Timber Harvest Planning

• Timber harvest planning should result in:
  ▫ Desired future forest
  ▫ Desired timber volume, income, or return on investment

• Planning process:
  ▫ Can be simple or complex
  ▫ Requires some prediction of future events
  ▫ Decision based on weighing objectives or priorities
Timber Harvest Planning

• Surroundings are important
  ▫ Streams/wetlands/lakes
  ▫ Previous and future harvests of nearby stands

• Public acceptance
  ▫ Ecosystem health/sustainability
  ▫ Endangered species
  ▫ Safety
  ▫ Water Quality
  ▫ Aesthetics
  ▫ Multiple Uses

Timber Harvest Planning

• Silviculture
  ▫ Long term productivity
  ▫ Treatment cost and treatment effectiveness
  ▫ Regeneration options

• Financial
  ▫ Constraint and objective
Prioritize or Balance Objectives

- **Main objectives**
  - Must be done (Contract, product standards)
- **Other objectives**
  - Should be done (ex. Minimize rutting)
- **Lesser objectives**
  - Could be done if they don’t interfere (ex. Leaving snags)

Reasons to Plan

- **Financial**
  - Reduce harvesting costs
  - Reduce site preparation costs
  - Reduce risk
    - Good roads and layout, scheduling, timber volume information, & estimate harvest production,
Reasons to Plan

• Legal
  ◦ BMPs – Clean Water Act
  ◦ Endanger Species Act
  ◦ Coastal Zone Management Act
  ◦ Wetlands Protection Regs.
  ◦ Local Harvesting Ordinances
  ◦ Dept. of Transportation

Reasons to Plan

• Environmental/Silvicultural
  ◦ Minimize stand damage
  ◦ Minimize soil compaction and rutting
  ◦ Minimize area and productivity lost in roads and landings
  ◦ Enhance natural regeneration opportunities
  ◦ Minimize site prep
  ◦ Minimize visual impact
Visual Impact

• How will area look from road or adjoining parcel
• Keep debris scattered
  ▫ if piled keep piles below tops of hills and out of sight

Visual Impact (2)

• Meandering lines appear more natural than straight ones
• Roadside buffers should be wide enough to be effective
• Keep trash collected
Visual Impact (3)

- Guidelines for adjusting harvest plans for aesthetics consider:
  - Different levels of sensitivity
  - or
  - Who can see it and
  - How well they can see it

Reasons to Plan (4)

- Safety
  - Location of Hwy entrances
  - Stable, well-drained roads
  - Slopes, gullies, rock outcrops
  - Dead trees from insects, etc.
Planning = Understanding

Consider the potential tradeoffs and problems and find the best possible solution.

Planning = Information

Organize information available so it can be shared with others.
Planning = Control

Establish the control of the planner even in his/her absence.

Logger Guide to Harvest Planning

- Handout
- 11 Steps
- Preparation – Reconnaissance - Execution
Step 1

- Collect and study information to determine the presence of important features.

Information

- Type of cut (CC, thinning, etc.)
- Terms of timber sale contract
- Topography
- Soils
- Hydrology
- Laws & regs.
- Tract boundaries, easements, right-of-way
- Timber volumes, species, & distribution
- Logging systems & equipment
Tools Available

- USGS Quad maps
- NRCS Soil survey
- ASCS Aerial photos
- Company info.
  - Maps
  - Photos
  - Mgmt. records
  - GIS data

Topographic Maps

- Key to planning, map making
- Acquire from
  - NRCS
  - State geologic survey
  - Free download
  - Inexpensive software programs
Topographic Maps

- 7.5 Min Quadrangles
  - Scale 1:24000, 1 inch on map = 24,000 inches on map, or 1 inch = 2000 ft
- Public roads
- Hydrology
  - streams, lakes, wetlands
- Elevation
  - 10 ft contour lines

Tools for Topo Maps

- Engineering scale
- Dot Grid
- Divider
- Protractor
Copying

- Make sure there is a north reference on the area copied (side of page)
- Work the scale out before you enlarge
  - Enlarge to 300% = (3x1):24000
  - 3:24000 = 1: (24000/3) = 1:8000 = 1 in to 666.7 ft
- Transfer pencil marks after copying/enlarging when possible

Roads

- Road location can be off due to recent construction
- Most woods roads are not mapped, many that are mapped have been abandoned
Acreage

- Calculation
  - Software
  - Dot Grid
  - Planimeter
Dot Grid

- Outline the area of interest
- Place the grid over the map
- Count the dots inside the area
  - A Quad sheet is 1:24000 scale
  - 1 in x 1 in = 2000 ft x 2000 ft = 4000000 sf or 91.28 ac
  - If 16 dots per sq in then each dot represents 91.28/16 = 5.7 ac
- Acreage = dot count x 5.7 ac/dot
- For better estimates replace dot grid on map several times and average the dot count from each before calculating acreage

Ground truth (Steps 2-6)

- Walk harvest site to identify important features.
- Verify what is on the map or photos.
Step 2-4

- 2. Locate SMZs
- 3. Log Decks
- 4. Stream Crossings

Step 5. Logging Road Entrance

- Stable well-drained soils
- Permits to access public road
- Direction of loaded travel
- Truck turning radius
- Visibility
- Mud on public road
Step 6. Logging Road Control Points

• Must hit
  ▫ Access point
  ▫ Log decks
  ▫ Stream crossings

• Should avoid
  ▫ Seeps
  ▫ Rock outcrops
  ▫ Poor soils for road building

Step 7

• Locate road and landings on map and in the field.
Planning Objectives for Access and Logging Roads

- Minimize length
- Minimize slope
- Good drainage
- Access control
- Location

Road Location

- Don’t build on ridge tops or directly up & down hills
  - Shoulder or military crest
- Old roads
  - Relocate when in poor location when practical and feasible
  - Be aware and inform others of problems old roads may cause
- Include trouble and cost of maintenance and retirement in road decisions
- Step 8. Locate trails in the field
9. Specify Road Construction Standards

- **Primary**
  - All weather, 20 ft subgrade, ditched, surfaced
- **Secondary**
  - Narrower, ditched, surfaced in trouble spots, possibly all weather
- **Branch or Spur**
  - Bladed trail, 10-12 foot wide, turnouts and water bars

10. Stream Crossings Standards

- **Choose crossing type by balancing demands**
  - How long will it be there
  - How much/when will the road be used
  - Is there something critical downstream
Stream Crossings

- Plan removal of temporary structures
- Address the ditches/streams where debris was pushed in as a crossing

11. Scheduling

- Roads
  - When were they or when will they be built?
  - Quality: Primary, secondary, or branch
- Markets
  - Markets for products harvested, quota from specific mill, planned shut downs
- Production goals given tract characteristics
- Soil characteristics and topography
- Weather