

earth. They must be carefully designed and built, and toed into firm, natural soil. Gravity walls are usually used to retain cut banks, and because they are porous, often permit drainage and planting in the spaces between stones. Walls more than 3' tall are subject to damage by earthquake.

Wood retaining walls are inexpensive, aesthetic retaining structures often used to create stepped terraces permitting average slopes of up to 1:1. Their use at fill slopes is limited to a single structure at the base of the fill.

Where slopes exceed 1:1, and within large drainage channels, gabion walls should be used in place of rip-rap. Gabions are large, wire-mesh boxes filled with rock, stacked and wired together to form retaining structures. Very effective at preventing erosion to banks of drainage channels, they should not be used at fill banks, and are unattractive solutions at cut banks.

The following drawings illustrate construction and use of gravity, wood and rip-rap structures. All structures over 3' high should be designed by a competent licensed engineer familiar with the site.

3. Erosion Protection

The physical movement of earth and construction of drainage systems invariably reshapes the land and redirects run-off, resulting in potential erosion of the property being developed and the properties downstream. Three specific measures to reduce erosion potential are:

- a. Earth movement should be held to a minimum and natural vegetation protected.
- b. Diverted run-offs should be carried either to existing storm drainage systems or to natural drainage channels.
- c. Where exposed earth and cut or fill banks remain after construction, erosion control landscaping should be planted before winter rains, with erosion control blankets installed over steep or unstable slopes.

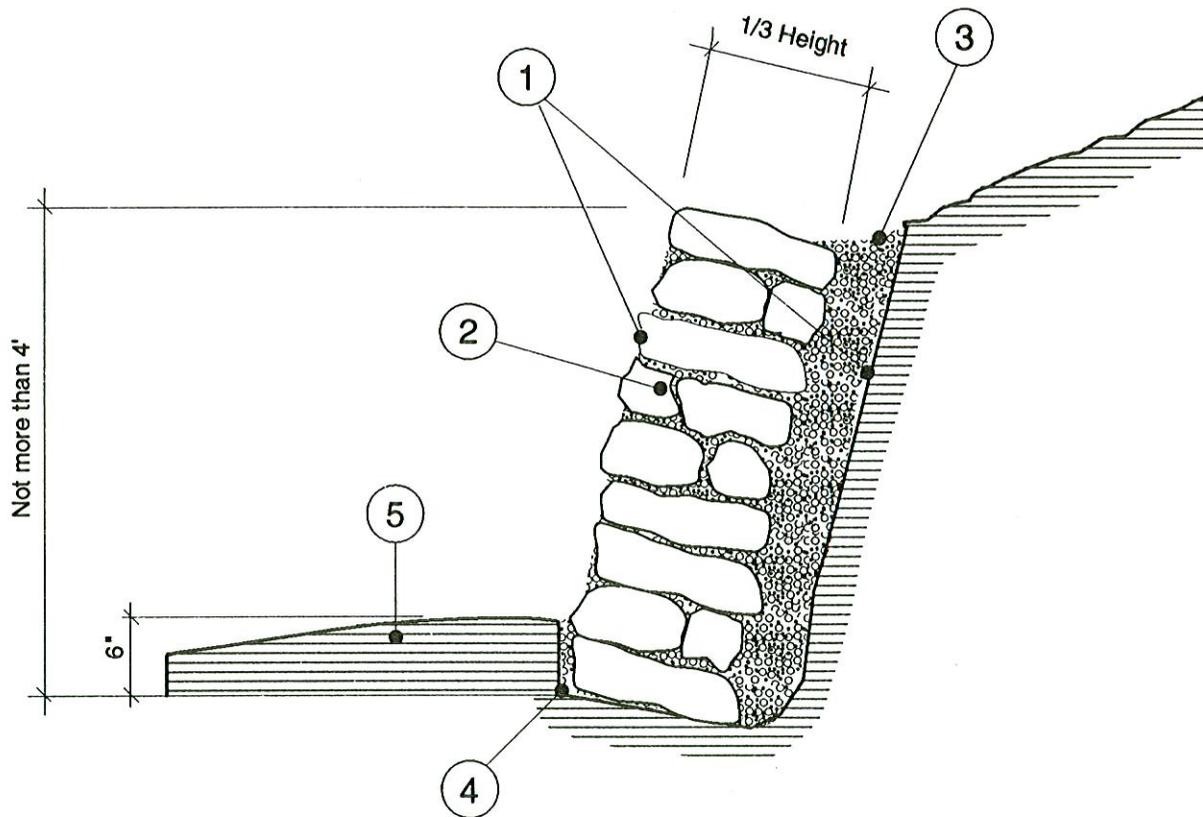
Sections D1 and D2 above provide guidelines for measures a. and b. The following are lists of types of erosion control blankets and plantings which may be employed to protect exposed earth.

- a. Mulch: is used to protect earth temporarily from the effects of wind and rain while plantings are being established. Plants derive further benefits because mulching:
 - 1) shades young root systems.
 - 2) holds moisture.
 - 3) protects earth from temperature extremes.

Mulching may be from existing leaves and needles stockpiled from the construction site or imported bark chips, clean straw or commercial products imported after construction.

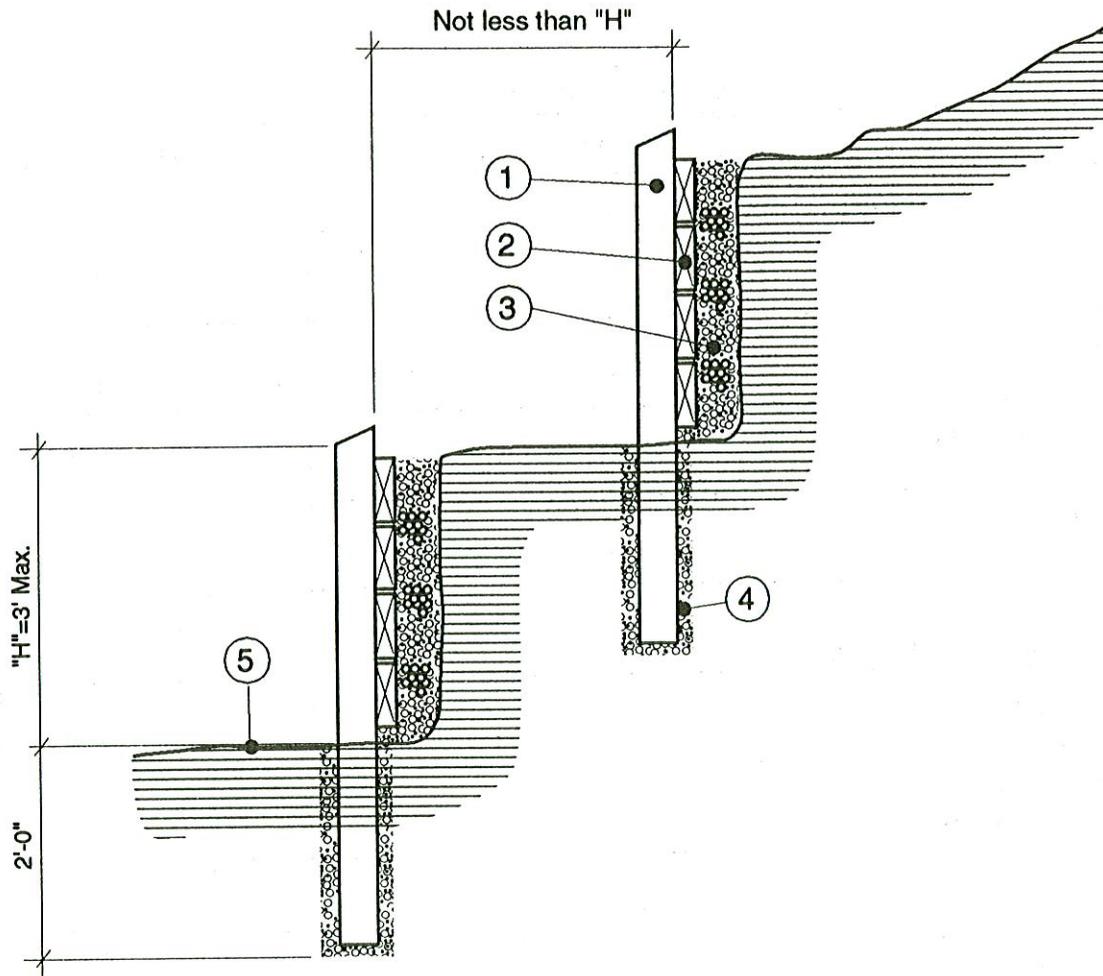
- b. Matting: is used on steep or unstable slopes to hold mulch in place and help stabilize bare soil while revegetation is being established. Various types are available including:
 - 1) Blankets of jute, wood fiber, or plastic "geotextiles" which serve as both mulch and mat.
 - 2) Jute or plastic open netting, placed over mulching.

Mattings are generally temporary in nature, needed for the first few years after seeding or planting exposed earth. Do not use permanent geotextiles blankets or wire nettings except as drainage channel linings.



NOTES:

- A. Rip-rap or rock walls should not be used for terracing steep slopes
 - B. Rock walls must be carefully built. Soil pressure or water pressure combined with earthquakes can cause failure.
- ① Face of wall and earth behind should have not less than 1:4 or more than 1:2 slope.
 - ② Rocks and rip-rap should be not less than 4" thick by 12" wide, bedded firmly into sand, laid sloping towards bank.
 - ③ Backfill with tightly packed 3/8" to 3/4" graded gravel.
 - ④ Bed footing slab solidly into earth 6" below grade.
 - ⑤ Slope to drain away from wall.



NOTES:

- A. ALL WOOD SHOULD BE PRESSURED-TREATED OR ALL-HEART REDWOOD.
- B. WALLS HIGHER THAN 3' MUST BE ENGINEERED

- ① 6 X 6 posts spaced 5' maximum. Slope tops to drain water.
- ② 2 x 8 or wider planks spaced 1/4" ± apart and nailed to posts with 16d common nails.
- ③ 3/4" drain rock backfill.
- ④ Concrete backfill post holes.
- ⑤ Slope away from wall to drain.

TABLE 10-1
Erosion Control Plants

Plant	TYP	NAT	INV	D-R	SUN	SHD	D-T
*Arctostaphylos uva-ursi (bearberry)	S	+	-	+	0	+	0
Ceanothus (wild lilac) Dark Star	S	+	-	+	+	0	0
c. Point Reyes	S	+	-	0	-	+	0
c. Anchor Bay	S	+	-	0	-	+	0
Cissus hypoglauca	V	-	0	0	+	+	+
Cistus (rockrose) villosus prastratus	S	-	-	+	+	0	+
Coprosma kirkii	S	-	-	0	+	+	+
*Cotoneaster lowfast	S/V	-	0	0	+	0	+
c. microphyllus	S	-	-	0	+	0	+
*Echium fastuosum	S	+	-	0	+	-	+
*Eriogonum fasciculatum (blackwheat)	P	-	-	+	+	-	+
Euonymus fortunei (prostrate types)	V	-	0	0	+	0	+
Fallugia paradoxa (apache plume)	S	+	0	0	+	-	+
*Hedero helix (English ivy)	V	-	0	+	0	+	-
h. canariensis (Algerian ivy)	V	-	+	+	+	0	-
*Hypericum calycinum	S	-	++	+	+	+	+
h. moserianum	S	-	0	+	+	+	+
Mahonia repens (creeping)	S	+	-	+	+	0	+
Parthenocisus quinquefolia (Virginia creeper)	V	-	0	0	+	+	+
Ribes viburnifolium (currant)	S	+	-	0	+	+	+
Rosmarinus officinalis prostratus	S	-	-	+	+	0	+
Symphoricarpos (snowberry) albus	S	+	0	+	+	0	+
*s. mollis	S	+	+	+	0	+	+
*Vinca (myrtle/periwinkle) major	V	-	+	0	0	+	0
v. minor	V	-	0	0	-	+	-

LEGEND

*Superior for erosion control

TYP: Form of Plant

INV: Invasive habit

D-R: Deer-resistant

NAT: Native to California

INV: Invasive habit

D-R: Deer-resistant

SUN: Sun-loving

SHD: Shade-loving

D-T: Drought tolerant

++: Very

+: Yes

0: Somewhat

-: No

- c. Landscaping: is the best, long-term erosion protection method. Plantings are attractive, help retain earth and provide an environmental counterbalance to building construction.
- 1) Grasses should be planted as temporary erosion control (or permanent lawns) on all surfaces except steep slopes and poor soil or rocky cuts that will not support them. A number of erosion control seed mixes are commercially available for various environmental conditions and soil types.
 - 2) Perennial herbs, shrubs and vines are a superior long-term erosion control measure, once established. The following list of species is selected for superior erosion control characteristics. Some are natives, and many are drought-tolerant and deer-resistant. It should be noted that all plantings require watering until root systems take hold and deer will browse on many of them, but without serious damage to those identified as deer-resistant. Shade-loving species belong on exposed north to north-easterly slopes and under tree cover. All species listed should survive the coldest of Brooktrails winters, although some may require cutting back after a severe frost.

SITE DEVELOPMENT STANDARDS RELATING TO FIRE SAFETY

A. ON-SITE SAFETY

1. Class "A" roof assemblies.
2. Brush and flammable waste clearance and control.
3. Chimney spark arrestors.
4. Drywall all walls and ceilings, including garage, shops & storage rooms.
5. Visible address posting.
6. Open burning controls.

B. SITE ACCESS (see Parking Standards included)

1. 24' minimum turning radius to centerline of driveway.
2. 16 percent maximum slope permitted. If permitted slope is reduced, hillside zoning standards (see D.) must be enabled in order to permit development of the majority of remaining undeveloped properties.
3. Pave driveways with slope over 10 percent.

C. PUBLIC ROADWAYS

1. Paved section less than 32': parking one side only.
2. Paved section less than 24': no parking either side.
3. Property owner may widen paved section for the full length of property frontage to 16' from centerline (40' R.O.W.), 18' from centerline (50' R.O.W.) or 20" from centerline (60' R.O.W.) with 2" a/c on less than 8" Class II aggregate based to gain parallel parking on public R.O.W., subject to approval of design and drainage by County D.P.W.

D. HILLSIDE ZONING

(Applicable to R-1 developments only on properties demonstrated inaccessible using driveways of maximum permissible slope.)

1. Parking and storage structures may have zero front setbacks, with 10' minimum sideyard tapering to 6' at a 20' setback (see diagram on page 10-17).
2. Parking openings onto roadway must total no more than 20' in width and be not less than 22' from paved roadway centerline for back-out visibility (20' @ 40' R.O.W.).
3. Provide 3' wide masonry or concrete stairs with handrails from street to house. Provide a 5' deep landing every 12' of rise.
4. Provide 2" schedule 80 galvanized steel water stand-pipe from street to hose cabinet accessible from stair landing 20' + for house.
5. Uphill Property Standards:
 - a. Garage or carport height limit: 10' at front property line rising to 18' at 20' front setback, except that retaining structures may rise to the height of earth cuts.
 - b. House must be outside of front setback, except for entry and interior access stair adjacent to parking/storage structure. Entry must be set back 4' from property line.
 - c. 30' maximum width for parking structure and entry.
6. Downhill Property:
 - a. Parking structure height limit: 10' at front property line, 14' within front setback.
 - b. House must be outside of front setback.
 - c. Parking structure floor shall be at or near street level.
 - d. No floor of the house shall be higher than parking structure floor (excluding lofts within roof structures).
 - e. Parking structure floor must have asphalt or concrete surfacing. Floor structure and sub-structure shall be not less than 1-hour fire resistant.

E. CALIFORNIA DEPARTMENT OF FORESTRY REGULATIONS

Notwithstanding any of the above, the provisions of Public Resources Code 4290 and 4291 regarding basic wildland fire protection standards of the California Board of Forestry shall govern.

*

11. CAPITAL IMPROVEMENTS AND FINANCING

11.1 CAPITAL IMPROVEMENTS

Continued development in the Township will require expansion of capital facilities to accommodate growth. This chapter describes the Districtwide capital expansions required for growth to 4,000 equivalent single-family residences (SFRs), including project timing and costs. Improvements described here would either be the responsibility of the Township or Mendocino County. In either case, funding responsibility would be passed back to the Township in the form of fees, assessments, or ongoing capital charges.

The improvements and costs described in this chapter form the basis for the financing plan later in the Specific Plan. Some of the improvements will benefit other developing areas in the vicinity of Brooktrails. Their share of these costs are allocated accordingly. Following an overview of the capital requirements, this chapter discusses the improvements in detail. In the conclusion, this chapter summarizes the capital costs, per-SFR costs, and projected years for major infrastructure items.

Introduction

Capital expansions will be required for water, sewer, circulation, fire, maintenance, recreation, and District administrative facilities. Capital costs are separated into two categories -- ongoing and one-time -- in anticipation of the financing methods explored further in the financing section of the Specific Plan. Projects are also scheduled according to the level of development at which they would be required to indicate the growth thresholds at which the Township would need to incur major capital costs. In this manner, the facilities and financing discussions are not tied to a particular rate of growth, though the historical annual rate of 40 equivalent SFRs per year is used where it is useful to illustrate the years at which costs would be incurred. All costs are

presented in current 1995 dollars, and are taken from various preliminary engineering estimates prepared for the Township.

Water

Water supply is the most immediate constraint facing Brooktrails, with the existing system reaching capacity at around 2,000 SFRs. Water infrastructure consists of development of additional water sources including wells, a new dam and reservoir, plus storage and treatment commensurate with the level of demand. The internal water distribution network already exists so, beyond maintaining the existing system, no further expansions are anticipated at this time. In addition to supplying water to the Specific Plan area, the Township supplies water to 69 lots at Spring Creek. Accordingly, all water supply costs have been adjusted to show the proportional share used by new development in the Specific Planning Area on an SFR basis.

Initially, the District could add wells to supply water up to 2,500 SFRs at a cost of \$249,000.¹ It is anticipated that a new dam would be required to supply the level of growth projected. The dam is shown in two stages which, combined, total \$8.3 million. At about 2,000 SFRs of development, the District may begin preliminary work in preparation for dam construction.

1. At current rates of development, reliance on groundwater wells would not take place until around 2010. Similarly, the new dam would not be needed until around the year 2023. Given the long planning horizon, there would be at least two five-year updates of the Specific Plan wherein the Plan could be amended in reaction to more complete information.

A report by Frank C. Kresse, Consulting Geologist, prepared in February of 1995, concerned an assessment of the potential to develop groundwater resources within the Township for domestic water supply. A total of 13 locations were determined to be potential well sites for further exploration. The report noted that there is a three in four chance of obtaining wells with production capacities greater than two gallons per minute (gpm). The report states that the District may wish to define success of the wells at a higher production rate as five or even ten gpm.

Assuming ten gpm per well, the 13 wells, if successful, would yield enough water to serve 390 SFRs, assuming three units per gallon per minute. This is a conservative estimate considering that the typical suburban single-family unit uses about 350 gallons per day, while each Brooktrails single-family water usage unit amounts to about 320 gallons per day.

Additional studies by the engineering firm Brooks and Vogel indicate that the option of excavating the bottom of Lake Emily could increase the lake volume by 25 acre-feet. It was determined that the additional 25 acre-feet would serve an additional 65 SFRs. Fish flow requirements under this scenario have not been determined.

Preliminary work would consist of engineering, refined environmental analysis, construction of access roads, and placement of the delivery system. Costs of these elements are estimated at about 20% of the \$8.3 million total, or \$1.67 million. Work on the dam itself would begin at about 2,500 SFRs. It is estimated to account for about 80% of the total, or \$6.63 million.

Water treatment capacity is projected to be added in two stages, at 2,500 and 3,000 SFRs. Total cost of the treatment equipment necessary to serve up to 4,000 SFRs is estimated at \$900,000. Brooktrails Township may be able to secure a federal Clean Water Grant that could be used to fund part of the costs. It is assumed here that about 25% of the treatment costs could be funded through a grant. Taking into account a small portion of the costs associated with water demand from users outside of the Specific Plan area leaves \$673,000 to be funded from growth in the Specific Plan area. Costs of the first and second stages are estimated at \$299,000 and \$374,000, respectively.

Treated water storage amounts to adding tanks as needed, at a cost of roughly \$150,000 to \$200,000 per tank. These can be added in increments and are, thus, identified as an ongoing cost suitable to be funded out of development or connection fees. Through build-out, roughly 8 to 10 tanks will be needed for a total of \$1.5 million. Table 11.1-1 summarizes the water infrastructure requirements. Costs of the projects shown total \$10,700,000.

**Table 11.1-1
Water Infrastructure Cost
Brooktrails Specific Plan Economic Analysis**

	Level of Development	Cost
Wells	2,000	\$249,000
Dam Work Preliminary	2,000	1,656,000
Dam Construction	2,500	6,625,000
Water Treatment Stage 1	2500	\$299,000
Water Treatment Stage 2	3000	374,000
Treated Storage Tanks	Ongoing	<u>1,497,000</u>
Total		\$10,700,000

Source: Brooks & Vogel; Recht Hausrath & Associates

Sewer

Development beyond 2,000 SFRs would require expansion of sewer capacity. Sewer improvements to serve up to 4,000 SFRs consist of one main from Brooktrails to the Willits treatment plant constructed in two stages. The first stage, an external reach from the Brooktrails metering station to the Willits plant, would be required at 2,000 SFRs at a cost of \$600,000. Presumably, the construction would be done in conjunction with the S.R. 20 access route to realize economies in excavation costs. The second stage, an internal reach to the metering station, would be required around 3,000 SFRs of development. Given that this analysis is concerned with Districtwide infrastructure, no additional internal sewer lines are included here for the few areas of the Specific Planing area that presently lack sewer service. Sewer costs are summarized in Table 11.1-2.

**Table 11.1-2
Sewer Infrastructure
Brooktrails Specific Plan Economic Analysis**

	Level of Development	Cost
Sewer Mains Stage 1	2,000	\$600,000
Sewer Mains Stage 2	3,000	500,000
Treatment Capacity	Ongoing	<u>3,900,000</u>
Total		\$5,000,000
<i>Source:</i> Brooks & Vogel		

Cost to expand the Willits sewer treatment plant to accommodate Brooktrails' growth is included as well. The \$3.9 million is shown as an ongoing cost, paid on a per-SFR basis as development takes place through build-out. Costs shown here assume Willits would expand its present facility, though it has been proposed to switch to a different system altogether. If this were the case, the cost allocation would change accordingly.

Circulation

Two circulation projects are anticipated for the near future, improvements to Sherwood Road and a second access route. The first project involves improvements to Sherwood Road, estimated at \$500,000, including shoulders, turn pockets, and signals. The second project is the second access route, as established by the Brooktrails Board of Directors as the number one priority among infrastructure expansions. Accordingly, the second access is assigned priority, and would be constructed as soon as the planning, engineering, and financing can be put in place. At current rates of development, it is assumed that this construction could take place around 1,500 SFRs. The most probable second access alternative would be a direct route to S.R. 20, also identified as Route #3 in the *Brooktrails Access Study* prepared by TJKM Transportation Consultants in 1991. Costs include right-of-way acquisition, but exclude the actual interchange at S.R. 20, which could be funded by the State. At 2,500 SFRs modifications to the intersection of Main Street and Sherwood road will be needed, for which an allowance of \$250,000 is included for intersection improvements. Signals are proposed to be added to the intersections of Clover Road/Primrose Drive and Primrose Drive/Sherwood Road prior to 4,000 SFRs. An additional signal at the intersection of the second access route and Primrose Drive may be necessary at some point in time, and is also included in the intersection improvements shown at 4,000 SFRs. Allowing for three signals at \$125,000, costs for intersection improvements at 4,000 SFRs total \$375,000. Three signals are at 2,500 SFRs for this. Table 11.1-3 details the circulation improvements.

**Table 11.1-3
Circulation Infrastructure
Brooktrails Specific Plan Economic Analysis**

	Level of Development	Cost
Intersection Improvements, Stage 1	2,500	\$250,000
Intersection Improvements, Stage 2	4,000	\$375,000
Sherwood Road Improvements	1,500	500,000
2nd Access	1,500	2,816,000
3rd Access	3,500	<u>3,755,000</u>
Total		<u>\$7,696,000</u>

Source: Fehr & Peers

Traffic volumes generated by development of 4,000 SFRs would require a third access. Although the location of the third access is considered schematic at this time, the Upcreek Route, also known as Route #1 in the *Brooktrails Access Study*, is assumed for the purposes of the financing plan. An intertie between Sherwood Road and Primrose Drive has been considered as an alternative to the third access. If the State funds the U.S. 101 interchange, however, the cost of the third access is essentially the same as the intertie. Thus, it is assumed that the necessary improvements to U.S. 101 would be undertaken by the State such that the third access, the Upcreek Route, would be constructed instead of the intertie. Although Mendocino County would be the agency responsible for constructing the roads, it is assumed that properties in the Specific Plan area would be responsible for the cost.

The access routes will benefit the surrounding areas as well as Brooktrails. About 96 percent of the development benefitting from the access routes lies in Brooktrails. In terms of current estimates, the Specific Planning area's share of the costs are \$2,816,000 for the second access route and \$3,755,000 for the third access route for a total of \$6,571,000 for both access routes. Combined, the total circulation improvement costs facing the Specific Planning area are \$7,696,000, inclusive of two new access routes, Sherwood Road improvements and signals (see Table 11.1-7).

Fire

Table 11.1-4 details the fire facilities costs, as estimated by Brooktrails Township. The Township plans to add one new fire station, including a fire engine and water tender, before reaching the 2,000 SFR level of development. As with the water supply, Brooktrails will provide fire protection to growth outside of the Specific Plan area, though these areas amount to less than two percent of growth in fire protection demand. Total costs by 2,000 SFRs are estimated at \$327,000. This, plus additional vehicles and equipment costing \$249,000, would support development up to about 3,500 SFRs. Development at 4,000 SFRs would require a second additional station plus another engine and staff car, totaling \$306,000. For all fire improvements, the Specific Plan area's share of fire facilities cost is \$882,000 through build-out of 4,000 SFRs.

**Table 11.1-4
Fire Facilities
Brooktrails Specific Plan Economic Analysis**

	Level of Development	Cost
Additional Station #1	2,000	\$94,000
Additional Station #2	4,000	74,000
Fire Vehicles #1	2,000	233,000
Fire Vehicles #2	2,500	82,000
Fire Vehicles #3	3,500	167,000
Fire Vehicles #4	4,000	<u>232,000</u>
Total		\$882,000

Source: Brooktrails TCSD

In addition to the fire stations shown in Table 11.1-4, Brooktrails Township anticipates an additional station to serve development in the vicinity of the airport constructed in the near-term. Beyond serving areas of Brooktrails, the proposed Airport Area station would provide back-up to the City of Willits and the Little Lake Fire District. Accordingly, it is proposed that the other jurisdictions would share in the cost. The Airport Area station is needed in the absence of new development, such that its costs are not included among the fire facilities related to growth.

Other Improvements

Beyond the four major areas of facilities described above, additional expansion of the District's capital will be required to support a larger service population. Capital requirements estimated at \$2,500 per SFR are projected on an ongoing basis. Using the District's five-year *Capital Improvement Program* (CIP) as a guideline, this allowance would include a number of improvements, as detailed in Table 11.1-5. Water improvements refer primarily to fire hydrants installed as growth required with an allowance for ongoing engineering. Sewer improvements shown in the CIP relate to lift stations plus an engineering allowance. Parks and recreation improvements are assigned a cost of \$200 per SFR. Although the Township's drainage

**Table 11.1-5
Maintenance and Other Capital
Brooktrails Specific Plan Economic Analysis**

	Level of Development	Cost
Maintenance Shop	\$2,000	\$150,000
Other District Capital	Ongoing	<u>6,625,000</u>
Total		\$6,775,000
<i>Source:</i> Brooktrails TCSD; Recht Hausrath & Associates.		

infrastructure is in place, some incidental drainage improvements may be needed to handle the increased run-off from growth. The drainage allowance assumed here is \$100 per SFR. District administration would apply to planning and growth administration activities as well as furnishings and equipment. The maintenance department will similarly need additional tools and equipment to meet the demands of a higher service population. Contingencies of \$600 per SFR are included as well.

In addition to the ongoing requirements, an expanded maintenance shop is included in this category as well. This facility is listed in the District's CIP and, for the purposes of this analysis, is scheduled at 2,000 SFRs. Other District capital is summarized in Table 11.1-6.

**Table 11.1-6
Other Ongoing District Capital
Brooktrails Specific Plan Economic Analysis**

	Cost per SFR
Water	\$600
Sewer	400
Parks & Recreation	200
Admin. & Planning	300
Drainage	100
Maintenance	300
Contingencies	<u>600</u>
Total	\$2,500
<i>Source:</i> Brooktrails Capital Improvement Plan, 1995-96; Recht Hausrath & Associates.	

Infrastructure Summary

A summary of infrastructure requirements, including timing and costs in thousands, is shown in Table 11.1-7. Based on the estimates, Brooktrails capital improvements are projected to total \$31.05 million to support growth to 4,000 SFRs. Of this, \$12.02 million will be added incrementally as demand requires. The remaining \$19.03 million constitute major one-time capital expansions.

**Table 11.1-7
Summary of Capital Requirements
Brooktrails Specific Plan Economic Analysis**

(Costs in Thousands)	Level of Development, SFRs							Total
	Ongoing	1,500	2,000	2,500	3,000	3,500	4,000	
WATER SUPPLY								
Wells	\$0	\$0	\$249	\$0	\$0	\$0	\$0	\$249
Dam Preliminary Work	0	0	1,656	0	0	0	0	1,656
Dam Construction	0	0	0	6,625	0	0	0	6,625
Water Treatment	0	0	0	299	374	0	0	673
Treated Storage (Tanks)	<u>1,497</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1,497</u>
Total	\$1,497	\$0	\$1,905	\$6,924	\$374	\$0	\$0	\$10,700
SEWER								
Sewer Mains	\$0	\$0	\$600	\$0	\$500	\$0	\$0	\$1,100
Treatment Capacity	<u>3,900</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>3,900</u>
Total	\$3,900	\$0	\$600	\$0	\$500	\$0	\$0	\$5,000
CIRCULATION								
Intersection Improvements	\$0	\$0	\$0	\$250	\$0	\$0	\$375	\$625
Sherwood Road Improvements	0	500	0	0	0	0	0	500
2nd Access Route	0	2,816	0	0	0	0	0	2,816
3rd Access Route	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>3,755</u>	<u>0</u>	<u>3,755</u>
Total	\$0	\$3,316	\$0	\$250	\$0	\$3,755	\$375	\$7,696
FIRE								
Stations	0	0	94	0	0	0	74	168
Vehicles and Equipment	<u>0</u>	<u>0</u>	<u>233</u>	<u>82</u>	<u>0</u>	<u>167</u>	<u>232</u>	<u>714</u>
Total	\$0	\$0	\$327	\$82	\$0	\$167	\$306	\$882
OTHER DISTRICT CAPITAL								
Facilities and Equipment	\$6,625	\$0	\$150	\$0	\$0	\$0	\$0	\$6,775
TOTAL	\$12,022	\$3,316	\$2,982	\$7,256	\$874	\$3,922	\$681	\$31,053

Source: Brooktrails Township; Brooks & Vogel; Fehr & Peers; Recht Hausrath & Associates.

Cost per SFR

Costs are allocated on the basis of SFRs in Table 11.1-8, and are divided into three allocation tiers - (1) existing development, (2) new development from 1,350 to 2,000 SFRs, and (3) new development from 2,000 SFRs to buildout. The tiers are cumulative such that the second tier is allocated the amount of the first tier plus the cost of the additional improvements to serve growth from 1,350 to 2,000 SFRs. Similarly, development above 2,000 SFRs is allocated the amount of the second tier plus the costs of improvements to support growth from 2,000 to 4,000 SFRs.

**Table 11.1-8
Cost per SFR
Brooktrails Specific Plan Economic Analysis**

	Specific Plan Area Costs	Allocated to Existing Development	Allocated to New Development from 1,350 to 2,000 SFRs	Allocated to New Development above 2,000 SFRs
SFRs in Allocation Category		1,350	650	2,000
Water Treatment	\$673,000	\$0	\$0	\$337
Water Storage	\$1,497,000	0	565	565
Wells & Dam	8,530,000	0	0	4,265
Sewer Treatment	3,900,000	0	1,472	1,472
Sewer Mains	1,100,000	0	0	550
Access Routes & Sherwood Road	7,071,000	1,768	1,768	1,768
Intersection Improvements	625,000	0	236	236
Fire	882,000	0	0	441
Maintenance Shop	150,000	0	0	75
Other	<u>6,625,000</u>	<u>0</u>	<u>2,500</u>	<u>2,500</u>
Total	31,053,000	\$1,768	\$6,541	\$12,209

Source: Town Hall Services

The first tier, existing development, is allocated a share of the access routes and Sherwood Road improvements, since these will benefit all residents of Brooktrails, existing and new, particularly in the event of an emergency evacuation. The first tier costs amount to \$1,768 per SFR. The second cost allocation tier, new development from 1,350 to 2,000 SFRs, includes the improvements needed to serve growth to 2,000 SFRs. The second tier allocation includes the circulation improvement costs in the first tier plus water storage, sewer treatment, intersection

improvements, and other improvements needed to serve this increment of growth. Capital costs per SFR associated with development from 1,350 to 2,000 SFRs is \$6,541. The third tier includes all costs of the second tier plus expansion of the water supply and treatment capacity, sewer mains, fire protection, and maintenance shop needed to support growth from 2,000 to 4,000 SFRs. Costs associated with growth above 2,000 SFRs totals \$12,209.

Average Cost per SFR

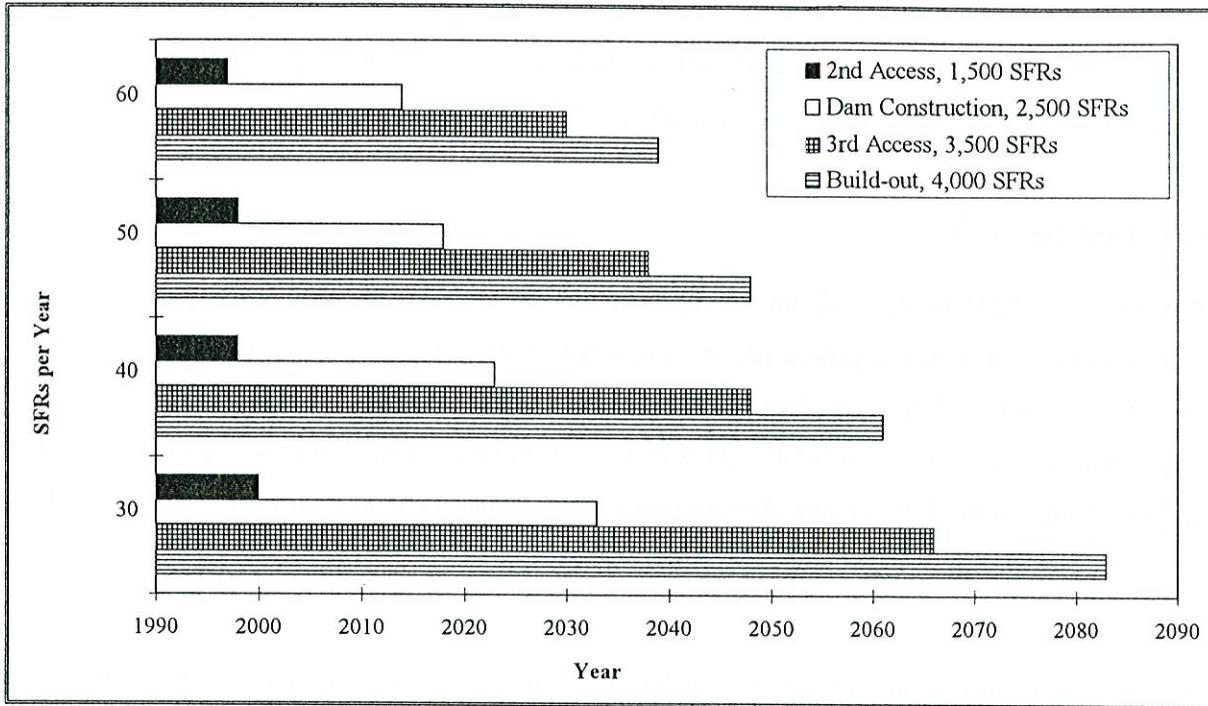
Average cost per SFR is also calculated here for use later in the economic analysis where the distinction between new development before and after 2,000 SFRs is not an issue. The overall cost to serve growth excludes the share of the access routes, roughly \$2.4 million, allocated to new development. This leaves roughly \$28.7 million in improvements costs assigned to growth. Spread across all 2,650 SFRs of new development, the average cost overall is \$10,819 per SFR.

Timing

To this point, the infrastructure discussion has been in terms of development levels at which expansions would be required. Given that the analysis is conducted in constant 1995 dollars, timing would not affect the project costs or the conclusions of the analysis as presented. Still, it is of interest to indicate the years at which major improvements would be constructed; major improvements are defined here as one-time projects costing more than one million dollars. Figure 11.1-1 shows the time line for constructing the dam and the access routes plus an indication of the build-out year under average annual absorption of 30, 40, 50, and 60 SFRs per year.

The second access route would be required in the near-term regardless of the rate of development. For the rates of development shown, 2,500 SFRs would be reached between years 2014 and 2033. At this time, the dam construction would take place, the preliminary work having been completed. The second sewer line would be added at 3,000 SFRs, though not shown in the figure. At 3,500 SFRs, reached between year 2030 and 2066, the third access route would be needed. Build-out of the Specific Plan area would occur around year 2039 if 60 SFRs were developed per year, or as late as year 2083 if the development rate was only 30 SFRs annually.

**Figure 11.1-1
Years of Major Capital Projects
Brooktrails Specific Plan Economic Analysis**



Depending upon the rates of development, infrastructure projects for the Specific Plan area would stretch well into the next century. Beyond the near-term circulation improvements, the next phase of major construction at around 2,000 SFRs is 10 to 20 years off. Though, in most cases, the capital needs are not immediate, addressing the future requirements now will allow time to review and establish the necessary programs to anticipate growing public service demands. As the time to construct each series of improvement approaches, the requirements and costs will be revised to prepare for financing and construction of the expanded infrastructure needed for growth.

Development to 5,000 SFRs

The Specific Plan focuses on the preferred study alternative of 4,000 SFRs. This level of maximum development is contingent upon Brooktrails achieving the necessary level of development reduction. (Development reduction is further discussed in the next section, Section 11.2, Development Reduction.) In the event that new development exceeds the 4,000-SFR limit, additional infrastructure expansions will be required. Development of 5,000 SFRs approaches

the reasonable maximum level of potential development in the absence of any development reduction activities, given the various constraints facing a number of lots in the Specific Planing area. To address this possibility, a 5,000-SFR scenario is briefly considered here.

Table 11.1-9 estimates capital costs estimated to support development of 5,000 SFRs. The 4,000-SFR costs shown in the table are based on the allocation to new development presented above in Table 11.1-8.

**Table 11.1-9
Infrastructure Costs to Serve 5,000 SFRs
Brooktrails Specific Plan Economic Analysis**

COSTS TO SERVE GROWTH TO 4,000 SFRs	
Cost per New Development SFR	\$10,819
SFRs developed	<u>2,650</u>
New Development Cost to Serve 4,000 SFRs	\$28,670,000
 COSTS TO SERVE 5,000 SFRs	
New Development Cost to Serve 4,000 SFRs	\$28,670,000
 Additional Costs to Serve 5,000 SFRs	
Water	\$1,000,000
Sewer	3,100,000
Fire	253,000
Other District Capital	<u>2,500,000</u>
Total	\$6,853,000
 Total Costs to Serve 5,000 SFRs	 \$35,523,000
 COST PER SFR	
Total Costs to Serve 5,000 SFRs	\$35,523,000
New Development SFRs	<u>3,650</u>
Total Cost per New Development SFR	\$9,732
 Source: Recht Hausrath & Associates	

Expanding to 5,000 SFRs, the projects and their costs are similar to the 4,000-SFR scenario. Water and sewer improvements would have to be sized according to the higher level of demand. Traffic improvements under the 4,000-SFR scenario would support 5,000 SFRs; thus, no additional cost is shown. The additional 1,000 SFRs, however, would trigger the need for a third additional fire station plus vehicles related to serving growth. Costs of other District capital is shown to increase according to the allowance of \$2,500 per SFR. Incremental costs are estimated at \$6,853,000 to increase infrastructure capacity from 4,000 SFRs to 5,000 SFRs. Total costs to support the 5,000-SFR level of development is estimated at \$35,523,000. Spreading this amount across the 3,650 new development SFRs under the 5,000-SFR scenario equals a cost per SFR of \$9,732. This is roughly \$1,100 lower than the per SFR cost of \$10,819 estimated for the preferred 4,000-SFR alternative being considered in the Specific Plan. The difference in cost has two components. First, there will be economies in sizing infrastructure for a larger capacity. Second, certain improvements constructed for 4,000 SFRs, namely the traffic improvements, will not have to be expanded proportionally to serve an additional 1,000 SFRs.

11.2 DEVELOPMENT REDUCTION

The Brooktrails Board of Directors, after receiving the reports of two separate community advisory groups and in conducting two well-attended community congresses, and after conducting numerous public hearings, determined that development at the level of 4,000 SFRs was the most realistic level of development within the Specific Plan Planning Area with reference to a balance between economic viability and environmental concerns. Upon adoption of the Specific Plan and certification of the accompanying EIR by the County, the County and District will have assumed responsibility for implementing the Specific Plan as the critical link between development in the Specific Plan Planning Area and the provisions of the Mendocino County General Plan. Brooktrails Township is, thus, obliged to take the necessary measures to see that the goals and policies of the Specific Plan are followed.

In selecting a 4,000-SFR level of development for preparation of the Specific Plan, the Brooktrails Board of Directors has implied a reduction of 2,000 SFRs from the existing 6,000-SFR total. If historical rates of growth continued, development of the Specific Plan Planning Area to 4,000 SFRs would take 60 to 70 years. By approximately year 2061, it would be necessary to retire development rights on 2,000 SFRs, or an average of about 30 SFRs per year, to cap development at the indicated level.

Therefore, the methods through which it may reduce the maximum development potential if the 4,000-SFR level of development is to be achieved must be considered. This section addresses the development reduction issue. Following some discussion of considerations for selecting an approach to development reduction, it reviews possible mechanisms that may be part of a comprehensive program to bring about a specified level of growth.

Introduction

The appropriate methods to bring about development reduction in Brooktrails Township will depend upon the number of development rights to be retired and the rate of growth. Approaches to development reduction considered here are placed into two categories. The first approach, termed

attrition, involves no government involvement, recognizing that some lots cannot or would not be developed at all due to physical, economic, or ownership constraints. The second approach offers incentives for voluntary development rights retirement. The approaches are not exclusive and, in fact, the most effective program might include a combination of methods to appeal to a diversity of property owner preferences and objectives.

Implementation of the Specific Plan will involve monitoring progress on the goals and policies. Where development reduction is concerned, the District would periodically review the ratio of lots built to development rights retired, and adjust its approach accordingly. Initially it is envisioned that voluntary measures would be put in place. If these failed to achieve the desired level of development reduction, further incentives to retire development rights, or reconsideration of the development limit may be required.

The balance of this section briefly describes the two approaches mentioned above. Discussion of potential development reductions follow, with an outline at the conclusion of this chapter of how a comprehensive approach might be formulated.

Attrition

In the absence of any governmental action, a certain number of lots are constrained such that development may not occur at all. A total of 985 lots lie in high development constraint areas. Some of these have slopes in excess of 40%. Others lie within the Maacama Fault Zone. Though special construction techniques can overcome seismic and other physical difficulties, enough alternative sites exist in the region that, in many cases, an owner of a high-constraint lot would find it economically advantageous to build elsewhere.

Also, in a subdivision characterized by disperse and often absentee ownership, it is probable that a small percentage of lots will not be developed at all, particularly if they are held in trust or under absentee ownership. Thus, even in the absence of governmental action, a certain amount of natural

attrition will occur, and growth would be limited somewhat by physical and ownership constraints that exist today.

Voluntary Measures

Attrition through physical and ownership constraints, however, is not likely to result in the full 2,000-SFR reduction needed to achieve the 4,000-SFR limit. Some involvement on the part of the District will be required to retire development rights if the desired level of growth is to be achieved. Under a voluntary approach, the District would take steps to encourage development rights reduction undertaken at the initiative of individual property owners.

A number of methods are available that the District could promote to encourage a voluntary reduction of development rights. The premise in this case is that, among the property owners, there exists the desire to undertake actions that would result in the retirement of development rights. For example, some owners may wish to merge with adjacent properties to achieve larger residential sites. To promote mergers, the District might coordinate with Mendocino County to administer a streamlined lot merger process to improve cost and convenience. This could include absorbing some of the administrative costs. Similarly, it could establish a procedure to retire development rights in exchange for income tax deductions, such as through conservation easements. Various financial incentives, such as low-cost loans, could also be considered. These methods are explored further below.

Administration and Cost

The nature of the program will also have a bearing on its cost. The voluntary approaches may be possible to fund out of the District's operating budget or administered at reduced cost with participation of the County.

Voluntary Programs

As noted, a number of voluntary programs could be implemented by the District to facilitate a reduction of potential development in the Specific Plan Planning Area. Lot mergers, conservation easements, market facilitation, and financial incentives are discussed in this section.

Lot Mergers

Through Mendocino County's property boundary line adjustment process, it is possible to combine two or more lots into one. At the zoned density of one detached dwelling per lot, the combined lot will support one unit of development, effectively reducing the density of development that can occur on the same land area. To date, some property owners of contiguous lots have chosen to merge lots to achieve a larger residential site to increase the spacing between neighbors or permit better driveway access. County records indicate that 37 mergers have been undertaken since 1990. For owners of contiguous lots, there is also a property tax incentive to merge parcels. Insofar as the developmental right contributes to assessed value, the elimination of an unneeded development right would reduce the assessed value of the combined lots and the corresponding property tax exposure. Similarly, assessments or special taxes levied on a per parcel basis would be reduced.

In situations where the boundary change is comparatively small, such as erasing an interior boundary line to merge two lots, the changes are reviewed by the County's Minor Subdivision Committee. The property owner wishing to file a boundary line change must fill out a standard form, attach maps and a description of the properties under review.

Presently, the cost (\$455 at the time this Plan was prepared) and effort involved in the boundary line adjustment process may serve as a disincentive for owners of contiguous lots to undertake a merger, and it is believed that some property owners inclined to merge their parcels are awaiting completion of the Specific Plan process. In way of promoting lot mergers, the Township could undertake a number of steps to streamline the merger process without any changes to the existing County procedure. Information, advice, and assistance in preparing the application could be available at District offices. The District could maintain maps for attachment to the application; assessor's maps may be appropriate. Further, the District could collect the fees and put the application on the County calendar for review. Steps where the Township could assist are as follows:

- Assist in completing applications.
- Prepare map and parcel descriptions.
- Advise property owners.
- Submit applications to the County.
- Promote mergers through community bulletins.

Beyond assistance in preparing the application, the Township might seek special arrangements with Mendocino County. The processing fee is a flat charge representing the average cost to the county to process an application. Since the lot mergers in Brooktrails are normally fairly simple, in some cases amounting to erasing an interior line, the county may be able to review these at a minimum cost. Cost could be further reduced, perhaps even eliminated, if the County were to periodically, for example biannually, review a group of Brooktrails mergers at one time. The District might also consider absorbing some or all of the application costs as a further incentive. The District might also seek the authority to review and approve merger applications itself. Currently, this power resides with the county, though through special ordinance it might be possible for the county to delegate prescribed land use regulation powers to the District. In way of precedent, the county has already given the Township the power to prepare the Specific Plan.

Conservation Easements

The federal and state governments recognize conservation easements as tools to preserve land from development. Ownership of land entitles the holder to develop or otherwise extract economic benefit. Under a conservation easement, the owner accepts a restriction on the use of his or her property, and the foregone value of that use is treated as a tax-deductible charitable contribution. Only the right to develop is relinquished, and the original owner retains possession of the land, including the right to exclude public access. If the land is sold, the development restriction holds for subsequent ownership.

Conservation easements can be used for a broad range of purposes, including preservation of wildlife habitat, forests, farmland, historic buildings and sites, and open space. Open space is the most widely applied of the categories, and is relevant to Brooktrails' goals. According to the IRS, preservation of open space can apply to (1) the scenic enjoyment of the general public, or (2) pursuant to a clearly delineated federal, state, or local government conservation policy, and will yield significant public benefit (IRS, 1992). Under California planning law, the purposes justifying conservation easements can be established through a general plan (or through extension of a specific plan). This section of the Specific Plan identifies conservation easements as a means for achieving

Brooktrails' environmental goals, thus constituting its use pursuant to a delineated government policy.

Criteria for establishing conservation easements is set forth in IRS Code Section 170(h). Three basic elements apply, and use of this mechanism under the *Brooktrails Township Specific Plan* would require a program responsive to each. The criteria are as follows:

- The easement must be for a qualified real property interest;
- The easement must be granted to a qualified organization; and
- The easement must be exclusively for conservation purposes.

The qualified real property interest of concern to Brooktrails is the right to develop. The easements, therefore, would amount to a deed restriction against developing on a particular lot. The Township or Mendocino County would count as an organization qualified to sponsor and receive the easement, both being political subdivisions of the State of California.

The conservation purpose sought for Brooktrails would be relief from urban closeness and congestion. This is among the criteria recognized by the IRS. Originally, Brooktrails was conceived as a vacation community, as noted previously. As a community of part-time residents, the original 6,000-SFR development plan might have been environmentally sustainable. Today, however, it is occupied by full-time residents. Continued development and full-time occupancy will create an unanticipated demand on the Township's public and environmental resources. Therefore, the *Specific Plan* has set a growth limit of 4,000 SFRs to balance the supply of buildable lots with the preservation of environmental quality. The public benefit and conservation purpose derived from use of conservation easements is relief from urban closeness in Brooktrails that would otherwise be caused by development beyond 4,000 SFRs.

Conservation easements are voluntary. Their success, therefore, rides on attractiveness to owners of property suitable for donation. In most situations, conservation easements have been formed on a case-by-case basis. Typical procedures are shown in Figure 11.2-1. Initially, property owners and agency staff meet to discuss the provisions of the easement, followed by property owner consultation with legal and tax advisors. Qualification demonstrates the "significant public benefit" required for

eligibility for the tax deduction; this is satisfied by the Specific Plan. The owner and agency negotiate and finalize the terms of the easement and prepare an appraisal. The appraisal establishes the property's value with and without the easement to determine the size of the tax deduction. If the same owner holds an adjacent property, there may be some value added to the second property due to the preservation of open space which must be taken into account. The easement is concluded with the parties finalizing the documentation and filing the deed restriction with the County.

FIGURE 11.2-1
Steps to Create Conservation Easement
Brooktrails Specific Plan Economic Analysis

- | | |
|----|----------------------------|
| 1. | Initial negotiations |
| 2. | Legal and financial review |
| 3. | Title information |
| 4. | Qualification |
| 5. | Negotiate restrictions |
| 6. | Appraisal |
| 7. | Notify local planning body |
| 8. | Finalize and file deed |

Conservation easements present some interesting opportunities for Brooktrails. Several factors work to Brooktrails' advantage, making it possible to construct a program that could be administered efficiently and with reasonable cost. All lots are set in the same community, the same jurisdiction, and are subject to the same economic forces. Thus, several steps could be standardized. Information and application materials could be available in a packet offered by the District. The District could retain local legal and tax experts to advise interested property owners. Title information and appraisals could similarly be provided by a local company with an ongoing knowledge of Brooktrails and the District's situation.

A conservation easement is being explored at the time of this writing for lands on the perimeter of the Township. Based on this experience, the cost for future lots is estimated to be around \$700; formation costs are tax-deductible as well. To be feasible, the formation cost must compare

favorably with the tax benefit. Illustrating the potential income tax benefits, assume that a Brooktrails home owner has an adjacent lot at \$10,000. (Average lot value is around \$21,000, such that this example would represent a lot somewhere below the average in terms of desirability.) With a deed restricting development, further assume that the value drops to \$3,000, representing a value of the development right of \$7,000. Adding the approximate administrative cost of \$700 to the foregone value results in a total economic cost of the dedication of \$7,700. If the property owner is at the 35% income tax bracket, the resulting tax incentive is around \$2,700. If this exceeds the owner's income tax liability on one year, the unused portion can be carried forward to subsequent tax years. In addition to the direct income tax benefits, the owner would pay lower property taxes on the two lots, since a new assessed value would reflect retirement of one development right.

In many cases, the conservation easement may be a desirable option. It has the benefits of (1) preserving space between dwellings, yet restricting public access; (2) compensation for foregone economic use; and (3) can be employed systematically in Brooktrails. For the existing home owner wishing to secure privacy through restriction on an adjacent lot, a conservation easement would be a suitable approach. Conservation easements may not be appropriate in all cases, however. The easement restricts any major improvement. This means that an owner wishing to build on a double lot would have to locate all structures on the unrestricted parcel. Such an owner might prefer a lot merger instead to retain the option of placing improvements anywhere he or she might wish.

Market Facilitation

Economic activity depends on the successful matching of buyers and sellers and the availability of information. With this in mind, the District could maintain planning and ownership data useful for market participants who might be interested in the lot merger and easement options. For example, a potential buyer interested in building on a double lot might wish to identify properties that could be purchased inexpensively and merged or restricted through a conservation easement. The District could further its goals by providing information or even promoting transactions under the available voluntary measures.

Absentee owners represent another source of potential interest for the development reduction program. Some might be interested in the conservation easement program, particularly if they have no immediate interest in locating to Brooktrails and/or own lots of marginal value. Monitoring on a lot-by-lot basis might reveal opportunities to sell absentee-owner parcels adjacent to existing built sites for the purpose of merging lots or establishing conservation easements. In this case, the District could contact neighboring owners and attempt to negotiate a merger.

Financial Incentives

Lot mergers and conservation easements appeal to the desire of property owners' to live in a low-density setting. The effectiveness of these approaches can be further promoted if the District would be willing to offer financial incentives. Financial incentives could take on two forms. First, the District might elect to absorb some of the administrative costs of mergers or easements to make these options more attractive. The costs could include surveys, appraisals, and legal documentation.

Loans are another avenue to consider. The District could make low-interest loans available for property owners who wish to purchase adjacent lots with the intent of undertaking a merger or conservation easement. Similarly, the Township might provide mortgage security or refinancing. In cases where a mortgage is outstanding on a parcel considered for merger or deed restriction, the land value will drop due to the elimination of the development right. If borrowed principal is outstanding in excess of the lot value after development right retirement, it may create a conflict between security for the loan and the development right retirement. The District could ease this conflict by assuming or extending loans for some or all of the outstanding principal to bring the loan held by the private lender in line with the remaining lot value.

For example, a lot considered for merger or conservation easement could have a value of \$3,000 after development rights are retired. If a \$5,000 balance is outstanding on the mortgage, a discrepancy of \$2,000 would be created as the lot became worth less than the amount owed. A merger would, therefore, conflict with the mortgage. To overcome this problem, the District might provide a secondary financing of \$2,000 to prevent the merger from conflicting with the borrower's agreement. In this case, the District would take a lien subordinate to the primary mortgage, secured

by other means, or lent at an appropriate rate. Various District resources could be used to fund any loan programs. If a charge identified for development reduction were applied to new development, these proceeds could be used as loans. Similarly, it is possible that balances in other Township funds could be used as well.

Greenbelt Adjustments

Given the amount of open space owned by the Township, it is possible that greenbelt adjustments could make land available to be used as incentives for property owners to retire development rights. For example, an owner of two or more marginally buildable lots might exchange these lots for a more desirable site on the edge of the greenbelt, resulting in a two-for-one swap and reducing development by one or more SFRs. Though such swaps would have to be reviewed on a case-by-case basis with respect to the locations of the retired and newly created lots and the integrity of the greenbelt, it is possible that greenbelt adjustments may permit owners to upgrade their development sites while at the same time reducing development potential.

Estimated Sources of Development Reduction

Naturally, the question arises as to the potential success of a program that relies solely on voluntary development reduction measures emphasizing mergers. To address this question an examination of the characteristics of different categories of lots in Brooktrails Township offers some indication of the potential success the District may expect. Beginning with a review of existing developed and undeveloped lots, the following discussion identifies sources and motivations for mergers, and estimates the approximate level of development reduction the District must achieve through the proposed program. Note that mergers are referenced in the discussions, though development reduction through conservation easements would apply as well.

Table 11.2-1 shows the existing developed and undeveloped lots in Brooktrails Township¹. Of the total 6,188 lots in the Township, 1,150 are developed, leaving 5,038 lots undeveloped.

1. As of December 30, 1995

Maximum development in the Township has been measured according to water usage on the basis of equivalent single family residential units (SFRs). The Township has chosen to limit development to 4,000 SFRs, which translates into 3,673 actual lots. The difference between the number of lots and SFRs is explained by (1) the presence of multiple family lots which hold potential for more than one SFR of development, (2) 50 to 100 SFRs allocated to public uses, and (3) 35 SFRs reserved for Spring Creek. An additional 2,523 lots can be developed to reach the maximum of 3,673. The 2,515 lot difference between maximum development and the total number of lots in Brooktrails is the number of lots that would have to be merged or otherwise left undeveloped.

**Table 11.2-1
Development Potential and Development Reduction
Brooktrails Specific Plan**

	Lots ¹
TOTAL UNDEVELOPED LOTS	
Total Lots	6,188
Existing Developed Lots	<u>1,150</u>
Undeveloped Lots	5,038
DEVELOPMENT POTENTIAL	
Developed Lots Equaling 4,000 SFRs	3,673
Existing Developed Lots	<u>1,150</u>
Remaining Lots	2,523
DEVELOPMENT REDUCTION	
Undeveloped Lots	5,038
Remaining Lots	<u>2,523</u>
Difference	2,515
¹ Lot counts as of December 1995.	
Source: Brooktrails Township CSD; EIP Associates..	

Development Reduction Without Incentives

Even in absence of a development reduction program, some lots can be expected to be excluded or removed from total development potential due to a variety of conditions. The first source of development reduction is attrition. Attrition is attributable to physical and ownership conditions that result in a certain number of lots remaining undeveloped. Many lots in the Township are subject to severe physical constraints, including slopes in excess of 40%, or locations in dam failure inundation areas, unstable hillsides, sensitive habitat, or the Maacama Fault Zone. The number of lots in the high constraint areas totals 985. Of these, only 157 have been improved, leaving 828 unimproved. The first part of Table 11.2-2 shows development reduction due to physical and ownership constraints. A specific group within the high constraint category includes 285 lots without sewer service, which are regarded as unbuildable due to physical conditions that would not support a septic system. For the purposes of this analysis, substantially all of these lots are assumed to remained unbuilt.

An additional allowance is included to account for lots in the remainder of the high constraint areas, as well as areas outside of the high constraint areas, that may remain unbuilt. Although some of the high constraint lots have sewer service, and can be developed with appropriate design and construction measures, some lots are unlikely to develop at all due to the severity and cost of overcoming other physical constraints. Absentee ownership will also contribute to some lots remaining undeveloped for an indefinite period of time as owner circumstances interfere with development plans. As a result of absentee ownership and severe physical constraints, it is assumed that 500 lots, or about eight percent of total lots, will not be developed at all.

In way of supporting the assumption that 500 lots are unbuildable, two historic events can be noted. First, in 1976 the original developer of Brooktrails commissioned a study to assess the security for improvement assessment bonds. The study concluded that 250 lots were sufficiently unbuildable as to warrant their exclusion from the assessments. Subsequently, 300 parcels were acquired through tax lien sales by Brooktrails Township in the 1980s. The owners of these lots clearly viewed the value of their property below the outstanding taxes and assessments. In the

context of the former improvement assessments and tax levies alone, experience has indicated that at least 550 lots are not viable for development.

Allowing for physical and ownership constraints, and including a specific consideration for the unsewered, high constraint lots, the total attrition is estimated at approximately 785 lots.

**Table 11.2-2
Sources of Lot Reduction
Brooktrails Specific Plan**

	Lots ¹
ATTRITION	
Unsewered High Constraint Lots	285
Other Physical and Ownership Constraints	<u>500</u>
Development Reduction	785
UNSEWERED LOTS	
Undeveloped Unsewered Lots ²	388
Merger Rate for Unsewered Lots	<u>67%</u>
Development Reduction	259
UNPROMOTED LOT MERGERS	
Sewered Lot Development Potential ³	2,394
Merger Rate for Sewered Lots	<u>15%</u>
Development Reduction	354
DEVELOPMENT REDUCTION WITHOUT PROGRAM	
Undeveloped and Merged Lots	1,398
¹ Lot counts as of December 1995.	
² Unsewered lots outside of high constraint areas.	
³ Total development potential of 2,523 unbuilt lots less 129 lots in unsewered areas.	
Source: Brooktrails Township CSD; EIP Associates; Town Hall Services.	

Unsewered, high constraint lots were included in the attrition category. A total of 388 unsewered lots exist outside of the high constraint areas, and are potentially buildable with the addition of septic systems. The key consideration where septic systems are concerned is the availability of a suitable area for a leach field. Minimum lot sizes for septic units are governed by a number of factors, including the soil type and slope. For the purposes of this calculation, a minimum lot size of three-fourths of an acre is used, indicating an average lot combination ratio of 3 to 1 to render the unsewered lots buildable. Applying the combination ratio to the 388 unsewered lots leaves an approximate potential of 129 development sites, or equivalently, a reduction of 259 lots. This calculation is shown in the second section of Table 11.2-2.

In addition to the physical, ownership, and infrastructure constraints to development that will result in some measure of reduction, there already exists a level of interest in developing on merged sites; a certain level of merger activity can be expected even in the absence of a lot reduction program promoted by the Township. According to Community Services District Files, 250 lots have been built since 1990, with 37 corresponding lot mergers. Said differently, a lot reduction of about 15 percent above the number of developed lots has taken place due to “natural” merger activity.

Projecting the “natural” merger rate forward suggests that a measurable amount of development reduction will take place in the absence of an incentive program. This estimate is shown in the third section of Table 11.2-2. Above, it was shown that remaining development potential to reach 4,000 SFRs totals 2,523 lots. Subtracting the 129 lot development potential of the unsewered areas, the development reduction of which has already been taken into account, leaves development potential of 2,394 lots in the remaining areas of the Township. Applying the 15 percent merger rate observed in recent years indicates a reduction of 354 lots even without a program.

Combining attrition, combinations of unsewered lots, and “natural” merger activity, the total development reduction in the absence of a township-sponsored program is estimated at about 1,398 lots.

Reductions Required From Merger Program

The forgoing analysis indicates that a substantial portion of the development reduction sought to achieve the 4,000 SFR level of growth may be accomplished even without intervention by Brooktrails Township. The remaining question, then, is whether the development reduction programs proposed will provide the incremental retirement of development rights necessary to meet the Specific Plan’s growth objective. The three sources of development reduction described above are combined in Table 11.2-3. Together, they total a reduction of 1,398 lots. Compared with the total reduction of 2,515 lots required to meet the 4,000 SFR target, this leaves a shortfall of 1,117 lots. The 1,117 lots represent the approximate level of additional development reduction that must be achieved through the proposed program.

**Table 11.2-3
Development Reduction Program Target
Brooktrails Specific Plan**

	Lots ¹
DEVELOPMENT REDUCTION WITHOUT PROGRAM	
Attrition	785
Unsewered Lot Mergers	259
Sewered Area Mergers	<u>354</u>
Development Reduction Without Program	1,398
REDUCTION PROGRAM TARGET	
Development Reduction Target	2,515
Reduction Without Program	<u>1,398</u>
Reduction Required From Program	1,117
¹ Lot Counts as of December 1995.	
Source: Brooktrails Township CSD; EIP Associates; Town Hall Services.	

One additional figure is advanced to indicate potential sources of development reduction that may come about in response to the proposed program. A manual count of developed lots by the District shows that 140 owners of developed lots also own at least one adjacent undeveloped lot. Expressed as a percentage, this is a multiple ownership rate of over 12 percent. Given that the developed lots already include a number of merged lots, this would appear to represent an

additional source of potential mergers. Across the maximum development of 3,673 lots, this would imply an additional reduction potential of roughly 440 lots whose owners might be willing to merge if the development reduction incentives were responsive to their objectives. If a substantial number of owners of adjacent lots merged, this could account for up to about 40 percent of the development reduction sought from the program.

Two other considerations are also relevant to the performance of the development reduction activities, though are not easily expressed numerically. First, the capital costs assigned to new development will provide an additional incentive to merge less desirable lots, particularly if assessments are used to finance a portion of the community facilities. Second, development patterns are typically such that the most easily developed lots are built first. As development of the Township progresses, there is likely to be increased demand on the part of property owners to create larger development sites, particularly in the areas of rougher topography. The merger ratios applied above, therefore, may be conservative if applied to development occurring in remote years.

Development Reduction Monitoring

Implementation of the Specific Plan will require that the District or County be responsible for monitoring, and, unless the Specific Plan is amended, taking the necessary actions to see that development reduction proceeds in a manner consistent with the goals of the Specific Plan. A monitoring program therefore would need to be established to measure progress of the development reduction activities. The periodic review process will provide the District the opportunity to adjust the major capital improvements and development reduction incentives in response to prevailing conditions.

Development reduction should proceed in rough proportion to the rate of development. Table 11.2-4 calculates this rate. Setting aside the 785 lots left unbuilt through attrition leaves 1,730 lots to be removed. The 1,730 figure refers to all merger activity, including those that

**Table 11.2-4
Development Reduction Program Target
Brooktrails Specific Plan**

	Lots ¹
MERGER ACTIVITY	
Total Development Reduction Target	2,515
Attrition	<u>785</u>
Net Reduction Through Mergers	1,730
DEVELOPMENT REDUCTION RATIO	
Remaining Lots to Develop	2,523
Net Reduction Through Mergers	<u>1,730</u>
Ratio of Lots Reduced to Lots Built	0.69
¹ Lot counts as of December 1995.	
Source: Brooktrails Township CSD; EIP Associates; Town Hall Services.	

would happen in absence of a program, the combinations of the unsewered lots outside of the high constraint areas, plus those attributable to the activities of the township and the county. Compared with the remaining development potential, this results in a development reduction rate of 0.69 lots removed for each lot built. Note that this figure includes the aggregate mergers of both sewerred and unsewerred lots. The Township should monitor these lot groups separately with the appropriate corresponding merger rates, recognizing that a higher rate of mergers is expected for the unsewerred lots. Also, the township should monitor development in the high constraint areas to insure that the attrition assumptions are consistent with the actual development in these areas.

Conclusion

Specifics of any programs considered would be refined prior to implementation to respond to public input and prevailing circumstances. The description of the program under the Specific Plan is intended to (1) summarize the available development programs for public review, and (2) through the Specific Plan process place the program under the purview of the County's

General Plan to assure consistency as Brooktrails or Mendocino County elects to implement measures designed to reduce development in the Township.

Actual performance of development reduction activities is impossible to predict at this time. Economics of developing in Brooktrails, congruency of property owner objectives with the development reduction incentives, and the feasibility of developing on the remaining unbuilt lots will all have a bearing on the future development levels. The calculations presented here are not intended to represent a precise forecast of development reduction, but rather are designed to illustrate that significant categories of lots can contribute to the Township's development reduction goals.

Given the luxury of a significant time line to at least 2010 at 40 SFRs per year to make the decision as to the necessary size of a potential new reservoir, Mendocino County and Brooktrails Township have ample opportunity to evaluate the yearly progress of the development patterns and reduction activities. As necessary, the Specific Plan can be revised in the future to harmonize the development reduction objectives and measures to meet the Township's circumstances as they evolve.

In conclusion, Brooktrails Township is faced with a unique situation. Review of planning literature has returned no directly comparable development reduction program. Although a number of communities have redirected growth through transfer of development rights programs, none were discovered that sought to reduce the absolute level of development under the auspices of a Specific Plan. Correspondingly, the District should promote the goals of the program and keep the community informed of its progress. The extent to which Brooktrails' property owners see the development reduction activities as consistent with their interests will play a large role in the success of the voluntary development reduction measures.

11.3 FINANCING PLAN

Section 11.1 outlined the capital improvements required to support the projected growth to 4,000 SFRs in the Specific Planning Area. This section describes the financing mechanisms available for public facilities, and how they might be structured to pay for the necessary infrastructure capacity. Given the long time horizon for constructing the improvements, it should be recognized that the financing scenario presented here is formulated primarily for illustrative purposes. The actual financing structure that is eventually implemented will be determined by the rate of growth and other factors unforeseeable at this time. As the *Specific Plan* undergoes periodic updates, recommended at five-year intervals, the financing plan should be similarly updated.

After an introduction, this section reviews available funding sources. Selected methods of funding are structured into a proposed financing plan, which is then used to estimate fees and assessments based on the infrastructure costs presented above. Two alternative scenarios are advanced for the financing plan to illustrate different ways in which Brooktrails Township might seek funding for the anticipated public facilities. The first scenario utilizes both bonded indebtedness and development fees. The second scenario relies entirely on fees paid at the time of development to fund new development's share of the capital costs. Property tax impacts of the Specific Plan are considered at the end of this chapter.

Introduction

The scale of public improvements needed to serve the projected growth in Brooktrails will require an expanded financing program from what exists today. At present, the District's capital needs are implemented through the District's five-year *Capital Improvement Program* (CIP) and are paid through charges for service, connection fees, and standby charges. The projects in the CIP are also small enough that they can be financed on a "pay-as-you-go" basis without seeking outside sources of capital. The projects needed for growth, however, exceed what can be supported by the existing fee structures. Further, the capacity expansions for new development will require several large one-time expenditures, such that a financing plan oriented toward the

demands of growth will require some measure of bond financing to spread the one-time costs over several years.

The terms funding and financing are used throughout this section. For the purposes of this analysis, funding refers to how money is collected, and who is responsible for paying. (Funding can take the form of fees, assessments, or taxes.) In California, it is common practice to assign the costs of infrastructure needed for growth to new development. It is assumed that this practice will apply in Brooktrails, and that presently undeveloped lots will be responsible for the appropriate shares of costs to expand the water, sewer, circulation, and fire capacity they will require.

Financing, as used here, applies to how the timing of the payments is matched to the timing of the infrastructure needs. Pay-as-you-go is the simplest way to finance improvements. Current projects in Brooktrails Township's CIP are financed in this manner. Revenues accumulate over time and improvements are completed as funding is available. Some capital improvements can be expanded incrementally, such as water storage tanks, fire vehicles, or Brooktrails' contribution to the Willits sewer plant expansion. These would be financed on a pay-as-you-go basis from ongoing revenues, most likely using some form of development fee as the source for funds. Major projects, such as the dam, however, are too large to be completely financed through fees paid as lots develop. In this case, the District would seek some form of indebtedness, probably through the sale of bonds, to allow the costs to be spread over time. Here, too, the debt could be serviced under any of the funding sources, though the levies would likely be in the form of assessments or special taxes spread over a number of years after the bonds were sold.

For the purposes of the Specific Plan, Brooktrails Township is taken to be the primary agency sponsoring the financing program. Depending upon the specific funding sources or projects, it may be necessary to involve Mendocino County to obtain the necessary legal authority for certain financing instruments, or to construct certain improvements, such as roads, that fall under the County's purview. From the standpoint of estimating costs, however, the sponsoring

agency is a secondary issue. Costs and the method of allocation would be the same, regardless of which jurisdiction served as the lead agency.

Funding Sources

Several methods of funding are available to provide capital facilities to serve growth. Selection of an appropriate source or sources would depend on a number of factors, including flexibility, ease of implementation, certainty of payment, local preferences, and suitability for use with debt financing. Some sources, namely water and sewer connection fees, are already being used by the District to fund the ongoing five-year CIP. In this case, the current programs could be expanded through appropriate action by the Brooktrails Township Board of Directors. Assessments and special taxes would require additional formation proceedings. Funding sources appropriate for providing capital facilities associated with growth are described below.

Impact Fees

California law (*Government Code 66000 et seq.*) allows local jurisdictions to charge impact fees to new development to cover the cost of capital facilities needed to serve growth. These statutes and related case law require that jurisdictions levying fees demonstrate a reasonable relationship between the new development that pays fees and the facilities that the fees will fund. The fees charged must not exceed the cost of the planned facilities and must be used solely for that purpose. In addition, fees may be used to fund new facilities or to reimburse the local jurisdiction for facilities already constructed. In the case of Brooktrails, this implies that if the District were to advance construction costs from other District funds, the fees could be used as reimbursements.

Impact fees are usually collected when building permits are issued. Typically, fee revenues are accumulated until sufficient funds are available to build a project on a pay-as-you-go basis, though proceeds must be appropriated within five years. It is possible to structure fees in conjunction with an assessment or Mello-Roos community facilities district, though the sponsoring agency must be willing to fund debt service with general revenues if fees are

insufficient. Fees can be adopted by a majority vote of the governing board, and can fund almost any type of public facility including land, buildings, equipment, or infrastructure.

Impact fees offer a number of advantages. They are relatively easy to implement and collect; no vote is required and collection can be done as part of the building permit process. They equitably assign costs according to facilities impacts, and can be adjusted periodically to reflect construction cost inflation, revised cost estimates, or changes in level of service. The principal disadvantage is that fees alone are limited to projects constructed in the short-term, and financed on a pay-as-you-go basis. Tied to the rate of development, they make an unpredictable revenue stream to service debt financing.

Special Assessments

The special assessment district is the traditional means of financing public facilities used to serve a particular area. A number of assessment acts, including the 1913 and 1915 Acts, and the 1972 Landscaping and Lighting Act, enable local agencies to construct or acquire public improvements, apportion the cost through assessments on benefiting properties in a designated area, and finance the improvements with bond issues. The use of special assessments is limited to facilities that directly benefit the properties in the district. Facilities that provide only general public benefits cannot be financed through special assessments. Where both general and "localized" benefits will result from an improvement, however, the courts generally have upheld the validity of special assessments, although local agency contributions may be required to compensate the district for the general public's share of improvement costs.

Assessment district funding can be used for a variety of public facilities including water and sewer, transportation, parking, libraries, fire stations, storm drainage, landscaping and lighting, and parks, among others. Assessments were used to fund much of the existing infrastructure in Brooktrails. Proposition 218, passed in November 1996, changed the rules under which assessments can be levied. Whereas formerly assessments could be created by the governing board, it appears that a property owner vote now would be required to levy the assessments considered in the Specific Plan.

Bonds can be sold to fund large projects which are secured by assessments levied against real property in the district, with annual assessments on the benefitting property used to fund principal and interest payments on outstanding debt. Security for assessment bonds is the value of real property in the district and not the full faith and credit of the sponsoring local jurisdiction. As a result, the interest rates on assessment bonds are higher than general obligation debt supported by the taxing power of a local jurisdiction.

Assessments continue to be a popular mechanism due to a number of advantages. They provide a secure, reliable source of revenue, including recovery of annual administration costs. The ability to issue bonds allows timely provision of facilities (relative to impact fees and other pay-as-you-go funding) where large infrastructure projects are concerned. Assessment bonds can be used to fund existing deficiencies, and often in these cases are levied against existing developed properties. The primary disadvantage of assessments is the difficulty in gaining sufficient voter support under the restrictions placed by Proposition 218, given the practical and procedural uncertainties created by Proposition 218.

Special Taxes

Special taxes have been defined by Proposition 13 and subsequent court decisions as taxes dedicated for a specific purpose. Special taxes can fund all types of facilities or public activities. Examples include parcel taxes to fund fire services or a utility tax apportionment to fund public safety programs. They are particularly appropriate for facilities with general benefit such as open space, recreational, or administrative facilities. Proposition 13 requires that new special taxes or increases in existing special taxes be approved by a two-thirds majority vote of the electorate. Although the voting requirement makes special taxes more difficult to implement than fees, it also offers broader application with regard to the activities or facilities that can be funded.

Special taxes can be used to service a range of debt instruments such as limited obligation bonds and certificates of participation. Special taxes cannot service general obligation debt because

such debt can only be funded by property taxes. In cases where an existing tax is levied, no voter approval is necessary if the existing special tax revenues are used for facility provision.

The Brooktrails Township annually levies a fire tax which is currently used for fire services. This source could be used to fund new fire facilities. The tax rate is fixed at \$45 per year for single-family residences. If the full amount were pledged to debt service, the maximum amount that could be financed would be roughly \$1.8 million if levied on 4,000 SFRs. This would more than fund the cost of the fire stations, vehicles, and equipment. The special fire tax is presently used for operations. If the District chooses to use the tax for capital expenditures instead, it may wish to establish an additional fire assessment so as to maintain adequate revenues for operations.

Mello-Roos Community Facilities Districts

Mello-Roos special taxes are levied on land within a Mello-Roos Community Facilities District. The tax can fund the capital costs of most types of public facilities, or operating costs for a more limited group of services including facility operation and maintenance expenses.

Given that the Mello-Roos taxes are voter-approved, there is greater flexibility in the items that can be financed and the manner of apportionment relative to other mechanisms such as assessments or fees. The tax can be levied on the basis of physical property characteristics (e.g., lot size, acreage, building size) or other criteria that do not necessarily have to relate the tax levy to benefits received from the facilities to be funded. In practice, however, tax levies are related to impacts or benefits. The tax may not be directly based on assessed property value or directly related to property income or retail sales. Almost all facilities that a local agency is authorized to construct and own can be paid for by Mello-Roos special taxes. In this respect, Mello-Roos special taxes are similar to special assessments, though they are more flexible because they can finance facilities that have more general area of benefit. Special assessments are limited to facilities that impart direct benefits to the properties assessed.

The method of allocation can be tailored to local circumstances. For example, vacant land can be taxed at a lower rate than developed land where the tax would create an undue burden on undeveloped parcels. This feature of Mello-Roos financing may be attractive to developers and property owners who would otherwise have to pay impact fees or incur the full cost of exactions in order to develop their property. In essence, the Mello-Roos special tax can be used as a means to finance impact fees at tax-exempt interest rates.

If a Mello-Roos district has 12 or fewer voters, then the landowners may approve the special tax levy by a two-thirds vote based on acreage. If the district has more than 12 voters, then the levy must be approved by a two-thirds majority of those voting. The voter approval requirement greatly inhibits the ability of local government to use Mello-Roos in existing developed areas. The ability to have a landowner vote, on the other hand, makes Mello-Roos districts attractive in areas composed of a few cooperative landowners. Boundaries of Mello-Roos districts also need not be contiguous. This is of interest to Brooktrails where the District may wish to establish a financing district including only undeveloped parcels which may or may not be next to each other. Given the long build-out period, Brooktrails might consider taxing undeveloped parcels at a lower rate.

Facilities can be financed by the sale of Mello-Roos special tax bonds, and serviced by annual special taxes levied against real estate in the District. Mello-Roos special taxes provide a reliable source of revenue which can be adjusted annually to within the maximum tax established at the time of district formation. The two-thirds vote requirement may be an obstacle for district formation when there are many residents or property owners. Aggressive use of Mello-Roos financing in some parts of the state have led buyers to be wary of properties encumbered by special taxes. For this reason, developers and public officials often prefer to use assessment districts instead, since they seem to be more acceptable to home buyers.

Mello-Roos districts also may be used to finance impact fees, whereby special taxes are paid over time in lieu of a lump sum fee at the time of development. This approach can be used in much the same way as a formula taxing undeveloped parcels at a lower rate. Development

triggers the impact fees which, in turn, initiates the special tax. This enables the creation of expandable districts where benefit areas extend beyond the parcels initially included in a District. An expandable Mello-Roos district may delay issuance of bonds until the pool of property owners grows large enough to generate a sufficient cash flow to service debt.

Redevelopment

Redevelopment project areas are designated in blighted areas to concentrate public investments and cause an increase in economic activity that otherwise would not have occurred. Formation of a project area results in the ability of the sponsoring jurisdiction (in the case of Brooktrails, Mendocino County would be the sponsoring agency) to capture increases in property tax revenue to fund capital improvements and other costs within the project area. Redevelopment tax increments can be used for most public facilities located in the project area to help ameliorate the blighted conditions. Tax increments can be used to service bonds as well. It is particularly useful where improvements are of benefit to existing developed areas. For example, it is conceivable that redevelopment could be used to fund the Sherwood Road improvements, and perhaps even the additional access routes, insofar as lack of access constitutes a public safety issue.

Tax increment financing represents a diversion from otherwise general fund revenues of one or more taxing agencies. Under the present fiscal climate, it is questionable whether Mendocino County, or other taxing agencies, would be willing to forego future tax revenues from Brooktrails to fund local improvements. The redevelopment law also restricts the amount of vacant land that can be included in a redevelopment area. Given recent scrutiny of the criteria used to establish redevelopment areas, and the amount of vacant land in Brooktrails, creation of a redevelopment area to fund improvements could be problematic.

Infrastructure Financing District

A comparatively new funding source that may be of interest to Brooktrails is the infrastructure financing districts (IFD). The IFD was added in 1990 and commences with Government Code Section 53395. Resembling redevelopment, IFDs allow property tax increments to be used to fund public works of community-wide benefit. Revenues can be used directly on a pay-as-you-go basis, or be used for debt service on bonds. Unlike redevelopment, IFDs are limited in their revenue diversion from only the sponsoring jurisdiction. Thus, if Brooktrails were to form an IFD, only the District's share of the property tax increment would need to be pledged. The intent of the legislation is for IFDs to be formed in substantially undeveloped areas, giving rise to large increases in property taxes as development takes place. Areas need not be contiguous, such that an IFD could be formed to include some or all undeveloped parcels in the Township.

The principal advantage of an IFD is that it does not impose a financial burden on the property owners. To take best advantage of assessed value increases, an IFD should be formed sooner rather than later. The formation process is somewhat involved, requiring public hearings and a vote both for formation and bond issue. Brooktrails' water, sewer, circulation improvements, and possibly fire stations could be financed in this manner. The primary disadvantage is that the IFD represents a diversion of revenue from the jurisdiction's general fund. If some of Brooktrails' property tax revenue were used to fund infrastructure under an IFD, it would want to make sure it had other revenue sufficient to fund ongoing services and operations.

State and Federal Grants

State and federal grants are made available through a wide variety of programs. Brooktrails may be able to secure a Federal Clean Water grant which it could use to fund some of the cost of the water treatment expansion needed for growth. Some grant programs are competitive while others are based on population or some other measure of need. The amount of discretion afforded the local agency over use of the grant also varies widely among programs.

The applicable state or federal agency awards the grant according to established criteria to fund a particular type of facility. In addition, the legislative body of the local agency receiving the grant must agree to the terms of the grant. Grants are not appropriate for long-term financing because they are one-time and do not generate a recurring cash flow. Given the time line for development at Brooktrails, however, the District may have success in obtaining future grants, thus reducing the amount of funding for improvements generated locally through fees, assessments, and/or taxes.

User Charges

User charges are paid by the beneficiaries of a service to fund capital and/or operations and maintenance costs. Presently, Brooktrails Township relies on water, sewer, golf course, and other service charges for roughly one-third of the District's budget. These can be used to fund capital improvements, including debt service on revenue bonds and lease payments on certificates of participation. The governing agency authority sets rates and charges which are sufficient to pay both operating expenses and service the debt for capital expenditures. Increases in user charges can generally be made on an "as-needed" basis by the Township Board of Directors. No voter approval is necessary, though the Board members have an interest in maintaining rates within a range acceptable to their constituency.

As noted, user charges could be used to fund debt service on revenue bonds for large capital expenditures. The District could seek to raise user charges as an alternative to assessments. From an economics standpoint, however, there would be little difference in the cost to the rate payers. Regardless of the method used, the ongoing charges to fund a particular level of capital improvements would be the same.

Standby Charges,¹ Connection Fees, and Capacity Charges

Conceptually, standby charges, connection fees, and capacity charges are similar to development impact fees (discussed above) because they charge new development for the cost of facilities it requires. These charges are separated out here because they are most often used in association with utility systems (e.g., sewer, water, and electricity) and subject to somewhat different standards and calculation methodologies.

Whereas impact fees are often used to fund new facilities, standby charges, connection fees, and capacity charges are often used to reimburse the local jurisdiction for existing capacity available for new development. These charges are fees based on new development's fair share of the net cost of existing facilities. Consequently, the fees must be net of depreciation and any subsidies, grants, and other intergovernmental transfers.

- **Standby charges** are typically assessed on undeveloped property. The utility has sufficient capacity to serve the property so the property should participate in the cost of capital improvements necessary to make that service available. Standby charges typically are assessed on an acreage, or a parcel basis for those parcels less than an acre. They need not be precisely related to the use of the service. Brooktrails currently levies a water standby charge on undeveloped property to reflect the cost of existing facilities. The charges could be revised accordingly as the Township continues to expand capacity.
- **Connection fees and capacity charges** recover costs of the capacity required for new service. These types of fees are similar to impact fees in that a benefit must be demonstrated. Such charges are typically used to reimburse the local jurisdiction for the construction cost of the facilities. Brooktrails levies connection charges at the time water service is established. The level of the charges would be revised according to the cost of the improvements funded in this manner.

The types of facilities typically financed with these types of fees include capital improvements for sewer, water, and electricity services. Standby charges, connection fees, and capacity

1. Water standby charges have a statutory limit which by special legislation was increased from the statutory minimum. There is nothing to say the District could not seek additional special legislation to increase its authority under the standby charges provision. Sewer standby fees do not have a limit and could possibly be used for water expansion under the very loose definition of the permissible uses of sewer standby fees.

charges are approved by the governing board of the service provider which, in this case, is the Brooktrails Township Board of Directors. Similar to impact fees, connection fees and capacity charges are usually collected when building permits are issued. Standby charges may be levied annually on undeveloped land. Fees may be used in conjunction with other mechanisms permitting debt financing to fund large projects, though the District must be prepared to fund debt service with other revenues if fees are insufficient. The ongoing capital items could be funded in part through standby charges as a complement to connection or development fees. Particularly under circumstances where development fees may not be sufficient to fund short-term projects, standby charges could be employed.

Capital Cost Allocation

Before proceeding with the financing scenarios, capital costs are allocated to various groups of parcels in the township on the basis of facilities demand and suitability to the financing methods under consideration. Table 11.3-1 shows the capital expenditures described in Section 11.1 and their costs in 1995 dollars. The expenditures are placed into pay-as-you-go and debt financed categories in anticipation of the calculations in scenario 1, below. Scenario 2 relies on fees to fund all of the improvements, such that the distinction between pay-as-you-go and debt financed categories is immaterial. Still, the costs, timing and allocations in the table apply to scenario 2.

The financing scenarios presented assume that funding responsibility would be divided appropriately between existing and new development. Specifically, Sherwood Road improvements, and access routes will serve all development, existing and new, providing convenience and emergency access above what exists today. The remaining improvements, such as the expanded water supply, sewer, intersection improvements, fire and other district capital, will be needed to serve growth; therefore, new development is assigned the entire cost of these improvements.

A further distinction is drawn between new development occurring from the present 1,350 SFR level until the 2,000 SFR limit on the capacity of the existing water and sewer infrastructure is reached, and new development occurring after 2,000 SFRs. Except for roads, the existing

*

**Table 11.3-1
Cost Allocations and Methods of Financing
Brooktrails Specific Plan Economic Analysis**

	SFR		Applied to			Total Cost
	Level of Growth Needed	Percent to Growth	SFRs of Growth Starting at	New Develop-ment Share	Existing Develop-ment Share	
PAY-AS-YOU-GO						
Sherwood Road Improvements	1,500	66%	1,350	\$331,000	\$169,000	\$500,000
Sewer Mains Stage 1	2,000	100%	2,000	600,000	0	600,000
Additional Station #1	2,000	100%	2,000	94,000	0	94,000
Fire Vehicles #1	2,000	100%	2,000	233,000	0	233,000
Maintenance Shop	2,000	100%	2,000	150,000	0	150,000
Intersection Improvements, Stage 1	2,500	100%	1,350	250,000	0	250,000
Fire Vehicles #2	2,500	100%	2,000	82,000	0	82,000
Sewer Mains Stage 2	3,000	100%	2,000	500,000	0	500,000
Water Treatment Stage 2	3,000	100%	2,000	374,000	0	374,000
Fire Vehicles #3	3,500	100%	2,000	167,000	0	167,000
Intersection Improvements, Stage 2	4,000	100%	1,350	375,000	0	375,000
Additional Station #2	4,000	100%	2,000	74,000	0	74,000
Fire Vehicles #4	4,000	100%	2,000	232,000	0	232,000
Treated Storage Tanks	Ongoing	100%	1,350	1,497,000	0	1,497,000
Sewer Treatment Capacity	Ongoing	100%	1,350	3,900,000	0	3,900,000
Other District Capital	Ongoing	100%	1,350	<u>6,625,000</u>	<u>0</u>	<u>6,625,000</u>
Subtotal				\$15,484,000	\$169,000	\$15,653,000
DEBT FINANCED						
2nd Access	1,500	66%	1,350	\$1,866,000	\$950,000	\$2,816,000
Wells	2,000	100%	2,000	249,000	0	249,000
Dam Work Preliminary	2,000	100%	2,000	1,656,000	0	1,656,000
Dam Construction	2,500	100%	2,000	6,625,000	0	6,625,000
Water Treatment Stage 1	2,500	100%	2,000	299,000	0	299,000
3rd Access	3,500	66%	1,350	<u>2,488,000</u>	<u>1,267,000</u>	<u>3,755,000</u>
Subtotal				\$13,183,000	\$2,217,000	\$15,400,000
TOTAL				\$28,667,000	\$2,386,000	\$31,053,000
Source: Brooktrails Township CSD; Fehr & Peers; Brooks & Vogel; Town Hall Services						