

Community Environmental Assessment Fact Sheet Series

#7 – Potential Impacts from Development Practices

What Kinds of Impacts Should Be Evaluated?

Development should be evaluated in terms of local policies for environmental preservation and enhancement. It is important to create these policies in advance of a development proposal. This can help community decision makers to be fair and consistent in the evaluation process. The companion factsheets #2 - 5, described in the box, provide information about the steps needed to develop community environmental policies as part of decision-making.

There is no commonly accepted classification of impacts. State and federal agencies and local communities have used a wide variety of methods over the years and new methods are still evolving. Development impacts vary greatly by project type and location. Thus, local communities need to consider each development in their community as unique.

STEP 1

To assess impacts, start with a list of possible environmental factors that would be important to a given project.

One method of creating that list is to describe the project setting by conducting an environmental resources inventory of the site under consideration. Such as described in *#5- Inventory Factsheets and Worksheets*. The inventory provides guidance for reviewing the following environmental perspectives:

- Aesthetic Qualities
- Cultural Features

COMMUNITY ASSESSMENT FACT SHEET SERIES

#1 – OVERVIEW OF COMMUNITY ENVIRONMENTAL ASSESSMENT

#2 – TAKING STOCK

A questionnaire to summarize information about the community and consider how to manage environmental resources.

#3 – INFORMATION IN LAND USE PLANNING

Describes how to integrate environmental information into community land use plans

#4 – THE ENVIRONMENTAL RESOURCES INVENTORY

A one page overview useful for explaining the inventory process to potential users.

#5 – INVENTORY WORKSHEETS

Inventory the community environment, open space lands, and land in consideration for changed uses. Worksheets identify what questions to ask, and are best completed with the assistance of a technical advisory. Fact sheets for some topics are included in #9, Support Resources.

#6 – DEVELOPMENT IMPACT ANALYSIS

What is it and how to use it?

#7 – POTENTIAL IMPACTS FROM DEVELOPMENT PRACTICES

Provides a worksheet to guide review of potential impacts from a proposed development along with an example, summarizing potential impacts from construction activity.

#8 – HOW TO SET UP THE IMPACT PROCESS

The Leopold Matrix and instructions.

#9 – SUPPORT RESOURCES

Provides background information about air quality, cultural features, floodplain protection, groundwater, shorelands and wetlands, the Wisconsin Environmental Policy Act (WEPA).

- Human Health/Environmental Hazards
- Waste Management
- Geographic Setting and Resources
- Agricultural Land Resources
- Surface Water Features
- Water Supply
- Plant Communities
- Wildlife and Wildlife Habitat

Another source of information about development impacts can be found in Chapter 150, "Environmental Analysis and Review Procedures for Department Actions," of the Wisconsin Department of Natural Resources Administrative Code. NR 150 provides an excellent list of potential impacts of a large variety of actions. Each potential impact is rated as Type I, II, III or IV. For example, Type I actions "have the potential to significantly affect the quality of the human environment." While the list was developed to guide consideration of environmental and economic impacts of government plans and programs, its impact list and ratings could be used by anyone.

An example of potential environmental impacts resulting from construction activity – a typical development activity is described in Table II, at the end of this factsheet. Keep in mind that these are "potential" environmental impacts. Some may not apply to your situation.

STEP 2

The next step is to identify the impacts you think are likely to occur because of the development project.

Breckenridge, Colorado bases its growth management program on an Environmental Impact Statement procedure. An applicant for development approval must prepare an application showing the possible impact of the project on: community development, natural environment, site suitability, economics, sociocultural values, and services and facilities.

A simple grid, as illustrated in Table I, can be used to summarize data visually. Table I provides for review of short and long term impacts for land, water, and human impacts. Impacts are rated on a scale from none, to severe. Then a notation is made about whether the development activity is acceptable for each category.

American Planning Association's Checklist for Special Uses
<ul style="list-style-type: none"> • traffic - type and amount • streets - adequate access • lighting - type, intensity, direction, timing • noise levels - day and night • signs - type, size, location • maintenance - time of day and worker activity • attraction to related land uses • vibration • parking • safety impacts • appearance fit to neighborhood • volume - solid waste, number of customers/visitors, autos/trucks • pollution - air, land, surface water, groundwater

Table II provides a system for summarizing details you identified via the tips provided in Table I.

A more detailed strategy is described in another publication of this series, #8 - *How to Set Up the Impact Assessment Process*. Factsheet #8 focuses on examining two factors for each activity – the magnitude of the impact and the importance of the impact. An expert will need to evaluate the magnitude of the impact, but the community will be involved in assessing its importance.

A community's ability to rate the degree of impact from an activity depends, in part, on data it has already collected through its "environmental resources evaluation" process described earlier. With that process, the community can establish background information about the current use and quality of each resource. A community may choose to protect a highly "useful", "high quality" resource from even the most minimal impacts. Some resources may be affected by certain types of development pressures, but not others.

Potential uses for a resource could range from its use as an historical setting to its use for flood control. In determining "usefulness", communities may consider the potential for commercial, recreational, and educational activities.

Quality is a complex variable best determined by natural resource professionals. Considerations include: previously established significance, resource size, and the role of the resource in protecting natural cycles and systems.

Sources and assistance for environmental information and analysis

Local and area offices:

- County/city/village/regional (multi-county) planning offices
- County/city public works department
- County/city health department
- County extension office (variety of specialized knowledge, but varies from county to county)
- Local colleges and university staff and faculty (May have EIS's done for similar projects)
- District DNR Environmental Impact Coordinator
- District DNR wildlife managers, water quality managers, solid waste managers, etc.
- USDA Natural Resources Conservation Service
- USDA Agricultural Stabilization and Conservation Service

State level offices

- Wisconsin DNR-Bureau of Environmental Analysis and Review
- Wisconsin Department of Health and Family Services
- Wisconsin Geological and Natural History Survey
- US Geological and Natural History Survey
- Natural Resources Conservation Service

NOTES:

The American Planning Association Checklist is found in *Planning Made Easy* by William Toner, Efraim Gil, and Enid Lucchesi, Planners Press, American Planning Association, 1994.

Table II is excerpted from *Environmental Impact Assessment*, Larry W. Canter, University of Oklahoma

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TABLE I - Potential Environmental Impacts		
<i>Construction Practices</i>		
Construction Phase	Construction Practice	Potential Impacts
Preconstruction	Site inventory <ul style="list-style-type: none"> • Vehicular traffic • Test pits Environmental monitoring <ul style="list-style-type: none"> • Temporary controls • Storm water • Erosion and sediment • Vegetative • Dust 	Short term and nominal Dust, sediment and tree injury Tree root injury, sediment Negligible if properly done Short term and nominal Vegetation, water quality Vegetation, water quality Fertilizers in excess Negligible if properly done
Project closeout	Removal of temporary offices and shops <ul style="list-style-type: none"> • demolition • relocation Site Restoration <ul style="list-style-type: none"> • finish grading • adding topsoil • fertilizing • sediment controls Preliminary startup <ul style="list-style-type: none"> • cleaning • flushing 	Short term Noise, solid waste, dust Storm water, runoff, traffic blockages, soil compaction Sediment, dust, soil compaction Erosion, sediment Nutrient runoff, water quality Vegetation Water quality, oils, phosphate & other nutrients
Site Work	Clearing and demolition <ul style="list-style-type: none"> • clearing 	Short term

TABLE I - Potential Environmental Impacts

Construction Practices

Construction Phase	Construction Practice	Potential Impacts
	<ul style="list-style-type: none"> • demolition <p>Temporary facilities</p> <ul style="list-style-type: none"> • shops and storage sheds • access roads and parking lots • utility trenches and backfills • sanitary facilities • fences • lay-down areas • concrete batch plant • temporary and permanent pest control (termites, weeds, insects) 	<p>Decrease the area of protective tree, shrub and ground covers, stripping of topsoil; increased soil erosion, sedimentation and storm water runoff; increased stream water temperatures; modification of stream banks and channels, water quality</p> <p>Increased dust, noise, solid wastes</p> <p>Increased surface areas impervious to water infiltration, increased water runoff, petroleum products</p> <p>Increased surface areas impervious to water infiltration, increased water runoff, generation of dust on unpaved areas</p> <p>Increased visual impacts, soil erosion, and sedimentation for short periods</p> <p>Increased visual impacts, solid wastes</p> <p>Barriers to animal migration</p> <p>Visual impacts, increased runoff</p> <p>Increased visual impacts; disposal of wastewater, increased dust and noise</p> <p>Nondegradable or slowly degradable pesticides accumulated by plants and animals, then passed up the food chain to humans; degradable pesticides having short biological half-lives preferred for use</p>

TABLE I - Potential Environmental Impacts

Construction Practices

Construction Phase	Construction Practice	Potential Impacts
Site work, cont'd.	<p>Earthwork</p> <ul style="list-style-type: none"> • excavation • grading • trenching • soil treatment <p>Site drainage</p> <ul style="list-style-type: none"> • foundation drainage • dewatering • well-points • stream channel relocation <p>Landscaping</p> <ul style="list-style-type: none"> • temporary seeding • permanent seeding and sodding 	<p>Long term</p> <p>Stripping, soil stockpiling, and site grading; increased erosion, sedimentation, and runoff, soil compaction; increased soil levels of potentially hazardous materials; side effects on living plants and animals, and the incorporation of decomposition products into food chains; water quality</p> <p>Decrease in the volume of underground water for short and long term periods, increased stream flow volumes and velocities, downstream damages, water quality</p> <p>Decreased soil erosion and overland flow of storm water, stabilization of exposed cut and fill slopes, increased water infiltration and underground storage of water, visual impacts</p>
Permanent facilities	<p>Transmission lines and heavy traffic areas</p> <ul style="list-style-type: none"> • parking lots • switchyard • railroad spur line <p>Buildings</p> <ul style="list-style-type: none"> • warehouses • sanitary waste treatment • cooling towers <p>Related facilities</p> <ul style="list-style-type: none"> • reactor intake and discharge channel 	<p>Long term</p> <p>Storm water runoff, petroleum products</p> <p>Visual impacts, sediment, runoff</p> <p>Storm water runoff</p> <p>Impervious surfaces, storm water runoff, solid wastes, spillage</p> <p>Odors, discharges, bacteria, viruses</p>

TABLE I - Potential Environmental Impacts

Construction Practices

Construction Phase	Construction Practice	Potential Impacts
	<ul style="list-style-type: none"> • water supply and treatment • storm water drainage • waste water treatment • dams and impoundments • breakwaters, jetties, etc. • fuel handling equipment • oil storage tanks, controls and piping • conveying systems (cranes, hoists, chutes) • waste-handling equipment (incinerators, wood chippers, trash compactors) <p>Security fencing</p> <ul style="list-style-type: none"> • access road • fencing 	<p>Visual impacts</p> <p>Shoreline changes, bottom topography changes, fish migration, fauna changes</p> <p>Waste discharges, water quality</p> <p>Sediment, water quality</p> <p>Sediment, water quality, trace elements</p> <p>Dredging, shoreline erosion</p> <p>Circulation patterns in the waterway</p> <p>Spillage, fire and visual impacts</p> <p>Noise, visual impacts</p> <p>Increased runoff</p> <p>Barriers to animal movements</p>

TABLE II - ENVIRONMENTAL IMPACT ASSESSMENT GRID

Existing Environmental Characteristics and Conditions		Expected Impact from Proposed Development				Acceptability of Proposed Development	
		<i>Current use and quality of resource</i>	<i>Short Term Impacts (yes/no)</i>	<i>Long Term Impacts (yes/no)</i>	<i>Impacts: -beneficial -none -slight -moderate -severe</i>	<i>Acceptable (yes/no)</i>	<i>Needs Modification (comment)</i>
L A N D	<i>Geographic Setting, i.e. drainage, soils, topography</i>						
	<i>Agricultural Lands, i.e. activities, soil capacity</i>						
	<i>Plant Associations, i.e. unique plant communities, wetlands</i>						
	<i>Wildlife and Wildlife Habitat, i.e. feeding and resting areas</i>						
W A T E R	<i>Water Resources Supply, i.e. agricultural supply, domestic supply</i>						
	<i>Water Resources Features, i.e. lakes, streams, recreation opportunities</i>						

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C U L T U R A L	<i>Human Health</i>						
	<i>Environmental Hazards, i.e. air quality, noise</i>						
	<i>Aesthetic Qualities, i.e. landmarks, views</i>						
	<i>Cultural Features, i.e. architectural, historical</i>						
	<i>Waste Management</i>						