TRANSIT-ORIENTED DESIGN (TOD) FOR CHITTENDEN COUNTY

Guidelines for Planners, Policymakers, Developers and Residents

Chittenden County Regional Planning Commission
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TRANSIT-ORIENTED DESIGN

Transit-oriented design is the design of places or things that encourage and facilitate the easy use of transit. “Transit,” as used in this study, is defined as a system of public transportation in Chittenden County. This system includes buses run by the Chittenden County Transit Authority, the Champlain Flyer and other potential passenger rail services provided by the Vermont Transportation Authority and rides provided by Special Services Transportation Agency.

PURPOSE

The ultimate purpose of these guidelines is to promote the use of transit in Chittenden County. By promoting transit oriented development, it is hoped that there will be greater opportunities for the voluntary use of transit by a larger segment of the County’s population. Both the Regional Planning Commission and the Chittenden County Metropolitan Planning Organization hope that these guidelines will make it easier to understand and incorporate the principles of transit oriented design into new or redevelopment projects within the County.

Side benefits to be realized by the use of transit oriented design principles include:

- More efficient use of our remaining land.
- A greater understanding and recognition of the link between transportation and land use planning; higher quality design.
- Creation of more pedestrian friendly neighborhoods, communities, and villages.
- Increases in the effective capacity of the existing street network.

PROPOSED USERS OF THE GUIDELINES

The Guidelines have been developed to be useful to both the public and the private parties involved in the land development process in Chittenden County, as well as to those involved in the provision of transit services to the County. As such, these Guidelines can be useful to developers; municipal planners, planning commissions, and design review boards; professional planners, architects, landscape architects, engineers and roadway designers; the Vermont Agency of Transportation (VTrans); the Chittenden County Transit Authority (CCTA); Vermont Transportation Authority; the Metropolitan Planning Organization, and the Chittenden County Regional Planning Commission.

These guidelines can also assist the Vermont State Legislature when making funding decision relating to transportation and land use. Use of the guidelines by any of these groups can help improve the livability of the County and make transit an attractive alternative to the increased use of private autos for transportation needs.

The guidelines are intended to show how the development community and municipalities can include transit users in the market it expects to serve with large or small-scale real estate development projects. They can also show planners and designers what elements may be included in their plans to create transit-oriented design.

The guidelines are relevant for areas that are currently served by transit, as well as for developing areas that may be serviced by transit in the future.
HOW GUIDELINES WERE DEVELOPED

The Chittenden County Regional Planning Commission (CCRPC) developed these guidelines with the help of a consultant and extensive input from a steering committee drawn from a variety of public and private planners and practitioners in the County. The steering committee, created specifically for this project, assisted in reviewing the information and setting the direction for the manual. The Regional Planning Commission’s Transportation & Utilities Committee also provided input on the content of the manual.

OBJECTIVES

This manual is designed to make public transit in Chittenden County an appealing and even preferred choice of a wide range of citizens. There is currently a “second class citizen” mentality associated with at least some transit use. This mentality, which can even be found in official State policies, must be modified or eliminated. Transit use, including the use of buses, needs to represent a logical choice for the typical resident of Chittenden County.

Transit can be made more appealing by following the guidelines in this manual. The following factors should always be kept in mind when using these guidelines or making decisions that affect transit use:

- Convenience, timeliness, reliability, security, safety, comfort and economy are important factors in a person’s decision to use transit.
- Transit users begin and end their trips as pedestrians …pedestrians are most likely to use walking paths that are direct, convenient, pleasant, safe and interesting.
- A feeling of safety and security is essential to all transit users.
- When transit offers a reasonable advantage over private automobiles, it will be more widely used.

TRANSIT ORIENTED DESIGN PRINCIPLES

The guidelines in this manual extend from a few general principles of transit-oriented design. These principles are based on research and analysis of “successful” transit systems to determine what factors contribute to their success. In summary, these principles include the following:

- Mixed-use development.
- Deliberate orientation towards public transit.
- Community participation in the design and operation of transit facilities and the uses around them.
- Easy access to transit facilities.
ADVANTAGES OF TRANSIT TO THE COMMUNITY

The use of transit offers numerous benefits to the County as a whole. Some of the more important benefits include:

• Less congestion on streets and roads.
• Reduced air pollution emissions.
• More mobility for all citizens.
• Reduction in overall vehicle Miles traveled on the County’s roads, reducing maintenance costs.
• Enhances the overall transportation system’s capacity without increasing the amount of blacktop.

BENEFICIARIES OF TRANSIT

Transit serves a small but growing portion of Chittenden County. In a typical year, the County’s transit system, including CCTA, the Special Services Transportation Agency (SSTA), and the Champlain Flyer commuter train provide about 2 million rides.

Transit stops and transit routes, and the transit users that use them, provide a ready, easily accessed market for many types of land uses, including:

• Retail Development
• Conveniences and Services
• Industries
• Institutions
• Med/High Density Residential Areas
• Parks and Recreation Areas
• Entertainment Districts
• Schools and Colleges.

Development along transit lines can serve not only the transit riders themselves, but also those that live and/or work within walking distance of the transit stop or line.

The design of retail and service developments can emphasize the pedestrian environment without sacrificing convenient auto access in the process. These developments can also be designed to feature businesses that serve transit riders needs, acknowledge their time constraints and provide an attractive environment to patrons who might drop in on their way to or from the transit stop.

Good transit services can effectively increase the market size and area for merchants, business or services located along transit lines or at transit stops and transfer points. The transit-user market remains largely untapped in Chittenden County.

Residential development created in accordance with this publication’s Guidelines can reinforce a strong sense of identity and community through design that includes direct, safe and attractive connections to transit stops.

Industries and institutions can encourage transit use for their employees and visitors and at the same time, reduce parking demand and congestion. Good transit services can also effectively expand the labor pool for industries and institutions.

Clubs, community groups and business associations can help to implement or strengthen these various markets for transit users by participating in cooperative efforts to improve connections to transit.
LAND USE AND INTENSITIES

Promote high-density residential and mixed-use development within walking distance of stops on transit routes.

High-density residential and mixed-use development placed close to transit stops makes it easier for nearby residents to use public transit, rather than their automobiles, for local trips. It also creates a larger service population for transit service. Direct, convenient, and attractive connections between residential neighborhoods and transit routes encourage transit use. Higher density residential uses near transit stops complements other guidelines for mixed uses and upper floor business and residential units. Higher density residential development near transit lines, especially those that offer a variety of housing-unit types, also serves entry-level workers, students or seniors who may choose or need to rely on transit services.

A mix of residential units provides homes for a variety of community residents who may want to use transit throughout their lives or careers. A variety of housing types helps maintain continuity within a neighborhood. For example, a young single person may rent and establish connections, then buy a larger home to raise a family, and later move into a smaller unit for senior living. Mixed-use developments provide an easy way to provide rental units on second floors over first floor retail or business uses. Typically, it is easier to provide a variety of housing types when higher density housing is provided.

The maximum benefit to public transit is gained within 1/4 to 1/2 mile of the bus line or train station. It is counterproductive to use these areas for functions that do not generate significant pedestrian activity or demand.

**Guidelines**

- Provide higher density residential areas close to existing transit lines, typically within a 1/4 to 1/2 mile of the transit line or transit stops.
- Provide variations in density as a function of distance from transit stations or stops. For example, the Tri-County Metropolitan Transportation District of Oregon recommends the following: up to 650 feet (200m): 30 dwelling units/acre (DUA); 650 ft. to 1300 ft. (200-400m): 24 dua; 1300 ft. to 2600 ft. (400 to 800m): 12 dua.
- Encourage a mix of residential unit-types within walking distance of public transit. The mix may include apartments/condominiums (50-60%); townhouses (20-25%); single lot individual homes (15-20%). (Source: 1000 Friends of Oregon.)
- Encourage the development of easily accessible public parks and open spaces within high-density neighborhoods.
- Vary building mass, heights, and styles to add variety and relieve potential monotony.

Transit service supports a variety of land uses and their access needs. Courtesy of the Chicago Transit Authority
• Encourage upper floor business and residential uses over first floor retail or service businesses, especially close to transit stops.

• Encourage a mix of uses within a transit oriented development environment. The Puget Sound Regional Council recommends: public uses: 5-15%; residential: 20-80%; retail/commercial: 10-50%; and office/employment: 20-60%.

• Strongly discourage auto-oriented facilities or uses with typically low transit demand along transit routes (e.g., low density residential, warehouses, auto oriented commercial).

• Encourage the development or redevelopment of underused properties, such as warehouses, vacant buildings or lots, failed commercial centers along the transit route with high density mixed uses.

• Create minimum density requirements for areas located within 1/4 mile or transit stops and transfer points.

• Promote greater densities at crossroads or transit stops.

• Encourage compactness near transit lines with infill in the neighborhoods around transit stops rather than expansion of the perimeter areas further from the stops.

Mixed Use Development
Promote public improvements and facilities that support and enhance transit oriented development. Municipalities, and even private entities, can offer coordinated improvements in the public way that complement private residential development designed to support transit. Public or private investment in the right-of-way corridor helps create:

- Continuity.
- A congenial, community, even festive atmosphere.
- An individual sense of place.
- Pedestrian oriented spines that lead from transit stops into neighborhoods.
- An atmosphere that encourages people to walk from homes/employment to transit stops.

While there are now only five transit transfer locations in Chittenden County, public improvements can take advantage of the synergy resulting from these and eventual transfer locations, including greater visibility, concentrations of people waiting for connections, nearby public meeting places, and commercial opportunities.

Guidelines

- Create pedestrian spines perpendicular and parallel to transit routes with interesting uses between origins and destinations.
- Encourage master planning to promote interconnected/continuous pedestrian ways throughout the transit core.
- Provide open space in the form of parks, plazas, greenways, and trail connections along transit corridors.
- Locate appropriate new public buildings (e.g., courthouses, municipal offices, schools) within walking distance of transit stops, and/or locate new transit stops near existing public buildings.
SITE PLANNING

Promote pedestrian-scaled land use patterns. People need to feel comfortable in the public environment. A pedestrian-oriented environment should be designed to the scale of the pedestrian. The generally accepted optimum scale of streetscape is: 3:1 ratio of street to building height or less.

Guidelines
- Establish ‘build-to’ lines, or maximum setbacks, to provide definition and enclosure to the street.
- Create a hierarchy of spaces throughout the community.
- Treat all buildings and landscape elements as definers of space.
- Provide design emphasis on street corners, including special entrances, higher visible doorways, special design features and spaces for active pedestrian uses.
- Develop local municipal site planning guidelines, providing guidance for local development activities, such as the “SITE PLANNING GUIDELINES FOR WINOOSKI, VERMONT” that promote site design.

Provide or improve pedestrian connectivity. Encourage people to enjoy the street. Make the experience of walking a pleasant one, with changing patterns and opportunities for chance meeting. Consider human scale as a primary component in the design of streetscapes and buildings. Provide safe connections. When walking becomes an enjoyable experience, people are more likely to walk.

Consider the realities of walking in Vermont. Designers of sidewalks and walkways should consider windbreaks, shelters, and alcoves for both summer and winter use. Snow storage, and wind tunnel effects are additional considerations for winter use.

Guidelines
- Provide a visible edge for pedestrian ways throughout the transit area to create a sense of personal security.
- Create pedestrian spaces that are easily monitored by police or security.
- Provide pedestrian spaces for activities and visual relief along the transit corridor. These can be in the form of public parks, plazas, wide esplanades, and greenbelts.
- Provide direct, visible pedestrian paths between activity generators (residential neighborhoods, shopping and employment areas, schools, etc.) and transit stops or rights-of-way.
- Extend pedestrian connections to and through parking to adjacent streets, continuing the treatment of the pedestrian routes to maintain the continuity of the experience.
- Separate pedestrian ways in parking areas from parked cars by grade changes, difference in materials, and/or landscaped islands.
- Consider pedestrian routes as linear rooms, with consideration to the floor (paving patterns), walls (buildings and vertical landscape elements), ceilings (tree canopies), street furnishings, lighting, and artwork.

Provide or improve pedestrian connectivity. Encourage people to enjoy the street. Make the experience of walking a pleasant one, with changing patterns and opportunities for chance meeting. Consider human scale as a primary component in the design of streetscapes and buildings. Provide safe connections. When walking becomes an enjoyable experience, people are more likely to walk.
Pedestrian access is located close to the street and “reads” as the main entrance to the building.

The church at the end of Church Street Marketplace serves as a focal point helping pedestrians gauge their location along this long, linear pedestrian space.

Where possible, orient pedestrian routes to a landmark or focal point in the community to facilitate orientation and way-finding.

Create commercial / residential streets that encourage an active street life. The constant flux of people creates activity and vitality on the street. With time, neighborhood residents are recognized by other residents and security in the area is enhanced. People can, and do, watch out for each other. Local residential front doors on the street enhance the safety of street life. When there are front doors on the street, the expectation is created that people will emerge onto the street. Strangers to the neighborhood are forced to approach residences along a visible route.

Guidelines
• Encourage distinctive ground floor entrances for every first floor business on the street.
• Design residences that include a functioning, main front door for the public along the street, even if other entrances lead to side or rear parking areas.
• Discourage high, blank walls along the sidewalk. Fenestration (doors and window openings) should comprise at least 1/3 of a building’s façade.

This Burlington bookstore adds to the active street life.

Bringing goods outside promotes greater pedestrian interest.

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Stepped back upper stories

Windows and entrances on the street in a new building

Local street entertainment

• Step back upper stories from the street to reduce bulk and emphasize entrance.
• Encourage the use of bow/bay windows that allow residents a 180-degree view of the street.
• Encourage structural activity areas near the front doors, such as porches or stoops.

• Provide places/incentives for people to congregate on the street: sidewalks, esplanades, benches, street trees, artworks.

• Add visual interest to the street through the use of display windows, window boxes, interesting textures and patterns, and other features built into the adjacent structures.

Provide proper and well located commercial parking along transit routes. Adequate parking is essential to successful developments, although incorporating transit use into development schemes can minimize this need. While parking may be a necessity, with proper attention to sitting and design, it does not have to be a dominant physical presence along the transit route. Generally, parking areas for more than three or four automobiles begin to adversely affect the unity of a residential neighborhood. Likewise, large parking lots in front of a building interrupt the continuity of pedestrian-oriented commercial areas, as do gaps in building frontages more than 60 feet along the street or sidewalk.

Guidelines

• Allow commercial establishments to count on-street parking to meet a portion of their parking requirements.

• Where on-street parking is not sufficient, additional parking should be provided at the rear or side of the building, not in front.

• Encourage the use of shared driveways to minimize the number and width of curbs along the street.

• Encourage the use of screening (walls, hedges, fencing, berms, etc.) to minimize the view of parked cars located in front or on the side of buildings along transit ways.

Create park and ride lots. Transit users will not always be walking from their homes to the transit stops. It is often useful to have park and ride lots available for use on express transit routes that are geared towards the commuting riders. These lots are primarily geared towards minimizing private automobile use in the County’s employment centers, such as downtown Burlington, Essex Junction (IBM) and the north end of Dorset Street.

Angled parking is still appropriate in certain locations.

Meters help control parking use.

Screened parking

Historic elements help this building blend into its surroundings.
Guidelines

- Provide park and ride lots at each passenger/commuter train station.
- Provide park and ride lots at the ends of major express bus routes. (Potential express routes have been discussed for Route 7 north and south of Burlington and Route 2.)

Maintain historic context of the community in transit-oriented development.
Consider opportunities to make transit facilities an integral part of the community.

DESIGN OF STREETS AND SIDEWALKS--THE PEDESTRIAN/BICYCLE ENVIRONMENT

Provide adequate sidewalks. Sidewalks are essential components of transit oriented neighborhoods and developments. The placement and design of sidewalks and the activities along them can help or hinder pedestrian activities.

Guidelines

- Provide sidewalks or pedestrian paths along at least one side of each street or road within 1/4 mile of existing or proposed transit stops.
- Provide visual interest and activity along the street/sidewalk in the form of accessible storefront windows, streetscape improvements, benches, street trees, artwork, drinking fountains and other pedestrian amenities.
- Allow adequate separation between pedestrian areas and motor vehicles.
- Use current sidewalk design standards when providing new or upgraded sidewalks.

Provide well-located and designed crosswalks. Crosswalks help facilitate the orderly and safe interaction of pedestrians and motor vehicles. The placement of crosswalks...
within a right-of-way is important to both the safety and visibility of the pedestrians, as well as to the smooth flow of motor vehicular traffic. Crosswalks need to be in places that will encourage their use by pedestrians but will also be readily seen by motor vehicle drivers. Maintenance of crosswalks is also a consideration in their placement and installation.

Guidelines
- Provide well-marked crosswalks at key existing or planned pedestrian crossings.
- Mid-block crossings may be appropriate in locations of intense pedestrian activity or where cross streets are greater than (300 feet) apart. Special markings/signage/landscaping at mid-block crossings are required to alert motorists.
- Emphasize the significance of major intersections by increased crosswalk width (eight feet or greater) and distinctive material.
- Materials for crosswalks should provide high visibility during the day as well as at night. Materials selected should be low maintenance and skid resistant.
- Avoid the use of paint on asphalt as a crosswalk material along high traffic volume transit-ways because it wears away quickly.
- Coordinate the location of crosswalks with the design of traffic calming measures that may influence pedestrian movement, such as raised crosswalks, neck-downs, or street tree plantings.

Provide bicycle facilities. Transit communities should be linked by a coordinated system of bicycle facilities, either in the form of bike routes or shared use paths that encourage bicycle ridership. Shared use paths can also serve as pedestrian links.

Guidelines
- Incorporate bicycle parking areas in convenient locations.
- Incorporate storage facilities, for bicycles and/or equipment at major transit stops.
- Seek local sponsors to help pay for bicycle storage facilities.
• Encourage the placement of interior or exterior bicycle storage racks/facilities at commercial and business developments.

DESIGN OF STREETS AND SIDEWALKS – STREET DESIGN

Use appropriate street types for designated pedestrian and transit movement.
The design of streets to accommodate both pedestrians and transit should address several questions: Should the street be primarily a pedestrian street, a vehicular street, or a combination of the two? Should there be on-street parking? What is the existing or expected volume of traffic? What percentage of the traffic will be buses and other large vehicles? What type of facilities for bicyclists should be provided? What should be the balance between pedestrians and vehicular traffic? Each situation may have a unique combination of answers or ways to address those questions. In general, the following guidelines should assist in developing answers.

Guidelines
• Generally, provide on-street parking, when it does not conflict with bicycle mobility.
• Use the smallest practical lane widths for motor vehicles.
• Coordinate the street design with the pedestrian circulation system.

Accommodate bus service on public streets. Both public and school buses should be considered when planning to accommodate buses on public streets. The co-location of public and school bus stops, however, is not currently recommended due to safety and liability issues.

Guidelines
• In very high-volume single lane situations, consideration should be given to providing designated pull-offs to accommodate bus stops. When determined to be absolutely necessary, design bus pull-offs to facilitate the turning movements of the buses that serve the route.
• Design roadways for transit using appropriately moderate design speeds.
• Minimize internal block curb cuts.
• In downtown areas, the surface of the pull-offs can be paved in a contrasting color and texture to emphasize its function and to reinforce ‘No Parking’ signs.

In low-volume roads, the occasional bus can serve as a traffic calming device if pull-offs are not provided.

• Coordinate the location of bus stops with the location of existing driveways to avoid conflicting movements and problems with sight distance.
• Locate bus stops on the departing lane side of a traffic signal.
• Consider designating bus lanes in downtown areas of Burlington or other areas of high traffic volumes combined with intense land uses and multiple bus routes.

Typical Bus Stop Dimensions. Courtesy of Metropolitan Transit Development Board (San Diego)

• Design the curb radii of street corners to comfortably handle the turning movements of buses without forcing them to climb the curb. Avoid excessive radii to minimize the length of crosswalks. Allowing parallel parking at the sides of streets can effectively increase the available turning radius.
• Use appropriately-sized buses in tighter urban areas to avoid big curb radii.
Accommodate bus service on appropriate private properties. Transit services in Chittenden County currently use private property in certain situations for routing and stops. Several of the CCTA transfer facilities are now successfully located on private property. The use of private property for transit facilities can help bring transit closer to existing private commercial activity centers. However, bringing buses far into private property also makes the route slower for those on the bus not using the particular stop on the private property. Consequently, when bringing buses onto private property, the designated route should make travel for the bus quick and easy. Ultimately, following the other guidelines in this book when new construction or redevelopment is considered will minimize the need for buses to go far onto private property.

Wide turnaround for buses

Guidelines
• Provide direct routes in and out of sites with acceptable turning radii on internal roadways.
• Landscape to avoid creating blind spots at entrances, exits and interior intersections.
• Allow autos to pass stopped buses in appropriate locations within parking areas or internal roadways.
• Provide good site design to minimize the need for buses to penetrate far into private sites, thus providing more efficient service for other riders.

Use appropriate traffic calming techniques on bus transit routes. Bus routes are often located on roadways where traffic speeds may warrant the installation of traffic calming measures. When used properly, these measures can help restore a sense of order to the community. However, certain traffic calming measures can make public or school bus movement difficult.

Guidelines
• Design traffic calming devices for use on roads used for transit routes specifically to accommodate the turning movements and other physical requirements of buses and large vehicles.
• Test the effectiveness and design of traffic calming devices with temporary measures constructed of asphalt, sandbags, curb stops, or other similar techniques before they are permanently installed. During this period, bus drivers should be given the opportunity to travel the route and provide input on the final use and/or design of traffic calming features.

Use traffic calming techniques on local residential, non-transit streets as necessary. Traffic calming measures can help maintain the viability of neighborhoods developed close to transit lines. Residential rights-of-way are part of the fabric of a residential neighborhood. They are used for a multitude of uses beyond the movement of motor vehicles, including children’s play, parking, walking, exercising, socializing, and general relaxing. These functions are compromised when numerous non-local, often speeding, motor vehicles use neighborhood streets as short-cuts to other destinations. Traffic calming techniques, as outlined in the State of Vermont Traffic Calming Standards, can help preserve the neighborhood character of local residential streets, by making direct, high-speed short cuts difficult. These techniques encourage motorists to choose the main roads rather than the no-longer-easier-to-use residential side streets. Before traffic calming techniques are instituted in existing neighborhoods, the need for such facilities must be clearly documented and requested by local residents.

Guidelines
• Consult the State of Vermont Traffic Calming Standards for appropriate techniques that may be useful in addressing the specific problems.
• Engage the services of transportation planners, landscape architects, traffic engineers or other professionals experienced in traffic calming to assist the community in developing neighborhood-specific plans.

• Where traffic calming measures have not been used, install temporary measures to test their effectiveness and design.

**Encourage multiple street connections near transit lines.**
Multiple street connections not only provide alternate methods for motor vehicle travel, but also allow easy and direct access to transit stops for pedestrians. Added benefits are the multiple routes available for emergency vehicles and the sense of community the inter-connected streets tend to inspire in the residents and businesses that are located along them.

**Guidelines**

• Pre-plan the location of logical, efficient circulation patterns along transit routes at the municipal level, designating corridors for interconnected roads, greenbelts, and other significant physical features.

• Encourage adoption of an “official municipal map” to identify future locations of roadways.

• Encourage cooperative work between communities and development interests at the beginning of development ideas (often at the sketch-plan level) to assure compliance with long-term circulation plans.

• Where possible, limit the distance between intersections feeding into transit routes to between 200 and 600 feet.

**DESIGN OF STREETS AND SIDEWALKS - MAINTENANCE**

**Guidelines**

• Transit facilities must remain in good condition over time so that they can continue to serve existing users and attract new users. Poorly maintained facilities cannot do this, thus maintenance of transit facilities is critically important. Since maintenance requires the use of limited transit funds, the facilities must be designed to require minimal maintenance to remain in adequate condition.

• Bus stops and shelters should be designed for ease of summer and winter maintenance, avoiding the need for extraordinary measures.

• Select materials that can withstand the rigors of constant daily use in exposed locations. Avoid the use of construction materials that can be easily damaged.

• Avoid the use of contraction materials that can be easily damaged.

**Pedestrian bulb-out**

This walkway, with an interesting design on the wall, provides a pedestrian link through a long block.
Crosswalk maintenance

- Adopt a policy of regular maintenance inspections to limit the spread of abuse or vandalism if it starts.
- Consider the use of anti-graffiti coatings to facilitate the removal of unwanted messages on transit facilities.
- Encourage landowners to become involved in summer and winter transit facility maintenance and monitoring to benefit both the landowner and transit users.

Allow adequate provisions for winter maintenance of transit facilities, including pedestrian access to sidewalks, transit stops, entry areas and parking. Winter in Chittenden County brings snow, and inadequate snow removal can make pedestrian movement unsafe and/or impossible. Snow plowed from roadways or parking areas is often pile on sidewalks or in front of transit stops, forcing pedestrians to climb over snow mounds or walk in the street to reach their destination. Regular transit use requires that facilities be available year round, making proper winter maintenance critical.

Guidelines
- Provide high quality, durable street furnishings throughout transit areas. Develop a palette of materials and forms that can be used throughout and installed in phases, as funding is made available.
- Provide year-round benches and other places to sit at regular intervals (every 400 to 800 feet) along major pedestrian routes.
- Coordinate the placement of street furnishings with storefronts, crosswalks, lighting, tree plantings, and other elements of the streetscape.

DESIGN OF STREETS AND SIDEWALKS – DETAILS

- Use appropriate street furnishings. The transit way can be considered a long outdoor room, designed for people. As with any successful interior space, the selection and arrangement of the furnishings can greatly affect how comfortable a person feels in the ‘room’.

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- Provide year-round benches and other places to sit at regular intervals (every 400 to 800 feet) along major pedestrian routes.
- Coordinate the placement of street furnishings with storefronts, crosswalks, lighting, tree plantings, and other elements of the streetscape.

New parking area landscaping near a transit stop allows for winter snow storage.
Use appropriate public signage. Public informational/directional signage along transit ways can greatly add to the sense of place while providing the public with much-needed information about the transit service.

Guidelines
- Signage should be designed or coordinated by a graphic designer experienced in the field of wayfinding and corridor signage systems.
- Signs should be designed as part of a coordinated system of branding or design that includes route maps, logos, vehicle markings, etc.

Encourage the use of pedestrian-scale signs for private developments and businesses. Large signs designed to attract attention along high-speed roads are not appropriate in pedestrian oriented neighborhoods. Private signs should be scaled to enhance the pedestrian environment in locations along transit routes and near transit stops.

Guidelines
- For pedestrian areas, signs need to be both small scale (in keeping with local sign ordinances or smaller) and eye-catching, without contributing to a sense of roadside clutter.
- The content of signs should be limited to that which is necessary to identify the tenant. As a general rule, identification signs should have no more than 30 letters or 7 ‘bits’ of information (a bit is one syllable or piece of graphic).
- Signage systems should be designed to relate to the architecture by virtue of their forms, coloration, and detailing.
- Mounting systems should be simple and unobtrusive. Where mounting hardware is exposed, it should complement the detailing found on the building.

Use light fixtures as needed to enhance the pedestrian environment. Lighting provides a feeling of security and safety and should be an integral part of transit oriented designs. Provide the minimum amount of lighting necessary, in keeping with the recommendation of the Outdoor Lighting Manual for Vermont Municipalities. Lighting

Coordinated street information system - note matching design of light pole

Informative image
should be focused on the specific areas being lit and not stray to other areas or the sky where it is not necessary.

**Guidelines**

- Use light fixtures that are scaled to the human figure (generally in the 12-15 foot height range) along pedestrian ways.
- Provide the minimum amount of lighting recommended by the Illuminating Engineering Society of North America (IESNA).
- Use shielded light fixtures to prevent spillage onto private property and to prevent glare.

These pictures show a variety of pedestrian scale signs and lights.
Use artwork to enhance pedestrian activity areas. With proper consideration to the context of the site, artwork can foster a greater sense of uniqueness throughout the transit route. Art does not necessarily have to be limited to wall murals and sculpture. Benches, railings, fences, tree grates, and drinking fountains are all examples of elements that can be custom-made by local artisans to add vitality and richness to the TOD.

Guidelines
- Use artwork to enhance pedestrian activity areas.
- Involve the local community throughout the process to provide inspiration to the artists and foster a greater appreciation of the final products.
- Work with local artists in the design and fabrication of streetscape elements.

Publicly available art
Select appropriate street trees for use along transit routes and within neighborhoods and communities near transit stops. Street trees add shade, provide scale in the outdoor environment, afford some measure of separation, real or imagined, from travel ways, and provide numerous other benefits to pedestrians. Their presence along walkways increases the chance that people will walk to transit stops and other pedestrian oriented destinations.

**Guidelines**

- Select trees based on their hardiness, stress resistance, maintainability, the scale of the space and their ultimate height/crown width, shading, seasonal changes, street letter and visual interest.
- Specify trees with a minimum size to provide immediate effectiveness.
- Locate trees out of the travel path of major pedestrian routes.
- Prune trees to a minimum of eight feet above the walking surface.
- Coordinate tree plantings with the design of bus stops and shelters. In outlying areas, trees serve as a welcome source of shade and shelter; in more urban locations, consider bus clearances and the need for smooth surfaces in the vicinity of bus stops and passenger access routes when locating and choosing street trees.
- Coordinate street tree location and type with streetlights, utilities and other street furnishings.
- Consider how trees can be decorated for seasonal displays in key locations.
- Consider the growing needs for trees in high-traffic locations with minimal care. See Sustainable Landscape Design by the Vermont Chapter of the American Society of Landscape Architects for additional information on new techniques for tree planting in urban areas, structural soils, feeding and watering.
TRANSIT Stops

Use proper site planning for bus and train stops.
Site planning should result in simple, attractive facilities that can accommodate people comfortably for short periods of time throughout the year. Opportunities to create and share public/private open spaces can enhance the attractiveness of a bus stop. Overall, designers need to provide for the comfort, safety, and shelter of bus patrons. The location of bus shelters needs to be a function of visibility, convenience, and relation to dimension of a bus.

**Guidelines**

- Orient bus shelters to avoid directly facing the street to protect riders from splashed rain/snow, while still allowing views of oncoming buses.

- Site bus and train stops in locations that are visible from numerous locations and are easily monitored by the police.

- When possible, site bus and train stops in high activity areas, not in isolated locations that may not provide a sense of security to users.

- Train stations should also allow easy bus access.

- For bus stops, provide a minimum of three feet between shelters and the curb line; 4-5 feet is preferred.

- For low frequency stops, provide seating, paved access to curb, signage, and schedule.

- For moderate to heavy use stops, provide seating, paved access to curb, signage, schedule lighting, shelter, and landscaping.

- Use consistency in sign placement and transit stops to aid in orientation and way-finding.

- Provide accommodations for wheelchair users: ramps/shelters/accessible routes.

- Use a variety of low maintenance plant materials with four seasons of interest: i.e., flowers, fruit, autumn color, textural bark.

- ADA requires a minimum clear zone of eight feet at a bus drop-off.

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**Sample Bus Passenger Shelter Placement.**
*Courtesy of Metropolitan Transit Development Board (San Diego)*

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**Wooden bus stop**

**Well-designed curbside amenities**

- At heavy use stops, incorporate other amenities as possible, such as newspaper racks, mailboxes, phone booths, library drops, and artwork.

- For bus stops, provide a minimum paved width of eight feet between the building side of the sidewalk and the curb.
Provide at least three feet clearance between street furniture and the curb line at bus stops; six feet is preferred.

Provide appropriate design of bus and train shelters. In settings without formal bus shelters, adjacent buildings can provide some measure of shelter to bus patrons. Transit stops can use building elements, such as porte-cochères, awnings, overhangs, and recessed doorways to provide protected waiting spaces for transit users. The use of building elements can be coordinated with the building users so that transit users do not interfere with the normal use of the building.

Guidelines
- Use local architects to design bus and train shelters using forms and materials indigenous to Chittenden County instead of generic, mass-produced shelters that have no stylistic references to New England architectural traditions.
- Where multiple shelters will be installed along a route, use variations in the siding, color, or materials to provide a sense of individuality and neighborhood identity.
- Consider local needs and hours of operation of bus shelters in decisions regarding lighting and security.
- Provide opportunities for seating at bus and train shelters, oriented in a way that allows patrons to watch for oncoming busses.
- Design shelters for minimal maintenance requirements.
- Provide for self-sustaining lighting at moderate- and heavy-use stops, using motion detectors and solar batteries as technology allows.
- Determine the size of the shelter and number of seats as a function of anticipated use needs, based upon interviews with passengers and transit officials.
Use appropriate graphics at transit stops. Signs for transit stops need to be prominent, making them easy to find by pedestrians and easy to notice by motorists. Other transit oriented signs, including schedules, route number, destinations, and rules, should be coordinated with each other to foster design continuity, which in turn makes it easier to use and understand the signs.

Guidelines
• Provide information at transit stops in easily understood, properly sized, coordinated signs.

Develop bicycle facilities in transit oriented areas. Because transit oriented design focuses on transportation modes other than individual automobiles, the emphasis of the multi-modal aspect of transit planning is an important part of the overall concept. Bicycles provide a logical extension of the transit system, and bicycle use in conjunction with transit services should be encouraged.

Guidelines
• Provide bike storage at transit stops, including bicycle racks and/or bicycle lockers.
• Allow bicycles to be placed on busses and trains in designated locations.
• Provide bicycle services and repairs at high use transit stops.

Bus stop identifications
• Furnish high use transit stops with kiosks to provide information on community activities or services.
Section 4: Implementation Tools

POTENTIAL PUBLIC FUNDING SOURCES

There are various public and private funding sources that could possibly be used to help the region implement TOD projects. Public funding sources include federal, state, regional, and local. The lists and information below focus on non-local sources and are intended to provide guidance to the region, but should not be considered exhaustive, as funding source eligibility, restrictions, amounts, and requirements change from year to year. Parties interested in implementing TOD projects should consult the CCMP’s “Funding Sources for Transportation Projects” guide on a regular basis to ensure the region has the most current information.

Federal Funds

- **Surface Transportation Program (STP)** funds have the most flexible uses of any federal transportation funds. STP funds may be used for highway, transit, and non-motorized facility construction and improvements. Facilities must be classified by the metropolitan planning organization (MPO) and state as eligible for federal-aid, although sidewalk projects on local roads that are not on the federal-aid system may also be eligible for STP funding. Since 1992, when the flexibility provisions took effect, Vermont has been a national leader in “flexing” funds from traditional highway uses to transit uses. The non-federal match requirement is 20 percent.

- **Enhancement Program** funds are another potential source of federal funds for TOD projects. In Vermont, the final decisions on Enhancement funding are made by VTrans, and the CCMP must endorse and prioritize candidate Enhancement projects in Chittenden County before VTrans will consider them for funding. Generally, Enhancement funding awards are made once per year through a competitive application process, although the state has, in recent years, made an additional round of awards after the end of the Legislative Session. The non-federal match requirement is 20 percent.

- **The “Transportation and Community and System Preservation” (TCSP) pilot** grant program is another potential source of funding for TOD projects. In 1998, under the new TEA-21 legislation, Congress established the TCSP competitive grant program to provide funding to states, regions, and localities for planning and implementing transportation projects that improve the efficiency of the transportation system, reduce environmental impacts of transportation, reduce the need for costly future public infrastructure investments, ensure efficient access to jobs, services and centers of trade, and examine development patterns and identify strategies to encourage compatible private sector development patterns. In Vermont, the City of Burlington has received a TCSP grant for a corridor improvement project in the North Street area of the Old North End. Applications are accepted once per year, typically in late January, with awards made toward midyear by the Federal Highway Administration (FHWA). Applications must be endorsed by and submitted through the MPO. It should be noted that for the last three years, virtually 100 percent of all TCSP grants across the country have been made through the Congressional earmarking process, despite the original stated intent that this be an open competitive process. Thus, the direct involvement of one or more members of Vermont’s congressional delegation would be necessary for an application from the region to have a chance of success. Although matching funds are not required, priority is given to projects that leverage non-federal funds and take advantage of in-kind contributions, such as maintenance agreements, land donations, and volunteer time.

- **Federal Transit Administration (FTA)** funds are another potential source of federal funding for TOD projects in the region. FTA funds, through its “New Starts” program, have been a source of capital financing in Chittenden County and Vermont for a variety of transit-supportive facilities, including the planned Burlington Multimodal Center and the proposed Essex Junction Intermodal Center. It should be noted that the New Starts funds for both of these facilities were secured in large part through the direct efforts of Vermont’s Congressional delegation through the “earmarking” process during the annual federal appropriations cycle. The non-federal matching requirement varies depending on the precise source of funds, but typically averages at least 20 percent.

- **The Congestion Mitigation and Air Quality (CMAQ) program** is another possible federal source of funding. In general, federal law requires that CMAQ funds be targeted for addressing congestion problems and associated vehicle emissions that result in air quality problems, primarily in urban areas. In Vermont, because
the entire state is currently considered to be “in attainment” of federal air quality standards, VTrans controls the distribution of CMAQ funds throughout the state. VTrans has mainly used CMAQ funds to support start-up of new transit services, including the VTA’s Champlain Flyer rail service and the College Street Shuttle service in Burlington, and park and ride lot construction. Because VTrans is currently developing a new statewide transit policy, it is uncertain how CMAQ funds may be used or distributed in the future. A 20 percent non-federal match is required.

State Funds

The State of Vermont, generally through VTrans, could provide funds to the region for implementation of TOD projects. In most cases, federal funds comprise part of the grant, and a non-federal match would thus be required. Also, federally-funded projects must be approved by the CCMPO and be placed on the regional Transportation Improvement Program (TIP). Among the most applicable funding opportunities is:

• The VTrans Bicycle and Pedestrian Facility Grant Program, provides competitive grants to municipalities and other entities for bicycle and pedestrian facilities. In order to apply for a grant under this program, the applicant must have completed a “Conceptual Alignment Analysis” (CAA) of the proposed facility. The annual application deadline is typically in May. The local match requirement is 10 percent.

Regional Funds

The following describes some of the funds available through the CCMPO that are relevant to implementing TOD projects. It should also be noted that in Chittenden County, any federally-funded transportation activity must be formally approved by the CCMPO as part of the annual work program, the TIP, or, in some cases, both.

• The Transportation for Livable Communities (TLC) grant program is managed and funded by the CCMPO. TLC grant funds could potentially be used for required planning work on various elements of TOD projects. The CCMPO solicits grant applications in the summer, with grant funding becoming available on October 1. A minimum 20 percent non-federal match is required.

• The CCMPO Project Definition program is another potential source of funding for detailed planning and pre-engineering work on specific elements of TOD projects. By requesting inclusion in the CCMPO’s program and receiving these funds, project sponsors would also be moving projects into the regional and state “pipeline” for inclusion in the Transportation Improvement Program (TIP) for construction funding. The CCMPO typically requests towns to provide project definition candidate projects in a February/March timeframe through the annual work program update process for funding starting in October. A non-federal match may be required, and sponsors could expedite funding access by providing that match. However, a municipality may not be required to provide the match itself, depending on the CCMPO’s overall budget.

PUBLIC–PRIVATE PARTNERSHIPS

Transportation needs have grown in recent years at a rate that has outpaced available public funding, particularly at the local level. Innovative approaches to paying for transportation projects have emerged to fill the need. One such approach entails creative partnerships between the public and private sectors. In Vermont, these types of arrangements have typically involved roadway intersection and capacity improvements associated with commercial developments, such as the Tafts Corner area of Williston. The common thread in any such partnership is that all involved parties receive some benefit from their contributions. While these partnerships may not fund 100 percent of TOD projects, they could represent an important piece of the overall funding framework.

• Public-Private Development Agreements: Municipalities and/or regional agencies can work directly with businesses and developers to ensure that key elements of these guidelines are incorporated into and funded, at least in part, by the developers and/or their tenants. The benefit for the developers and business would be enhanced access to their locations. The regional benefits would be tangible progress toward making TOD a reality and improved alternative transportation.
Location Efficient Mortgages: The Location Efficient Mortgage, or LEM, is an innovative, new mortgage product. LEMs are designed to meet the needs of people who would like to purchase a home in an urban neighborhood and who would be willing to rely on public transportation and to use locally available services and amenities rather than own a personal vehicle. Location efficiency is the ability to live in a neighborhood where the goods and services people need and want are rather close by or within easy access by public and recreation amenities. For many households, the LEM can mean thousands of dollars of additional home buying power. The LEM is currently available in Chicago, Seattle, the San Francisco Bay Area, and Los Angeles County, with additional locations in the planning stages. More information can be found at the Location Efficient Mortgage website at www.locationefficiency.com.

The big difference between the LEM and a traditional mortgage is that it takes into consideration the savings that are achieved by using public transportation and relying on locally available services, such as shops, schools, as and recreation amenities. For many households, the LEM can mean thousands of dollars of additional home buying power. The LEM is currently available in Chicago, Seattle, the San Francisco Bay Area, and Los Angeles County, with additional locations in the planning stages. More information can be found at the Location Efficient Mortgage website at www.locationefficiency.com.

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• Revisions of zoning ordinances to limit auto-oriented land uses.

• Relaxation of parking standards to require fewer on-site spaces, allow credits for shared use and on-street parking and encourage use of transit.

• Revisions to road design standards to promote pedestrian movement in transit-oriented areas.

• Allow greater densities (“density bonuses”) for affordable housing or upper level housing units.

• Incorporate development application review by the CCTA into the normal review process.

• Designated growth areas within 1/2 mile of transit lines/stops.

• Incorporate modifications into updates of Comprehensive Plans.

• Establish loan programs to assist in development/redevelopment of upper floors.

• Establish/expand Tax Increment Financing (TIF) Districts.

• Transferable development rights to allow increased density.

• Design standards for new construction/redevelopment.

**SUMMARY**

The table on the previous page summarizes the funding sources for implementing the TOD guidelines described above. Based on this assessment, the key regional and local agencies with an interest in TOD may wish to develop a coordinated TOD funding strategy that pulls from a variety of these and other sources.
PURPOSE/OBJECTIVE/NEED

To assist planners, developers, reviewers, and others, a simplified checklist of transit-oriented design characteristics is included. Transportation agencies, planning agencies, and municipalities when initiating, planning, or reviewing transportation projects, real estate development proposals or land-use plans can use the following questions. They can serve as a guide to the issues associated with transit oriented design, as well as to the potential problems and/or opportunities that transit oriented design can present.

This design review checklist can be used to ensure:

- Public agencies or municipalities have considered development potential of transit projects.
- Municipalities and developers have considered the transit potential of development projects.
- Agencies (VTtrans, MPO and the RPC) and municipalities have considered TOD in the preparation of land use plans.
- Agencies and municipalities have considered potential impacts that road, street or highway project may have on existing or future transit facilities and services.

Because it has been highly simplified for “high-level” application, users of this checklist are encouraged to assess projects for consistency with transit oriented design principles, presented in Section 1. The checklist should also make agencies and decision-makers aware of TOD potential in their communities and promote cooperation and communication in early stages of planning.

The Checklist is focused on the need to consider, explore, and acknowledge TOD potential early in a capital project, development project, or land-use planning process. It is meant to encourage TOD thinking on a regular basis. Ultimately it is hoped that Chittenden County will integrate transit requirements into the normal planning and design process, just as ADA is a basic consideration.

CHECKLIST USE

The Checklist is designed to encourage early communication between involved or potentially involved players and regular monitoring of the TOD decision-making process.

For transportation agencies, it can be used by staff responsible for service planning, project planning/design/engineering and community relations to focus on early identification of TOD potential; early communication between agencies; and ongoing facilitation of TOD planning process for identified projects.

For planning Agencies/Departments, it may be used by staff and policy officials to assess land use and road plans for TOD potential and transit accessibility. The Checklist can be incorporated into comprehensive planning and site plan reviews. The Checklist can also help prioritize projects and local transportation activities.

For private developers, the section on Real Estate Development can provide guidance on the design of a project that has transit potential. The guidelines in general also provide insight as to how the proposal may make its way through the approval process when existing or future transit service is a factor in the local land use decision making process.
TRANSIT REVIEW CHECKLISTS

For Transit Projects
- Early Project Planning: What is the overall potential of the project to:
  - Increase development opportunities?
  - Enhance local taxes?
  - Improve operations?
  - Increase ridership?
  - Reduce transit costs?
- Project Planning: (Questions on funding/staffing to increase TOD potential)
- Detailed Project Planning: (More specific questions on design, interaction with the community)

For Municipal Land Use Plans
- Has the plan being prepared been reviewed for potential impacts (Both positive and negative) on existing or proposed transit services or facilities?
- Have transit agencies been contacted for their input?
- If it appears that a location has future TOD or transit service potential, do policy statements, land use / transportation recommendations and plan drawings indicate so?
- Do local regulations address TOD? (How have local regulations been adjusted to accommodate TOD?)

For Road Projects/Plans
- Have transit agencies in the vicinity of the project been contacted?
- Have the plans been reviewed for potential negative or positive impacts on current or future transit facilities or services?
- Will the project enhance the physical conditions of and accessibility to transit facilities for pedestrians, bicyclists or motorists?
- Are there opportunities for multi-modal connections, e.g., bus–train, bus–bike, bus–bus, etc.?
- Can the project encourage park and ride situations?
- Can the project enhance bus service?
- Will the project result in excess property that could be used for transit facilities or development?

For Real Estate Development Projects
- Is development near existing transit facilities?
- Has there been recent or proposed development activity within the area near a transit facility?
- How has the potential for enhancing existing transit facilities within or near the project been considered?

- Does the project have potential for new transit facilities or services?
- Has there been community input?
- Has the TOD potential for the project been considered?
- Have the guidelines presented in this manual been incorporated into the design?
- Has the local transit agency been contacted?
- Do local community regulations encourage or inhibit TOD principles?

This new development incorporates transit-oriented design ideas.
Appendix A: Summary of Transit-Oriented Principles

Transit-Oriented Design Principles

There has been much written about Transit-Oriented Design and the general principles behind this concept. In general, they focus on advocating designs that facilitate these writings’ easy use of transit. At the beginning of this project, the consultant organized the various different versions of TOD principles into a list that would serve as a guide for this project. These principles are:

1. Integration of transportation and land use:
   • Compatible land uses on transit corridors
   • Medium/high density residential uses
   • Pedestrian oriented commercial/service business
   • Office and medical services
   • Develop land use along existing transit routes or
   • Develop new parcels to allow transit routes to be incorporated

2. Mixed-use development:
   • Provide multiple destinations at a single location
   • Meet numerous needs within a small area

3. Deliberate orientation towards public transit:
   • Grouped special destinations
   • Easy transit access

4. Community Participation:
   • Community involvement in design process, either public or private.

5. Transit, pedestrian and bicycle access to reduce dependence on automobile:
   • Subordination of vehicular traffic
   • Prominent pedestrian and bicycle facilities
   • Highly visible, pleasant transit stops
Appendix B: A Sample of Resources

Websites on Transit-Oriented Development

http://www.calthorpe.com/  
Calthorpe Associates, one of the leading designers of Transit Oriented Developments

http://www.sonic.net/abcaia/narrow.htm  
Narrow Streets Database, A Congress for the New Urbanism Transportation Task Force Initiative

http://www.todcommunities.org/  
Transite Station Communities: Transit Oriented Development in the Central Puget Sound Region.

http://www.trimet.org/communitybuilding.htm  
Tri-Met provides public transit service and much more for the Portland, Oregon, metropolitan area. The Community Building Sourcebook provides one-page descriptions of the innovative projects, plans and programs that have made the Portland region a national model for linking land use and transportation initiatives

http://www.carfree.com/  
The web site that goes with the book. Carfree Cities proposes a delightful solution to the vexing problem of urban automobiles.

Publications on Transit-Oriented Design


The following organizations provide transit services in Chittenden County:

- Chittenden County Transit Authority
- Regular Bus Routes
- College Street Shuttle
- Vermont Transportation Authority
- Champlain Flyer
- Campus Area Transportation System
- Special Services Transportation Agency
- Private

Appendix C: Existing Public Transit Services in Chittenden County
Appendix D: Transit-Oriented Design Workshop Presentations

**Transit Oriented Design**
Chittenden County Regional Planning Commission Workshop
October 16, 2001

**PURPOSE**
- Explore how Transit Oriented Design can be used in Chittenden County.

**PRESENTATION OUTLINE:**
- 8:15 AM - Introduction
- 8:30 AM - Principles
- 9:15 AM - Field Visit
- 10:40 AM - Concepts
- 11:30 AM - Conclusions

**PLAYERS**
- Jim Donovan, ASLA, AICP
- Peter Plumeau
- Terry DeWan, ASLA
- Dana Farley

**PURPOSE (continued)**
- Identify General Principles and Concepts of TOD
- Explore How TOD Principles and Concepts Can Be Expressed
- Discuss Incorporation of TOD Principles and Concepts in Development in Chittenden County.

**OUTCOME**
- Transit Oriented Design - Guidelines for Chittenden County
WHY?????
• Make transit an
• EASY,
• LOGICAL,
• TIMELY, &
• ECONOMICAL
• choice.

TRANSIT ORIENTED DESIGN PRINCIPLES
1. Integration of Transportation and Land Use.
2. Mixed Use Development.
3. Deliberate Orientation Towards Public Transit.
4. Increased Community Participation.
5. Focus on Transit, Pedestrian and Bicycle Access.

INTEGRATION OF TRANSPORTATION & LAND USE
Compatible land uses on transit corridors
- Medium/high density residential uses
- Pedestrian oriented commercial/service businesses
- Office and medical services
Develop transit oriented land use along existing transit routes or develop new parcels to allow transit routes to be incorporated.
Transit Oriented Design Workshop

One Main Street

PEDESTRIAN ORIENTED MEDICAL

DEVELOP ALONG EXISTING TRANSIT CORRIDORS

Essex Town Center

PLAN FOR TRANSIT SERVICE

Mix Development

Provide multiple destinations
Meet numerous needs

Church Street

TRADITIONAL

Essex Town Center

NEW DEVELOPMENT
ORIENTATION TOWARDS PUBLIC TRANSIT

Grouped special destinations
Easy transit access
**SIGNIFICANT COMMUNITY PARTICIPATION**

Community involvement in design process:
- Public AND private

**FOCUS ON TRANSIT, PEDESTRIAN AND BICYCLE ACCESS**

Subordination of vehicular traffic.
- Prominent pedestrian and bicycle facilities.
- Highly visible, pleasant transit stops.

**SUBORDINATION OF VEHICULAR TRAFFIC**

Church Street Market Place
TRANSIT ORIENTED DESIGN ISSUES

1. Site Planning and Design Concepts.
2. Architectural features.
3. Landscape Design.
4. Signs.
5. Parking Management.

SIDE LOT/REAR LOT PARKING
Charlotte Post Office

PEDESTRIAN PUBLIC SPACES
“Gargoyle” Park

SITE PLANNING & DESIGN CONCEPTS
- Side lot/rear lot parking
- Pedestrian open spaces
- Continuity of street edges
- Active pedestrian uses at corners and transit stops
- Small setbacks
- Prominent pedestrian and bicycle facilities

Barnes & Noble
CONTINUITY OF STREET EDGE

Main Street, Burlington

ACTIVE PEDESTRIAN USES AT CORNERS AND TRANSIT STOPS

North Street, Burlington

PROMINENT PEDESTRIAN ACCESS

Commons at Essex Way

ACTIVE PEDESTRIAN USES AT CORNERS AND TRANSIT STOPS

Burlington

PROMINENT PEDESTRIAN ACCESS

Commons at Essex Way

PROMINENT PEDESTRIAN AND BICYCLIST FACILITIES

University Mall
ARCHITECTURAL ELEMENTS

Orientation to the street
Detailing
Slightly elevated residences
Recessed garages
Highlighted entryways
Maximum street visibility to/from buildings

ORIENTATION TOWARDS THE STREET

Church Street

ORIENTATION TOWARDS THE STREET

Merchant's Bank, South Burlington

Chittenden Bank

DETAILING

Filene's Burlington Mall

DETAILING
Slightly elevated residences
Recessed garages

Maximum street visibility

Landscape design
High degree of pedestrian and bicyclist amenities.
Street trees for pedestrian routes.
Pedestrian scale light fixtures.
Neighborhood identities.
Positive visual images.

High degree of pedestrian & bicyclist amenities
Street trees for pedestrian routes

Appendix D 43
Transit Oriented Design Workshop – Part 2

Main Street, Burlington

PEDESTRIAN SCALE

Transit Oriented Design Workshop – Part 2

Main Street, Burlington

UNOBTRUSIVE

Transit Oriented Design Workshop – Part 2

Long term parking at outlying areas.
Short term parking near uses.
Parking used as traffic calming.
Specialty parking areas.
Parking costs shared by users.

PARKING MANAGEMENT

Long term parking at outlying areas.
Short term parking near uses.
Parking used as traffic calming.
Specialty parking areas.
Parking costs shared by users.

LONG TERM PARKING AT OUTLYING AREAS
Transit Oriented Design Workshop – Part 2

LONG TERM PARKING AT OUTLYING AREAS

SHORT TERM PARKING NEAR USES

Essex Town Center

PARKING USED AS TRAFFIC CALMING

PARKING COSTS SHARED BY USERS

Main Street

SPECIALTY PARKING AREAS

QUESTIONS AND ANSWERS