

**Forest Service Handbook
National Headquarters - Washington Office
Washington, DC**

Forest Service Handbook 2409.18 – Timber Sale Preparation Handbook

Chapter 40 - Sale Plan Implementation (Gate 3) and Appraisal

Amendment: 2409.18-2005-1

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Responsible Staff:

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Digest: Following is an explanation of the changes throughout the directive by section.

40: Makes minor corrections in spelling, punctuation, and style practices throughout the chapter.

40.5: Revises the definitions of base rates, bid premium rates, and minimum rates to reflect changes in the April 2004 version of the timber sale contract. Corrects FSM references in definition of bid rates and timber property value.

43: Corrects FSM reference.

43.2: Corrects FSM reference.

43.42: Revises to read more concisely and removes obsolete definition of major culverts.

43.44: Revises direction for road specifications.

45.11: Removes obsolete direction on purchaser credit and provides direction for including costs of specified roads.

45.42: Clarifies when to include cost of planting or seeding following first entry of a shelterwood or seed-tree cut. Corrects reference to FSM 2469.1.

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45.6: Deletes obsolete reference to FSM 2431.

46.1: Adds direction in paragraph 1 on rate redeterminations for environmental modification, catastrophic damage, and market change during suspension.

46.61: Provides direction that base indices must be redetermined with scheduled rate redeterminations.

46.62: Clarifies which contracts include provisions for catastrophic rate redeterminations.

46.63: Revises direction on rate redeterminations for environmental modification and clarifies direction regarding factors that may be considered in environmental rate redeterminations. Removes exhibit 01.

46.64: Changes the caption and provides direction for rate redeterminations for market change.

46.65: Changes the caption and provides direction for emergency rate redeterminations.

46.66: Establishes this code and recodes direction formerly coded to section 46.64 on contract extension rate redeterminations to this section. Removes obsolete direction on purchaser credit.

46.67: Establishes this code and recodes direction formerly coded to section 46.65 on rate redeterminations with contract modifications to this section.

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40.2 - Objective

Estimate fair market value of the timber in a sale area (36 CFR 223.60). The appraised rate is the Forest Service's estimate of fair market value.

40.5 - Definitions

Adjusted Base Period Price. The base period price after adjustment for differences in average sale characteristics, timber quality, and markets. It is the value that is further adjusted by the roll-back factor to develop the indicated advertised rates. This is the value at which timber is sold in direct, negotiated sales.

Advertised Rates. The minimum acceptable bid rates for timber (specific condition A/AT4), which are the rates at which timber is advertised. They are the indicated advertised rates, as adjusted, so that all advertised rates are at least as high as base rates.

Appraisal Zone. A geographic area. A zone may encompass a Region, a National Forest, a group of Ranger Districts, or combinations thereof. The zone boundary is usually determined by haul distance, species composition, timber quality, market area competition, or logging methods.

Appraised Value. The estimated fair market value of standing timber that will be converted to commercial products, such as lumber or pulpwood.

Base Period. The time period used for identifying competitive sales for determining the base period price.

Base Period Price. The value that is representative of the volume-weighted average bid price of the competitively sold timber sales in the base period. It reflects the average sale characteristics of the base period sales and is the starting point of appraisal.

Base Rates. The lowest rates of payment for timber that are authorized by the contract (specific condition A/AT4). Base rates are not subject to change by rate redetermination, except for reduction under contract provisions B/BT3.31 for environmental modification, B/BT3.32 for catastrophic damage, and B/BT3.33 for market change during suspension. Base rates are the higher of either:

- a. The minimum rates (FSM 2431.31b); or
- b. The Knutson-Vandenberg deposits for essential reforestation, plus timber property value, plus \$0.25 per hundred cubic feet (CCF).

Bid Premium Rates. The amounts by which the purchaser bids in excess of the advertised rates (specific condition A/AT4). Bid premium rates remain constant during the term of the contract, except for reduction under contract provisions B/BT3.31 for environmental modification, B/BT3.32 for catastrophic damage, and B/BT3.33 for market change during suspension.

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Bid Rates. The contract rates bid by the timber sale purchaser, exclusive of required deposits (specific condition A/AT4). These rates may be subject to escalation (FSM 2431.34 and contract provision B/BT3.2).

Comparative Rates. Determination of stumpage value by comparison with stumpage rates received by comparative bids on similar sale areas (sec. 45.5).

Cost Adjustment. Adjustments to the base period price to reflect operating cost differences between the base period sales and the sale being appraised. These adjustments are for differences in logging cost, specified road construction cost, haul cost, and other costs that significantly affect value differences between timber sales.

Fair Market Value. The value at which property (timber) would change hands between a willing and knowledgeable seller and a willing and knowledgeable buyer, neither under compulsion to sell or buy and both having reasonable knowledge of the relevant facts. In addition to type, quality, and quantity of timber, fair market value reflects the time of sale, the highest and most profitable use, the location, a reasonable time to find a purchaser, and an open and competitive market. It can be viewed as an estimate of market value that reflects the price an operator of average efficiency who is able to pay that price and retain sufficient profit to maintain long-run operations is willing to pay.

Indicated Advertised Rates. The estimated value of the timber after accounting for all differences between the sale and the sales in the base period, any market adjustments, and the roll-back factor. If necessary, this value is adjusted to increase it to base rates.

Market Adjustment. An adjustment to the appraisal data, so that it represents current market conditions.

Minimum Rates. The lowest rate at which the Forest Service may sell timber, except under contract provisions B/BT3.31 for environmental modification, B/BT3.32 for catastrophic damage, and B/BT3.33 for market change during suspension or with an administrative use sale or permit under 36 CFR 223.2.

Public Works Road Construction Cost. The total cost of constructing all permanent roads specified in the timber sale contract, estimated as if construction is to be accomplished by an independent contractor. It includes the additional costs of a public works contract.

Quality Adjustment. An adjustment to appraisal data to reflect differences in timber quality between the base period sales and the sale being appraised.

Rate Redetermination. An adjustment of bid rates to reflect current appraised values. The rate redetermination may be necessary because of contract extension, contract modification, catastrophic damage, or other reasons.

Risk Adjustment. An adjustment to the appraisal data to reflect unusual conditions not reflected in market, quality, or cost adjustments and that are tied to uncertainties surrounding the sale.

Road Construction Cost. The total cost of constructing all permanent roads specified in the timber sale contract, estimated as if construction is to be accomplished by the timber purchaser. The road construction cost is the cost amount used in timber appraisal calculations.

Roll-Back Factor. A downward adjustment of the adjusted base period price to develop the indicated advertised rates. In the appraisal process the roll-back factor is intended to:

- a. Set advertised rates at a level to capture sufficient competition for the establishment of an actual fair market value,
- b. Compensate for possible changes in the market between the base period and the bid date,
- c. Reflect differences in sale conditions that may not have been reflected in the appraisal,
- d. Allow for the risk that timber volumes, sale characteristics, or values may be misstated in the appraisal, and
- e. Allow for the risk that markets or other economic conditions may change during the period of the contract.

Standard Rates. The lowest rates at which the Forest Service may sell timber without a supporting appraisal calculation (FSM 2431.31a).

Stumpage Value. The value of uncut timber.

Timber Property Value. The cost of manufacturing a product from a standing tree. This cost is added to the stumpage value of the standing tree (FSM 2469.1).

Unusual Adjustment. An adjustment to the appraisal data to reflect known unusual conditions, not reflected in other market, quality, or cost adjustments.

41 - Sale Plan and Appraisal

These activities include the implementation of the sale plan that was prepared at Gate 2 and the timber sale appraisal that initiates Gate 4.

42 - Quality Control

Provide for the review of sale preparation work by competent, experienced specialists. The review must determine that sale preparation followed the sale implementation plan and other resource protection requirements or guidance for sale preparation. The review must include on-the-ground review of quality and compliance with environmental analysis for a sample of the sales as determined by the appropriate line officer.

43 - Timber Sale Roads

See FSM 2432.34 and FSM 7700 for the principal direction on road policy as applied to timber sales.

43.1 - Timber Sale Contract Roads

Timber sale contracts may authorize construction of both specified and temporary roads.

Transportation planning requirements include planning for road needs prior to the sale. Document needs for National Forest System roads in the transportation atlas. Document existing and proposed National Forest System roads in the timber sale project proposal or project file. Indicate in the timber sale project proposal or project file the amount of construction, reconstruction, and/or temporary roads that will be needed for the timber sale.

43.2 - Temporary Roads

Temporary roads include those roads needed only for the purchaser's use for a given timber sale(s), such as roads used to haul timber from landings to permanent National Forest System roads. The Forest Service and the purchaser must agree upon the location, resource protection requirements for road construction, clearing widths, and closure or rehabilitation requirements. Temporary roads are not constructed to serve long-term future uses and must be closed prior to closure of the timber sale (FSM 2432.34b).

43.3 - Specified Roads

See FSM 2432.34a for the prescribed road locations, standards, and specifications used in a timber sale contract.

1. Add new roads to the transportation system only where the resource management objectives, environmental impacts, and benefits have been carefully considered and documented during a roads analysis process conducted at an appropriate scale (FSM 7703.2, para. 3). Locate specified roads to serve all the resources involved, facilitate completion of the remainder of the transportation system, fit the terrain, and prevent damage to improvements and resources.

As provided in 36 CFR 223.38, purchasers may not be required to bear costs needed to meet road standards higher than a standard needed to be consistent with applicable environmental laws and regulations, or a road standard higher than is required for the harvest and removal of timber on the sale. The regulation also establishes a limit on the standards of roads for which costs are charged against the timber. While a higher standard may increase the estimated road construction cost, it may also decrease log haul and road maintenance costs. In this case, the costs for a high standard road may be included in the appraisal.

2. When use of a higher standard road does not decrease log haul and maintenance costs by an amount greater than or equal to the increased cost of constructing a higher standard road, do one or more of the following:

- a. Verify the need for proposed roads and construction standards by reviewing the Forest land and resource management plan and the transportation atlas.
- b. Redesign the proposed sale (go back to Gate 2; see ch. 30) to obtain volumes of timber and traffic commensurate with the higher standard road.
- c. Finance the construction of the road with appropriated funds.
- d. Finance the construction with a combination of an appraisal allowance and other construction funds. When this is done, the prospectus and bid must include special wording to allow both small and large business concerns to elect to have the Forest Service construct the higher standard road. The purchaser's share should exceed 60 percent of the total estimated road construction cost.
- e. For reconstruction projects, reconstruct the road with Forest Service funds. Require a deposit for the purchaser's share of estimated road reconstruction costs. The amount allowable in the appraisal is the road reconstruction cost of the road that would result in the lowest total transportation cost for the sale. Use appropriated construction funds to finance the portion of the road above the amount allowed in the appraisal. Limit this option to cases in which the purchaser's share is less than 30 percent of the total estimated road reconstruction costs.
- f. Consider staged construction if the previous criteria listed in paragraphs a through e cannot be met. The initial sale may include a seasonal limitation if the road is to be constructed to a low standard. Provide for completion of the construction through subsequent sales or appropriated funds.

43.4 - Construction Standards

A variety of construction standards may apply for the specified roads associated with an individual sale. Design roads to a standard consistent with the intended uses established in Gate 2. Consider safety, cost of transportation, and impacts on the land and resources.

43.41 - Landings

Consider log landings as temporary and separate facilities.

Include log landings as a specified road requirement when they meet all of the following conditions:

1. When constructing the landing and the road simultaneously would reduce cost and soil disturbance.
2. When logging system planning has confirmed the need to locate the landing on the specified location.

3. When the landing lies on or immediately adjacent to the road. The road and landing must result in a contiguous cross-section. To the extent possible, locate landings to coincide with turnouts, borrow areas, and turnarounds.

4. When the landing area is to remain a permanent part of the road.

43.42 - Bridges and Culverts

Install permanent bridges and culverts in long-term, constant service National Forest System (NFS) roads. Purchasers may furnish materials and construct such bridges and culverts when the sizes and types of structures are reasonable and within the construction capability of prospective purchasers or available subcontractors, and either:

1. The structure is necessary for timber harvesting, and the estimated cost does not exceed the estimated cost to furnish materials, construct, remove, and dispose of a temporary structure of untreated materials; or

2. A temporary structure would not:

- a. Meet best management practices or other local standards,
- b. Meet water quality and fish habitat needs or mitigate adverse impacts,
- c. Permit adequate control of erosion during construction and removal, or
- d. Meet appropriate safety standards.

Permanent structures may also be constructed on NFS roads by purchasers when appropriated funds are used to provide materials or cash payments to cover the difference in estimated costs between a permanent structure and the structure needed for the individual sale.

43.43 - Reconstruction

Include road reconstruction necessary to accommodate the traffic generated by an individual timber sale, to provide a facility adequate to accommodate traffic that existed before the sale, and to accommodate future traffic. Finance with appropriated funds the cost of the reconstruction attributable to traffic other than that from the timber sale.

43.43a - Deposits for Reconstruction

Deposits for reconstruction engineering services (preconstruction and construction engineering) and actual reconstruction may be required of timber purchasers on National Forest System lands (36 CFR 212.5(d)(3) according to the National Forest Roads and Trails Act of October 13, 1964 (16 U.S.C. 537)). This authority does not apply to new construction, maintenance, or related engineering services. See FSM 7720.31 and 7720.32 for descriptions of preconstruction and construction engineering.

Reconstruction deposits may be collected, if the following requirements are met:

1. The reconstruction is necessary to accommodate the purchaser's use of the road. This requirement is met if the timber sale contract specifies road reconstruction and the reconstruction engineering services are necessary to accomplish the reconstruction, including construction engineering to assure that the contract reconstruction requirements are fulfilled.

2. A determination, as required by Title 16 of the United States Code (16 U.S.C. 537), is made by the appropriate line officer that reconstruction engineering services or actual reconstruction by the timber purchaser is "not practical." A determination of "not practical" is met if:

- a. The potential timber purchasers do not have the employees, consultants, or contractors with the skills, knowledge, or equipment to accomplish the work;
- b. More than one timber purchaser is required to do work on the same segment of road during the same period; or
- c. An analysis shows that the potential timber purchaser's cost to accomplish the reconstruction engineering services exceeds the Government's cost to accomplish the same work. In making this analysis, coordinate with potential timber purchasers to obtain information concerning their capability and costs for reconstruction engineering services.

43.43b - Collection and Use of Deposits for Reconstruction Engineering Services

1. Deposits may be collected for reconstruction engineering services on timber sales that require road reconstruction. Do not require deposits for reconstruction engineering services (DRES) on timber sales that appraise at less than base rates, or if the engineering services are so minor that the cost to make collections would exceed collections. Administrative Forests may pool DRES funds.

2. Base the DRES on an estimate of direct expenses needed to accomplish the work for that sale. Do not include engineering administration or administration support in the DRES estimate. Do not base the estimate on a cost per hundred cubic feet or on Forest or Regional averages for this same type of work. The sample cost estimate worksheet shown in exhibit 01 may be used to summarize the estimates.

3. Collect only for reconstruction engineering services that occur after the National Environmental Policy Act decision for the timber sale project. Do not include costs of reconstruction engineering services that must be performed by the Government, such as transportation planning, preparation of Government cost estimates, preparation of payments, and inspecting and accepting the purchaser's materials and work. Also, do not include engineering services in support of new construction or maintenance.

4. Include an estimate of the administrative overhead assessment in DRES collections. Use the process established for "CWFS-Other" (Cooperative Work, Forest Service - Other) accounts to estimate overhead assessments (FSH 1909.13, ch. 40).

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5. Use contract provision, C/CT5.213# - Deposit for Reconstruction Engineering Services, for collection of DRES funds. Provide adequate detail to track exactly what the deposit covers and a schedule of dates for completion of Government engineering activities that affect the timber purchaser's operating plan, such as survey, design, and slope staking.

6. Include DRES as a cost element in the timber sale appraisal. The deposits are included as part of the specified road cost.

7. Place DRES collections in the "CWFS-DRES" account established specifically for reconstruction engineering services. Establish the management code on the Automated Timber Sale Account (ATSA) Regional Table R0601. Fund ID 56 CWFS-DRES (Deposit for Reconstruction Engineering Services) is established on the ATSA Service-wide Table S0600. As a minimum, establish one account for each administrative Forest having DRES collections.

8. Analyze "CWFS-DRES" account balances, by administrative Forest, annually as of September 30, to determine if any funds exceed projected needs. Determine the estimated cost of remaining work eligible to be performed on current and projected timber sales. Compare the estimated cost of the remaining planned work to be performed using "CWFS-DRES" funds with the projected available balance in the applicable fund account. See exhibit 02 for an example analysis. Transfer projected surplus in excess of \$100 to Miscellaneous Receipt Account 123220. If a deficit is projected, use FRP, SSF, or other appropriate funds to meet the predicted need for DRES and to balance the "CWFS-DRES" account.

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Sample Cost Estimate Worksheet for Reconstruction Engineering Services

PRECONSTRUCTION ENGINEERING: Engineering work and expense of preparing investigations, designs, contract documents, and estimates.

<u>Work Activity</u>	<u>Estimate (\$)</u>
1. Transportation planning. (All work in support of NEPA analysis and decision.)	<u>1/</u>
2. Engineering investigations, studies and reports, reconnaissance, and location. (Post-NEPA.)	<u>\$ 1,700</u>
3. Preliminary location surveys.	<u>\$ 3,000</u>
4. Soils, foundations, materials investigations, surveys, and tests.	<u>\$ 1,900</u>
5. Preliminary and final designs.	<u>\$ 2,600</u>
6. Preliminary and final drawings, specifications, and estimates of quantities and cost.	<u>\$ 700</u>
7. Preparation of Government cost estimate.	<u>1/</u>
8. Final location surveys staked on the ground.	<u>\$ 1,100</u>
9. Rights-of-way surveys, plans, and descriptions.	<u>\$ 2,300</u>
10. Other (describe)_____	<u>\$ 0</u>

CONSTRUCTION ENGINEERING: Reconstruction engineering services and expense of setting out, controlling, inspecting, and measuring a National Forest System road development transportation facility.

1. Conducting construction surveys to establish line and grade for the work, to control the work, and to measure quantities.	<u>\$ 1,200</u>
2. Redesigning, adjusting, and changing the plans and specifications to meet encountered conditions.	<u>\$ 700</u>
3. Inspecting and controlling operations for compliance with plans and specifications.	<u>1/</u>
4. Inspecting and testing materials to be installed.	<u>1/</u>
5. Inspecting and measuring completed work.	<u>1/</u>
6. Processing payments and accepting materials and work.	<u>1/</u>

PRECONSTRUCTION AND CONSTRUCTION ENGINEERING SUB-TOTAL	<u>\$15,200</u>
OVERHEAD	<u>\$ 4,400</u>
TOTAL	<u>\$19,600</u>

1/ Do not include entries. The Forest Service must do this work and, therefore, a collection is not appropriate.

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43.43b - Exhibit 02

Reconstruction Engineering Services Fund Balance Analysis

FOREST: <u>Big Falls</u>	<u>FY: 2004</u>
1. Unobligated balance as of 9/30 of prior year.	<u>\$ 100,000</u>
2. Known collections through September of prior year not yet shown on the unit financial statement.	<u>\$ 5,000</u>
3. Total available funds as of end of prior fiscal year. (Item 1 + Item 2.)	<u>\$ 105,000</u>
4. Forest program funding needs.	
a. FY 2003 Actual program needs. (obligated for year just completed)	<u>\$ 90,000</u>
b. FY 2004 Planned program needs (current year plan)	<u>\$ 85,000</u>
c. FY 2005 Planned program needs. (next fiscal year - planned program)	<u>\$ 95,000</u>
d. Total (Items 4a + 4b + 4c)	<u>\$ 270,000</u>
e. Three-year average (Item 4d divided by 3)	<u>\$ 90,000</u>
5. Sustained program level (Item 4e times 1.5).	<u>\$ 135,000</u>
6. Excess or [deficit] balance (Line 3 less Line 5).	<u>\$ [30,000]</u>
7. Available to transfer (positive balance on Line 6).	<u>\$ 0</u>

43.43c - Collection and Use of Deposits for Actual Reconstruction

1. Actual reconstruction that involves a single timber sale is accomplished through specified road requirements of the timber sale contract (contract provision B/BT5.2).
2. Deposits may be collected for actual reconstruction that involves several timber sales. This is sometimes referred to as “merged” funding because the deposits for actual reconstruction (DAR) from several sales may be merged to reconstruct a road required for each of the individual timber sales. Advance approval by the Regional Forester is required to implement a “merged” funding strategy to ensure the availability of appropriated road funding in the event that DAR funding is not available from any of the timber sales. Generally, work “merged” from several timber sales is accomplished through a Public Works Construction Contract.
3. Include an estimate of the administrative overhead assessment in DAR collections. Use the process established for “CWFS - Other” accounts to estimate overhead assessments (FSH 1909.13, ch. 40).
4. Use contract provision, C/CT5.214# - Deposit for Actual Reconstruction, for collection of DAR funds. Provide adequate detail to track exactly what reconstruction these deposits cover and a date when the reconstruction will be completed and available to the timber purchaser.
5. Include DAR as a cost estimate in the timber sale appraisal. The deposits are included as part of the specified road cost.
6. Place DAR collections in a separate “CWFS-DAR” account established at the administrative Forest, specifically for each road reconstruction project having DAR collections. Establish the management code on the ATSA Regional Table R0601. Fund ID 57 CWFS-DAR (Deposit for Actual Reconstruction) has been established on the ATSA Service-wide Table S0600.
7. Transfer funds pooled in a “CWFS-DAR” account that exceed the cost of the actual reconstruction to Miscellaneous Receipt Account 123220.
8. If the actual expenses for overhead, public works contract, overruns, changes, and/or claims, attributed to DAR exceed the amount collected, use FRP, SSF, or other appropriate funds to meet the additional needs.

43.44 - Specifications

Use the “Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects,” which is prepared by the Federal Highway Administration. These specifications are available in English or in metric units. Include specifications for construction and reconstruction of roads to provide a safe, usable facility and to minimize impacts on lands and resources at least cost.

43.5 - Small Business Road Option

When the estimated road construction cost is \$50,000 or more, small businesses may elect that the Forest Service perform the road construction (36 CFR 223.84).

43.6 - Contributed Funds

Careful planning of road construction may avoid deficit sales. Deficit sales are defined as sales where the average indicated advertised rate is less than the average base rate.

The maximum amount of contributed funds to plan at the time of sale advertisement is half the difference between base rates and indicated advertised rates, when base rates are the greater of the two. In addition, this maximum amount should not exceed 50 percent of the estimated specified road construction cost. The Forest Service shall decrease the amount of contribution by an amount equal to the bid premium.

Use of contributed funds can include the cost of furnishing construction materials, such as surfacing or culverts, or may be used as a credit to the timber purchaser's Timber Sale Account.

When contributed funds provide credits to the purchaser's Timber Sale Account, identify the contributed funds with specific contract pay items. Make credits to the purchaser's Timber Sale Account in installments as the purchaser completes the work funded by contributed funds.

43.7 - Use of Existing Roads

A purchaser may use National Forest System roads when the use does not damage the roads or resources and when safe hauling can result. Ensure that the purchaser includes in the timber sale operating plan a list or a map showing the specific roads scheduled for use in the purchaser's operations.

Do not authorize the purchaser's use of unsafe existing roads, unmaintainable roads, or roads that are unrestorable to a safe and/or maintainable condition. Follow the specific instructions for prohibiting or limiting National Forest timber sale traffic, as stated in FSM 7731 and FSH 2409.15, Timber Sale Administration Handbook.

43.71 - Off-Highway Haul

Use off-highway haul as the basis for road design and appraisal where it occurs as common local practice, where it would enhance safety for other traffic, and where it would result in the lowest transportation costs. Where the use of construction costs to accommodate off-highway trucks applies, reflect the economy of the operation in the haul cost estimates. If part of the haul to market must use a State or county road system, include cost estimates for reloading and trucking at maximum weights and widths permitted on the State or county road system.

43.8 - Maintenance of National Forest System Roads by Purchasers

Road maintenance should perpetuate the transportation facility to allow it to serve its intended management purposes and to protect the investment, environment, and adjacent resources; provide for user safety; meet applicable air and water quality standards; and provide for user economy. In preparing the sale package, ensure that the appraisal and contract require only the purchaser's fair share of maintenance. Maintenance does not substitute for reconstruction.

43.81 - Construction Versus Maintenance

A specified road assumes the status of an existing road upon acceptance. Prior to acceptance, consider care and use of specified roads as a construction requirement.

43.82 - Contract Requirements

Include as maintenance requirements in the timber sale contract, any work needed on roads not currently maintained for commercial use (usually roads in maintenance levels 1 and 2 (FSM 7732.11)). Be sure the work meets the definition of maintenance and consists of low-risk items that are easy to estimate and have little chance of changing.

43.9 - Timber Access Policy

See FSM 2431.8 for direction on timber access.

44 - Tracking and Reporting - Gate 3

Specify individual timber sales if more than one sale is included in the timber sale project plan prepared at Gate 2, because tracking from Gate 3 to Gate 6 is for individual timber sales. Tracking at Gate 3 consists primarily of adequate marking of required work in the field and retention of supporting documentation for contract preparation. The Timber Information Manager (TIM) generates a certification report, titled "Timber Sale Summary," which is the final action at this gate.

The responsible line officer for the timber sale shall certify on a certification report (generated by TIM), titled "Timber Sale Summary," that the timber sale has been prepared in accordance with 36 CFR 223.30; is consistent with the Forest plan and applicable National Environmental Policy Act (NEPA) decisions; and is feasible based on Forest plan objectives, financial efficiency, and salability to potential purchasers.

44.1 - Documentation

Documentation includes, but is not limited to, the following:

1. Cruise design.
2. Cruise results.

3. Marking guides.
4. Other resource surveys and data.
5. The TIM certification form, “Timber Sale Summary.”
6. Presale cards, cutting unit cards, or aerial photos used by field people.

44.2 - Sale Tracking and Reporting

Incorporate into TIM the information developed or updated at Gate 2. The following information is appropriate:

1. Sale number and name.
2. State and county.
3. Legal description of the sale.
4. Salvage status and percent of salvage volume.
5. Sale objective codes.
6. Cruise volume data.
7. Cutting and payment unit descriptions.
8. Contract species names and conversion factors.

Update the estimated miles of specified road construction and reconstruction, and the estimated bid date for the timber sale in TIM.

Enter or update the required data for timber sale activities into the Forest Service Activities Tracking System (FACTS) to track the activities on timber sale projects and timber sales.

45 - Appraisal Principles and Methods

45.1 - General

The appraisal starts the Gate 4 process. Appraisal of National Forest timber is based on several key principles.

45.11 - Appraisal or Marketing Point

Determine the appraisal or marketing point at the most advantageous location from the transportation standpoint. Consider all costs, including specified roads, and identify the marketing location that will develop the highest appraised or advertised rate. Two factors to consider are:

1. Most Advantageous Appraisal Point. If a transaction evidence appraisal uses haul cost as a variable, an appraisal point must be selected. An appraisal point is the location where raw materials or products can be sold. Choose an appraisal point where the manufacturing facility is capable of processing the end product that is being appraised. For example, do not appraise to a location that produces only rough lumber when the base period appraisal data reflects primarily the production of finished lumber. The appraisal point is most advantageous when total transportation costs, including road construction, are less than other possible appraisal points. If a suitable processing plant is unavailable, select a location that has a large enough timber supply to cover plant depreciation if a plant were at that location. Be sure to support these appraisal point selections with a justification statement in the timber sale report.

2. Most Advantageous Transportation Route. Determine haul costs on the basis of the most advantageous route to the selected appraisal point. Select the most advantageous route from the logging system and transportation system analysis. If the most advantageous route is under private control, appraise the route on the basis of the appropriate right-of-way procurement action. Where other public access adequate for competitive bidding is available, use the most advantageous route, even if it is subject to private control. Also, consider estimates for maintenance and traffic management with current road use.

45.12 - Methods

The transaction evidence appraisal (TEA) system is approved as the primary method for appraising stumpage values. Subject to approval by the Chief, other appraisal methods, such as residual value appraisal or independent estimates based on average investments may be used (36 CFR 223.60).

45.2 - Residual Value

The Regional Forester shall ensure that direction for using residual value as the appraisal method is issued as a supplement to this Handbook or incorporated into the Regional Timber Appraisal Handbook (FSH 2409.22).

45.3 - Transaction Evidence

The transaction evidence appraisal (TEA) method is designed to estimate fair market value of timber based on bid rates of past timber sale transactions. The base data is compiled from sales sold competitively over a period of time known as the base period. The predicted bid value is the volume-weighted average of the bid values of the competitively sold timber sales during the

base period. When appraising an individual timber sale, the predicted bid value is adjusted based on the differences in sale conditions, values, and costs between base period sales and the conditions of the sale being appraised. The predicted bid value is then adjusted downwards with a roll-back factor to arrive at an indicated advertised rate (sec. 45.32).

Establish advertised rates so that the ratio of advertised values to bid values will be within the 70 to 85 percent range in competitive areas. The performance range may exceed 85 percent in non-competitive areas. This ratio is based on the previous 4 calendar quarters and measured on a weighted volume basis (FSM 2422.1). If the advertised rates exceed 85 percent of bid rates in competitive areas, there is an increased tendency for Forests to receive no-bid sales. When a Forest's average advertised rates are less than 70 percent of bid rates, the appraisal is doing a poor job of estimating fair market value.

45.31 - Base Period Data for Transaction Evidence

Transaction evidence methods normally use past sales history to establish values, sale conditions, costs, or other data for preparing transaction evidence appraisals. It is the responsibility of the Regional Forester to establish the normal base period length; to lengthen the base period to ensure an adequate number of representative, competitive transactions; or to shorten the base period to respond more rapidly to market changes (FSM 2420.43). Update the database quarterly by dropping sales data from the oldest quarter and adding sales data from the most recent quarter.

Timber sales are bid on a unit rate, weighted-average rate, or total value basis. If timber sales are bid on a unit rate basis, bid values can usually be used directly in the base period data to estimate species and product values. If timber sales are bid on a weighted-average rate or total value basis, or if skewed bidding is apparent on unit rate bid sales, it is necessary to allocate the bid premium to species and products established on the sale. Direct use of the proportionate allocation that is used to establish contract rates is usually not appropriate, since, over time and repeated allocations, any inaccuracy in these contract values will be compounded. To allocate the bid premium, the relative stumpage value of each species-product combination must be determined. These relative stumpage values may be based on State taxation data, simple residual value analytical techniques, or other evidence of relative values. The relative stumpage values are used to proportion the bid to each species-product combination. If some species have negative values, follow the procedures in section 45.35.

45.32 - Roll-Back Factor

After adjusting the predicted bid for differences between the sales in the base period and the sale being appraised, the result is adjusted downwards using a roll-back factor to establish the indicated advertised rate. The downward adjustment is intended to:

1. Set advertised rates at a level to capture sufficient competition for the establishment of an actual fair market value,

2. Compensate for possible changes in the market between the base period and the bid date,
3. Reflect differences in sale conditions that may not have been reflected in the appraisal,
4. Allow for the risk that timber volumes, sale characteristics, or values may be misstated in the appraisal, and
5. Allow for the risk that markets or other economic conditions may change during the period of the contract.

In competitive markets, the roll-back factor normally should be from 10 to 20 percent. The amount of roll-back factor adjustment may be varied to reflect rapidly changing markets or to assure that the ratio of advertised to bid rates remains in the 70 to 85 percent range (sec. 45.3).

In noncompetitive markets, a roll-back factor of from 0 to 5 percent should be used to arrive at the indicated advertised rate. Consistent use of a larger roll-back factor in noncompetitive markets would create an incremental reduction in advertised rates for each base period, which would result in an unrealistic estimate of fair market value and would not protect the interests of the Government.

45.33 - Responsiveness to Market Changes

Design transaction evidence appraisal systems from a pricing standpoint so that 85 percent of sales volumes advertised during the fiscal year will sell. This design addresses industry's concern that advertised rates may be too high during periods of significant drops in market prices and the Forest Service's concern about keeping advertised rates in pace with bid rates during periods of rapid market increases. Suggested approaches to reflect market change are:

1. Adjust the base period price by a lumber or other product index or market indicator. If Western Wood Products Association (WWPA) lumber price indices are used, use the indices approved in the monthly Base Period Bulletin, rather than the latest monthly indices. If a reliable overrun factor is available, the index change may be multiplied by an overrun factor to approximate price changes on a log scale basis, which increases the sensitivity of the advertised value for any market change, up or down. Unless the index is based on stumpage values, using percentage changes in the index value to reflect market change is usually not appropriate, since it underestimates the amount of market change.
2. Shorten the base period, which would have the effect of using the most recent actual bid information and would be more sensitive to the most recent market changes.
3. Establish a triggering mechanism, for severe market changes, perhaps based on a lumber price change from a trade journal, to identify when the roll-back factor should be adjusted.

45.34 - Non-competitive Markets

Competition is a critical feature of a properly designed and effective transaction evidence appraisal system. Bid values from areas where there is little or no competition cannot be considered a fair market value. Therefore, processes to obtain bid values that represent competitive markets are necessary. Suggested processes in noncompetitive markets are:

1. Use information from a database compiled from only those market areas that experience competitive bidding. For example, define a competitive market area or appraisal zone as an appraisal zone where sales data show that bid premiums are greater than 5 percent of the advertised rate and 60 percent of the volume receives at least a 5 percent bid premium.
2. Use an appraisal database that includes information from competitive sales from adjacent competitive appraisal zones.
3. Use base data from only competitive sales. The competitive sales may include sales from adjacent appraisal zones.
4. Use another market to establish advertised rates. For example, a trade association lumber index may be used if it is adjusted to reflect logging and manufacturing costs.

45.35 - Negative Value Species and Products

Transaction evidence appraisals cannot estimate the value of deficit species and products because a positive bid value is always required. The total appraised value must always reflect all operating costs and values for a sale, unless downward adjustments in appraised price are limited by base rates. Thus, high-valued species and products must subsidize low-valued species and products. Use the following procedures when a species or product does not have enough value to cover its production cost:

1. Individual Timber Sales. Estimate the negative value with residual value or other analytical techniques. Use the best data available, but do not spend excessive effort in cost collection or other refined techniques. Delivered values may be estimated based on local knowledge or on a telephone survey. Production costs can be estimated based on equipment rental rates or constructed costs and estimated production rates.
2. Base Period Data. If timber sales in the base period contain species or products with a negative value, the base period timber sale data will need to be adjusted. Estimate the stumpage value of species and products with negative values, with residual value, or other analytical techniques. Adjust bid values of positive-value species and products upward to reflect the amount of subsidy provided to negative value species and products, so that the total value of the base period sales remains unchanged. The intent is to develop representative values for those species with positive values for use in individual sale appraisals, while using the procedure in paragraph 1 for individual timber sale appraisal of negatively valued species. The negative values shown in the base period data should be used only if precision is not necessary; for example, for use in economic analysis.

45.36 - Base Period Costs and Coefficients

1. Weighted Average Analysis. Most transaction evidence appraisal methods use costs and quality differences as sale variables. Use costs or quality factors that are generally applicable to all sales. Compute the costs and quality factors for all sales sold during the base period on a volume weighted average basis. Adjust the base period price by the difference between the zone average base period cost and quality and the actual cost and quality for the sale being appraised. These differences may be either positive or negative. For example, higher than average haul costs for the sale being appraised result in a negative adjustment, which reduces the base period price.

2. Regression Analysis. Transaction evidence methods, using regression analysis, use sale quality and market characteristics as appraisal adjustments. The appraisal adjustments that significantly affect bid prices on past sales are determined through the regression analysis. The regression analysis results in an appraisal equation, which has an overall average bid price for the base period (the base period price), coefficients for each statistically significant appraisal adjustment, and an estimate of the variability in the bid prices, which is used to determine the roll-back factor. Sales are appraised by multiplying the sale quality and market characteristics of the sale being appraised by the coefficients of the appraisal adjustments to derive the adjustment for the sale. The adjustment, which can be either positive or negative, is added to the base period price to derive the predicted high bid. The predicted high bid is adjusted for contractual costs; such as environmental protection, slash and road maintenance deposits, temporary developments, and unusual conditions, if the appraiser determines unusual conditions exist that are not accurately captured in the appraisal equation.

45.36a - Stump-to-Truck

Transaction evidence appraisals may require maintaining of logging costs and using these costs to establish stumpage values to reflect differences between the sale being appraised and the base period sales. In addition, logging costs may be needed for timber property values, special appraisals, and planning purposes. The Office of Management and Budget has approved cost collection for supporting the transaction evidence appraisal system (OMB Approval No. 0596-0017).

Stump-to-truck and other needed costs should be collected from industry. The purchaser's cost information is not normally subject to audit by the Forest Service, but purchasers may voluntarily submit cost and related appraisal data to Regional forest management or fiscal personnel for compilation. Where feasible, most collections should be on a shared basis between Regions. Other independent sources of costs may be available, such as those from State agencies.

45.36b - Haul and Road Maintenance

Adjustments may be made for hauling and road maintenance if there are significant differences between sales.

45.36c - Environmental Protection (Contractual) Costs

Develop costs for use in the appraisal, as required by provisions of the contract. For required brush disposal and road maintenance deposits, estimate the rates on the basis of Forest Service costs, including overhead, at the time the work is to be performed, and show the costs in the appraisal and contract.

The Granger-Thye Act requires the Forest Service to recover all costs of doing work for others. If the Forest Service undertakes such work, charge rates that cover actual costs. Compute rates by using current Forest Service wage rates, equipment use rates, and applicable overhead assessments. Rates so computed may vary from those used in the timber appraisal.

45.36d - Temporary Development

Coordinate closely with the local engineering staff to develop the cost of temporary roads or other temporary development construction identified in the timber sale contract. Record these construction work cost estimates.

Estimate the costs of all temporary roads, using cost data contained in zone or Regional cost guides and schedules.

45.36e - Specified Development

Add the cost of specified development for the sales in the base period to the high bid values when constructing base period price appraisal data. During appraisal of a specific sale, the full specified development cost for that sale will be subtracted from the base period price to calculate the indicated advertised rate. The specified development cost includes the cost of deposits for engineering reconstruction services (DRES), deposits for actual reconstruction (DAR), and deposits for cost share roads. Note that the specified development cost that is allowed in the appraisal does not include the part of the cost that is due to construction to a higher standard than needed for the sale. If the purchaser elects to construct those roads that are built to a higher standard than needed for the sale, that portion of the specified road construction cost must be refunded to the purchaser in either cash or materials.

See FSM 7720 for Service-wide direction on procedures and methods for developing road construction cost estimates and requirements for developing cost estimating guides. Estimate the costs of all specified roads using these procedures.

45.4 - Calculation of Contract Rates

45.41 - Stumpage Rates by Species and Product Groups

For the species and product groups, develop stumpage rates to be specified in the sale advertisement, prospectus, and contract. Timber sale contracts may specify separate stumpage rates by species and, where appropriate, by type of round product. Species and products of similar value may be grouped together at a single stumpage rate.

45.42 - Calculation of Base Rates with Regeneration Costs and Timber Property

1. The base rate is the lowest rate at which timber is advertised under the authority at 36 CFR 223.61, even though appraisal calculations may indicate lower rates. Base rates are the highest of either of the following:

- a. The applicable minimum rates established by the Region, by species; or
- b. The minimum deposit to the National Forest Fund of \$0.25 per hundred cubic feet (CCF), plus the cost of regeneration made necessary by the sale and timber property.

When necessary to increase minimum rates to cover regeneration costs or timber property, use the minimum rate as the base rate for those species that are deficit and adjust the base rates of the positive species upwards in proportion to the amount of their positive value.

2. A table similar to the one shown in exhibit 01 should be developed in the appraisal report.

- a. Calculation of Regeneration Costs. To determine base rate regeneration costs, use the costs to reestablish the stand to be harvested, including appropriate overhead costs. Do not include costs of other desirable cultural work, such as thinning or habitat improvement. When calculating base rate regeneration costs, use good judgment to determine the proportion of the cost for stand reestablishment made necessary by a particular sale; for example, when final harvest is made on a stand with recent non-salvage harvest cuts. As a general rule, the essential reforestation timber sale base rate regeneration costs should not exceed the proportion of the remaining timber stand volume to the original estimated timber stand volume. There are no limitations on determining the amount of Knutson-Vandenberg funds needed on the sale area for sale area improvement or planned-for collections.

Where shelterwood cutting or seed-tree cutting is determined to be effective in obtaining natural regeneration, the estimated regeneration costs for such areas should presume that the objective of natural regeneration has a reasonable probability of being achieved. Limit regeneration costs to those necessary for site preparation work and regeneration surveys. If the prescription shows that natural regeneration may not be achieved, include costs for planting or seeding in the first entry.

- b. Calculation of Timber Property Value. If applicable, add timber property value to base rates (FSH 6509.17, sec. 23.23). Do not collect timber property through an associated charge. Timber property value occurs when timber is partially or wholly processed into products either by direct Forest Service expenditures or by the expenditures of others (FSM 2469.1; FSH 2409.18, sec. 47.3). Indicated advertised rates reflect the value of timber property. The maximum amount of timber property value is the amount of increase in indicated advertised rates that is the result of such partial or whole processing prior to sale. The amount of timber property value to include in base rates is the smaller of either the increase in indicated advertised rates

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due to the partial or whole processing, or the difference between indicated advertised rates and the base rates that would have been established had there been no timber property value. In other words, timber property can be used to offset deficit values.

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45.42 - Exhibit 01

Adjustment Table for Increasing Minimum Rates to
Base Rates for Regeneration Costs

Sale volume of 10,000 CCF at \$0.25 per CCF	\$ 2,500
Regeneration cost	\$ 95,000
Timber Property	0
Regeneration cost, plus timber property, plus \$0.25 per CCF	\$ 97,500

	<u>Species</u>				<u>Totals</u>
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	
1. Volume (CCF)	4,000	1,000	2,000	3,000	10,000
2. Indicated advertised rate	\$24.00	\$-10.50	\$-33.00	\$76.00	\$24.75
3. Minimum rates	10.00	1.00	6.00	10.00	8.30
4. Total value of minimum rates	40,000	1,000	12,000	30,000	83,000
5. Regeneration cost + \$0.25 per CCF					97,500
6. Increase needed to minimum rates					14,500
7. Above/below minimum rates/CCF	14.00	-11.50	-39.00	66.00	16.45
8. Total deficit		11,500	78,000		89,500
9. Total surplus	56,000			198,000	254,000
10. Adjustment to base rates <u>1/</u>	+3,197	0	0	+11,303	14,500
11. Adjustment to base rates per CCF	+0.80	0	0	+3.77	1.45
12. Base rates	\$10.80	\$1.00	\$6.00	\$13.77	\$9.75

1/ Adjustment to increase minimum rates to base rates:

Species A (14,500/254,000) x 56,000	\$ +3,197
Species B	\$ 0
Species C	\$ 0
Species D (14,500/254,000) x 198,000	\$ +11,303

45.43 - Adjustment to Eliminate Deficits

Consider a timber sale as deficit when the average indicated advertised rate is lower than the average base rate. If the average indicated advertised rate is higher than the average base rate, but the indicated advertised rates for some species are less than their base rates, use the base rate as the advertised rate for those species and adjust downward the advertised rates of the other species in proportion to the amount of their positive value. A table similar to the one shown in exhibit 01 should be developed in the appraisal report.

45.43 - Exhibit 01

Adjustment Table for Elimination of Deficits

	Species				Totals
	A	B	C	D	
1. Volume (CCF)	4,000	1,000	2,000	3,000	10,000
2. Indicated advertised rate	\$24.00	\$-10.50	\$-33.00	\$76.00	\$24.75
3. Base rates	10.00	1.00	6.00	10.00	8.30
4. Above/below base rates per CCF	14.00	-11.50	-39.00	66.00	16.45
5. Total deficit		11,500	78,000		89,500
6. Total surplus	56,000			198,000	254,000
7. Adjustment to eliminate deficit <u>1/</u>	-19,732	+11,500	+78,000	-69,768	0.00
8. Adjustment per CCF	-4.93	+11.50	+39.00	-23.26	0.00
9. Advertised rates	\$19.07	\$1.00	\$6.00	\$52.74	\$24.75

1/ Adjustment to eliminate deficit:

Species A (89,500/254,000) x 56,000	\$ -19,732
Species B	\$ +11,500
Species C	\$ +78,000
Species D (89,500/254,000) x 198,000	\$ -69,768

45.5 - Appraisal by Comparison

In many instances, especially in connection with small sales, stumpage values may be determined by comparison with stumpage rates that were received by competitive bid on similar sale areas.

In making stumpage appraisals by comparison, it is generally not necessary to compare all elements of costs and returns with those of recent competitive sales. Although any element in an appraisal may vary, the principal variables that affect stumpage value are the quality of timber, the cost of transportation, and the cost of development. The other elements of cost, such as felling, bucking, skidding, loading, sawing, and planning, do not vary much in a general area for similar species, topography, and size of timber. Therefore, compare the costs of the three main variables for the timber appraised with the same variables for timber sold by competitive bid, adjusting stumpage value, as necessary, to reflect the market conditions.

Limit stumpage appraisals by comparison to small and low value sales. Appraisals for trespass cases are usually by comparison. Support each comparative appraisal with a brief discussion of the recommended stumpage rates, setting forth the comparison with other recent sales in the same general area.

45.6 - Standard Rates

Determine standard rates by transaction evidence procedures. If a sale is an unadvertised offering, include an expected bid premium.

46 - Rate Redeterminations

Rate redetermination, where included in timber sale contracts, provides for adjustment of stumpage rates. The objective of a rate redetermination is to determine current appraised value as of the effective redetermination date, subject to the provisions of the contract.

46.1 - Special Characteristics of Rate Redetermination Appraisals

Unless the contract specifically provides otherwise, has been previously modified, or is being modified coincidentally with a rate redetermination, base the appraisal on the original contract requirements and appraisal premises. Include in the appraisal, applicable information and experience gained on the specific sale area since the original appraisal or since a previous rate redetermination. Except for rate redeterminations for environmental modification, catastrophic damage, and market change during suspension, redetermined rates may not be lower than base rates.

Update sale characteristic information used during the original appraisal, such as the average timber size or the proportion of solid rock to common excavation in a road segment.

Make a revised estimate of the total volume to be cut under the contract. This estimate is the sum of the volume cut or scaled to date, plus an estimate of the volume remaining to be cut or

scaled. Make a direct estimate of the volume remaining to be cut or scaled, taking into account experience in cut-to-cruise results in the part of the sale where cutting is completed. Do not make the estimate by merely subtracting the volume cut or scaled to date from the original volume estimate.

46.2 - Rate Redetermination Premises

Major changes in logging or milling plants may take place after the original appraisal and may raise questions as to whether premises in the original appraisal should be maintained in the rate redetermination. Except for premises fixed by contractual agreement, the basis of the rate redetermination must be the current standard appraisal methods and premises applied to currently available data, and the redetermination must consider investments made by the purchaser before rate redetermination. Some of the more common appraisal premise issues are:

1. Plant Location. Unless there has been a significant change in transportation or marketing conditions, use the plant location chosen for the original appraisal as a premise for the rate redetermination. However, if transportation facilities or marketing conditions have changed sufficiently, a location different from the original plant location premise may be appropriate at the time of rate redetermination. Shift the appraisal premise to the purchaser's plant if that point will develop the highest appraised or advertised rate.
2. Changes in Utilization Standards. Base the rate redetermination on contract utilization standards effective with redetermined rates. Such standards are those in the contract before rate redetermination unless they are being modified when rate redetermination occurs. When the effect of changed utilization standards would be to reduce receipts from remaining timber below the receipts that would have resulted from previous standards, adjust redetermined rates accordingly. For example, if the redetermined rate for a species is at the base rate and merchantability standards are adjusted so that the purchaser is required to remove less volume than was specified under the original contract merchantability specifications, increase the base rates by contract modification to compensate for the volume reduction.
3. Adjustments for Negative Stumpage. If possible, adjust stumpage rates by species to eliminate negative stumpage values due to price shifts between an original appraisal and its rate redetermination.

46.3 - Establishing Redetermined Rates

Except in cases where purchasers execute contract modifications, which indicate knowledge and acceptance of redetermined rates, notify purchasers of the redetermined rates by certified mail, return receipt requested.

46.4 - Rate Redetermination Timing

Complete rate redeterminations and obtain approval 30 days before the redetermination date to provide adequate time for discussion of the proposed rates with the purchaser.

46.5 - Rate Redetermination of Sales Originally Appraised under Residual Value

Redetermine rates for sales originally appraised under the residual value appraisal system by establishing a transaction evidence appraisal (TEA) for the period when the sale was sold. Include the appropriate competition factor. For contract term extensions, appraise the sale using the TEA data in effect 45 days before the effective date of the new rate redetermination. Compare the advertised rates of the TEA rate redetermination with the rates determined from an appraisal of the original sale using TEA methods to establish rates at the time the sale was offered.

46.6 - Types of Rate Redetermination Appraisals

46.61 - Scheduled Rate Redeterminations

For sales exceeding 7 years in duration, the interval between sale award and the first scheduled rate redetermination must be 5 years, plus the period allowed for the advanced construction of roads.

Generally, do not include scheduled rate redeterminations in other contracts unless there are sound reasons, such as:

1. The sale is made on a flat-rate basis at very high or very low market levels.
2. The sale includes unusually costly road construction where terrain and soil conditions are unusual to the area.
3. The sale contains timber whose recovery is uncertain because of species or size characteristics.
4. The sale requires specialized or experimental logging equipment not normally used in the area.

Appraisal variables, with the exception of specified roads, apply to the sale as a whole using the original sale volume. The revised cost estimate for specified roads is the sum of the cost of completed road construction as of the rate redetermination date, plus the revised cost estimate for the remaining specified road work. Prepare an estimate to reflect the work completed up to the rate redetermination date.

Prepare rate redeterminations using the standard methods for new sale offerings in effect 45 days prior to the time of the rate redetermination. Consider all factors that may affect the timber value at the time of rate redetermination. Include bid premium rates in the redetermined rates. Scheduled rate redeterminations require that base indices be redetermined.

46.62 - Catastrophic Damage Rate Redeterminations

Catastrophic damage is defined in the contract. Only Timber Sale Contract Forms FS-2400-6, FS-2400-6T, FS-2400-13, and FS-2400-13T include provisions for catastrophic damage rate

redeterminations. Steps for making rate redeterminations for catastrophic damage areas are as follows:

1. Complete any other rate redetermination that is needed under the contract terms.
2. Determine the timber remaining on the sale area immediately before the catastrophe.
3. Determine the timber volume to be included after the catastrophe in accordance with contract options. If there will be a delay in harvest after the catastrophic event, consider the loss of volume due to deterioration and base the estimated volume in the appraisal and contract on the volume estimated to remain at the midpoint of the contract.
4. Prepare two appraisals, one for the remaining included timber before the catastrophe and the other for the remaining volume of included timber after the catastrophe and related contract modifications, to measure the change in unit value caused by the catastrophe. Use the standard Forest Service appraisal method and data in effect 45 days before the rate redetermination for both appraisals.
 - a. Unless there has been a significant change in transportation or marketing conditions, the plant location chosen for the original appraisal should be used as the premise for the rate redetermination. Consider dry kiln facilities. If no dry kiln is available at the original appraisal point, appraise for a transfer of the green lumber to a facility with a dry kiln. Consider a market adjustment, or appraising to a more distant mill, if the increase in supply due to the salvage harvest will exceed the appraisal location's capacity.
 - b. Adjust the base period price with a quality adjustment (compared to sales in the base period) to reflect reduced quality due to char, blue stain, worm holes, or other factors related to damaged timber. In addition, be sure to reflect such factors as reductions in average diameter, changes in grade composition, or changes in overrun.
 - c. Adjust the base period price with a cost adjustment (compared to sales in the base period) to reflect increases in operating costs due to operations in areas that may have been burned, windthrown, and so on. These additional costs include such factors as increased abrasion to equipment due to dust and ash, increased time for fallers to sharpen saws, hazardous conditions, average tree size, volume per acre, reduced load size for truck haul, the cost of kiln drying, need for additional roads, and so on.
 - d. Consider the need for new roads and reconstruction. Make appropriate revisions to specific condition A/AT7 and the schedule of items for changes in costs and additional construction or reconstruction. Appraise all needed roads in both the before and after appraisal with data in effect 45 days before the rate redetermination.
 - e. Consider new conditions and changes in needs for slash disposal, erosion control, and similar requirements. The Knutson-Vandenberg (K-V) plan can be revised, but the base rates cannot be increased. If reforestation needs change due to new sale

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conditions, increased allocations to reforestation are permissible, even though the base rates cannot be increased.

5. Adjust the bid rate for each species by the change in unit value, caused by the catastrophe to arrive at the redetermined rate. If a negative rate adjustment causes any species rate to be negative, adjust the deficit against the remaining positive-value species on the basis of a sale as a whole. Note that this is an adjustment by species and not an average adjustment. When revising specific condition A/AT4, adjust the advertised rates, before adjusting the bid premium, to calculate tentative or flat rates. Rates may be adjusted to below existing base rates, but not below \$0.25 per hundred cubic feet (CCF). Base rates can be decreased, but cannot be increased. Exhibit 01 shows an example of this procedure. Do not modify base indices.

The contract modification must include a modification of specific condition A/AT4, Timber Payment Rates.

Forest Service Handbook 2409.18 – Timber Sale Preparation Handbook
Chapter 40 - Sale Plan Implementation (Gate 3) and Appraisal
Amendment: 2409.18-2005-1
Effective date: November 09, 2005
46.62 - Exhibit 01

Adjustment for Catastrophic Damage

	Pine	Fir	Cedar
Remaining volume (CCF)	1,000	1,000	1,000
Appraised rate:			
Before catastrophe	\$130.00	\$58.00	\$75.00
After catastrophe	107.00	31.25	76.00
Catastrophe-caused difference	-23.00	-26.75	+1.00
Rates from contract Division A/AT:			
Base	25.00	21.00	16.00
Advertised	122.00	21.00	53.00
Bid Premium	52.00	0.00	13.00
Bid	174.00	21.00	66.00
Adjustment for catastrophe	-23.00	-26.75	+1.00
Indicated redetermined rate	151.00	-5.75	67.00
Adjustment to remove deficit <u>1/</u>	-3.00	+6.00	-3.00
Redetermined rate	\$148.00	\$0.25	\$64.00

1/ Adjustment to eliminate deficit (assumes no essential reforestation):

a. Species (Fir) deficit per CCF (\$5.75 + \$0.25)	\$ 6.00
b. Total species deficit (\$6.00 x 1,000 CCF)	\$ 6,000.00
c. Deficit shifted to other species	\$ -6,000.00
d. Volume of other species (CCF)	2,000
e. Shifted deficit per CCF (-\$6,000/2,000 CCF)	\$ -3.00

46.63 - Environmental Modification Rate Redeterminations

When environmental conflicts are recognized after a timber sale has been made, contract modifications going beyond the original intent of the offering may be approved. Redetermine rates as a part of the modification. Steps for making rate redeterminations for environmental modifications are as follows:

1. Complete any other rate redetermination that is needed under the contract terms.
2. Determine the timber remaining on the sale area immediately before and after the environmental modification.
3. Prepare two appraisals, one that reflects conditions and the remaining included timber before the change and the other that reflects conditions and the remaining volume of included timber after the change and related contract modifications, to measure the change in unit value caused by the environmental modification. Use the standard Forest Service appraisal method and data in effect 45 days before the rate redetermination for both appraisals.
 - a. Be sure to reflect such factors as reductions in average diameter, average tree size, volume per acre, changes in grade composition, or changes in overrun.
 - b. Make appropriate revisions to specific condition A/AT7 and the schedule of items for changes in costs and additional construction or reconstruction. Appraise all needed roads in both the before and after appraisal with data in effect 45 days before the rate redetermination.
 - c. Consider new conditions and changes in needs for slash disposal, erosion control, and similar requirements. The Knutson-Vandenberg (K-V) plan can be revised, but the base rates cannot be increased. If reforestation needs change due to new sale conditions, increased allocations to reforestation are permissible, even though the base rates cannot be increased.
4. Adjust the bid rate for each species by the change in unit value, caused by the environmental modification to arrive at the redetermined rate. If a negative rate adjustment causes any species rate to be negative, adjust the deficit against the remaining positive-value species on the basis of a sale as a whole. Note that this is an adjustment by species and not an average adjustment. When revising specific condition A/AT4, adjust the advertised rates, before adjusting the bid premium, to calculate tentative or flat rates. Base rates may be adjusted to below existing base rates, subject to a base rate limitation of the cost of essential reforestation or \$0.25 per hundred cubic feet (CCF), whichever is higher. Use the same procedure as is shown in exhibit 01 of section 46.62 for catastrophic damage. Do not modify base indices.

The contract modification must include a modification of specific condition A/AT4, Timber Payment Rates.

46.64 - Rate Redetermination for Market Change

When sales on contract forms FS-2400-6, FS-2400-6T, FS-2400-13, and FS-2400-13T dated April 2004, or later are suspended for significant time periods for reasons stated in the contract, markets for timber products may decline. Rate redeterminations for market change are only performed when timber markets have declined, not when they have increased. Steps for making rate redeterminations for market change are as follows:

1. Complete any other rate redetermination that is needed under the contract terms, such as an environmental modification.
2. Determine the timber remaining on the sale area immediately after the suspension.
3. Prepare two appraisals. Each appraisal should reflect the remaining timber and contract requirements subsequent to the suspension and any contract modifications. One appraisal must reflect timber markets immediately prior to the suspension and the other appraisal must reflect timber markets immediately after the suspension is lifted to measure the change in unit value caused by the market change. For both appraisals use the standard Forest Service appraisal method and data in effect 45 days before each rate redetermination.
4. Adjust the bid rate for each species by the change in unit value, caused by the market change to arrive at the redetermined rate. If the weighted average contract rate increases do not modify the contract to change rates. If a negative rate adjustment causes any species rate to be negative, adjust the deficit against the remaining positive-value species on the basis of a sale as a whole. Note that this is an adjustment by species and not an average adjustment. When revising specific condition A/AT4, adjust the advertised rates, before adjusting the bid premium, to calculate tentative or flat rates. Base rates may be adjusted to below existing base rates, subject to a base rate limitation of the cost of essential reforestation or \$0.25 per hundred cubic feet (CCF), whichever is higher. Use the same procedure as is shown in exhibit 01 of section 46.62 for catastrophic damage. Do not modify base indices.

The modification of specific condition A/AT4, Timber Payment Rates, may be combined with a contract modification due to an environmental modification.

46.65 - Emergency Rate Redetermination

A purchaser may apply for an emergency rate redetermination if the Producer Price Index identified in the contract has declined by 25 percent since the award date or last rate redetermination. Steps for making emergency rate redeterminations are as follows:

1. Complete any other rate redetermination that is needed under the contract terms.
2. Prepare an appraisal based on the sale as a whole using the original volume. Make the rate redetermination as though the sale were a new sale being originally appraised, using the appraisal method and data in effect 45 days before the rate redetermination. Do not change the original sale premises.

3. Adjust the advertised rate for each species by the change in unit value. Bid premium rates are added to the redetermined rates. If a negative rate adjustment causes any species flat or tentative rate to be negative, adjust the deficit against the remaining positive-value species on the basis of a sale as a whole. Note that this is an adjustment by species and not an average adjustment. Do not reduce base rates. Do not modify base indices.

4. Modify specific condition A/AT4, Timber Payment Rates.

46.66 - Contract Extension Rate Redeterminations

If the contract for a sale is extended at the request of the purchaser, base the extension rate redetermination on the sale as a whole using the original sale volume and premises.

Make the rate redetermination as though the sale were a new sale being originally appraised, using the appraisal method and data in effect 45 days before the effective date. Do not modify base indices. If the weighted average redetermined rates, plus the weighted average bid premium rates on the volume remaining, are greater than the weighted average current contract rates in effect immediately before the extension, place the new rates in effect. Otherwise, maintain the rates in effect at the time of the extension.

The proportion, by species, of the remaining volume can be the deciding factor in determining whether the weighted average value of redetermined rates plus bid premium is higher than the weighted value of current contract rates applied to the remaining volume. For this reason, make a reliable estimate of the remaining volume by species. The established rates of any species/product group cannot be less than the current contract rate. Therefore, it may be necessary to adjust the appraised rates downward for some species or products. This will compensate for establishing current contract rates for species/products that appraise below current contract rates so that the weighted average redetermined rate plus bid premium value of the remaining timber will be unchanged.

If the contract term is extended subsequent to a contract term adjustment, make a reappraisal for the extension as though no contract term adjustment had been made. Therefore, use the appraisal methods and data (but not adjustments) in effect 45 days before the original expiration date or revised extension date. This procedure ensures that granting a contract term adjustment neither penalizes nor benefits the purchaser insofar as rates during the extended period are concerned.

46.67 - Rate Redeterminations with Contract Modifications

These are agreed-to contract modifications where contractual work requirements may change rates.

Appraise the original contract requirements and volume (before appraisal) and the new contract requirements and volume (after appraisal), using remaining volume and current costs and values. Adjust the advertised rates by this difference. Increase base rates, if necessary, to reflect lower volume. Do not reduce base rates unless the cost per hundred cubic feet of essential reforestation decreases. Contracting Officers must ensure that these modifications are not to the disadvantage

of the Government. Do not change contract requirements or rates until the contract modification is signed.

47 - Special Appraisals

47.1 - Damage Appraisals

When the purchaser fails to cut and remove all included timber by the contract expiration date, determine whether or not the Government has suffered damages from loss of stumpage value.

1. The general measure of such damage is the extent to which the resale value of remaining timber is less than the amount the purchaser would have paid had the contract been completed. The contract defines this as the value of stumpage rates in effect at termination, or as the current contract value. Resale value of the remaining timber is the appraised value at termination, or the actual bid in a resale, whichever is greater. Because the appraised value is the minimum resale value, irrespective of subsequent actions, appraise the remaining timber using standard Forest Service methods in effect at termination and under the terms and conditions of the original contract. Appraise all incomplete work that was required of the original purchaser or made necessary by the purchaser's operation. Carefully determine the volume and quality of the remaining timber and its accessibility, as well as all other factors influencing its value. The appraised resale value may be different from the appraised value, exclusive of a bid premium that would have been developed for an extension because the appraised resale value is based on remaining timber at termination and the appraised value is based on the original sale volume.

The appraisal must provide an estimated market value of the remaining timber. For sales with purchaser credit, use remaining effective purchaser credit to reduce damages.

2. Appraised resale value must be comparable to current contract value. For sales with purchaser credit, the cost of purchaser credit that has not been earned must be subtracted from the contract value. When the appraised resale value is equal to or greater than current contract value, minus the cost of purchaser credit that has not been earned at termination, do not assess damages for loss of stumpage value, regardless of how the timber is subsequently offered and what value is received.

3. When the appraised resale value is less than current contract value, minus (for sales with purchaser credit) the cost of purchaser credit that has not been earned, damages depend on when and how the timber is re-offered. Regional Foresters may set requirements for review of damage cases involving incomplete expired contracts and cases in which timber is not re-offered for resale, is re-offered under different conditions, or is re-offered in part. The Contracting Officer must ensure the Regional Forester reviews all damage cases involving abandoned or expired contracts. Although the following lists four common situations, individual cases may involve unusual conditions and require special treatment:

- a. Resale Value of Timber Not Re-offered for Sale. In this situation, use the predicted high bid as the appraised value. For sales that do not have purchaser credit, the Government's damages are equal to the amount that current contract value

exceeds the appraised value. If the sale has purchaser credit, the damages are reduced by the sum of the remaining effective purchaser credit and the cost of purchaser credit that has not been earned.

b. Resale Value of Timber Re-offered for Sale. When the remaining timber is offered for resale under the original conditions (except for the availability of purchaser credit) resale value is the greater of either the bid value of the resale or the appraised market value. For sales that do not have purchaser credit, the Government's damages are equal to the amount that the current contract value, plus the cost of resale, exceeds the resale value. If the sale has purchaser credit, the damages are reduced by the sum of the remaining effective purchaser credit and the cost of purchaser credit that has not been earned.

The choice between the bid value and the appraised market value is necessary because there may be no buyers, or because resale may be delayed for a lengthy period of time after the expiration date. In such cases, if the market has dropped significantly by the time of resale, the resale value might be lower than it would have been if resale had been made promptly after the expiration date. When the timber is re-offered, base advertised rates on the market value at the time of advertisement and not at the time of expiration.

(1) Timber Re-offered under Different Conditions. It may be desirable to re-offer the remaining timber under contract provisions different from those in the original sale. Under such circumstances, make two appraisals. Make the first under the assumption that the original contract provisions apply, and the second under the assumption that the changed provisions apply. Make both appraisals using standard methods in effect at the expiration date. The difference between the two appraisals is the effect of the changed conditions on the value of the remaining timber. Use this difference to reduce damages.

For example, an appraisal of the uncut timber, made by the standard method for new sale offerings and assuming the original contract provisions are in place, results in an appraised value of \$4,000. An appraisal of the uncut timber made by using the standard method for new sale offerings, but assuming changed contract provisions (skyline yarding instead of tractor skidding) results in an appraisal value of \$3,000; thus, the changed conditions reduce the appraised value by \$1,000 (\$4,000 minus \$3,000). If the damages as calculated in paragraph 3b are \$6,000, this results in damages of \$5,000.

If changed contract provisions result in an increase in appraised value for uncut timber, do not use the changed-condition value in damage determination. In that event, determine damages as in paragraph 3b.

(2) Timber Re-Offered Partially. The example discussed in paragraph 3b(1) presumes that all uncut timber will be resold. It may be appropriate for environmental or other reasons to re-offer only a portion of the uncut timber or to

include a portion of the uncut timber from that particular contract with other timber. When these alternatives are appropriate, the prices received for the re-offered timber generally do not reflect the damages as well as when the entire volume of uncut timber is sold as a package. When making partial re-offerings, give careful study to present a defensible analysis of the exact damages suffered by the Government.

Always determine the difference between the contract value of the uncut timber at the expiration date and the appraised value of the uncut timber under contract conditions in effect at the time of expiration. Make this determination using the standard appraisal method in effect for new offerings. To determine whether or not the resale values justify any reduction of the appraised damages, make a detailed analysis of bid results for the portions of the sale that are resold. For example, if an expired sale has uncut timber with a contract value of \$10,000 and appraises at \$9,000 on the expiration date, the appraised damage is \$1,000. If the Forest Service decides to resell only half of the timber and advertises it at \$4,500, and if the timber is bid in at \$5,000, there is no loss on that half. The other half remains unsold with an appraised \$500 of damages. However, if study indicates that the other half would have been bid at \$500 above the appraisal had the Forest Service chosen to include it in the resale, the appraiser could recommend there are no damages other than resale costs that would have been incurred.

47.2 - Trespass Appraisals

Assess civil damages accurately and document them carefully so that values can be justified in civil court, if necessary. Determine civil damages resulting from a trespass based on the market value of the timber cut or damaged, plus any other damage the Government may have suffered as a result of the trespass. In addition, assess timber property values. Determine objectively the market value of the timber cut. Whether the trespass appears to be willful or unintentional does not influence the appraisal of stumpage values, since multiple stumpage values associated with willful trespass may be determined easily after the basic value is determined. In addition to stumpage value, there may be other values to include as damages.

1. Appraisal by Comparison. Comparison with commercial transactions is one of the best ways to establish stumpage rates for trespass. If possible, compare trespass damage with several transactions to avoid allegations that a single transaction is not representative of fair market value. Evaluate species composition, accessibility, logging difficulty, timber quality, and other factors of comparable transactions.

Make adjustments to elements in a comparative appraisal when it is necessary to update the values to the time of trespass. Published index values are often useful for this purpose.

2. Alternative Appraisals. If reasonably comparable sales are not available, use a transaction evidence appraisal, following standard appraisal procedures. Fixed costs may need special treatment to avoid cost and value distortion. For example, the estimated unit cost of roads should be limited to the lowest cost of one of the following:

- a. The estimated road investment by trespasser divided by the volume cut.
- b. The average road amortization rate for typical sales in the area.
- c. The estimated cost of the transportation system for a logical sale area that includes the trespass area and other tributary timber, divided by the estimated tributary volume.

The appraisal should reflect transaction evidence of bids received in the general area.

47.3 - Timber Property Appraisals

Timber property sales involve recovery of value in excess of stumpage value or standing tree value. Timber property values are the cost of manufacture from the standing tree to the state of manufacture where the sale is made, which is usually in decks. This would include the constructed value of felling and bucking, skidding, decking, slash treatment, erosion prevention, and a proportionate share of overhead and depreciation. In trespass cases where the timber is found at a mill, add transportation value and an estimated value for loading and unloading.

Determine the average unit rates for the species or products with property value for the entire volume in the species or product group, based on its current state of processing. Enter the total timber property value in one of the blank lines on the bottom of the Regional appraisal summary report. In completing the Report of Timber Sale portion of Form FS-2400-17, after the sale is made, subtract the timber property rates from the rates bid by the high bidder to develop the statistical high bid.

47.4 - Timber Settlement Appraisals

Timber settlement sales occur when a permittee is granted the right to cut, damage, or destroy timber or other forest products in conjunction with an authorized occupancy of National Forest System land (FSM 2464), such as a road right-of-way to private land.

The appraised value is the predicted bid, which includes predicted bid premiums. No timber property values are added to the predicted high bid rates for standing timber. If the permittee decks timber and the Forest Service sells that timber to another party, treat the transaction as a timber property sale.

48 - Timber Sale Appraisal Report

48.1 - Appraisal Report

The appraisal report portion of the timber sale report documents the appraised value development shown in the Regional appraisal summary report. To provide a clear picture of the appraisal analysis and results, include sufficient written explanations of data sources and premises in the report. The amount of detail contained in an appraisal depends on the volume and value of the timber involved and the need for supplying information to the approving officer.

to support the appraised value. Rate redeterminations depend on information provided in the appraisal report.

Make the presentation as brief as practicable; however, ensure that essential information is included. Make computations clear and simple so that the reviewer may easily follow the basis and derivations of values. Discuss such items as:

1. Method of operation contemplated, including logging method, transportation, and period of operation.
2. Factors that affect cost and value. As appropriate, this may include location of timber with respect to the market to which it is appraised; shipping and appraisal point; haul distance by road class or by other means, such as rail or water; location with respect to other markets; and relative transportation costs.
3. Market requirements as to specification and demand for each class of material.
4. Deviations from appraisal zone averages and development of specialized costs.

49 - Selling Value and Cost Information Collection

The Office of Management and Budget has approved the selling value and cost information collection for supporting the transaction evidence and residual value appraisal systems (OMB Approval No. 0596-0017).

If requested, purchasers may voluntarily submit cost and related appraisal data to Regional forest management or fiscal personnel for compilation. This data may be used to help validate the transaction evidence data, develop residual value data, or provide data for specific appraisal situations. The purchaser's cost information is not normally subject to audit by the Forest Service.