The Cost Approach: Methods, Techniques, and Depreciation

By The Council of Tree & Landscape Appraisers

Learning Objectives

- Understand the components of the cost approach
- Identify the relevant aspects of ascertaining tree condition
- Determine existing functional and external limitations when appropriate
- Accurately and defensibly estimate cost compounding for repairs

CEUs: A, M, Bp, Bm.

Overview

The cost approach produces a cost estimate for repairing, replacing, or restoring the utility of the item. The cost approach is often applied to damaged or destroyed items, tree inventories, preconstruction bonds, and insurance claims. The principle of substitution is the foundation of the cost approach and can be critical to assessing the reasonableness of the conclusions (Appraisal Institute 2015: p. 225).

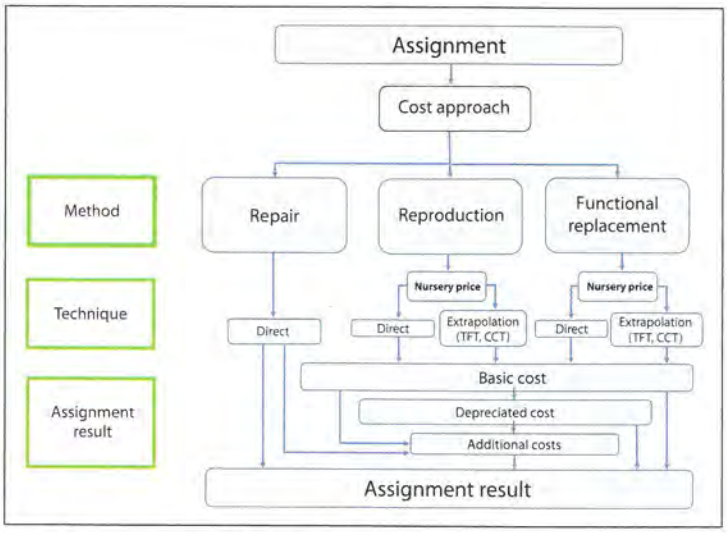

Figure 5.1 Flow chart of the cost approach.

Within the cost approach, there are three methods and three techniques which may be used to develop a basic cost. Selecting a specific method and technique depends on the assignment and the judgment of the appraiser. Figure 5.1 depicts the general process of the cost approach.

Appraisers can estimate either direct cost or extrapolated cost. Direct costs reflect actual or estimated costs for labor, materials, equipment, and supplies used to install, treat, or maintain the landscape item. Extrapolated cost begins with the cost of the largest commonly available nursery-grown tree and then extrapolates that cost to the size of the appraised tree. Plant appraisers commonly apply two techniques for extrapolating cost: the trunk formula technique (TFT) and the cost compounding technique (CCT, also called *cost forwarding*).

Because the appraised tree or item is usually neither new nor perfect, it may be necessary to account for certain suboptimum characteristics. Such a deduction or depreciation considers physical deterioration, functional limitations, and external limitations. A depreciated cost estimate is the result of applying depreciation to a basic cost.

In some appraisals, there are additional costs beyond the replacement plant that need to be considered. These may include the cost of removing the damaged plant, installing the new plant, site clean-up, and plant maintenance during the establishment period.

The assignment result can be the basic cost; the depreciated cost; the basic or depreciated cost plus additional costs; or a reconciliation among several approaches, methods, or techniques. Where landscape components are appraised, the assignment result should not be considered market value unless it is tied to a defined market, as with real estate market value. The appraisal report should clearly define the assignment result and cite the source for the definition.

Methods for Estimating Cost

The appraiser's selection of a particular method and technique is a function of the appraisal problem, context of

the assignment, direction provided by the client, and constraints imposed by law (cases, statutes, ordinances). The repair cost method addresses the cost to repair damages or mitigate further loss. The reproduction method estimates a cost of an exact replica of the item being appraised. Functional replacement cost estimates the cost to restore benefits.

Repair Cost

Repair cost is used when there is damage to a plant or other landscape feature and the assignment focuses on correcting the damage or mitigating further losses. Application requires two assumptions: (1) the item will remain in place, and (2) it will continue to provide benefits similar to those it provided prior to damage. Unlike the other two methods, repair cost does not usually estimate the cost to return the plant or landscape item to its predamage condition or utility. For example, a large-diameter broken branch cannot be reattached, but an arborist can be hired to prune the damaged branch. The repairs in this case involve mitigating future damage (e.g., the tearing of bark if it fails), promoting wound closure, and removing the debris.

Reproduction Cost

Reproduction cost is commonly used where a landscape item has been destroyed, removed, or significantly damaged. This methodology is widely used for tree inventories, preconstruction bonding, and some insurance claims.

Reproduction cost is the cost to replicate or duplicate the item being appraised. Generally, this means estimating the cost of replacing the landscape item with one that is close to identical (i.e., the same species or brand, size, shape, and condition) and thereby providing most or all of the characteristics and benefits of the original. When depreciation is applied to a reproduction cost, the result is termed a depreciated reproduction cost.

Functional Replacement Cost

Functional replacement is the cost of substitute items that provide equivalent utility, benefits, or function, rather than the cost to produce an exact replica. The principle of substitution is the foundation of the functional replacement methodology: a prudent person would not spend more to purchase an item or restore its benefits than the cost of a substitute item that produced similar benefits. The functional replacement cost method is used in many of the same situations in which the reproduction cost method is used, but it provides a valuation where the emphasis is on restoring benefits as opposed to duplicating a landscape feature.

For instance, a reasonable replacement for a damaged medium-size tree that provides shade or screening may be a similarly sized tree of a different species, a smaller tree of the same species, several smaller trees, a landscape structure, or some combination of these.

Functional replacement cost starts with assessing the utility of, or benefits provided by, the item. The appraiser then develops a plan that would produce a landscape that is functionally similar to the original landscape and is reasonable and appropriate for the site. It may be a similar plant, a group of plants, or an alternative landscaping item.

The functional replacement cost may be depreciated when the original item was not ideal. However, one of the advantages of functional replacement is that it reduces or eliminates the need for certain types of depreciation. This is particularly true when considering landscape items that do not add a value or utility, a condition known as superadequacy.

Techniques for Estimating Cost

The direct cost technique (DCT), trunk formula technique (TFT), and cost compounding technique (CCT) are techniques applied within the cost approach. The DCT estimates actual costs to install or repair a landscape item. The TFT and CCT are extrapolation techniques that take the cost of a nursery plant and proportionally increase it to infer the cost of a larger plant.

With all techniques, basic cost estimates reflect an ideal condition. This estimate may be depreciated for suboptimum conditions, and/or increased to account for additional costs associated with clean-up, planting, and future maintenance.

Direct Cost Technique (DCT)

The direct cost technique is preferred when plants equivalent to the size of plants being appraised are commonly available. The direct cost technique totals the costs of plants, services, or other materials needed to repair, reproduce, or functionally replace the item. This is an estimate of actual cost, realistic in terms of its scope, availability of materials and contractor services, and feasibility.

This process starts with a plan for repair or replacement. The appraiser then estimates and tabulates all costs associated with the project. DCT may even be useful for appraising large trees where the appraiser can find a local, large-tree moving company that can procure and install a tree similar to the damaged or removed tree.

Only those treatments directly related to the damage should be included. For example, pruning broken branches caused by a truck collision is appropriate, but removing all dead branches throughout the canopy would improve on the predamage condition of the tree, so it would not be appropriate. Depending on the assignment, depreciation may be applied. Additional costs for clean-up, delivery, planting, or future maintenance may be added when reasonable and appropriate.

Extrapolated Costs

When appraising trees or shrubs that are larger than commonly available from a local nursery, the appraiser can

SUPERADEQUACY

As described in Chapter 2, superadequacy is an excess in the capacity or quality of a structure or structural component which does not add value or functional utility to an object or property. A tree that is too large for the growing space or intended function may be considered superadequate in that a smaller tree may provide the same level of benefits (see Figure 5.2).

For example, a strategically placed shade tree may reduce heating and cooling costs. If a 40-foot (12.2-m) tree provides the same energy savings as a 60-foot tree, the 60-foot (18.3-m) tree may be considered to be superadequate. Alternatively, a large-growing tree beneath overhead utility lines creates a conflict that may be considered superadequate due to size.

Superadequacy is relevant to functional replacement because the method focuses on utility and benefits. Either a direct or extrapolated cost may be estimated based on the size of the tree necessary to replace the benefit or utility. Such a tree may be smaller than the subject tree(s).

When applying the reproduction method, superadequacy may or may not be relevant. If the appraisal problem calls for estimating a cost to reproduce the item, any superadequacy is irrelevant.

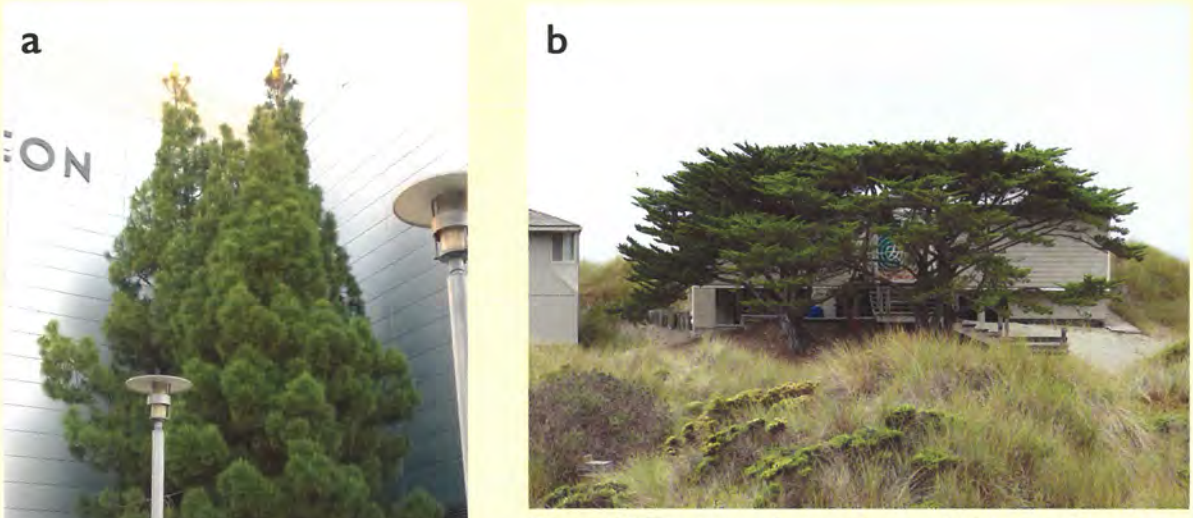

Figure 5.2 Two types of superadequacy. (a) Number. Five pines were installed in a space better suited for a single tree. (b) Size. The aesthetic and energy conservation benefits provided by this large cypress could also be provided by a much smaller specimen.

extrapolate from the cost of a nursery plant using the trunk formula technique (TFT) or cost compounding technique (CCT).

For common landscape applications, use the largest commonly available nursery plant as the basis for these calculations. Regional Plant Appraisal Committees (RPAC) can provide guidance on selecting the diameter of nursery trees to use with these techniques. For forestry or woodland settings, it is generally more appropriate to use the cost of seedlings rather than larger nursery trees to develop the basic cost.

The nursery plant cost is the price a landscape professional would pay for the plant at the nursery. It should not include delivery, planting, staking, or any other

STRENGTHS AND LIMITATIONS OF THE TRUNK FORMULA TECHNIQUE

Strengths

- It is a cost-effective and simple way to appraise large trees.
- It is relatively easy to calculate unit cost from RPACs, online data, or nursery catalogs.
- It has a long history of use and acceptance by arborists, landscape professionals, and legal communities.

Limitations

- It is based on the assumption that the cost of a nursery tree can be reliably scaled to the cost of a large tree. In many situations, this lacks empirical basis.
- Cost estimates may be greatly out of proportion to the value of the land and other property improvements, or to what people would actually pay for a replacement tree.
- Application is generally limited to residential and urban landscape settings.

services. However, those and other costs, including site clean-up and maintenance during the establishment period, may be included as additional costs.

Trunk Formula Technique (TFT)

The trunk formula technique extrapolates the costs to purchase the largest commonly available nursery plant to the size of the plant being appraised (Figure 5.3). An underlying inference is that the cost to acquire a large plant is directly proportional to the unit cost of the nursery plant.

Unit cost is the cost per square inch (or cm^2) of trunk area, feet (or m) of trunk height, square feet (or m^2) of canopy projection, or cubic feet (or m^3) of crown volume. Arborists commonly use the price per square inch of trunk cross-sectional area measured at 4.5 feet.

To apply the TFT using trunk diameter, compute the cross-sectional area of the subject plant then multiply it by the unit price (see Appendix 2). For example, a 3-inch-diameter nursery tree has a cross-sectional area of 7.07 square inches (3.14 × 1.5 in × 1.5 in) and costs $500 to purchase. The unit cost is calculated as $500 ÷ 7 in^2 = $70.77/$in^2$. If the subject tree had a dbh of 20 inches, its cross-sectional area is 314 square inches (3.14 × 10 in × 10 in) and its basic cost is $22,222 (314 in^2 × $70.77/$in^2$).

The CTLA recommends extrapolating the cost of purchasing the largest commonly available nursery tree because that cost is tangible and related to larger trees. The CTLA advises against extrapolating planting and additional costs when applying TFT because of the weak relationship between these costs for a nursery tree and for a much larger tree.

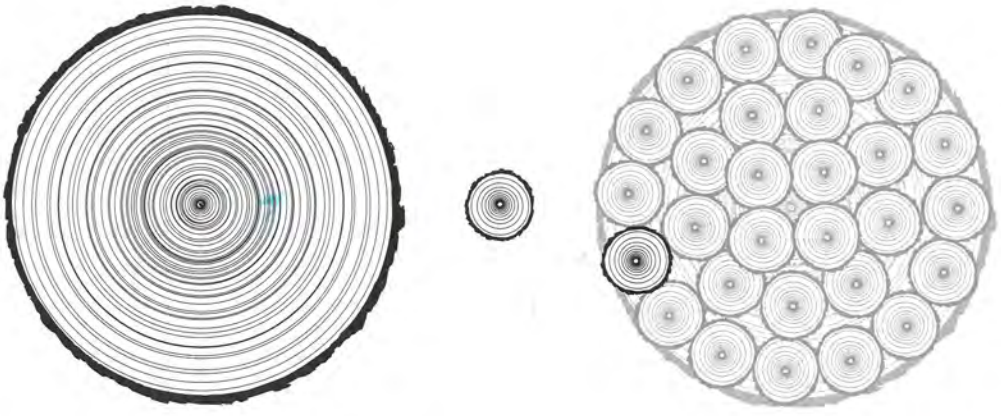

Figure 5.3 The trunk formula technique (TFT). This extrapolates the cost to produce a tree of a specific size in a nursery to that of a subject tree.

STRENGTHS AND LIMITATIONS OF THE COST COMPOUNDING TECHNIQUE

Strengths

- Cost estimates are based on documentable tree cost and interest rates, which are defendable, empirical, based on biological and financial facts, and consistent with the principle of substitution.
- Calculations are easily performed.
- It works best where the years to parity can be reliably estimated.
- It can generally be applied in both urban landscape and wildland settings.
- Results reflect actual investor behavior in certain forestry applications.

Limitations

- Results are sensitive to years-to-parity estimates and interest rates.
- Arborists may need to seek professional advice when selecting interest rates.

Estimates of tree value may be disproportionate to the value of the land and other property improvements.

When possible, the nursery tree should be the same species and cultivar as the appraised tree. For functional replacement, extrapolation may be applied to different species or to a smaller tree that will replace the benefits of the appraised tree. One difference between reproduction and functional replacement is that calculations can be based on the estimated diameter of the functional replacement tree(s) rather than the actual diameter of the specimen being appraised. For example, if you are appraising a 40-inch-dbh (101.6-cm) tree, and a 30-inch dbh (76.2-cm) tree would provide the same function and benefits in the landscape, use the 30-inch-dbh as the starting point for the TFT. Alternatively, several small specimens of similar or mixed species may provide a more cost-effective way to produce the same (or even superior) benefits. This is true where crown size is more important than overall trunk diameter.

A similar process is used when the landscape is excessively vegetated (i.e., there is superadequacy). If there are ten 25-inch (64-cm) trees in the front yard of a suburban, residential quarter-acre lot, the loss of one tree may have no impact on the overall benefits, so the value can be appraised at zero or each tree can be depreciated to reflect superadequacy. Excessive tree count can detract from both urban landscapes and woodlots.

In some insurance cases, the extrapolated cost may be the assignment result. In other cases, this basic cost may need to be depreciated and/or have additional costs added to it. The additional cost may include tree removal, site clean-up, planting, and/or future maintenance.

Where future maintenance is required, proposed costs can be projected, adjusted for increasing costs over time if necessary, and then converted to present value using an appropriate discount rate.

Palm and Shrub Appraisal Using the Trunk Formula Technique

When a large palm cannot be acquired, moved, and installed, an extrapolation technique can be applied. The unit pricing for palms is usually based on plant height. The height measurement will vary with region and species. The typical unit is either height of clear trunk or total height.

To apply the TFT to palms, ascertain which height increment is used in the region as the basis for pricing at local nurseries. Then ascertain the unit price from local nurseries or the Regional Plant Appraisal Committee.

The nursery cost can vary greatly with species and location, so the unit cost applied should be from the same or similar species. Multiply the height of the appraised palm by the unit cost to determine the basic cost. Depreciation and additional cost can be applied when appropriate.

Height-based or crown-volume-based pricing also applies to shrubs in many areas. The procedure is similar to that described for palms but is based on crown projection or crown volume.

Cost Compounding Technique (CCT)

Cost compounding (syn. *cost forwarding*) is an extrapolation technique that relates the cost of money over a specific time period to tree growth. The appraiser estimates the time required for a new planting to either attain equivalent size or provide similar benefits or utility as the subject tree and then compounds installed cost for that time period using an appropriate interest rate (Figure 5.4).

There are three primary inputs to the CCT: (1) the installed cost of the nursery tree (present installed cost, *PC*); (2) the time in years it will take to reach equivalent size or utility (*n*); and (3) the appropriate compound interest rate (*i*). The formula for cost compounding is

$$CC = PC \times (1 + i)^n$$

where *CC* = compounded cost, *PC* = present installed cost of the nursery tree, *n* = years for the new tree to reach parity with the appraised tree, and *i* = interest rate.

The present installed cost (*PC*) of the tree is the installed cost of the largest commonly available nursery plant. It includes the cost for the nursery plant, transportation, planting, and aftercare. Additional costs include site preparation, post-planting weed control, mulch, irrigation, and fertilization. The appraiser should follow the practices common to local landscapers or timber growers.

Unlike the TFT, the CCT extrapolates all establishment costs, not just the cost of the tree at the nursery. This is because the economic principle behind CCT involves an investor foregoing alternative use of capital when investing in the establishment of a tree.

The number of years (*n*) to attain equivalent size or benefits is sometimes called years to parity. Size parity may be based on tree diameter, crown spread, or crown volume. The appraiser should apply credible growth rates. This can be done by consulting local experts or by examining nearby trees of the same species. Data may be obtained from direct measurements, planting records, crown size comparisons from inspection of photographic images, or increment core or stump growth-ring counts.

Selecting an interest rate (*i*) to use in the compounding formula is a key step and can have a substantial impact on the extrapolated cost estimate. The rate should be relevant to the type of property being appraised as well as reasonable and defensible. As in the functional replacement method, the concept of interest rate selection is based in the principle of substitution. A prudent investor would not pay more (or accept less) for the expected benefits of the subject tree than for an equivalent substitute investment that produces cash-equivalent benefits.

Appraisers may research the rate of return of an agricultural mutual fund or tree planting or forestry investments as an appropriate fit. For residential properties, current mortgage rates or prime plus 2.0% may be applicable. For forestry or other commercial real estate investments, the rate is often determined using the client's commonly required rate of return for such investments.

Timber investors and appraisers commonly apply CCT to develop acquisition offers and estimate market value. In commercial forest applications, CCT involves projecting the costs of seedlings, site preparation, and planting to the age of the subject trees. It is most useful for young trees that have not reached merchantable size. CCT produces results that are closely tied to market value because the appraiser starts with the costs of seedlings, not large nursery stock. Applying CCT to older, mature trees often results in unrealistic value estimates. It may cost $300 per acre to plant 600 trees, or 50 cents per tree. Here, the extrapolated cost per tree (at 5%) is only $19 for a single tree that is 75 years old.

Table 5.1 presents the compounded cost (*CC*) of a dollar (*PC*) invested for *n* years at various interest rates (*i*). It illustrates how sensitive calculations are to the choice of interest rate and number of years it takes to reach parity.

As with any cost approach technique, it may be necessary to depreciate the basic cost to account for condition, functional limitations, and external limitations (as described later in this chapter). Additional costs for clean-up, planting, and maintenance may need to be added.

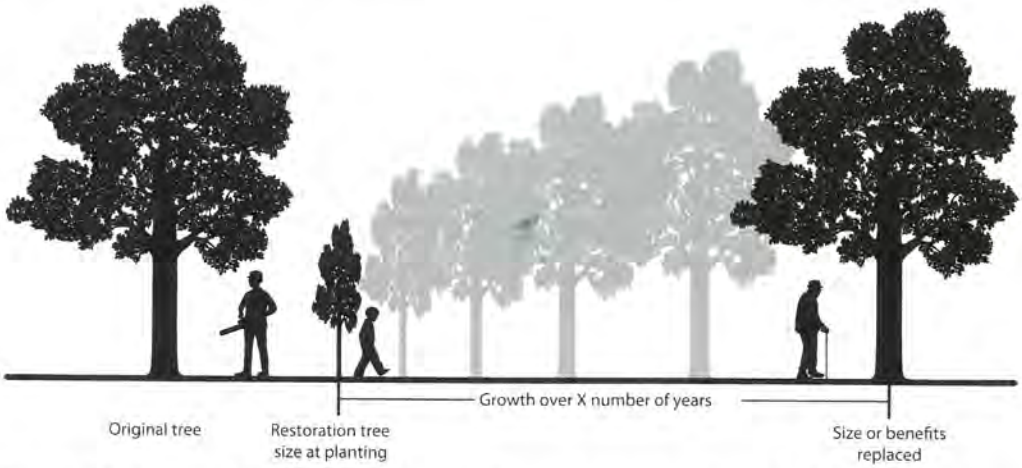

Figure 5.4 Cost compounding extrapolates the cost of tree replacement to a time in the future when the size or benefits of the appraised tree will be attained.

Depreciation

Depreciation is the monetary expression of suboptimum factors. Appraisers use depreciation to account for the differences between the cost of the new or ideal item and the item being appraised, which typically has some lower level of quality due to less than ideal features, its placement, or the site that it occupies.

General appraisal practice holds that depreciation is the combination of three factors: (1) physical deterioration, (2) functional obsolescence, and (3) external obsolescence. Physical deterioration reflects plant condition and considers structural integrity, health, and form. Functional limitations are factors associated with the property or the tree itself that limit future plant development (Table 5.2). External limitations are factors outside the property and the control of the tree owner that affect life expectancy, structure, health, or form.

Physical Deterioration (Condition)

The components of condition are health, structural integrity, and form. A tree that is ideal with regards to these components is rated at 100%. A dead tree is typically rated at or near 0%. The final condition rating combines ratings of the three components. Chapter 4 provides more detail about evaluating condition.

Functional Limitations

Functional limitations are factors associated with the interaction of a tree and its planting site and will affect plant condition, limit development, or reduce utility of the plant within the foreseeable future. These factors include site conditions, placement, and genetic limitations (Table 5.2). If the species and site present significant restrictions to growth, performance, and function, then the depreciation should be significant (Tables 5.2 and 5.3). Functional limitations are considered either incurable or

Table 5.2 Common functional limitations.

General category	Potential limitation
Placement	Available growing space Overhead utilities Underground utilities Nearby structures, sidewalks, roads
Superadequacy	Excess size Excess plant density
Soil	Volume available for growth Chemistry (lack or excess of specific mineral elements)
Plant genetics	Disease and insect susceptibility Fruit and litter Thorns Invasiveness Failure pattern Tolerance to construction activities Root or basal sprouting Allergenicity Soil and water requirements (pH, alkalinity)
Water	Quality Irrigation adequacy/excess Drainage Water table

Table 5.3 Examples of functional limitation ratings.*

Situation	Pruning system	Example rating	Notes
SPECIMEN TREE			
	Any	100%	No limits to growing space.
LARGE MATURING TREE			
Near property line	Any	10% to 90%	Based on proportion of canopy growing into neighboring property and disrupting site use.
Under powerline	Headed/round over	5%	—
Under powerline	Through-trimmed	30% to 70%	—
Adjacent to powerline	Side-trimmed	30% to 70%	—
Under powerline	Hedge	75% to 100%	Tree is managed to control height.
Between curb and sidewalk; adequate tree lawn	Any	25% to 75%	Presence or potential for root/pavement conflict.
Between curb and sidewalk; narrow tree lawn	Any	10% to 40%	High potential for root/pavement conflict.
SMALL MATURING TREE			
Under powerline	Natural	90% to 100%	—
Adequate tree lawn	Natural	75% to 100%	Presence or potential for root/pavement conflict.
Narrow tree lawn	Natural	50% to 75%	Presence or potential for root/pavement conflict.
SHRUBS			
Close to house foundation, sidewalk, driveway, etc.	Natural	10% to 75%	Based on proximity to foundation and need for clearance pruning and/or height control.
Near property line	Hedge	80% to 100%	Based on proximity to property line and need for clearance pruning.
SPECIES WITH FRUIT AND/OR LITTER			
Residential lawn	Natural	80% to 100%	Depending on use and maintenance of lawn.
Sidewalk, parking, bench, or other use area	Natural	10% to 25%	Based on degree of disruption of site use and function.
Landscape bed	Natural	80% to 100%	—
INVASIVE SPECIES			
	Any	0% to 20%	Based on state or regional listing and potential for disrupting native vegetation.
TREE OR SHRUB SUSCEPTIBLE TO LETHAL PEST IN THIS AREA			
	Any	10% to 30%	

* Percentage ratings are for illustrative purposes only and intended to be used with sound appraiser judgment.

requiring repeated or costly treatments to mitigate. For example, a young tree that will be large at maturity that is located under powerlines, within a narrow tree lawn, or susceptible to a lethal pest will receive significant depreciation because these factors will decrease life expectancy; lead to a deterioration in health, structural integrity, or form; or require repeated treatments to mitigate the condition.

External Limitations

External limitations are factors that are outside of the property, out of the control of the property owner, and that will affect plant condition, limit development, or reduce plant utility within the foreseeable future. These factors include legal restrictions that limit the development of the plant and environmental factors that affect long-term health and life expectancy of the plant. Examples of external limitations include the following:

- laws, ordinances, and easements that grant to other parties the authority to prune or remove vegetation impinging on powerlines, obstructing views, or blocking solar access;
- water use limitations, restrictions on irrigation;
- competing infrastructure (utilities);
- the presence of serious pests in the area; and
- changing climate zones.

For example, a tree on one property screens an existing solar collector on an adjacent property in an area where solar access is protected by local regulations. The tree must be pruned or removed to maintain solar access. This is a limitation on tree development that is outside the control of the tree owner. For this reason, depreciation for external limitation should be applied. The amount of depreciation may reflect the amount of canopy that will remain and/or the loss of benefit and utility.

Another example of external limitation is an airport glide-path easement that restricts the height of trees grown on adjacent property. The owner of the easement has the right to top or remove the trees.

External limitations for more intangible factors like low neighborhood property values are more challenging to assess and may be relevant only where the assignment result is market value.

If the appraiser finds no external limitations present, the depreciation rating should be 100%.

Applying Depreciation

When applying depreciation to a basic cost, the appraiser assigns a multiplier ranging from 0% to 100% to each of the depreciation categories: condition, functional limitations, and external limitations (see Table 5.4). The basic cost is multiplied by each of the three categories to estimate the depreciated cost. The resulting depreciated cost may be the assignment result.

Appraisers may find that some features fit into more than one depreciation category. For example, overhead electrical wires can be either a functional limitation or an external limitation. The appraiser should depreciate in only one category.

Additional Costs

Basic or depreciated costs may need to be adjusted to account for costs associated with clean-up, planting, and future maintenance. These additional costs can include removal of the damaged branches, tree, or debris; preparation of the site; installing the new plant; site clean-up; irrigating the new plantings; treating pests; and/or otherwise restoring the tree or landscape to predamage condition or as close to those conditions as is practical.

Estimates for these services and materials may come from proposals prepared by contractors, other professionals,

Table 5.4 Summary of depreciation factors and suggested ratings.

Condition (overall assessment of health, structure, and form)	**Functional limitations** (assessment of species-site interaction)	**External limitations** (assessment of outside factors that influence plant success)
Excellent (81% to 100%)	No impact (81% to 100%)	No impact (81% to 100%)
Good (61% to 80%)	Minor impact (61% to 80%)	Minor impact (61% to 80%)
Fair (41% to 60%)	Moderate impact (41% to 60%)	Moderate impact (41% to 60%)
Poor (21% to 40%)	Severe impact (21% to 40%)	Severe impact (21% to 40%)
Very poor (6% to 20%)	Extreme impact (0% to 20%)	Extreme impact (0% to 20%)
Dead (0% to 5%)		

or the appraiser, if qualified and not conflicted. It may be appropriate to obtain several estimates and select the most reasonable and appropriate for the situation.

Additional costs should be projected as far into the future as necessary, based on a reasonable and practical assessment by the appraiser. This is often limited to the establishment period. If the assignment is to appraise the additional costs for the first year after replacement planting, then it should include the cost of one year of care. If it is for ten years after planting, then it should include the anticipated costs for the next ten years of care, discounted at an appropriate interest rate.

All treatments recommended should be consistent with industry standards and best practices. Only those treatments directly related to the damage should be included. For example, pruning broken branches caused by a truck collision is appropriate, but removing all dead branches throughout the canopy would improve on the predamage condition of the tree. Root, soil, and other treatments may be appropriate if they will aid in recovery, provided the treatments and costs are neither uncommon nor excessive.

When large plants or landscape features are involved, or when site conditions dictate the use of heavy equipment or specialized techniques, it may be appropriate to include resulting cost of collateral damage.

As with all appraisal data, additional costs should be reasonable and estimated from the perspective of the effective date of the valuation.

Summary

The cost approach produces a cost estimate for repairing, reproducing, or restoring the utility of the item. Three methods and three techniques can be used to develop a basic cost. Selecting a specific method and technique depends on the appraisal problem and the judgment of the appraiser. Appraisers can estimate either direct cost or extrapolated cost. Direct costs reflect actual or estimated costs for labor, materials, equipment, and supplies used to install, treat, or maintain the landscape item. Extrapolated cost begins with the cost of the largest commonly available nursery-grown plant and then extrapolates that cost to the size of the appraised tree. Plant appraisers commonly apply two techniques for extrapolating cost: the trunk formula technique (TFT) and the cost compounding technique (CCT).

Because the appraised tree or item is usually neither new nor perfect, it may be necessary to account for certain suboptimum characteristics. This deduction or depreciation considers physical deterioration, functional limitations, and external limitations. In some appraisals, there are additional costs beyond the replacement plant that need to be considered.

The assignment result can be the basic cost; the depreciated cost; the basic or depreciated cost plus additional costs; or a reconciliation among several approaches, methods, or techniques. As described in Chapter 2, where landscape components are appraised, the assignment result should not be considered market value unless it is tied to the market value of the real estate of which it is a part.

Literature Cited

Appraisal Institute. 2015. The Dictionary of Real Estate Appraisal. 6th ed. Chicago, IL: Appraisal Institute. 527 pp.

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