Maintaining the Forestland Base in Minnesota

Executive Summary

Parcelization, the division of larger tracts of forest into smaller tracts of forest, and subsequent development of the forestland base in Minnesota has been recognized as a top concern in sustaining the ecological, economic and social benefits currently provided by Minnesota's forests. Nationally and in Minnesota, conversion of forestland to developed uses is expected to continue over the next twenty years and beyond. Increases in population and seasonal homes, a shift in ownership from industrial owners to investment companies and a high turnover in family forest landowners have contributed to increases in the amount of development and loss of working forestlands in Minnesota. Continued parcelization and development of forestland in Minnesota will have adverse effects on jobs in the forest products sector, access to outdoor recreational opportunities, wildlife habitat, water quality, carbon sequestration and other benefits that flow from large, contiguous blocks of forestland.

There are a number of available policy tools that can be used effectively to alter the pattern of parcelization and subsequent development or to mitigate the associated adverse impacts. These tools include land use planning and zoning, conservation easements, taxation, fee simple acquisition and land exchange, among others. It is important to recognize that these tools do not work well in all situations, especially in isolation, and that a strategic understanding of the strengths and weaknesses of these tools is important to maintaining the forestland base in Minnesota. A review of these policy tools was conducted, informed by experiences in Minnesota, application of the tools in other states, various local and national studies and the experiences of experts and stakeholders. This assessment allows for an understanding of the range, effectiveness and efficiency of various approaches; the need for integrated responses to forest parcelization; and the roles that local, state and federal governments as well as private organizations need to play to retain the forestland base in Minnesota.

Based on the analysis of policy tools, policy options were developed to avoid or mitigate adverse impacts of parcelization and development of forestland in Minnesota. These options were developed to: take advantage of existing program infrastructure; carefully target public investments; foster meaningful partnerships between agencies, groups and programs; and address the full range of benefits that are produced by the forestland base in Minnesota. Recognizing that many of these policy tools are needed and will require integration, the following policy options were developed:

- Use the Department of Natural Resources' Minnesota Forests for the Future program as a platform for a coordinated approach to forestland conservation;
- Empower and encourage local governments to use local planning to maintain their forestland base;
- Develop and execute conservation easements in a deliberate, coordinated and sustainable manner;
- Use and build on current state tax policy and incentives to encourage family forest owners to maintain the forestland base;
- Rely on fee simple acquisition and land exchanges for exceptional cases, small parcels and for consolidation or access to public land; and
- Provide strong support to the counties to foster their management capabilities in order to encourage forest stewardship and retain county administered land.

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Forestland Parcelization and Development

The Minnesota Forest Resources Council (MFRC), among a host of other state entities (e.g. Minnesota Department of Natural Resources, Minnesota Forest Resources Partnership), as well as regional and national organizations, have identified the ongoing parcelization of the forestland base to be a threat to the sustainable management of forests in Minnesota and a top priority to address. The size of forest land holdings has shrunk both nationally[1] and as evidenced in land transactions in Minnesota[2]. Parcel size is predicted to continue to shrink over the next twenty years[3]. Unprecedented shifts in industrial forest land ownership coupled with federal tax changes, large increases in the number of family forest owners with changing population demographics, increasing land values that often reflect uses other than traditional forest management, as well as other public policy decisions have all been cited as driving factors in the division and subsequent development of forestland in Minnesota. A growing understanding of parcelization has helped researchers to identify and quantify the many impacts, mostly adverse, from unfettered parcelization, including impacts on forest structure and productivity, timber supply, water quality and aquatic diversity, invasive species, recreational access and land use conflicts.

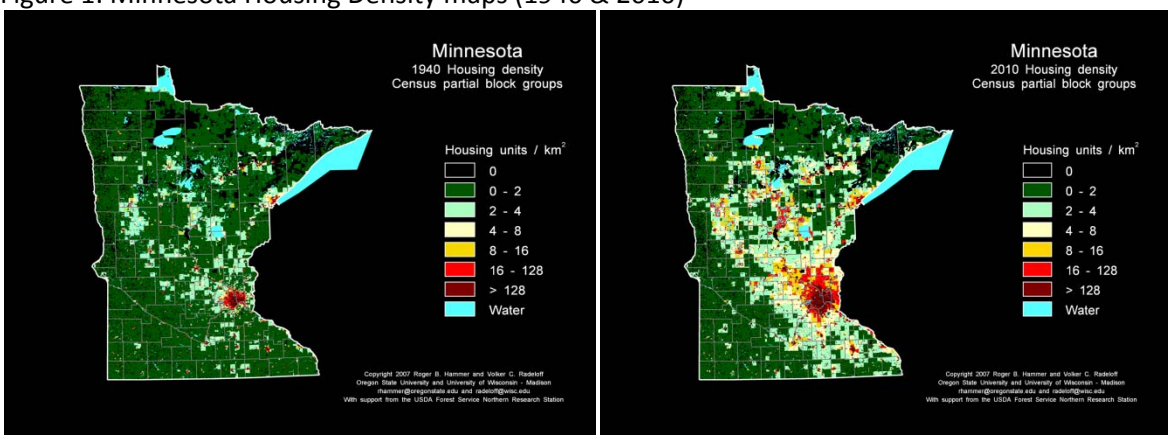
Extent and Significance

Looking across the country, we see large losses of industrial and family forestland to primarily residential and commercial development with 10 million acres lost to development in the 1980s and 1990s. The USDA Forest Service is predicting the loss of an additional 23.2 million acres of forestland over the next 50 years[4]. The main concern, especially in Minnesota, regarding the maintenance of the forestland base, is private lands: industrial, corporate and family forest lands. Public ownership is generally more stable, especially federal and state lands, yet county forestland may be more dynamic in its ownership pattern, with 22,800 acres sold in Minnesota from 1995 to 2005[5]. Family forest land is also an extremely important segment of the forested landscape in Minnesota, as well as nationwide. Over the past decade, forest ownership has grown 1.6 times as fast as the actual human population, and the average family forest land holding has shrunk from 44 acres in 1953 to 24 acres in 1994[6]. In Minnesota, we have approximately 5,390,000 acres of family forestland, about a third of total forestland, and over 170,000 owners. This ownership is quite dynamic, as it is estimated that 15 percent of the owners have changed over the last five years, affecting about 12 percent of the total acreage[7]. The changing nature of the family forest ownership presents many challenges in maintaining the forest land base.

Large industrial, or formally industrial, holdings are of special concern in terms of the reduced public benefits that flow from these lands. Nationwide, it is estimated that from 1981 to 2005, 37 million acres of forestland owned by publicly traded forest products companies has changed hands[8], much being bought by investment organizations such as Timber Investment Management Organizations (TIMOs) and Real Estate Investment Trusts (REITs). In Minnesota, there have been a number of large land sales, with 409,000 acres changing hands in three major land transactions since 1998.

Nationwide, and in Minnesota, there has been a decreasing trend in forestland parcel size[9]. Over the last 30 years, Minnesota has experienced a significant increase in developed land, with sizable increases in housing units and corresponding land use changes. This is expected to continue, with a 54 percent increase in developed area by 2030, a much higher increase than surrounding states (Figure 1)[10]. The USDA Forest Service is predicting a loss of 1.2 million acres of forestland in the Lake States by the year 2030[11].

Figure 1. Minnesota Housing Density maps (1940 & 2010)



Hammer, R. B. S. I. Stewart, R. Winkler, V. C. Radeloff, and P. R. Voss. 2004. Characterizing spatial and temporal residential density patterns across the U.S. Midwest, 1940-1990. Landscape and Urban Planning 69: 183-199.

The extent of forestland conversion in Minnesota has increased in recent decades. From 1982 to 1992, 49,100 acres of land were converted from forest land to urban use in Minnesota[12]. USDA Forest Service's Forest Inventory and Analysis unit estimates that 314,944 acres of forestland were converted to a non-forest condition in Minnesota from 2003 to 2008, with 110,230 acres being converted to urban and right-of-way uses. Although this is a significant loss of forestland, over the same period, 1.2 million acres were converted from a non-forest to forested condition, of which nearly half was from marsh to forest and about one-quarter was a reversion from agriculture[13].

A study in Itasca County found parcelization of forestland to be occurring at a fairly steady rate from 1999-2007, with 0.4 percent of private land in the county being parcelized per year[14]. The study also demonstrated that parcelization activity was strongly tied to subsequent development, with over two-thirds of the parcel splits being developed within seven years. We are currently broadening this study to 10 more forested counties in Minnesota, to verify what was found in Itasca County and to elucidate regional differences.

Using data from the State Demographic Center to look forward, potential land consumption estimates were calculated for a number of forested counties, based on various development densities. The analysis estimated the development of between 123,000 acres and 180,000 acres in twelve counties, as demonstrated in Table 1. As most of the land available for development in these counties is forested, it is safe to assume that a significant amount of these development acres would come from forestland.

Table 1. Minnesota Forested Counties Household and Land Consumption Projections, 2010-2030

		all land consumption figures are in acres(A)		
	New households 2010-2030 (units)	**Land consumption Midwest Average 3.39 A/unit**	**Land consumption St. Cloud MSA Avg. 3.00 A/unit**	**Land consumption Duluth MSA Avg. 2.32 A/unit**
Aitkin	3,550	12,035	10,650	8,236
Becker	2,740	9,289	8,220	6,357
Beltrami	4,760	16,136	14,280	11,043
Carlton	3,100	10,509	9,300	7,192
Cass	6,060	20,543	18,180	14,059
Clearwater	570	1,932	1,710	1,322
Cook	1,030	3,492	3,090	2,390
Crow Wing	11,600	39,324	34,800	26,912
Hubbard	3,510	11,899	10,530	8,143
Itasca	3,670	12,441	11,010	8,514
Koochiching	220	746	660	510
Lake	750	2,543	2,250	1,740
St. Louis	11,700	39,663	35,100	27,144
TOTAL	**53,260**	**180,551**	**159,780**	**123,563**

*MSA : is a metropolitan statistical area
Source: *Minnesota Household Projections: 2000-2030*, Minnesota Department of Administration, Minnesota State Demographic Center, December 2003.

To further focus the study, a brief analysis was conducted to determine which northern forested counties might be most susceptible to parcelization and development. The counties were assessed as to the amount and rate of population growth, preponderance of second homes, and the importance of the forest economy. Using census data, the regional economic information system, data from the Minnesota Department of Employment and Economic Development and local interviews, a brief assessment of development pressure was summarized in regard to a number of forest counties (Table 2).

Table 2. Assessment of development pressure

County	Fast Growth[1]	Slow Growth[2]	Second Homes[3]	Significant Forest Economy[4]
Aitkin				
Becker				
Beltrami				
Carlton				Insufficient Data
Cass				
Clearwater				
Cook				Insufficient Data
Crow Wing				
Hubbard				
Itasca				
Koochiching				
Lake				Insufficient Data
Lake of the Woods				Insufficient Data
Mahnomen				Insufficient Data
Mille Lacs				
Pine				
St. Louis				

1 County population growing faster than the state rate.
2 County population growing, but not as rapidly as the state, includes those that also are growing at the faster rate.
3 Demand for second homes based on the ratio of homes held for "seasonal or occasional use" to the number of homes occupied year-round in the year 2000 in each county.
4 Importance of the forest economy in larger counties was determined by comparing the share of local personal income derived from forestry, logging, and related activities in the year 2007 to the state share. For smaller counties affected by disclosure rules, importance was determined based on income data for wood products manufacturing, employment data and/or local inquiries.

Although there is insufficient data in a few areas, it is readily apparent that the combination of population growth and the number of seasonal homes, as well as significant economic contributions from forest resources in many of these counties, will most likely lead to forestland parcelization and the issues that accompany it.

Driving factors

There have been numerous factors tied to the continuing parcelization of forestland. As noted above, there has been an unprecedented shift of ownership of forestland from primary forest products companies to Timber Investment Management Organizations (TIMOs), Real Estate Investment Trusts (REITs), and other private investment companies and individuals. Global competition, increased expectations for return on investments and the potential for quick financial gains have been cited as important factors in this change of forestland ownership. These have been coupled with tremendous growth in forest land values, and especially values of forestland that reflect other uses than for wood fiber production[15].

Changes in population, and especially population densities, have been found to be drivers of parcelization[16]. Parcelization rates will most likely be magnified due to an aging population, with 93 million acres of forest land being owned by those 65 and older[17]. Changing lifestyles have also been linked to the division of larger ownerships of forest land[18].

Current policies at the local, state, and national level have been correlated and cited as contributors to forest land parcelization. Taxes are often touted as a driving factor, including property, income, and estate taxes[19]. Changes in the tax laws in the 1980s and 1990s are thought to have encouraged much of the industrial divestiture of forest land. Other policies seen as encouraging parcelization include environmental regulations, subdivision ordinances, large lot zoning and variances[20].

A study in Wisconsin demonstrated that the probability of parcelization in certain counties is related to parcel size, distance to water and amount of water frontage[21]. Proximity to water, public land and developed areas have been identified as drivers of further parcelization and development activity in Itasca County[22]. Currently, we are working at identifying drivers of parcelization in other forested counties in Minnesota.

Impacts

With a host of economic, environmental, and social benefits emanating from these large blocks of forestlands, there is much concern about the continuation of these benefits as parcels get smaller and, in time, are developed[23]. This is complicated by the fact that over the past 50 years, a third of the development has occurred outside of metropolitan counties. This exurban and rural development, has a much greater impact on forests and other rural land than urban development because it occupies much more land[24]. Many authors note the effect forest land parcelization has on the management of private forest lands[25]. As the parcels become smaller, the ability to manage for timber production, wildlife habitat or other ecosystem-wide benefits becomes difficult or impossible to maintain[26]. This precludes the efficient use of silviculture to influence the productivity, structure, and function of the forest[27]. This may also preclude the ability to return portions of the forest to early successional stages and may artificially encourage the maturation of various forest types[28] .

Forestland is an important economic resource in Minnesota. As of 2007, primary and secondary sectors of the wood products industry employed almost 35,000 people with a corresponding payroll of $1.6 billion[29] . Considering forest parcelization from an economic standpoint, as parcels decrease in size there are diminishing returns from the harvesting of wood fiber, leading to decreases in availability[30] and in the landowner's probability of harvesting timber[31] . Harvest costs also increase with declining parcel size, especially with parcels under 40 acres[32] . This shifting in likelihood to harvest and land use is illustrated by a study in Lake County, where from 1996-2006 land classified as timberland decreased by 61 percent, while land classified as recreational land increased by 708 percent[33].

Development is another important economic driver, but understanding the fiscal impacts of development, especially in the forest, is limited at best[34] . This is especially true in interpreting whether tax revenues from newly developed parcels exceed the additional cost of providing services to these parcels. The American Farmland Trust notes that forestland almost always generates more in property taxes than the cost of providing essential services from local governments. The Trust showed a 1-to-0.36 ratio in revenue to costs for forest, farm and open space land.

Parcelization and subsequent fragmentation from development can lead to decreasing populations of native wildlife, diminishing biodiversity and increasing the likelihood of the introduction and proliferation of non-native species[35] , as well as to increased storm water runoff[36] . The parcelization and development of rural forested lands increase the probability of wildfire and complicates fire management efforts. It has also been linked to declines in water quality, aquatic diversity and scenic quality of forested landscapes[37].

Decreasing forestland parcel size has been correlated with a decreasing likelihood to allow public access on smaller parcels[38] . The new owners of parcelized tracks often have different intentions for the use of their forest land than the previous owners of larger tracks[39]. This has been shown to lead to polarization of interests and landowners, heightened land use conflicts and increased challenges to making cross-ownership land use decisions[40]. A number of studies have shown that as the amenity values of forestland surpass the timber production values, there is more opposition to traditional forest management activities[41]. Although, at least anecdotally, this seems to not be a widespread problem in Minnesota at this point, this may be a consideration in the future. Forest land parcelization has also been shown to decrease scenic quality of forested landscapes (Fidel 2007).

Additional perceived impacts of parcelization in Minnesota identified by stakeholders and decision-makers and not mentioned above include reduced mineral/aggregate access and reduced access to and material for energy production.

Policy Tool Analysis

As noted in the previous section, parcelization and subsequent development can have substantial impacts on sustainable forest management in Minnesota. Federal, state and local governments have a long history of using various policy tools to encourage behavior and ensure the provision of public goods and services. Many of these tools have been used to try to influence private forestland owners, or even public entities, through a host of vehicles including tax policy, technical and financial assistance, fee simple or easement acquisition, planning standards and regulatory approaches.

Each of these tools has its strengths and weaknesses. Some work better or more efficiently under some circumstances than others, depending on many variables, often including geography or landowner type. Tools can also be complimentary and work in conjunction with other tools to achieve an outcome unattainable through the use of only one tool. At the same time, application of certain tools can work at cross purposes and negate the effectiveness of other tools, or even make the original situation worse. Others may simply duplicate effort unnecessarily.

A stakeholder analysis conducted in 2008 regarding the maintenance of the forestland base identified conservation easements, tax policy, planning and zoning, fee simple acquisition and land exchange as the key policy tools to investigate to encourage behavior that retains Minnesota's forestland base. This analysis is focused on these aforementioned policy tools, but also looks at an array of other available tools which may also be effective at maintaining the forestland base. Each of these tools was examined by topical experts who reviewed pertinent literature, past and current status of use of the tool in Minnesota and the use of these tools in other states and sectors. Each tool was in turn assessed as to its effectiveness in maintaining the forestland base, efficiency (benefit versus cost), political palatability, equity and technical and administrative ease of application.

The results of this analysis were used to develop a set of integrated policy options that reflect the findings. The need to integrate the policy options demonstrates the complexity of the problem and elucidates the need for a 'toolbox' approach to adequately address it. Policy options were crafted recognizing current infrastructure in the state, political sensitivities and the current budget situation. The options also indicate the roles and responsibilities of local, state and federal governments as well as private organizations in the retention of forestland. These options are intended to illustrate the range of potential policy options for retaining the forestland base, taking into account their effectiveness, efficiency and other important attributes.

The pages that follow include a short summary of the analysis of the aforementioned policy tools. Further detail can be found in the appendices, with yet further detail in a considerably longer document available upon request to the staff of the MFRC. In addition to these summaries and the policy options, we created a couple of documents intended to help in the interpretation of the developed policy options and to help readers understand the merits of each policy tool and its effectiveness in maintaining the forestland base. The first document is a chart that allows for quick comparison of the strengths and weaknesses of the various policy tools. The second is a description of where on the landscape the various tools are appropriate.

Land Use Planning and Zoning

Land use planning and zoning can be a valuable tool for protecting important resources, including forestland, from the adverse impacts of parcelization and development. In Minnesota, there has been a

long history of planning and zoning activities. Minnesota has also enacted a number of statewide programs that require certain planning and zoning activities by local governments. Most of these state programs relate to water resources but have a significant reach in terms of amount of land covered, due to the prevalence of water in Minnesota.

Planning approaches
Most counties in Minnesota have a comprehensive plan and exercise general zoning authority. However many of these plans and ordinances are inadequate and even counterproductive when it comes to addressing forestland parcelization. A few of the county comprehensive plans address retention of forestland directly, some do so indirectly and a number do not address retention at all. All of the 10 northern forested counties that were interviewed for this project employed some sort of subdivision regulation, and most exercised zoning authority. Some of the counties allow for conservation subdivisions, but the conservation subdivision provisions in county ordinances reviewed as part of this study contained only modest, if any, incentives. A few counties have had serious discussions of increasing minimum lot sizes to reduce the potential for development in forested areas. A few counties and townships have even adopted larger minimum lot sizes in some zoning districts, but these range only up to 20 acres and do not appear to be large enough to consistently conserve forestland.

Comprehensive planning can be an effective tool to address forestland parcelization, but Minnesota law provides counties and municipalities outside the Twin Cities area with little guidance about what should be included in a comprehensive plan. As a result, plan contents and quality vary considerably. Recent legislation has tried to address this problem, but offers only piecemeal improvement. There are good models to follow in Minnesota, such as the Minnesota comprehensive water planning process, but it is important to realize that quality planning is time consuming and requires considerable professional skill. Another lesson from county water planning is that modest or small incentives can be quite effective in encouraging planning. A related issue is that the relationship between planning and implementation tools, like zoning, is not as strong as it could be. Other states have attempted to better clarify the relationship between planning and zoning to improve their effectiveness.

Zoning approaches
With minor exceptions, the way many rural forested Minnesota counties use zoning encourages land parcelization. A number of approaches were analyzed as to their effectiveness in retention of the forestland base in Minnesota. Most counties already enforce at least some sort of basic *subdivision regulations*, which will probably only be effective if they are consistent with a comprehensive plan and zoning scheme. *Very large lot zoning* can be effective at maintaining low development densities, but can actually lead to more extensive sprawl depending on density goals. *Exclusive forest-use zoning* is another tool that can be quite effective at retaining forestland at a reasonable price and has been used in parts of the state for agricultural land zoning. It can be quite controversial, however, and would most likely require an extensive educational effort. Another approach, *open space* or *conservation development*, may be less effective than other planning and zoning approaches, but may be more palatable to the public. A mandatory *transfer of development rights* program is unlikely to work in most forested counties as land values are low and there currently is limited demand for developable property. A voluntary approach, however, would be more palatable and could be used to complement other planning and zoning approaches.

Taxation
Tax policies, in conjunction with the other tools addressed in this report, are often used by governments to attempt to influence forest landowner behavior. Preferential tax policies can include a reduction in

the amount of property tax paid, a rebate of taxes already paid, favorable income tax and capital gains treatment regarding various forest practices and activities and reduced estate taxes. It should also be noted that there are various tradeoffs in employing different taxation policy schemes, such as program simplicity versus equity between landowners or taxpayers.

Property taxation is the most utilized tax instrument to influence forest landowners, especially family forest owners, with all 50 states using at least one forestland preferential property tax program, with some employing multiple programs. In surveys from across the country as well as in Minnesota, forest landowners have specified that their top preference for management incentives is through property tax incentives and reductions.

Minnesota employs a number of preferential property tax programs or classifications that apply to forestland, the Sustainable Forestry Incentives Act (SFIA) and the newly created 2B classification being the most widely used. Both of these require 20 contiguous acres of forestland and a stewardship plan; however, the enrollment period, need for a covenant and other program elements are quite different. Minnesota has a comparatively complicated preferential property tax scheme with respect to forestland. This has the potential to confuse landowners, potentially making the programs less effective and underused. At the same time, these various options do offer choices to landowners, as one program may be more appealing than another.

The SFIA program has not been as successful as originally envisioned, and seems to have limited visibility with forestland owners. Awareness is key to attracting landowners, and the current state of the program suggests an informational outreach effort to family forest owners would increase the effectiveness of the program. A number of the program elements, especially the requirement for a covenant, are noted deterrents to enrollment. The size of the payment is also often rather small in comparison to property tax amount related to development values, especially close to exurban areas, making the program less effective in these areas. The amount of tax relief and the development value of a parcel must be better aligned to more effectively encourage the retention of forestland. The 2B tax classification is too new to have been assessed relative to its effectiveness at hedging against parcelization.

As for effectiveness of these programs in general, a national survey of property tax administrators found that preferential forestland property tax programs are, at best, a mixed bag in producing or protecting the benefits they are intended to address, including timber production, wildlife and other non-timber benefits, long-term investments and sound forestry practices. In additional interviews, most administrators and resource professionals felt that these programs are especially a mixed bag regarding their effectiveness at maintaining the forestland base, noting that preferential property tax programs work well in some situations and not so well in others. It was also repeatedly noted that these programs often subsidize forestland owners who would have helped to maintain the forestland base regardless of the program.

Income and estate tax policy can also have an effect on forest management by encouraging or discouraging certain practices through the tax code. Most income tax policy regarding forestland and forest practices exists at the federal level, including substantial deductions for the donation of land and conservation easements. However, some states provide general income tax credits or credits for specific activities (e.g. establishing riparian buffer strips), and some local governments provide further relief for landowners. Currently, 12 states have an additional income tax credit for the donation of conservation land or easements. Estate tax reductions may also help to retain forestland by preventing the need to sell parcels of inherited forestland to pay the estate tax.

Land Transactions: Fee title acquisition, conservation easements and land exchange
A well-designed and funded land conservation program, including fee title acquisition, conservation easements, and land exchange can play an efficient and effective role in maintaining the forestland and mitigating the adverse impacts of parcelization. In Minnesota, forestland is acquired, in full or part interest for a variety of reasons. Some current motivations for public forestland acquisition and exchange are to protect significant resources, to ensure access for management on current public lands, and to consolidate public ownership for efficient management and minimize land use conflict.

The use of conservation easements is growing in Minnesota. From Fiscal Year (FY) 1998 to FY 2008, the DNR protected over a 150,000 acres of natural resource land through acquisition of fee simple interest (80,000 acres) and partial interest via conservation easements (72,000 acres). The total cost of fee acquisition was over 4 times that of easements. More than *12,000 easements* protecting approximately *524,200 acres* of land have been identified in Minnesota, of which over 96% are held by government agencies. Almost all easements held by nonprofit organizations are held by a single entity, the Minnesota Land Trust. To a much lesser extent, the state, county and federal governments also use land exchange to adjust land ownership and consolidate forestland.

Fee title acquisition provides the most complete means of affecting land use, development, management and access on a parcel. Public ownership, via fee-title acquisition or exchange, provides a fairly permanent tool to protect against parcelization. Fee acquisition allows the public to actually reverse parcelization through the consolidation of smaller parcels. Counties can also acquire forestland through the tax foreclosure process. Acquisition of fee title is not difficult, but it is expensive and time consuming. Criticisms of acquisition programs include the cost, tax base reductions, loss of available private lands, lack of oversight in negotiations and requirements for payments in lieu of property taxes (PILT) and long-term stewardship. Counties are also concerned about their ability to manage lands into the future with possible reductions in or PILT.

Over time, programs designed to focus on fee acquisition have shifted emphasis to conservation easements and other incentives with the recognition that it is impossible to buy everything and that private and working lands already provide a portion of the benefits sought. ***Conservation easements***, a less-than-fee interest in land, can be as effective though less expensive than fee simple acquisition at limiting development of working forestland. Perpetual conservation easements (>95% of conservation easements in Minnesota are perpetual) require only a single transaction to achieve long-term protection. Land management and related costs typically remain with the landowner, and land under easement remains on local property tax rolls, though often at reduced rates.

Conservation easements often raise other legal and related issues, such as their impact on other interests, duration and the ability to amend or terminate easements. Also many conservation easements currently focus on preservation of resources that are not geared to working forests. Many other concerns are similar to those of public ownership, including potential impacts on property values and tax revenues. Easements can be complicated and time-consuming to negotiate, draft and appraise, thereby increasing transaction costs and requiring a high degree of professional skill. Long-term stewardship via compliance monitoring and enforcement is key to conservation easement sustainability but is handled inconsistently in Minnesota. Few (*no* public agencies) easement holders have funding dedicated to long-term stewardship. Even more importantly, many public agencies do not have a comprehensive understanding of the locations or terms of their easements, making easement monitoring impossible and enforcement based upon complaint.

Cost, as well as the level of current public landownership and other factors, limits land fee title acquisition and protection via conservation easement. Alternatively, ***land exchange*** can be a valuable tool to consolidate public ownership and redirect private development. If administrative costs are constrained, land exchange provides an inexpensive means to adjust land ownership and dispose of isolated parcels that are inefficient to manage. Most valuable in addressing the parcelization of private forestland are exchanges conducted between public and private landowners. Like other acquisition tools, land exchange is opportunistic and limited by interested landowners. Land exchanges are also complicated by the time required to process the disposal and acquisition of parcels, equal valuation requirements, disagreements in appraisal valuation, potential conflicts of interest, difficulties associated with disposing of public land valued by citizens, finding land available to exchange and restrictions on the type of land that can be exchanged. The complexity of the land exchange process also increases when multiple public entities are involved and may take from one-to-many years, resulting in administrative expenses that far exceed those of fee acquisition transactions.

The 2008 Minnesota Legislature approved expedited exchanges of public land to make the land exchange process more efficient. State and local officials indicated the legislation has had little impact on the consolidation of their lands, primarily because school trust lands were excluded from the legislation and acquired forest lands comprise about 10% of state administered land. Revolving acquisition funds, in use by some jurisdictions at the state and county levels, may provide a more nimble alternative, or act as a facilitating mechanism, to land exchange but have been hindered by current economic conditions and limited funding.

*A Comprehensive Program***.** Minnesota has clear experience in developing and advancing conservation programs and initiatives through collaboration of diverse partners, resulting in additional funding sources, complementary projects and additional support for program initiatives. Any program to limit forestland parcelization should be: structured with a clear vision and organization; collaborative through partnerships and public involvement; and, coordinated through planning to effectively target priorities and use the range of complementary conservation tools.

The tension between strategic planning for protection and quick and efficient land acquisition requires proactive development of conservation priorities. To effectively invest conservation dollars, programs must strategically identify and communicate priorities with public and private conservation partners. Well-drafted program criteria for publicly funded programs can go a long way in providing appropriate levels of oversight and accountability. Designation of an entity to communicate opportunities, share information and coordinate implementation enhances the efficiency of partners. Investments in staff and resources also can fuel partner engagement.

Effective programs throughout the country often involve government agencies and nonprofit conservation organizations with expertise in land transactions and funding as well as the landowners of protected lands. Multi-party public/private partnerships can provide the strength, durability and flexibility needed to insure long-term program success. Providing opportunities for public involvement through open meetings and advancement of locally-driven initiatives maintains program support, provides oversight and fosters a more transparent program.

Acquisition, either by fee-title, by exchange or through a conservation easement, can be an effective tool to protect against parcelization. However, poorly informed land acquisition can be counter-productive, resulting in increased land conversion on adjacent parcels. As a result, land protection and development planning must be coordinated. The need to protect various sizes and types of parcels to minimize fragmentation of protected areas supports application of both full-fee and partial interest

acquisitions, along with other protection tools. Establishment of the Minnesota Forests for the Future (MFF) program, as envisioned by the DNR Commissioner's Advisory Team in their 2008 report, was recommended to:

> *…provide overall guidance for acquisition and stewardship of forest conservation easements and application of other forest conservation tools in Minnesota… [and to] collaborate with public and private partners to prevent the parcelization, conversion, and fragmentation of Minnesota's private working forests…* (Minnesota DNR 2008)

As established by the 2008 Minnesota legislature, the MFF program emphasized working forest conservation easement s and fee title acquisition to the exclusion of other forest conservation tools. Expansion of the MFF program to include the suite of conservation tools as originally defined could provide a platform for a coordinated and more efficient approach to forest land conservation.

As part of a comprehensive program to mitigate forest parcelization, continued use of working forest conservation easements should be supported to maintain private forest stewardship for numerous social and environmental benefits; acquisition in fee should be focused on sites where protection is justified based upon the resource values of the site and where public management will protect and improve the condition of the forest; and land consolidation should be promoted through enhancement of traditional and non-traditional land exchange mechanisms.

A long-term commitment to protect the public investment comes with land acquisition or conservation easements and can be addressed through a variety of approaches. Concerns about easement use can be addressed through appropriate program design. The best way to prevent easement violations is to maintain an active easement management and monitoring program. While a number of nonprofit conservation organizations in the state, as well as the Minnesota DNR, have existing expertise, some training may be necessary. Creating a program that meshes with other available incentives for forestland retention may keep program costs lower. Investing in model documents or templates and relying on existing experienced organizations and entities can also enhance efficiencies. Recognizing the long-term commitment associated with Minnesota's current investments in land merits development of a comprehensive easement stewardship program and similar consideration for the long-term management of acquired natural resources land.

FOREST CONSERVATION TOOL	BENEFITS	DRAWBACKS
Non-Regulatory		
Education	• Good complement to other tools • Effective given audience • Inexpensive relative to potential results • Not controversial • Equitable • Easy to implement	• Not permanent • Takes time
Partnerships	• Effective if clear, shared goal • Shared costs/responsibilities • Relatively Inexpensive • Equitable	• Not permanent • Building partnerships takes time • Dependent on cooperation
Comprehensive Planning	• Effective if done well and implemented • Impacts addressed via public process • Concept is familiar and builds on existing experience	• Can be expensive and time consuming • Some public resistance • Some impacts on social equity • Some training involved to incorporate forest resources • Requires considerable professional skill
Incentives for planning	• Small investments can have big impact • Often popular • Good models (e.g. MN comprehensive water planning process) available • Simple administration	• Requiring planning to qualify for grants could be controversial • Some equity concerns • Administration requires some resources
Fee Simple Acquisition	• Totally effective if properly targeted • Likely permanent • Straight-forward method - buying land is not difficult • Provides full control over management • Provides public access • Voluntary • Consolidates land	• Most expensive– but funding sources exist • Requires willing seller • May not help shape regional growth if critical parcels cannot be acquired • May have adverse effects by shifting development. • Total cost includes long-term management responsibilities • Concerns about loss of tax base or impacts on adjacent real estate values • Benefits/impacts unevenly distributed • Private negotiations
Land Exchanges	• Effective if properly targeted • Likely permanent • Less expensive than fee-acquisition • Consolidates land • Can increase management efficiency • Allows for land adjustment without increasing public landownership • Impacts addressed via public hearing • Voluntary	• Requires interested exchange partners and suitable, equal value lands • Restrictions on some types of land • Often complicated, resulting in administrative costs > acquisition • Often difficult to dispose of public lands – questions about comparability • Subject to conflicts of interest
Conservation Easements	• Effective if properly targeted and incentives are sufficient • Permanent (stay with the land) • Usually costs less than fee-acquisition • Voluntary • Landowner retains land and management responsibility • Retains private land, some potential impacts on tax base	• Requires interested landowner- challenges strategic protection • Requires effective monitoring and enforcement • Negotiations may be time consuming • Less control than with acquisition • Some public objection • Requires considerable professional skill • May limit property resale opportunities • Private negotiations

Tax Policy		
Preferential Assessment	• Preferential property tax programs are common • Limited additional administrative cost • Existing preferential assessments have been accepted • Counties have administrative experience and capability	• Limited effectiveness where development values are high • Participation is voluntary and requires public education • Ineligible taxpayers may object
State Income Tax Credits	• Effective in other states • Politically acceptable • Minnesota administers income tax credits	• Can be complicated • All tax breaks involve equity questions – public perception of benefits is critical • Implementation may be difficult in era of budget shortfalls
Regulatory		
Typical Conventional Zoning	• Limited additional expense • Widely accepted in rural counties • Many counties already administer zoning	• Encourages forest parcelization • Practical equity issues – limited flexibility to address • Not permanent
Very Large Lot Zoning (VLLZ)	• Maintains low densities • Effective if required density is low enough • Simple, inexpensive tool • Provides flexibility in building design/location • VLLZ is widely used for MN farmland protection • Counties administer zoning and are capable	• Spreads development/ may cause sprawl • Fragments forest cover and wildlife habitat • Usually controversial, requires public education and involvement campaign • Some equity concerns • Zoning can be changed to allow in-fill development • Not permanent
Exclusive Forest Use Zoning	• Can be very effective – maintains land in forestry use • Can protect large areas of land • Simple, inexpensive tool • Some protection from nuisance issues • Counties administer zoning and are capable • Some counties already have exclusive farm use zones	• Voluntary participation • Does not provide long-term protection • Usually controversial, requires public education and involvement campaign • Equity issues may rise if owner requests rezoning • Not permanent
Open Space/Conservation Development (clustering)	• Effective in places where the market supports • Flexibility to protect specific areas • May be best compromise available • Many counties already have a version of this	• Less effective than other zoning options • Voluntary • Can result in fragmented resources • Requires professional expertise to review proposals – extra cost • Can be controversial if mandatory (voluntary versions limited impact) • Often results in high-end housing (equity) • Sometimes not permanent
Mandatory Transfer of Development Rights	• Can increase perceived equity • Specific locations can be targeted • A few MN counties use voluntary TDRs for farmland preservation	• Unlikely to work in forested counties due to low land values and demand • Voluntary • Complex and expensive to administer • Requires designated professional staff
Other Tools		
Land Banking	• Can adjust public lands without increasing ownership • Counties and State have acquisition plans and expertise	• Requires upfront expenditures/revolving funds • Does not require exchange lands • Requires willing seller

Maintaining Forests across the Land Use Continuum

		Community Character	Forest Management	Strategies
Urban Center		• "Main Street" and surrounding residential neighborhoods. • Often includes older industrial districts. • Paved streets and central water and sewerage.	• Urban forest is among any community's most important assets.	***Forest land parcelization is not an issue*** in the Urban Center. Cities can help limit the demand for rural residential land by ***promoting attractive infill development***.
Urban Fringe		• Newer residential neighborhoods. • Strip commercial development and light industrial uses. • Residential densities from around **0.5 to 3 units/acre**. • Some multi-family housing on the fringes of larger communities. • Streets tend to be paved. • Most areas have central water/sewerage.	• Forest values unlikely to be sustained due to the potential for conflict with other land uses and the ecological isolation of the remnant forest parcels.	***Not the place to expend energy*** combating forest land parcelization. ***Encouraging attractive infill of vacant land*** here may help reduce the demand for more rural land.
The Interface		• Extensive low-density residential. • Scattered commercial uses, including numerous home businesses, and an extensive network of roads. • **Average parcel size >1 but < 40 acres**. • Scattered larger parcels remaining. • Boundary between the Interface and the Urban Fringe is blurred. The Interface may extend deep into the Forest along roads.	• Forest cover is patchy to nearly continuous. • Overwhelming edge effect. • Limited connectivity between forest patches. • Timber production can occur, but forest management is not as efficient or free of conflict. • Area of maximum wildfire hazard. • Special resources are scattered (e.g. important plant and wildlife habitats) throughout the Interface.	***Too late to preserve large blocks of forest*** here. Good work can still be done in ***protecting and buffering the remaining larger parcels***, especially those with lots of ***special resources***, and in ***limiting wildfire exposure***. **Investment Strategies:** • **Acquisition** to preserve remaining large tracts of forest and special resources where there is some development pressure. • **Conservation easements** have limited applicability here. They may be used effectively in concert with conservation development and density transfers. . **Tax incentives** are unlikely to prevent parcelization where the demand for land is high. **Regulatory Strategies:** • **Average densities and conservation development requirements** to buffer larger forest tracts, minimize the edge effect, and maximize connectivity. Conventional zoning exacerbates the potential for conflict in the Interface. • ***Firewise performance standards*** are critical here, as are standards that help protect special resources.

	Community Character	Forest Management	Strategies
The Lakes	It is hard to draw a transect anywhere in northern Minnesota without hitting a lake or two. ***Forestland parcelization is not the issue in the shorelands environment, however, where state-mandated shoreline zoning prevails***.		
The Commercial Forest	• Forest values - clean water, outdoor recreation, timber, and wildlife – are produced on private land. • Essentially continuous forest cover. May also include recreational facilities, like campgrounds; other resource-dependent uses, like mines; and the occasional hunting cabin. • Only significant areas of residential development are along lakeshores. • **Average parcel size > 40 acres**.	• Road network generally limited to that needed for forest management. • Plenty of interior forest. • Good connectivity where the forest is not continuous. • Encompasses many special resources, including stream corridors, wetlands, steep slopes, archeological and historical sites, and important plant and wildlife habitats.	**<u>Investment Strategies:</u>** • **Ideal environment for the use of conservation easements and a tax program** (property or income, or both) to encourage land retention and sustainable forest management. • **Acquisition** may be necessary to protect special resources or ensure public access for recreational use. **<u>Regulatory Strategies:</u>** • **Exclusive Forest Use Zoning** – is the best regulatory strategy here. Where local governments hesitate at Forest Use Zoning: **Very large** (at least **80** acres) **minimum lot size** can be used **in concert with stringent Firewise and resource protection standards**. Local governments will also want to consider the costs of providing services to remote home sites.
Public Forest Lands	• Forest lands administered by counties, the state, and the U.S. Forest Service. • Produce timber and many other "products," including clean water, outdoor recreation, and wildlife.	• Forest management proceeds in accord with plans developed by the responsible agency. • Active forest management can be affected by incompatible uses on neighboring private lands.	***Parcelization generally is not an issue on public lands***, although a few of the counties occasionally sell a parcel. **<u>Investment Strategies:</u>** • **Acquisition or Land Exchange** – to consolidate public lands. **<u>Regulatory Strategies:</u>** • **Regulatory strategies suggested for the Commercial Forest and Interface areas** – to protect the public's investment in its forest lands. Conservation development regulations should require ample buffers for adjoining public lands, as well as providing for wildlife movement between public lands.

Policy Options for Maintaining the Forest Land Base in Minnesota

The Minnesota Forest Resources Council (MFRC), has identified the ongoing parcelization of the forest land base to be a threat to the sustainable management of forests in Minnesota and a top priority to address. The size of forest land holdings has shrunk both nationally and in Minnesota, and is predicted to continue to shrink over the next twenty years. Unprecedented shifts in industrial forest land ownership coupled with federal tax changes, large increases in the number of family forest owners with changing population demographics, increasing land values that often reflect uses other than traditional forest management, as well as other public policy decisions have all been driving factors in the parcelization of forest land in Minnesota. A growing understanding of parcelization has helped researchers to identify and quantify the many effects of parcelization, including impacts on forest structure and productivity, timber supply, water quality and aquatic diversity, invasive species, recreational access and land use conflicts.

To avoid or mitigate these impacts, the MFRC has endorsed a set of policy options that the state, local governments and other partners can use to limit further adverse impacts to the forest land base. These policy options are not designed to preclude all parcelization and development, but are meant to better guide where these activities are most appropriate and to mitigate the impacts. In developing these policy options, we used the following principles:

- Reliance on incremental changes and enhancement of existing programs, rather than the creation of new programs;
- Importance of carefully targeting public investments and fostering partnerships among state agencies, local governments, and land conservation programs;
- Emphasis on multiple benefits from investments in land conservation, such as protection and enhancement of wildlife habitat and water quality, preservation of jobs and maintenance of recreational access; and
- Recognition that every tool in the box is needed and that the tools recommended herein are interdependent and will not be effective if used piecemeal.

MFRC Policy Options[1]

1. Use Minnesota Forests for the Future (MFF)(§84.66)program as the "platform" for a coordinated approach to forest land conservation. MFF has experience with small and large working forest conservation easements and fee title acquisition, and can effectively address forest land parcelization and its impacts by building on the current program. It can accomplish this by:

1) Increasing MFF's capacity and focus to promote a coordinated approach to forest land conservation, addressing all tools (acquisition, exchange, conservation easements, and tax incentives) and recognizing different tools are effective and efficient under varying circumstances(DNR, BWSR, Legislature);
2) Supporting and building on MFF efforts in developing and communicating criteria and a plan for the strategic targeting of land conservation efforts and investments to determine where, and with which tools, investment in land conservation will have the most impact on forest land parcelization (DNR);
3) Enlarging or restructuring MFF's existing advisory board as necessary to reflect this expanded mission(DNR);
4) Facilitating the engagement of state agencies and non-profits in coordinating conservation strategies (DNR, BWSR); and

[1] Policy options are of two types: a) those that could be implemented in FY11 with no direct additional state appropriations (most of the policy options); (b) those that are longer-term and would require either additional state appropriations or funding from other sources (indicated by the symbol $$). A few of these policy options would likely result in reduced spending (marked $savings).

5) Maintaining and increasing the MFF's effectiveness by fostering local participation in land conservation, in part by engaging established local and regional entities. The MFF should provide ongoing opportunities for both local and statewide public involvement in land conservation decisions (BWSR, DNR).

II. Empower and encourage local governments to use local planning to maintain their forest land base.
Local governments need to be significant partners in efforts to address parcelization. The state and other organizations should work to empower and encourage counties and municipalities to protect productive forest lands. The state could do this by:

1) Developing an informational campaign and training for local government officials regarding the impacts of parcelization and the tools available to mitigate the negative effects of parcelization (MFRC, MN Extension)($$);
2) Adding a more current and complete definition of "comprehensive plan" in M.S. 394.231 and 462.355 that expressly requires forested counties to include a forest resource element (Legislature);
3) Offering small local planning grants for the purpose of adding a forest resources element to the local comprehensive plan (Legislature/Foundations)($$);
4) Requiring that, where a comprehensive plan has been adopted, local land use decisions are consistent with that plan (Legislature);
5) Requiring planning commissions to prepare and disseminate an annual report that documents land use trends, including forestland parcelization (Legislature); and
6) Using grant eligibility to encourage local planning by rewarding communities doing adequate planning for forest resources with eligibility for potential grants for easements or acquisition (DNR, other agencies)($$).

III. Conservation easements should be developed and executed in a deliberate, coordinated and sustainable manner.
Conservation easements are voluntary; are generally less expensive than fee simple acquisition; can be individually crafted to the needs of each landowner, while also meeting public goals; and can prevent the division and development of forest lands while maintaining private ownership. Conservation easements can be effective tools for maintaining the forest land base by:

1) Directing existing funding to land conservation projects that prevent the parcelization of forestlands, utilizing the strategic targeting discussed in Policy Option I (DNR, BWSR, Non-profits, LSOHC, LCCMR);
2) Providing sufficient funding to appropriate government agencies to increase capacity and cover all reasonable costs of negotiating, completing, and holding conservation easements (DNR, Non-profits)($$);
3) Creating efficiencies and accountability in the easement acquisition process by using standardized documents and protocols and sharing expertise among government agencies and nonprofit organizations (DNR)($ savings);
4) Ensuring the long-term management and enforcement of forest conservation easements by establishing dedicated funding or creating and seeding an endowment supported by private and/or public fundraising, capitalizing management costs into future conservation easement acquisitions, and negotiating appropriate management endowment funds when developing new easements (Foundations, Non-profits, Legislature)($$); and
5) Clarifying and providing a consistent approach to the tax treatment of forest conservation easements for property tax purposes(Department of Revenue/County Assessors)[2].

IV. Use and build on current state tax policy and incentives to encourage family forest owners to maintain the forest land base. State tax policy, both property and income, can help to limit the amount of family forest and industrial land parcelization. Building on current tax policy to encourage the maintenance of the forest land base, the state could improve current effectiveness of the Sustainable Forestry Incentive Act (SFIA) and other tax policy by:

1) Enhancing the current SFIA program and targeting outreach and funding to parts of the state where the current payment is effective at discouraging forest parcelization (DNR, Legislature);
2) Actively marketing and informing family forest landowners of SFIA and other programs (DNR, Minnesota Forestry Association, MN Extension)($$);

[2] Note that this policy option is also pertinent under the tax policy options.

3) Conducting further research to determine if a two-tiered preferential property tax program for recreational access on smaller parcels and other potential benefits such as carbon sequestration would aid in the maintenance of the forest land base (MFRC, UMN)($$);
4) Evaluating a state income tax credit for the donation of conservation land and easements (Legislature)($$); and
5) Integrating tax policy with local planning by making preferential property treatment of forest lands under SFIA and other programs at least partially dependent (tiered approach) on the local adoption of exclusive forest use zoning or a comparable program (DNR, Dept of Revenue, Local Governments).

V. Rely on fee title acquisition and land exchanges for exceptional cases, small parcels, and the consolidation of or access to public land. The high cost of fee simple acquisition, including both initial capital and long-term management costs, and the complexity of land exchange will limit use of these tools to exceptional cases and smaller parcels. However, keeping forest land intact has significant benefits, and these are important tools and can be effective in maintaining the forest land base by:

1) Directing existing funding to land acquisition projects that prevent the parcelization of forest lands, utilizing the strategic targeting discussed in Policy Option I in concert with other land protection tools (DNR, BWSR, Non-profits, LSOHC, LCCMR);
2) Using fee simple acquisition for parcels that would protect outstanding resources and/or connect and provide access to public lands (DNR, Counties)($$);
3) Ensuring the long-term stewardship of acquired lands by incorporating long-term management into project funding and decisions and considering opportunities to establish dedicated funding for long-term management.
4) Continuing to conduct land exchanges that consolidate public and private ownerships (Counties, DNR);
5) Continuing to simplify the land exchange process and improve identification and communication of exchange opportunities (DNR, Counties)($ savings); and
6) Continuing, as appropriate, to utilize NGOs to efficiently expedite targeted acquisitions (DNR, Counties, USDA Forest Service).

VI. Provide strong support to the counties to foster their forest management capabilities, and to encourage stewardship and retention of county administered forest land. Minnesota counties manage and retain over 2.8 million acres of forest land in Minnesota. We encourage the retention of these lands by:

1) Continuing state PILT payments on tax-forfeited lands to the counties (Legislature);
2) Encouraging forested counties to create local forest land conservation programs that complement the management of public and private lands (DNR);
3) Utilizing existing revolving fund programs, such as the LCCMR three county pilot program and the MFF revolving account, as a model to more nimbly facilitate the consolidation of lands and provide for more sustainable development patterns (DNR, Counties); and
4) Expanding revolving accounts to forested counties across the state and provide seed grants to enhance their effectiveness in maintaining the forest land base in Minnesota (DNR, LCCMR, Legislature)($$).

The values our forests offer – wood products, jobs, clean lakes and rivers, outdoor recreation, wildlife and more – are essential foundations of Minnesotans' quality of life. Forestland parcelization currently threatens these values and the Minnesota Forest Resources Council believes that consideration of these policy options is necessary to sustain those values for future generations.

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