oak
Swamp White Oak
Chinquapin Oak
London Plane
American Elm 'Jefferson'
Cucumber Magnolia

As part of the discussion related to these species, the Committee also expressed that the selection for urban areas would not always be limited to only these species and would be at the discretion of the City Forester. Additionally, the preferred planting soil specifications for planting trees should include a test certified, analyzed amended Silty Loam soil type at a volume of 1,000 cubic feet of soil where feasible and a tree able to reach a height that supports a desired minimum seven foot pruning clearance height.

It is also the expressed interest of the Committee to update the overall Street Tree Code to clarify the preferred uniformity and diversity of tree species throughout the City. It was determined the Code is ambiguous regarding the desire to maintain a uniform street appearance. The Code currently reads:

"Along an individual street, uniform street tree plantings are desirable. However, over-use of a few species is inevitable without a conscious effort to vary plant species and families. Diversity is achieved in Dublin by varying species selected for each street."

The Committees preferred updated language is as follows:

"Along an individual street, a uniform street tree species is desirable. A conscious effort to vary plant genera and families City-wide shall be achieved while maintaining the uniformity for each individual street. Diversity is achieved by varying species from one street to the next.

Recommendation

Pursuant to the recommendations of the Community Development Committee, staff requests City Council authorize staff to proceed with the implementation of the South High Street Streetscape Improvements plan as noted.

APPENDIX A – Tree Assessment Findings and Summary Report:

Completed 08/3/19

This assessment took a holistic approach in which risk and tree health were assessed and taken into account.

Two trees along the East side of S. High St. were identified as trees of concern and were determined to be in need removal within one to two years dependent upon an increase of risk or a significant degradation of the tree's health and or structural stability. These trees were located at 182, and 190 S. High St. Species include one hackberry and one boxelder.

The remaining trees, ({ 19 total } sawtooth oak, sweetgum, and sugar maple) were all identified to be trees with defects that would warrant regular monitoring and further assessments. Defects of note were large vertical cracks with wound wood along the main trunk as well as swelling of the buttress roots. Small areas with decay were noted as well. These are indicators of possible future tree failure (i.e. trunk splitting or uprooting of the whole tree). Other issues noted were high soil compaction and limited volume leading to depleted and damaged root systems further increasing the risk of future failure. Buried root collars were also noted at the time of assessment. Nutrient deficiency was also apparent in the leaves of most of the trees along S. High St.

Based on these observations staff would estimate that the life expectancy for these aforementioned trees with all current characteristics considered and assuming site conditions stay constant would be 5 to 15 years. It is important to note that based on risk assessment thresholds the trees will most likely not fail within the next 1 to 5 years. The structural issues noted are concerning but most likely would not cause significant tree failure during normal weather and site conditions. What is concerning is the possibility of failure in a severe weather event. The condition of these trees is such that they are more likely to fail in a severe weather event. There were no visible signs of pathogens or insect pests.

Third party assessment:

Completed 1/24/2020

Completed By: Russell Tree Experts

In summary, the assessment performed was completed with a focus on tree risk. As stated in the report the Tree Risk Assessment process does not necessarily relate to tree health preservation, suitability of a tree for its site, or any other consideration beside the objective observation of whether the tree in its current condition is a risk to a potential target, and what can be done to reduce such risk. This type of assessment was chosen because risk is a primary factor in the decision making process of whether or not to remove a tree in the urban environment. Tree risk assessments can also provide information that pertains to a trees structural integrity as well as the site conditions. Overall, TRAs offer four risk values ranging from extreme to low. Extreme being the highest rating and low being the least. The risk rating is determined by evaluating each tree in relation to potential targets should a tree or tree part fail. The likelihood of failure is combined with the observed likelihood of impact. This is combined with the perceived

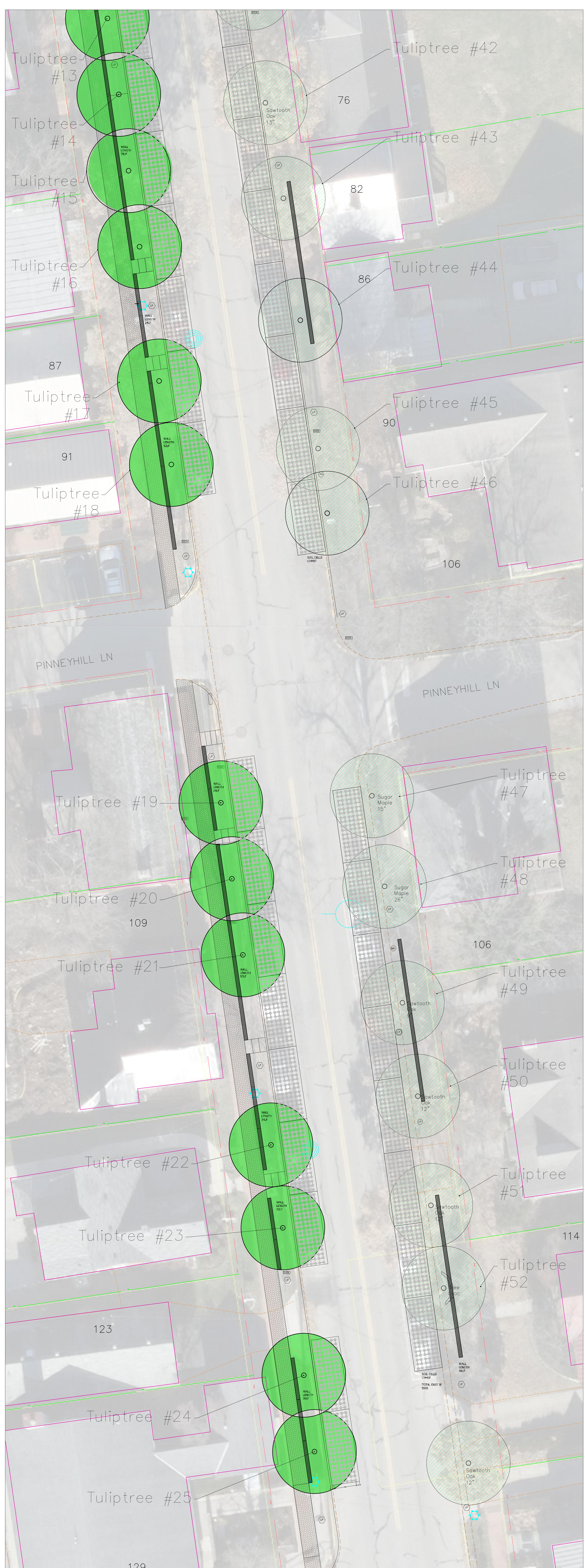
consequences resulting from such potential failure and impact to assign a risk rating for a specific tree part. I would also like to make note that it is very difficult to achieve a risk rating higher than low or moderate. In general most trees will receive a low rating unless a high consequence of impact is associated with a target within the given timeline. This timeline is important to make note of as it is given by the risk assessor and is an indicator of risk (i.e. if a shorter timeline is given, then the possibility of a change in risk level is assumed higher or more likely).

The timeline given for the TRAs was from one to two years. A risk rating of low was determined for all trees. All trees were identified to be of similar age and size, and facing largely the same conditions, much of the information related to environment and targets was repeated from tree to tree. Defects and issues of note were buried root collars, limited soil volumes, codominant stems, dead limbs, as well injuries to the buttress roots and trunk. No leaf characteristics were discussed. No pathogens or insect pests were noted.

Simply, the results of the assessments completed tell us that these trees are not going to fall over tomorrow, but are in need of regular monitoring and mitigation options were provided to attempt to resolve current and future issues (i.e. root collar excavation and pruning). A point of note is the issue of power lines hanging in tree limbs as well as the close proximity of many branches to structures.



Scale 1:16



Scale 1:10

South High Street Tree Improvements - Appendix A

Bridge St. to John Wright Ln

- Proposed Soil Cell
- Proposed Trees West: 26
- Proposed Trees East: 27





ONE WAY
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175