

VERMONT AGENCY OF NATURAL RESOURCES: GROWTH CENTER AND GROWTH MANAGEMENT GUIDANCE DOCUMENT

Purpose

The Growth Center and Growth Management Guidance Document provides guidance for municipalities, consultants, Agency of Natural Resources' staff and others interpreting the *Municipal Pollution Control Priority System Rule*. The rule establishes criteria for Agency funding of wastewater treatment facilities. Amendments in 2002 require that, in order to be eligible for funding, proposed projects must only serve locally designated growth centers unless there are severe health and environmental problems located outside of a municipality's growth center(s). If the latter is the case, or if sewer lines serving growth centers must be located outside of the designated growth center, the municipality must demonstrate that the impacts of growth resulting from the infrastructure can be adequately managed, and that scattered or strip development will not result from the state's investment in the community.

The Guidance Document includes an explanation (types and characteristics) of "growth centers" for the purpose of the rule amendment and state regulatory proceedings associated with any infrastructure improvements. The Guidance Document also identifies and evaluates the effectiveness of local planning and regulatory tools that are available to municipalities to manage growth associated with sewer line extensions outside of growth centers.

Background

Wastewater collection and treatment facilities serve as an inducement to development. Consequently, the location of sewer lines is a critical factor in shaping development patterns. Because centralized sewage treatment eliminates a primary development constraint - the capacity of land to dispose of sewage on-site - the sewer service area can effectively reinforce Vermont's traditional development pattern by accommodating compact, higher density development in village and urban centers.

In practice, however, the extension of sewer lines beyond the boundaries of historic and planned growth centers has contributed to scattered or strip development that is eroding Vermont's traditional pattern of compact villages and urban centers surrounded by open countryside. Such line extensions foster a pattern of inefficient development commonly described as "sprawl". Characterized by leapfrogging, low density, single-use development, sprawl shifts economic activity, and valuable sewer capacity, away from historic and planned growth centers. Several factors contribute to this, including:

- the frequent disconnect between local land use planning and facility planning, as evidenced by the common practice of establishing sewer service areas which are inconsistent with a community's land use plan (e.g., having service area boundaries extend the length of sewer lines, regardless of where the lines are located relative to land use districts);
- the lack of comprehensive land use and facility planning at the local level, which often results in the designation of growth center (and sewer service area) boundaries that are not based upon a careful analysis of anticipated growth in relation to available sewer capacity over a defined planning period; and/or are not implemented with adequate tools to achieve higher densities and compact patterns of development within designated growth centers;

- the high cost of wastewater treatment and collection facilities which, typically funded through user-fees, encourages revenue generation through the connection of the greatest number of users that system capacity permits, regardless of their location relative to the land use plan; and
- the historic emphasis of federal and state funding sources on pollution abatement, with little regard to how new or expanded facilities will impact local development patterns and/or foster secondary growth and environmental impacts.

In addition to land use and development impacts, extending sewer lines beyond growth center boundaries is an inefficient use of public money. Not only have growth centers historically been the site of significant public investment, state and federal funding for new and expanded facilities is limited. Competition for funding is expected to increase, as aging facilities, many of which were constructed in the 1970s, require maintenance and upgrade. As funding demands increase, the targeted, cost effective allocation of public funding, in a manner that reinforces other public investment, will become ever more important.

Limiting project eligibility to facilities that serve designated growth centers is intended to result in better coordination of land use and facility planning in a manner that supports Vermont’s planning and development goals 24 V.S.A. Sec. 4303, and ensure the efficient allocation of limited resources. The agency recognizes, however, that situations may arise which require the extension of sewer lines beyond growth center boundaries. Such situations include:

- the need for pollution abatement involving a failed on-site system(s) located outside of growth center boundaries;
- connection of one or more non-contiguous growth centers to be served by a single (e.g., regional) treatment facility;
- connection to a treatment facility located outside of the designated growth center(s) that it serves.

In these instances, local planning and regulatory tools are needed to prevent scattered, secondary development that may occur as a result of extended sewer lines. These tools are intended to restrict or control access to such lines and ensure that growth management; land use, facility policies and programs are integrated.

Growth Centers

The term “growth center” is widely used in local and regional land use plans in Vermont. The notion of Vermont’s “traditional pattern of compact villages and urban centers surrounded by open countryside” is included in the state’s planning and land use law. The growth center definition and characteristics below are based in large on the work of planners throughout Vermont and studies undertaken by the Agency of Commerce and Community Development. It is intended to provide a common understanding of the term for municipalities, their consultants and Agency staff when applying the *Municipal Pollution Control Priority System Rule* and within the context of state regulatory proceedings associated with any infrastructure improvements.

There are four types of growth centers for the purposes of the *Municipal Pollution Control Priority System Rule*:

- 1. Downtowns and the residential neighborhood that serve them:** Downtowns are located within larger towns and cities. Downtowns have the following definition in state law:

“Downtown” means the traditional central business district of a community that has served as the center for socio-economic interaction in the community, characterized by a

cohesive core of commercial and mixed use buildings, often interspersed with schools, churches, homes, and public spaces, religious and residential buildings and public spaces, typically arranged along a main street and intersecting side streets and served by public infrastructure. Title 24 Sec. 2791 (3)

In addition, the surrounding compact residential neighborhoods that serve the downtown – and are connected by pedestrian access – are considered part of downtown growth centers. These neighborhoods may have civic and commercial uses within them. Appropriate industrial uses may also be within downtown growth centers.

2. *Traditional town centers:* Traditional town centers are described in 24 V.S.A. § 2791(10):

“Village center” means a traditional center of the community, typically comprised of a cohesive core of residential, civic, religious, and commercial buildings, arranged along a main street and intersecting streets. Industrial uses may be found within or immediately adjacent to these centers.

Village centers or traditional “town center” growth centers are similar to downtowns but occur at a smaller scale that reflects the economy and population of the town or region that is served. They are communities’ historic centers and are a cohesive core where housing, shopping, civic structures (such as town halls, schools and libraries) and jobs are located within close proximity, allowing residents to live near where they work. The pattern of development in these centers is often multi-story, mixed use, and compact. They are, however, generally smaller in scale than downtowns, and range in activity and size from crossroads hamlets to bustling villages. Some towns may have several traditional town centers within their boundaries. The mix of uses that defines this type of growth center is identified in growth center characteristic #3 below. Industrial uses may also be within traditional “town center” growth centers.

3. *New or emerging growth centers:* New or emerging growth centers are described in 24 V.S.A. § 2791(11):

“New town center” means the area planned for or developing as a community’s central business district, composed of compact, pedestrian-friendly, multistory, and mixed use development that is characteristic of a traditional downtown, supported by planned or existing urban infrastructure, including curbed streets with sidewalks and on-street parking, stormwater treatment, sanitary sewers and public water supply.

New or emerging growth centers are designated area(s) within cities or towns, and are planned and regulated with tools such as mixed use zoning and design standards to have the characteristics of downtown or traditional “town center” growth centers. They are places where housing, shopping, civic structures (such as town halls, schools and libraries) and jobs are located within close proximity, and residents can live near where they work. The pattern of development, including planned development, is often multi-story, mixed use, compact, and supported by appropriate infrastructure.

New or emerging growth centers may include areas where little or no development has previously occurred. New or emerging growth centers may also include existing commercial strip development and other forms of scattered development, including residential areas, that are being re-planned in to more concentrated, mixed-use patterns, and that have the growth center characteristics identified below. Concentrated ski area villages are considered new or emerging

growth centers if they are designated in the town plan, will benefit the community as a whole, include public spaces and amenities, and have the growth center characteristics identified below.

- 4. Existing and proposed industrial parks:** The Agency believes that the town or region's overall strategy should be to keep jobs within the three types of growth centers identified above; however, there may be some exceptions to this. Some uses, such as warehouses, trucking-related businesses, or certain manufacturing processes, may be more appropriately located outside of new or existing traditional centers because they 1.) would be incompatible with nearby residential areas, 2.) require immediate access to a major railroad or highway, or 3.) need substantial amounts of land.

New and redeveloped industrial/business parks are encouraged to be densely developed while allowing enough space for business expansion. This can be achieved through high density, limited setback, and lot coverage requirements, multi-story buildings, and shared parking. Industrial parks should be conducive to pedestrian movement throughout the park, and have pedestrian, transit and/or, other alternative transportation links to downtown, residential and traditional village areas. Infrastructure connections that serve industrial parks must not contribute to scattered development outside of growth centers.

Growth centers must have the following characteristics for the purposes of the *Municipal Pollution Control Priority System Rule*:

- 1. The growth center is part of a comprehensive vision for the municipality. The city or town needs to articulate this vision in its duly adopted and approved municipal plan and must support it through municipal regulations aimed at concentrating development in the growth center while protecting the rural qualities of the landscape outside of the growth center.**
- 2. The municipality is planning to direct a large percentage of its 20-year anticipated growth into its growth center(s). There may, however, be certain traditional growth centers where the community does not desire additional growth.**

Growth centers should be aimed at meeting the predominant share of a community's present and future needs for housing, commerce, industry, and other facilities and services. Towns need to establish boundaries based on 20-year land use projections, opportunities for in-fill, reuse of vacant buildings, and land available for adding on to the growth center if future needs cannot be met in existing settled areas.

- 3. The growth center includes a variety of uses ("mixed-use").**

All growth center types, except for industrial parks, must include a wide variety of uses ("mixed-use"). These uses include, or have the potential to accommodate in the future, residential (including affordable and low-income housing), commercial, business, civic, and, if appropriate, industrial uses in a compact and mixed, rather than separated fashion, within the growth center. Some small, traditional town centers and hamlets do not have all of the uses noted above, but are considered growth centers nonetheless. Industrial parks may include limited services such as day care centers, or restaurants to serve the employees at the site.

- 4. The growth center contains public spaces and focal points.**

Growth centers may but are not required to include public spaces, which promote social interaction, as well as a distinct organization around central places or focal points.

5. The growth center is guided by lot size, road width, building height, lot coverage, and setback requirements that replicate or intensify traditional growth center patterns already present within historic communities¹.

6. Development density within the growth center is significantly greater than the rest of the community.

Medium to high densities define growth centers. Historic density numbers within traditional town centers and downtowns provide one guide for these communities as they grow out and in-fill. Some communities may want to consider intensifying the traditional densities when appropriate. New growth centers should consider densities, such as three to six units per acre or higher, which will produce compact development and facilitate alternative transportation uses. There should be an edge between the growth center and the surrounding landscape. Development within the growth center is compact and concentrated. Outside the growth center, there is less development and open space predominates.

7. The growth center has a circulation system that is conducive to pedestrian use and other non-vehicular travel, and supports transit opportunities.

Studies have shown that people will walk up to a quarter of a mile from a given point along a pedestrian-oriented streetscape. They will not, however, walk one-quarter of a mile across large parking lots. Transit stops, parking facilities, street networks, and pedestrian circulation systems within growth centers should be set up under this principle.

8. When applicable, continued use and care of historic structures and new construction that is compatible with the scale, size, design, and materials of the area's historic resources.

In-fill of undeveloped land within a growth center and reuse of vacant buildings should take priority over demolition of existing structures unless no other options are available. Under federal and state law, growth center plans that call for the demolition of historic structures on or eligible for the state or federal registers of historic places must be reviewed by the Vermont Division for Historic Preservation. Brownfields redevelopment is strongly encouraged.

9. Sewer service areas are part of an adopted sewer allocation plan that should be generally consistent with growth center boundaries.

Because municipal water and sewer facilities enable higher density development compatible with growth centers, it makes sense that sewer service area boundaries be coordinated with growth center boundaries, unless service is needed beyond the boundary for environmental or public health reasons.

10. Important natural resources within growth centers, such as surface and ground water, wetlands, unique natural areas, critical habitats, and endangered species, are protected according to state and federal laws.

¹ Communities may want to consult with a 1995 study funded by the Vermont Agency of Development and Community Affairs, *Estimating Land Area Needs for Growth Centers*, by Research and Evaluation Specialists of Vermont, T.J. Boyle and Associates and Northern Economic Planners. The report specifies prototypical growth center characteristics including density, lot size, road width, and setback requirements based on a study of several Vermont communities and national literature.

State and federal laws sometimes require protection of certain natural resources such as wetlands, critical habitat, including wildlife travel corridors within growth centers. The opportunity to comprehensively protect these resources within a town, region, or watershed by concentrating development rather than spreading it across the landscape, as allowed under law and procedure, is considered as a resource protection strategy.

11. Communities plan growth centers to provide recreational opportunities and green space and to allow easy access to recreational open space surrounding the growth center.

Growth center residents need recreation opportunities and green space. Otherwise, many of them will seek housing outside of growth centers in rural areas. Communities should plan for parks, playgrounds, and other open space within walking distance of residential neighborhoods within the growth center.

Community Planning and Regulatory Tools when Projects Must Be Located Outside of Growth Centers

The following list of planning tools is based on an extensive review of state and local regulatory and administrative measures undertaken in other states, and by some Vermont municipalities, to accomplish similar goals. Many states are attempting to address these issues by exercising significant oversight and control over municipal infrastructure decisions. Some tools used in other states, however, lack specific legislative authorization in Vermont. A summary of state and local programs currently in use, including their application in Vermont, is included in Appendix A.

Vermont statute currently limits agency oversight to participation in state regulatory proceedings where applicable (e.g., Act 250); and, more importantly, to terms and conditions stipulated within grant and loan agreements and/or associated permits. Such conditions may include assurance that appropriate local planning and regulatory tools are in place to manage the impacts of sewer line extensions beyond growth center boundaries.

In keeping with Vermont's tradition of local government control regarding land use and facility planning, it is recognized that the mix of tools and programs will vary depending upon the needs of the individual municipality. Considerations regarding what constitutes the most effective mix of tools include:

- whether the tools used are based upon and are integrated with a comprehensive planning program;
- whether the tools, as implemented, will provide a high degree of certainty that the wastewater system, with specified exceptions, will serve land only within designated growth centers; and
- if an extension is required in a community that has opted not to undertake a comprehensive planning program, adequate administrative safeguards are in place to prevent scattered, secondary development.

Many of the tools require that towns successfully plan and regulate growth at the local level. The Agency will evaluate the effectiveness of these local plans and regulations for a given town based on the information presented below. A town is not *required* to comprehensively plan and regulate at the local level, however, to address growth management concerns when infrastructure must be located outside of growth centers. They may choose instead to implement the administrative safeguards presented below under "Administrative Procedures".

The tools available to Vermont municipalities to manage growth are described in detail on the following pages. A brief discussion of each tool's importance and likely effectiveness in relation to sewer line extensions is summarized in the following table.

TOOLS SUMMARY		
Tool	Relative Importance	Effectiveness
Municipal Plan	Land use planning should precede facility (and service area) planning. The adoption of a municipal plan should be a basic eligibility requirement unless administrative procedures are in place to prohibit extensions beyond clearly defined growth center boundaries.	Critical for providing policy framework, although implementation requires additional tools.
Development Regulations	Should be in place, with zoning districts, densities, uses and related standards that reinforce proposed growth centers, and adequately protect surrounding open space, conservation and resource lands. Other regulations (subdivision, official map) are also useful and may provide indications of a community's commitment to growth center planning and development.	Most important and commonly use tools for implementing the municipal plan, but are subject to change. Should be supported by other facility management tools.
Capital Budget & Program	Important tool for use in the phasing and financing of infrastructure development, particularly with regard to the ability of a community to finance a line extension (e.g., for abatement) without additional connection fees.	Useful, but not critical unless concern exists regarding financing.
Wastewater Management Plan	Not specifically required or authorized in Vermont, but useful in the development of a comprehensive municipal wastewater management strategy (to include central and on-site systems) in relation to the municipal plan, and related watershed, water quality and land use objectives. Allows for a more comprehensive evaluation of possible facility and abatement alternatives.	Effective as a planning tool which links comprehensive municipal planning with more specific facility plans; but requires implementation through the use of bylaws and ordinances.
Facility Plan	Important for clearly designating service area boundaries relative to community land use plan and growth projections; documenting revenue stream without connections for secondary development; addressing facility design and potential hydraulic limitations; and for addressing alternatives to abatement.	Critical for all facility expansion projects; must be consistent with municipal plan and related implementation tools.
Wastewater		

Ordinance	A municipal ordinance regulating centralized sewer systems is required, and is critically important for all publicly funded wastewater treatment projects. Such ordinances specify sewer areas, connection requirements, capacity allocations, and related fees and conditions.	Critical for all expansion projects; perhaps the most effective local tool to deal with line extensions outside service areas.
Administrative Procedures	A combination of enforcement tools which may be incorporated under local ordinances, or imposed as a state funding and/or permitting requirement in the event that there is no municipal plan or development regulations in effect.	Critical where communities have opted not to undertake other planning and management efforts.

MUNICIPAL PLAN

Description

Vermont municipalities are authorized, but not required, to adopt a municipal plan under 24 VSA Chapter 117 Subchapter 5 Sec. 4381-4387. The municipal plan provides the legal and policy basis for most other planning and growth management efforts, and should address the integration of facility and land use policies and programs.

Although Vermont municipalities are not required to plan, a duly adopted plan is required for a community to enact or revise land use regulations, adopt a capital budget and program or impose impact fees. A municipality whose plan has expired, however, may continue to enforce zoning adopted when a prior plan was in effect. A plan is not required for the adoption and administration of a sewer ordinance or other programs necessary for the operation of a wastewater treatment facility.

There is no mandatory regional or state oversight regarding the adequacy of municipal plans, although communities may choose to submit their plan to their regional planning commission (RPC) for approval. Such approval is based upon a determination that the municipal plan is:

- consistent with state planning and development goals Sec.4302;
- is compatible with the regional plan;
- is compatible with approved plans of other municipalities within the region; and
- contains the required ten elements of a plan.

Obtaining regional approval allows municipalities to levy impact fees, remain eligible for funding through the municipal and regional planning fund, and requires that state agency plans adopted under 3 V.S.A. chapter 67 be compatible with the municipal plan. In addition, regional approval implies that the community has taken a comprehensive approach in planning for its land use and facility needs.

Application

For municipalities choosing to adopt a plan, statute requires the inclusion of ten elements, including a future land use element and map and a utility and facility element and map. The land use plan is the basis for designating growth center boundaries, which should be based upon a long-term (20 year) forecast of land use and infrastructure needs. Several techniques exist for forecasting future development, and for

documenting that growth center boundaries are adequate to meet anticipated needs without being oversized (and therefore contribute to an inefficient land use pattern). Regardless of how growth center boundaries are determined, it is critical that such designation occurs prior to, and not as a result of, the establishment of sewer service areas.

The utility and facility plan should:

- include designated (mapped) service area boundaries and levels of service for various facilities, including sewer;
- reinforce the land use element by channeling infrastructure to designated growth centers sewer service area boundaries should coincide with designated growth centers;
- include policies that restrict the extension of facilities outside service area boundaries, except for specific situations (e.g., pollution abatement) and in accordance with clear conditions (e.g., mitigation to avoid secondary development); and
- include policies that are clearly articulated for implementation in wastewater ordinances and facility plans.

Outside of growth center boundaries, land use policies should promote densities that are well below those encouraged within growth center boundaries. Such densities should not be so high as to require connection to municipal sewer. Policies for the protection of natural resources and open space are especially relevant outside designated growth centers to foster Vermont's historic settlement pattern of compact village and urban centers separated by rural countryside 24 V.S.A. Chapter 117 Sec. 4302.

Other considerations specific to potential sewer line extensions beyond growth center boundaries that should be addressed in the plan include:

- the identification and assessment of potential future pollution abatement sites outside growth center boundaries (e.g., concentrations of historic development on small lots and/or poor soils), and an evaluation of options for avoiding the need for future extensions for abatement purposes; and
- the identification of potential mitigation measures to prevent secondary development from occurring as a result of a possible future extension of sewer lines beyond growth center boundaries. Such mitigation measures should include a clear understanding of the resource values (e.g., natural areas, open space) of land in the vicinity of the extension, development pressure, and allowed land uses and densities.

Benefits

- A municipal plan is comprehensive in scope, which encourages the integration of land use, public facility (i.e. sewer), economic development, and natural resource and open space protection policies and programs.
- A municipal plan provides the policy basis for land use decisions, including the designation of growth centers and associated sewer service areas. This is especially important for new or emerging growth centers.
- A municipal plan should involve a certain amount of coordination with the RPC and surrounding communities, although the extent of that coordination is typically limited, even for communities with plans approved by the RPC.

Limitations

- A municipal plan is not required by statute.
- A municipal plan expires automatically 5 years after adoption, unless re-adopted.
- A municipal plan may be revised, usually by a majority vote of the legislative body (e.g., Selectboard, Trustees, City Council) following warned planning commission and legislative board public hearings.
- A municipal plan is not a regulation that is formally binding on the municipality or private landowners, except to the extent that conformance with the plan is a requirement of another regulatory or administrative process (e.g., Act 250).
- The level of detail and analysis varies significantly from municipality to municipality.
- Regional oversight, through the RPC approval process, has not ensured that municipal plans are in compliance with state statute, or other plans, in all regions of the state.
- Plan consistency requirements (e.g., that town plans be consistent with approved local and regional plans) are generally weak.

DEVELOPMENT REGULATIONS

Description

Vermont municipalities are authorized to adopt land use and development regulations under 24 VSA Chapter 117, Subchapter 6. Specifically, three types of regulations, or bylaws, are authorized:

- **Zoning Regulations** are used to control the location, density and intensity of land use and development.
- **Subdivision Regulations** are used to guide community settlement patterns as parcels are created, and to ensure the efficient extension of public and private utilities and facilities as land is developed.
- An **Official Map** is used to identify the location of future municipal utility and facility improvements, such as road or path rights-of-way, parkland, utility rights-of-way and other public improvements, and to ensure that the community is provided with an opportunity to purchase land for identified improvements prior to their development.

A duly adopted municipal plan must be in effect for a community to adopt bylaws, although the plan may expire after adoption without nullifying the bylaws. There is no requirement in Vermont that bylaws be consistent with the municipal plan, including the land use plan. Thus, while zoning is likely the most widely used local growth management tool in Vermont, it is often not part of a larger, integrated growth management program.

Application

Development regulations should implement the land use and facility elements of the municipal plan, by:

- designating one or more land use (zoning) districts consistent with designated growth center (and sewer service area) boundaries, with associated standards to accommodate compact, relatively high density mixed-use development;
- establishing site standards which, in addition to addressing the allowable mix of uses and densities, foster a compact, pedestrian-oriented pattern of development within designated growth centers;

- designating one or more districts to encompass land outside of growth centers, with associated standards to maintain lower densities and fewer uses than allowed within the growth center(s). Land subdivision and development outside designated growth centers should not require connection to municipal sewer; and
- controlling the location of sewer and other infrastructure by designating locations (e.g., zoning districts) in which sewer facilities are allowed; and prohibiting extensions beyond those boundaries, or making them subject to specific development standards.

Benefits

- Development regulations provide a high degree of flexibility for a community to address land use, development and facility concerns.
- Development regulations are an effective means of controlling the allowable mix of land uses and development densities, and are especially important for defining the contrast (in terms of land uses, development patterns and densities) between growth centers and land outside growth centers.
- Development regulations can provide a high level of protection of natural resources and open space (although in practice this has not often been the case in Vermont).
- Development regulations have the weight of law and are enforceable in court.

Limitations

- Development regulations are intended to implement the municipal plan, although there is no specified update requirement. As a result, bylaws often do not reflect the current plan (or no plan may be in effect).
- Development regulations are widely viewed as easily subject to change (e.g., in response to development pressure); although they are an important tool, they may not offer long-term protection without other measures in place.
- Because they directly affect the property rights of individuals, development regulations are often controversial and regulations considered too restrictive may be politically difficult to adopt.

CAPITAL BUDGET & PROGRAM

Description

Vermont municipalities are authorized to adopt a capital budget and program under 24 VSA Chapter 117 Subchapter 6. The purpose of a capital budget and program often referred to as a Capital Improvement Program (CIP) is to help manage the timing, phasing and financing of growth, as supported by infrastructure improvements. A CIP is both a planning and budgetary tool, which, in accordance with statute, must be consistent with a duly adopted municipal plan that includes a utility and facility element. The two elements of a CIP may be described as follows.

- a **capital budget** is a list and description of the capital projects to be undertaken during the coming fiscal year, including the estimated cost of those improvements and the proposed method of financing.
- a **capital program** is a plan of capital projects proposed to be undertaken during each of the following five years, the estimated cost thereof and the proposed method of financing. The capital program should be based, in part, on projected population growth and corresponding facility needs.

Application

Because wastewater treatment facilities are frequently viewed as self-supporting (i.e., through enterprise funds), they are often not included in the CIP. It is important, however, that funding for line extensions outside of SSAs not be dependent upon revenues (e.g., user fees, connection fees) from additional growth unrelated to the abatement need or growth within another SSA. Including sewer improvements in a CIP is an effective means of identifying future improvements in the context of the facility element included in the municipal plan, and associated growth projections, and for coordinating the cost of those improvements with other expenditures and anticipated revenues.

Benefits

Including wastewater facility improvements in a CIP can help a community:

- document the source of revenues available to pay for extensions;
- avoid unanticipated (and therefore unfunded) expansion projects;
- provide an opportunity for public involvement in the planning and budgeting process;
- establish a municipality's overall “development capacity” and provide a framework for orderly growth and development to occur without over-burdening municipal facilities, including sewer; and,
- mitigate potential secondary development impacts through the establishment of a conservation or open space fund.

Limitations

- A CIP is not formally binding on the municipality.
- A CIP is revised and adopted on an annual basis with minimal requirements for public involvement.
- A CIP is a planning tool, although the participation of the planning commission, which is authorized but not required by statute, is often minimal or non-existent.

WASTEWATER MANAGEMENT PLAN

Description

Wastewater management plans, required in several states other than Vermont, may nevertheless be useful in the development of comprehensive, integrated municipal water and wastewater management programs. Such plans address both central and on-site (decentralized) wastewater system management in relation to larger watershed management issues including water, storm water, land use and growth management. A wastewater management plan typically covers a 20-year period, and often includes:

- an inventory and assessment of existing water, storm water, and wastewater systems within a municipality (both on-site and central), including discharge types and locations;
- a detailed delineation of existing and proposed sewer service areas (coordinated with local land use plan);
- the identification of existing and potential pollution sources, including failed systems;
- the identification of entities responsible for the development, operation and management of wastewater facilities (e.g., for regional systems, municipal systems, and on-site systems);
- an analysis of current and potential environmental, social, land use and institutional impacts of alternative wastewater management strategies;
- the identification of additional facility and/or management needs, such as line extensions; and
- recommended funding and management strategies.

Application

While wastewater management plans are not required in Vermont, the elements of such plans may be incorporated in the facility element of a comprehensive municipal plan, and/or referenced in more project-specific facility or preliminary engineering plans. Wastewater management plans should be required for municipalities without comprehensive municipal plans that have, or wish to develop, publicly funded wastewater treatment facilities. Line extensions could then be reviewed in relation to a municipality's overall wastewater management strategy as defined in the plan.

Benefits

- A wastewater management plan provides a more detailed and comprehensive analysis of a community's wastewater management needs - in relation to larger watershed management issues - than may be included in a comprehensive plan or facility plan.
- As such it can be used to more clearly document abatement and line extension needs, alternatives (management as well as infrastructure), impacts and associated mitigation measures.
- Considering possible alternatives early in the planning process (pre-project), may allow for a broader range of alternatives to be addressed initially, and help narrow the scope for more detailed analyses under subsequent facility and engineering plans.

Limitations

- Wastewater management plans are not specifically required or authorized by the state. As a result there are no content, adoption, amendment or approval requirements that would allow for a consistent evaluation of plans and related projects.
- There are limited state sources of funding for the development of wastewater management plans.
- Long-term municipal management of on-site systems (e.g., to minimize the need for future abatement) is limited in Vermont. Municipalities are not required to regulate on-site systems; where they do, oversight is typically limited to system design and installation.

FACILITY PLAN

Description

Facility plans (or preliminary engineering plans) are required for state funding of wastewater treatment facilities, including line extensions, in accordance with state and federal revolving loan and grant programs. They are particularly important in documenting conformance with criteria used to determine a project's funding priority. Facility plans, unlike wastewater management plans, are specific to a particular treatment and/or collection facility, but often incorporate many of the elements found in a wastewater management plan. Prepared by engineers, facility plans typically include, at minimum:

- identification and documentation of the need for a proposed project;
- a 20 year planning horizon;
- delineation of existing and proposed sewer service areas;
- an analysis of applicable Vermont water quality standards and discharge permit limitations;
- documentation of existing conditions (e.g., water and wastewater systems, wastewater flows and characteristics, population, zoning and land use);
- projections of future conditions (e.g., demographic, economic, and land use, which may include build-out analyses within the service area, and projected wastewater flows and loads);
- analyses of facility and management alternatives, including a "no action" alternative, and associated fiscal, social and environmental impacts (as required for environmental review);
- a selected alternative (description, justification, preliminary design); and

- project financing recommendations, including an initial estimate of construction, maintenance, operation, and user costs.

Facility plans also may identify additional permits required for project completion (e.g., local, Act 250) and a preliminary evaluation of project impacts, costs and benefits under related criteria.

Application

A facility plan, particularly for line extensions outside of existing growth centers, should be consistent with a municipality’s comprehensive plan and related programs to the extent that it references or incorporates:

- a documented need as identified or addressed in the comprehensive plan (e.g., for pollution abatement);
- infrastructure support for growth centers as identified in the land use element;
- future land use districts, densities, and uses as identified in the land use element (for use in projections, in-fill or build-out, and alternatives analyses);
- land use policies identified in the land use element;
- natural, rural resource, and open space protection policies identified in resource and/or land use elements (in association with alternatives and impact analyses);
- existing and proposed sewer service area boundaries as identified in the facility element;
- infrastructure and line extension policies as identified in the facility element;
- projected rates of growth as found in the plan and/or capital improvement program (for use in projections and alternatives analyses);
- infrastructure improvements as included in the facility element, capital improvement program, and/or on the official map; and
- methods of financing identified in the facility element and/or capital improvement program.

At present, Act 250 review does not apply to most sewer line extensions, but where it is applicable, the following criteria are especially relevant to line extensions outside of growth centers and should be addressed, at least initially, in a facility plan:

- **Criterion 8 Aesthetics.** The facility plan should evaluate potential aesthetic impacts in the area proposed for the line extension, in relation to any “clear, written community standard” e.g., as included in the comprehensive plan.
- **Criterion 9(A) Impact of Growth.** The need for the sewer line expansion should be clearly identified and supported by reference to the municipal plan and related documents; and potential primary and secondary fiscal, environmental and land use impacts associated with the line extension should be identified and addressed. Proposed methods of financing also should support municipal growth management objectives.
- **Criterion 9(H) Existing Settlements.** For line extensions outside of growth centers or “existing settlements” as defined under Act 250, an analysis of the project’s public benefit, in relation to direct and indirect costs, may be required. The cost-benefit analysis required for funding priority consideration may be referenced under this criterion; however, by statute 24 V.S.A. Sec.4758(2), in determining benefits for project funding purposes, induced growth that is not consistent with a municipal plan cannot be considered.
- **Criterion 9(K) Public Investment.** The project’s potential impact on any significant public investments (e.g., roads, and conserved lands) should be addressed.

- Criterion (10) Municipal and Regional Plan. Documentation with regard to the project's conformance with the local and regional plan should be provided.

Benefits

- Facility planning is critical to the development of infrastructure that is consistent with and supports municipal and state water quality, land use and growth management objectives.
- The facility plan can document and address in some detail the potential benefits and impacts of proposed line extensions in relation to municipal growth management objectives and permitting requirements.
- Alternatives analyses can be used to exclude options, which are not in conformance with the municipal plan, and to address all other facility and management alternatives to a line extension outside of a growth center (e.g., decentralized systems and management options).
- Specific impacts and appropriate mitigation measures associated with a particular project can be identified and addressed in anticipation of permit review processes.

Limitations

- Facility plans are limited in scope to a particular facility or project, and as such do not generally take into account the larger context, i.e., how a project addresses or is consistent with larger watershed and growth management programs and objectives (e.g., for on-site system or storm water management). In particular, this may affect the type and extent of alternatives to be addressed.
- Facility plans typically have been tailored to meet financing program requirements and state water quality standards, and as such have not fully incorporated consideration of other land use or growth management issues, or associated permitting requirements.

WASTEWATER ORDINANCE

Description

Municipalities, in accordance with state statute 24 V.S.A., Chapter 97 Sec. 3507 and Chapter 101, Sec. 3617 may adopt wastewater ordinances or bylaws that pertain to their powers and responsibilities for wastewater management, as defined by statute. Municipalities are required, through ordinances or zoning bylaws, to allocate system capacity in a manner consistent with obligations to bond holders, and to establish rates 24 V.S.A. Sec. 3625. Wastewater ordinances, adopted and administered by a Board of Sewage Disposal Commissioners (generally the legislative body), often include:

- definitions, e.g., of “development”, “subdivision”, and “sewer service areas” as well as other administrative and technical terms;
- connection requirements;
- a reserve capacity allocation system, including allocation principles and priorities (e.g., with the potential for annual allotments by sewer zone, zoning district, and/or use type);
- cost recovery requirements for system expansions, including line (service area) extensions;
- technical specifications for design, installation and maintenance;
- sewer system rates and fees; and
- permit application and approval requirements.

A municipal wastewater ordinance may also regulate private on-site septic systems. On-site ordinances, authorized under separate statute, must be approved by the Agency of Natural Resources and typically

include system design and installation standards that are consistent with the state's Environmental Protection Rules (EPR). They do not include provisions for long-term operation and maintenance, or municipal management of private systems (e.g., as part of an overall wastewater management strategy).

Application

A wastewater ordinance should:

- clearly define sewer service areas that are consistent with growth centers and associated service areas identified in the comprehensive plan (rather than as the area within a specified number of feet of a collection line, as is now common);
- prohibit allocations of capacity and/or line extensions outside of designated service areas, except for purposes of pollution abatement, an extension to serve another growth center, or to connect to a treatment facility located outside of the growth center;
- specify the conditions under which such exceptions shall be granted, e.g.:
 1. for a failed system under public health order which serves multiple units or properties,
 2. where it is demonstrated that no other alternatives to a line extension (e.g., decentralized system and/or management alternatives) are feasible,
 3. that the allocation of reserve capacity will be limited to that required for pollution abatement or to serve a designated growth center, and
 4. line design specifications and/or other administrative controls, which prohibit additional line extensions or connections.
- include a cost recovery mechanism for such line extensions, which for pollution abatement may involve a public subsidy.

Wastewater ordinances also could incorporate management requirements for on-site systems outside the service area in order to minimize the need for future pollution abatement associated with failed systems.

Municipal management of private on-site systems, though a new concept in Vermont, is becoming increasingly common elsewhere in the country. Such ordinance and management provisions give greater weight to decentralized systems within an overall strategy of municipal wastewater management. The U.S. Environmental Protection Agency has released, in draft form, *EPA Guidelines for the Management of Onsite/Decentralized Wastewater Systems* (September 2000). Such management strategies could minimize the need for costly line extensions outside of growth centers; however, they may also be viewed as unnecessarily intrusive.

Benefits

- A well-crafted wastewater ordinance gives the weight of law to municipal policies regarding line extensions outside of growth centers, by defining such extensions as special exceptions. As such it is perhaps the most effective tool available at the local level to manage line extensions and their immediate impacts.
- The ordinance can clearly state the conditions under which such exceptions will be granted.
- The ordinance can also include permit conditions associated with line extension approval.

Limitations

- An ordinance is only as effective as the plans and policies it is intended to implement.

- There is no specific requirement that a wastewater management ordinance be consistent with a comprehensive municipal plan.
- Permit requirements and conditions are specifically prescribed by the ordinance; as such, the ability to apply broader management policies or objectives to a specific application may be limited.
- Local boards may easily amend an ordinance.
- The ordinance is subject to legal challenge in the courts.
- Because they directly affect property rights, and the municipality's strategy for encouraging or managing growth, wastewater ordinances (in particular service area boundaries and allocation schedules) may be controversial and therefore politically difficult to adopt.

OTHER ADMINISTRATIVE AND REGULATORY CONTROLS

Description

It is likely that some communities will opt not to undertake any or suitable comprehensive land use and facility planning effort, or exercise their authority to control access to sewer facilities. In these situations, less conventional administrative or regulatory tools, such as the following, may be appropriate to prevent secondary development beyond growth center boundaries (whether formally designated by the municipality or not).

- ***Connection Ban/Capacity Allocation:*** Imposed by the VANR as a condition of funding, or through a state regulatory process such as Act 250, this would ban or restrict further connections to an extended line and/or would limit the amount of available capacity to the minimum necessary to achieve the purpose of the extension (e.g., pollution abatement).
- ***Conservation Easement:*** A conservation easement removing the development rights from land contiguous to an extended line could ensure that secondary development does not occur as a result of the extension.
- ***Access Easement:*** Though uncommon, an easement could be placed on the line, restricting or removing the "right" of adjoining landowners to connect to the line. An access easement is similar in concept to a conservation easement, in which a third party owns a specific interest (e.g., development rights) in a parcel of land.
- ***Line Design:*** New or extended lines can be "hydraulically limited" to restrict capacity and additional connections to the maximum necessary to serve the intended use (e.g., pollution abatement) without designing additional capacity for "future growth".

Application

Each of these options would be imposed by a municipality or state agency through a permitting process (e.g., zoning, Act 250) or as an administrative requirement (e.g., condition of funding or connection).

- ***Connection Ban/Capacity Allocation:*** The VANR Department of Environmental Conservation presently prohibits connections to sewage treatment facilities in instances involving a system with inadequate capacity or level of treatment. As an alternative to an administrative ban imposed by VANR, such a ban could be placed on a sewer line subject to an Act 250 permit, preferably as a stipulated condition of approval agreed upon by the municipality prior to the finalization of the grant or loan agreement. Under either scenario, an effective ban on connections or capacity allocation

would be imposed by a state entity for the segment of sewer line located outside of growth center boundaries.

- **Conservation Easement:** Land potentially served by a sewer line extended outside of a growth center boundary could be conserved through the acquisition of a conservation easement removing all or a portion of the development rights from that land. The acquisition of conservation easements should be consistent with the municipal plan and, preferably, an open space element or plan.
- **Access Easement:** Such an easement could be placed on the line, the utility corridor (ROW) or adjacent land, and could be held by the municipality, a state agency or a third party “conservation” organization. As is the case with a conservation easement, an access easement would transfer a certain right or rights to the third party, limiting the authority of the municipality to control access to the line or corridor, with said limits being clearly spelled out in the easement.
- **Line Design:** The design of line extensions, as approved by VANR, can, to the extent practical, be sized to accommodate the minimum amount of capacity necessary for the anticipated abatement need, or the capacity needed in the SSA served by the line. Such features as force mains and/or vacuum systems may limit ability for future connections that are not included in the initial design.

Benefits

- Connection bans/capacity allocations place control over connections outside of growth center boundaries under the auspices of the VANR and/or Environmental Board (in the case of an Act 250 permit condition).
- Connection bans/capacity allocations allow for additional future connections to serve other potential abatement sites, with approval of VANR.
- Connection bans/capacity allocations are not subject to local political pressure.
- Connection bans/capacity allocations may be effectively used in the absence of all other planning and regulatory approaches.
- Conservation easements provide a high level of protection against connections to serve secondary growth.
- Conservation easements may be effectively used in the absence of all other planning and regulatory approaches.
- Access easements provide a high level of protection against connections to serve secondary growth.
- Access easements allow for limitations on connections to be clearly articulated in an easement, and are not be subject to change due to local or state political pressure.
- Access easements may be effectively used in the absence of all other planning and regulatory approaches.
- Appropriate facility design ensures, to an extent, that future growth outside of designated growth center boundaries will not be accommodated in facility design.

Limitations

- A ban on connections or capacity allocation imposed as a condition of funding places a burden on VANR to oversee and enforce such a ban or allocation limit.
- Connection bans/capacity allocations, if imposed as a condition of an Act 250 permit, could be amended at a later date.
- The acquisition of conservation easements may be prohibitively expensive, especially if a large land area is involved.

- The removal of development rights through conservation easements may not be consistent with the municipal plan, which may encourage various types of development at lower densities than the contiguous growth center.
- If held by a third party (e.g., conservation organization), an access easement is subject to confiscation under a municipality's power of eminent domain - a state agency would likely need to be a party to such an easement to avoid such confiscation.
- An access easement may not provide the degree of flexibility needed to address extraordinary future circumstances (such as an unanticipated need for additional pollution abatement), although such flexibility could be included in the terms of an easement.
- Access easements require some entity to undertake ongoing responsibility for monitoring and enforcing the terms of the easement.
- Designing a sewer line for very specific flows is usually not practical given standardized sizing (e.g., pipe widths), thus line design will not likely serve as a stand-alone safeguard against secondary development.

APPENDIX A

SUMMARY OF TECHNIQUES FOR ADDRESSING THE SECONDARY IMPACTS OF SEWER LINE EXTENSIONS

	Level of Use	Applied in VT	Comments regarding application:
1) Defined Service Area Boundary			<i>May apply to publicly or privately funded line extensions</i>
Urban Growth Boundary (UGB)	Regional Municipal	No No	Mandated (OR, WA) or voluntary (PA) delineated (20+year) growth boundary outside of which sewer line extensions are typically prohibited. While many of the objectives of UGBs may be achieved by municipalities under Vermont statute, they lack any legal status regarding regional or state policy.
Priority Funding Area (PFA)	Municipal	No	Mandated (MD) in association with public facility funding requirements; generally prohibit funding for extensions outside of a delineated service area boundary.
Growth Center	Regional Municipal	Yes Yes	Voluntary; locally and/or regionally designated, typically as a higher density growth area supported by existing/planned infrastructure, including sewer service where available.
Sewer Service Area (SSA) Boundary	Regional Municipal	No Yes	Voluntary; locally designated sewer service area outside of which sewer line extensions are generally prohibited under a local wastewater ordinance.
2) Facility Planning			<i>May apply to publicly or privately funded line extensions</i>
Comprehensive Plan [Local/Regional]	Municipal Regional	Yes Yes	Voluntary (municipal)/mandatory (regional) in Vermont, mandatory in some states (OR, FL, MD); plans are to include facility and land use elements and associated maps and policies; may include designated growth centers and/or service areas, line extension policies implemented through local regs, Act 250.
Wastewater Management Plan	Regional Municipal	No No	Mandated (NJ, PA, MD); planning specific to municipal wastewater management, including facility capacities, service area boundaries and management; line extensions must be in conformance with an adopted and state approved plan. In some states (MD), wastewater plans must be in conformance with municipal land use plan.
Facility Plan	Municipal	Yes	Required in association with public funding of WWTFs; typically land use is considered only in estimating existing and needed facility capacity, secondary impacts are not.
3) Environmental/Land Use Regulations			<i>May apply to publicly or privately funded line extensions</i>
Federal/ NEPA, CWA	Federal	Yes	Mandated that direct and indirect (secondary) impacts on land use, agricultural land, wetlands, etc., be considered in relation to federally funded projects (RLF, RD, CDBG) and/or subject to federal regs (wetlands, endangered species, etc).
State Regulations	State	Yes	DEC imposed hook-up bans relate only to lack of reserve capacity; line extensions subject to Act 250 may include permit conditions related to design, future hook-ups, etc. to minimize secondary growth or land use impacts (but most are not subject to Act 250).
Local Bylaws [Subdivision, Zoning]	Regional Municipal	No Yes	Voluntary; may coincide with designated growth centers, rural areas, and related service area boundaries in accordance with the municipal plan; may also include specific sewer allocations, service provisions or restrictions tied to a local wastewater ordinance.

	Level of Use	Applied in VT	Comments regarding application:
4) Facility Design & Management			<i>May apply to publicly or privately funded line extensions</i>
Capital Improvement Program (CIP)	Regional Municipal	No Yes	Voluntary; to include the scheduling and proposed financing of capital improvements (e.g., line extensions), in accordance with the comprehensive plan.
Concurrency Requirement/Ordinance	Regional Municipal	No No	Mandated (FL); requires that infrastructure be in place concurrent with new development; not necessarily (but may be) linked to service area affects timing more than location.
Adequate Public Facility Ordinance (APFO)	Municipal	No	Defines levels of service/system capacity to be maintained prior to issuance of permit for new development; not necessarily tied to service area affects timing more than location. Many Vermont communities, and Act 250, consider the impact of new development on the availability of municipal facilities and services.
Wastewater Ordinance	Regional Municipal	No Yes	Typically includes fees and design specs; may also include a defined service area and capacity allocations in accordance with a local plan and/or land use bylaws.
Sewer Line Extension Policy	Regional Municipal	No Yes	Mandatory in some states (OR, MD, NJ), restricts municipal extension beyond defined boundaries (UGBs, PFAs, etc.). Such extensions may be subject to restrictions, including mitigation to avoid secondary impacts. In most other instances, such policies are voluntarily included as part of a municipal wastewater ordinance; typically prohibits line extensions outside of designated service areas, with exceptions (e.g., abatement).
Decentralized Wastewater Management	State/Regional Municipal	Yes, Limited Yes, Limited	Mandated state review of on-site systems on less than 10 acres, voluntary local on-site ordinances; generally specify minimum design and installation requirements, but no long-term maintenance requirements (that would avoid future line extensions for abatement).
5) Public Funding Requirements			<i>Apply only to publicly (federal/state) funded line extensions</i>
State Revolving Loan Fund	Federal/ State	No	May mandate conditions on the use of RLF money that prohibit or restrict access to line extensions outside of designated funding/service areas (MD); or enable the use of RLF funds for such things as easements that restrict access (OH); in Vermont, consideration of secondary impacts is not currently included in funding priority system or program requirements.
Rural Development Loans/Grants	Federal/ State	Yes	Consideration of direct and secondary impacts is included as part of the mandated environmental review; funding may be denied or conditioned accordingly.
Community Development Block Grants	Federal/ State	Yes	Checklist developed (in draft form) to evaluate line extensions for CDBG funding in relation to program definition of growth centers, local plan, potential secondary impacts.
6) Private/Administrative Restrictions			<i>May apply to publicly or privately funded line extensions</i>
Access Easements	Municipal	Yes (limited)	Easement restricting access to a sewer line, as opposed to an easement limiting development on adjoining property not served by sewer line.
Conservation Easements	Municipal	Yes	Easement, typically held by third party, removing development rights from parcels with access to sewer line.

APPENDIX B
VERMONT EXAMPLES OF APPLIED PLANNING & REGULATORY TOOLS

A. Comprehensive Plan

- 1. Williston Comprehensive Plan, Williston VT**
- 2. Town Plan for the Town of Essex outside of the Village of Essex Junction, Essex VT**
- 3. Warren Town Plan, Warren VT**

B. Wastewater Management Plan

No examples exist in Vermont; see references for states within which wastewater management plans are commonplace.

C. Capital Improvement Program

- 1. Shelburne Capital Budget & Program, Shelburne VT**
- 2. Waitsfield Capital Budget & Program, Waitsfield VT**
- 3. South Burlington Capital Budget & Program, South Burlington VT**

D. Facility Plan

All communities receiving state and federal funds for wastewater facility improvements are required to prepare facility plans. Although a comprehensive review of existing plans was not conducted as part of this effort, good examples of facility plans would include those that are well coordinated with local land use and development policies and programs.

E. Land Use Regulations

- 1. Williston Zoning Ordinance, Williston VT**
- 2. Williston Subdivision Regulations, Williston VT**
- 3. Town of Essex Subdivision Regulations, Essex VT**
- 4. Warren Land Use & Development Regulations, Warren VT**

F. Wastewater Ordinance

- 1. Williston Sewer Allocation Ordinance, Williston VT**
- 2. Essex Wastewater Ordinance, Essex VT**
- 3. Shelburne Sewer Capacity Allocation Ordinance, Shelburne VT**

G. Administrative Measures

- 1. Town of Stowe Wastewater Expansion Act 250 Permit limits connections to the pipe along the upper Mountain Road**

- 2. Town of Killington/Alpine Pipeline Act 250 Permit limits sewage capacity along 17,465 feet of pipeline and subjects all connections to Act 250 review.**
- 3. City of Rutland sewer extension to serve North Clarendon Industrial Park subject to access easement**
- 4. Vermont land trust, and other various conservation organizations and governmental agencies, hold conservation easements on parcels potentially served by wastewater facilities.**