A sequence frequently heard or mouthed by anyone watching the urbanization of the United States includes mention of the disappearance of agricultural land from within or adjacent to expanding city landscapes. Notwithstanding the fact that criteria for agricultural excellence such as levelness, ease of access to market, reliable water source and—to a lesser degree—reliability of a labor source continue to be operative in the decision for farming, traditional farming operations just cannot compete with alternative commercial and residential land uses that thrive under the same conditions. Farms, therefore, shatter and disappear like ice on a spring lake before the flow of man’s urban land use needs. Even the few communities that have tried to maintain agricultural zoning within urban bounds have had to impose such a heavy tax burden that the farms that do remain become true factories in the fields.

There is, however, a potential exception to this pattern of urban eclipse of agricultural land in a landscape of factories, housing tracts, freeways and commercial development. There are areas that do persist as fingers of green pointing out strips of land that have been left untouched by urban man. These belts may course directly through the heart of the city; they may run along the edges of major home and shopping center developments; they may wind from factory margin through to river edge. In virtually all cases, they run adjacent to land that is valued at ten times to a hundred times the rental cost of this relic farmland. The only common feature to all of this anomalous agriculture is that power

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lines march through and above this agricultural expression. This farming under the transmission lines on utility company right of ways may ultimately be one of the last chances that urban Americans have to smell, feel, see, and experience agriculture at close range.

Southern California Edison Company (SCE) is one utility company that has launched an ambitious licensing program for secondary land use on its right of way lands. This short paper is concerned with one category of such new land use programs—the agricultural uses being made of such zones in Los Angeles.

In the initial creation of the right of ways for the high voltage transmission lines of the Southern California Edison Company, California did not allow—nor did SCE desire—secondary land use beneath the lines. These belts of land were set aside from any use and served only as maintenance corridors through urban and non-urban land in the service area of the power company. However, as Los Angeles began to expand rapidly following the Second World War, there did develop new concerns about space available for all of the commercial, residential, industrial and continuing agricultural needs such a vast and growing metropolitan area would need.

By the early 1960's there was enough interest in the productive use of this open land to prompt the California State Legislature to modify the constraints on secondary land use on public utility right of ways. On September 10, 1963 a new General Order (No. 69-B) was signed into law which allowed public utilities to grant licenses for "...agricultural purposes, or other limited uses of their several properties without further special authorization...".¹

Our concern is the use agriculturalists have made of these strips of land. As noted above, the customary removal or elimination of agricultural land from within city boundaries is an inexorable process because of the tax burdens placed on such land as it develops new potential for alternative, higher value uses. However, with the return to usefulness of these ribbons of marginal
land, agriculture is staging a comeback because of the benefits such use can bring to SCE, as well as to the farmer.

For SCE, the benefits of agriculture as secondary land use are two-fold. There is revenue generated by the rental charges on the land, as well as economies made by SCE because agricultural land use means that the power company need not pay for brush and weed clearance on this land. The other positive aspect is the visual improvement made by nursery lots or row crops or Christmas trees as opposed to raw, weedy land. In this area of increased concern for image in the public's eye, SCE finds this modified landscape to be worth a great deal.

For the farmer, the benefits are obvious. The land costs only $450.00 per acre per year; it is oftentimes fenced, and it is often level and generally has easy access to water and power needs for farming operations. While the section below on legal aspects of this secondary land use points out the constraints on the farming of this land, it still appears to be a prime agricultural opportunity.

Legalities

The legal constraints imposed by the SCE upon licensees of right of way property are generally quite minimal. Indeed, the license given pursuant to the authority and subject to the conditions prescribed by General Order No. 69-B tends to be more permissive than restrictive.

Specifically, the nontransferrable license, entered into for an average of five years, stipulates that the licensee shall not interfere with the right of the SCE to construct, maintain, operate, repair, replace and/or inspect the property at any time in connection with its transmission of electricity.\(^2\)

The licensee must agree to keep the property, and parkway and sidewalk areas adjacent to the property, free from weeds, brush, rubbish, debris, and all accumulation of flammable material and growth. All growing crops must be cut and removed from the premises upon reaching maturity. Restrictions are also placed
upon the planting of any tree or shrub that will exceed fifteen feet in height. The licensee must, of course, comply with all rules and regulations of State and County authorities in regard to the eradication and control of insect and animal pests, plant diseases, and noxious weeds.

Only commercial types of fertilizer that are free of weeds, fly and other injurious insect larvae are permitted, and storage of any fertilizer is prohibited. Raw fertilizer must be treated against fly and other insect larvae prior to spreading. Because of the potential for negative public response to the order of chemical and organic fertilizers, they must be immediately plowed into the land so as to be completely covered.

The licensee cannot construct or place any building or structure, sign, signboard or other form of outdoor advertising on the property without the prior written approval of the SCE. The rather loosely enforced license further prohibits the parking of any motor vehicles on the property.

All pumping equipment, irrigation pipelines and appurtenances installed on the premises by the licensee immediately becomes the property of the SCE and must be surrendered with the premises upon termination of the license. The occupant of the right of way must pay all charges and assessments for water, electric current or other utilities, as well as all taxes and assessments which may be levied upon crops grown, placed, or maintained on the premises. SCE pays the actual property taxes on the land. The licensee must further agree to the purchase of a liability insurance policy with a Combined Single Limit of not less than $100,000.

Lastly, it should be noted that the SCE may terminate or cancel the license at any time prior to the expiration of the term by giving thirty days previous notice in writing for that purpose to the licensee. One of the ironies of this clause is that a number of the farmers holding land on these licenses told us in interviews that they felt more secure than they would renting land on the open market in Los Angeles. Land uses have changed so rapidly in the city's growth that agricultural leases have been hard to count on for renewal.
Secondary uses of the right of way land

There is a broad range of activities that has been introduced to these right of way lands in Los Angeles County. Although the acreage totals for county secondary land use are estimated at only 1,589 acres (1974) there are thought to be between 10,000 and 12,000 acres given over to alternative uses in the entire Southern California Edison Company system. In Los Angeles County the use pattern is shown in Table 1.

Table 1

<table>
<thead>
<tr>
<th>Nursery Stock</th>
<th>144</th>
<th>772</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Crops, Turf and Seed</td>
<td>31</td>
<td>378</td>
</tr>
<tr>
<td>Christmas Tree Farms</td>
<td>24</td>
<td>132</td>
</tr>
<tr>
<td>Landscape and Beautification</td>
<td>77</td>
<td>52</td>
</tr>
<tr>
<td>Pasture and Grazing (horse stables)</td>
<td>40</td>
<td>120</td>
</tr>
<tr>
<td>Parks (city or county)</td>
<td>15</td>
<td>135</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>331</td>
<td>1,589</td>
</tr>
</tbody>
</table>

These approximations really give only the broadest outline of the secondary land use activity in Los Angeles County. SCE is in the midst of a computer change-over in its record keeping system, and the true breakdown of license holders and their activities is certain to exceed these rather modest estimates. In addition, with the continued pressure for small parcels of level land within or nearly adjacent the city for intensive agriculture, SCE can anticipate increasing interest in its program of licensing for such agricultural uses.

Discussed below are four of the categories of agricultural land use, as well as some of the non-agricultural uses that also play a distinctive role in the Los Angeles landscape.
Strawberries: High risk crop in the rocks

One of the most graphic landscapes created by this pattern of secondary land use beneath the power lines is the twenty-seven acre wedge of strawberries of the Little Lake Berry Farm in El Monte. To the west of this fully irrigated parcel of no-longer-marginal land lies the dry wash of the San Gabriel River with its massive Corps of Engineers stone and concrete flood control dams and levees; to the east runs the eight lane 605 San Gabriel River Freeway. To the north and south are other rock piles and broken land lying in the right of way of the transmission lines. The entire landscape is dominated by the huge conveyor belts, milling sheds, and storage piles of several large-scale quarry operations. It is an unlikely place for man to think of farming.

The berry farm is the product of a second generation Japanese farming family, Kenneth and Tak Murata. In 1971 these two brothers, with the assistance of the two sons of Ken Murata, came to this land and began an attempt to create a level parcel from the sliver of uneven, boulder-strewn, unwatered land. Not only was there a problem of a three-to-four foot relief within the leased right of way, but the size of the boulders was such that special equipment had to be called in to shift, remove and bury much of the initial landcover. Even when the $26,000 levelling job was done, the soil that remained--or had been created--atop this rocky base was too porous to accommodate the furrow irrigation traditionally given to strawberries in Los Angeles County agriculture. This called for still additional extraordinary investment before the realization of any return from this marginal land.

First, a 350 foot well was sunk at a cost of approximately $24,000. This steady source of fresh water gave the Muratas a resource base for the initial twenty acre parcel, as well as allowing them the latitude to consider expansion of this berry operation, should they be successful in the initial stages. The porosity problem in this sandy soil was solved by use of an innovation that was just becoming accepted in citrus lands in Southern
California. It is drip irrigation—the process of emitting water from slightly buried plastic pipe at such slow rates that evaporation and loss through excessive downward percolation are virtually eliminated. Such a process affords the most efficient means of irrigation yet found for the strawberries during the maturation and fruiting season, although when the plants are first put in the ground in late October, preliminary irrigation is done with portable aluminum 4-inch pipe and rainbirds.

Hence, with the use of typical road making machinery to move and remove rocks and boulders, with the sinking of a 350' well, and with the seasonal installation of a complicated network of valves, lines, emitters, and pressure regulators all characteristic of a drip irrigation system, the Murata brothers were able to create a base for the productive growth of strawberries. The initial twenty acre parcel licensed by Southern California Edison to the family was expanded by seven acres in the second year and now negotiations have begun to acquire still more right of way land adjacent to this El Monte parcel in order to expand the operation.

Although the land at the outset was clearly marginal, the process of reclamation has been so successful that the operation has now become one of the most productive berry operations in Los Angeles County. For example, by solving the irrigation problem with drip irrigation rather than traditional furrow irrigation, the Muratas are able to increase their plant density by approximately 35 percent per acre with no loss in per plant yield. The drip irrigation also diminishes the problem of weed development in the traditionally wet furrows of furrow irrigation. This dry furrow also facilitates the periodic harvesting operations. There is also the obvious additional saving of water afforded by the more efficient drip system.

The product that this land produces is of adequate quality to all flow into the fresh berry market. The first harvest is made in late February and flown directly to West Germany where the berries from this rocky river margin bring top price. Then, as
competition emerges from other areas, these berries are marketed in New York City, Chicago, and finally the Midwestern States. None of these berries stays in the local market. Even with an approximate cost of $4,000 per acre preparation and planting costs, the Murata Little Lake Berry Farm is doing very well under the power lines.

Christmas trees

One somewhat peripheral, although valid form of agriculture that continues to expand on right of way acreage in Los Angeles is the growing of Christmas trees. The cultivation of local, plantation grown Christmas trees affords the grower a number of comparative advantages over the traditional Southern California pattern of importation of northern grown greens. Perhaps the major advantage is elimination of the tremendous speculation involved in ordering, be it over or under demand. Concomitantly, the number of low quality, non-marketable trees is significantly reduced. Also, Christmas trees grown on right of ways, which often pass through highly populated residential, and commercial areas, further benefit from ideal locations for retail outlets.

Typical of the fifty or so Christmas tree operations currently located on SCE rights of way in Los Angeles County is Green Acres Christmas Trees. Located on eighteen acres in suburban Alhambra and Rosemead, Christmas trees were first planted on Green Acres in 1965 under the ownership of Don Perry, a laundryman turned silviculturist. The single species of Christmas tree grown at Green Acres is Monterey Pine (*Pinus radiata*). This fast growing pine reaches the desirable market size of eight to ten feet in four years. Beginning on the first Saturday after November 28, yuletide shoppers wander through this linear urban forest and are permitted to "choose-and-cut" the tree of their choice. Trees range in price from $10.00 to $15.00, based upon height and quality; which is an estimated 30 per cent cheaper than other "imported" species of comparable size and quality. Each Christmas season Mr. Perry sells approximately one-fourth of his stock. Advertising and the
subsequent marketing of Green Acres Christmas trees is greatly facilitated by frontage on both sides of a string street, and the juxtaposition of a shopping center parking lot on one side.

In January and extending into early February, approximately 1,800 seedlings per acre are hand-planted directly into the soil to replace the stock sold. Although the percentage of seedling failure varies from year to year, depending upon weather conditions, it averages about 25 percent. Green Acres requires a year-round crew of one part-time and two full-time employees to handle such ongoing activities as planting, and the almost continuous process of pruning the tops of the trees every second month for "leader control." Furthermore, the trees must be sheared into symmetrical conical "Christmas tree" shapes every six to twelve months. The trees are irrigated about once a month using an overhead sprinkler system. In general, the total expenditure per tree for the four-year marketing period averages just over $3.00.

Thus, Christmas tree production represents not only an economically viable form of right of way agriculture, but unlike more traditional forms of agriculture, the woodsy fragrance and generally aesthetically pleasing appearance of Christmas trees makes it a compatible form of urban land use.

Nursery stock

This is the prime use of the right of way land, according to the Right of Way Division Personnel of Southern California Edison. No other land use does so much to improve the landscape, benefits so clearly from the urban locations, and requires so little managerial involvement by the SCE field men. The more than 700 tenants who use utility lands in Los Angeles county for the raising, storing and selling of ornamental plants, shrubs, trees and bulbs are characterized as being the most ideal user population. Unlike some of the tenants who have taken advantage of the new availability of licenses for the right of way land, the nurserymen have generally had prior experience in horticulture. They also are keenly aware of the financial benefits realized by
being in these urban locations, so they are particularly conscious of handling their properties in as satisfactory a way as possible. This benefits the nurserymen, SCE and the Angelenos who drive through and around these miles of power line corridors in the county.

The nursery stock operations are primarily wholesale. They consist of an average set-up cost of $30,000 per acre for the plants, containers, earth and fertilizers. Water supply costs may push this figure up even higher. Such an initial outlay means that these lands have been licensed mostly by already productive nursery companies who have seen these areas as prime expansion grounds. Since an established nursery will already have a market network—and because the demand for ornamental plants and shrubs in Southern California and the southwest has been growing at between 8-15 percent annually for the past four or five years—many nurserymen have sought spillover land. The right of way lands have been ideally suited to serve this need.

If the parcels have chainlink fence already constructed, then there is no set order for the organization of the overall nursery stock lot. If, however, no fencing has been put up, then the large potted trees (palms, tree ferns, philodendron) are put on the outer margins of the 200' to 300' wide right of way. The interior of the lot is filled with the smaller plants, finally coming to the gallon cans of fuschias, margaritas and hundreds of other introduced ornamentals. A dirt or gravel road is left open in the middle, in addition to an open staging area for truck loading and unloading. The sheds that are required for equipment, fertilizers, containers and small office are put on the far edges of the right of ways so that no structures lie directly beneath the wires. In accordance with the terms of the licenses granted by Southern California Edison, there are no permanent structures built on these lands. The sheds (with notable exceptions) are akin to job site construction sheds that can be dismantled or directly slid up onto a flat bed truck. The most permanent-looking aspect of the nurseryman's use of these lands is the irrigation
system that weaves through corridors, topped with rainbirds and faucet outlets. Even these systems look more and more temporary as plastic pipe (PVC) replaces galvanized pipe in these waterworks. Many of these nursery operations—like the Little Lake Berry Farm described above—sell to non-local markets. The market area for Los Angeles nurseries is not only Southern California, but also the adjacent states of Nevada, Utah, Arizona, New Mexico and even Oregon. Second and third generation Japanese are the most successful in these horticultural operations and they compose the great majority of the tenants in this nursery stock use of the right of ways. Since the Los Angeles retail nursery stock network is also run primarily by Japanese nurserymen, these wholesaling activities just continue the elaboration of the Japanese involvement and control of the ornamental plant market in Southern California.

The reasons that nursery stock land use is so appealing to SCE is that there is a continual canopy of greenness created by these swaths of house and yard plants. They are also all in containers so that should there need to be line servicing, space can be quickly gained by the temporary relocation of some of the lighter stock. This is another reason why the gallon can plants are placed nearest the power pylons while the heaviest plants are set on the outer margins of the parcels. Also, the nurserymen are not as inclined to use pungent fertilizers, as are the row crop farmers. Finally, the steady sprinkling of the stock in containers even works to cool the general area of the power line right of way. It had been unheard of for a utility company to receive phone calls complimenting it on the appearance of its right of ways; SCE has received such calls in reference to some of the nursery stock tenants.

This particular land use is likely to be the one most expanded in the secondary use program. It is one of those extraordinary patterns of land use that is appealing to the tenant for reasons of economy; to SCE for minimal maintenance; and to the public because it enhances the appearance of the urban landscape.
Row crops

The paramount consideration in allocation of utility right of way land is that all secondary land uses be compatible with adjoining property. Whereas horticultural and Christmas tree production have been found to be compatible with the urban mode, such is not the case for more traditional forms of agriculture. Indeed, for the most part, field, truck, and orchard crops are restricted to relatively isolated areas, such as the pockets of land between freeways and other non-housing areas, especially flood control sites. Furthermore, due to the existing tax structure and other relevant political factors, even on right of ways, traditional agriculture in metropolitan Los Angeles has been essentially eliminated, with the minor exception of scattered parcels of high value, high risk crops such as strawberries and other specialty crops.

One of the more interesting specialty crops, and a pioneer in agricultural utilization of SCE right of way lands, is the case of a 127 acre mustard greens farm. Nestled between the Long Beach Freeway and the Los Angeles River, the farm has been operative in its current location for almost 20 years. Other than simply its location in an unencroachable area for housing, the farm has persisted largely on the basis of its single crop specialization expedient marketing procedures.

At any particular time of the year, the farm may grow as many as eight to twelve species of the mustard (Brassica) group. The mustard seeds are machine planted every fourth day in a rotational sequence to permit year-round, seven-day-a-week harvesting. The growth period of greens, from planting to harvesting, ranges from 30 days during the summer to a maximum of 70 days in winter. Although the fields are never in fallow, the loam soil is lightly fertilized at each planting with chicken manure, and occasionally ammonium nitrate. Prior to every second planting, the just-harvested fields are plowed using a 24 inch disc with a seven foot six inch offset, showing that even narrow fields can accommodate large farming machinery. The crop is irrigated every four to
seven days with well water using portable overhead sprinklers. Maintenance of the field necessitates daily manual weeding. For all phases of the operation, the labor intensive business requires a full-time, year-round crew in excess of twenty men.

Following the manual harvesting of the crop, the daily post-harvesting activities of cutting, washing, bunching, and packing with ice are all conducted in a structure located on the farm. Seven days a week the greens are delivered at the rate of 400 to 500 crates per day, depending upon the season, directly to a number of chain stores within Los Angeles. The marketing locations are predominantly areas with a relatively large Black population, who are the primary consumers. Mr. Louis DeMartini, owner of the farm, feels that the key to the financial survival of his farm is based in large measure on his ability to bypass the middleman, and market directly to the individual stores. The many advantages realized by the mustard greens farm, from right of way occupancy to direct marketing, certainly are extraordinary for most farms in the contemporary urban agricultural scene of Los Angeles.

Non-agricultural uses

For cities caught up in the maelstrom of suburbanization, these swaths of heretofore unused, often eyesore land, may very well exist as a rather fortuitous stalemate to that process. The number of varied, secondary, non-agricultural land uses currently found on SCE right of way land in Los Angeles amply illustrates the exciting possibilities that exist. A short list of these alternate land uses include parks, recreation areas, riding and boarding stables, worm ranching, auto parking lots, equipment and vehicle storage areas, earth storage and removal areas, water transport and storage areas, bikeways, hikeways, and miniature golf courses.

Conclusions

Perhaps the primary thrust for future utilization should focus upon people and community-serving developments. In urban
areas, which are sorely in need of readily accessible parks and recreation areas, regardless of their particular shape or geography, the potential value of these areas for such use has all too often been understated or completely neglected. The example of Los Angeles in this regard, which has developed over seventy such parks, in one case involving the expenditure of over one million dollars, is indeed encouraging and refreshing. It should be further noted that with even less expensive outlays, hiking trails, bikeways, and just green spaces could be provided that would go a long way in beautifying these areas, as well as providing a recreational outlet for the urban populace.

Thus, for cities in search of relatively cheap, accessible areas for recreation and other land uses, perhaps it is time for tightened utilization of "marginal" urban land, and to think long and narrow, short and wide, rather than just big.

NOTES


2 There is a four page License Agreement that Southern California Edison Company has drawn up for secondary land use on its right of ways. The agreement has twenty-six clauses that outline very clearly the responsibilities of the licensee to SCE. The most recent license was revised in June, 1974, reflecting the increasing interest in this pioneer program of SCE.

3 Personal communication, Mr. P.B. Peecook, Manager, Right of Way and Land Department, Southern California Edison Company. August 9, 1974.