

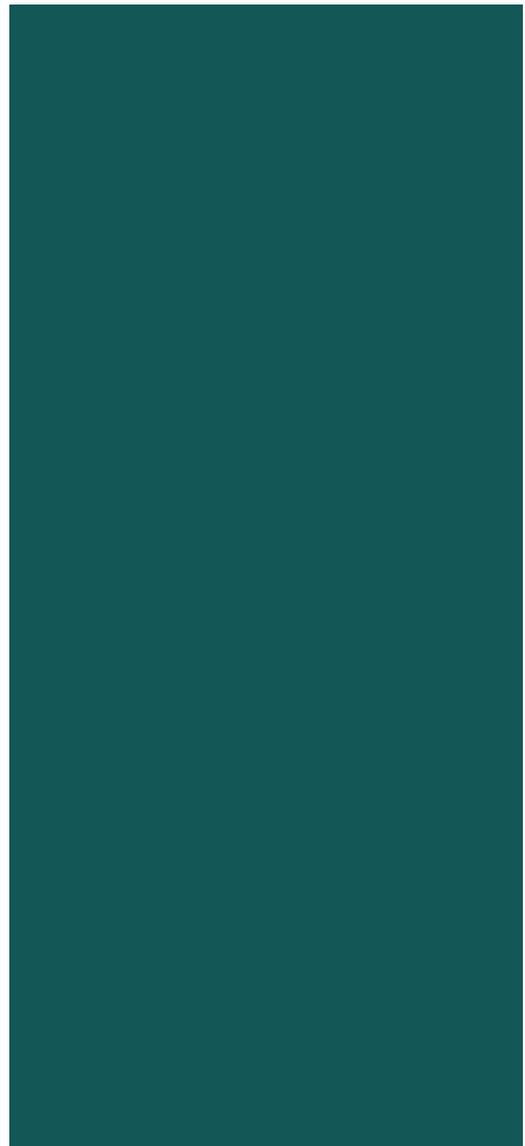


# PlanBTV Transportation Study

Executive Summary

**October 2011**

DATA ■ ANALYSIS ■ SOLUTIONS



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**Report Prepared for:**

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## EXECUTIVE SUMMARY

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In the fall of 2010, Burlington's Planning and Zoning Department received a Sustainable Communities Challenge Planning Grant from the US Department of Housing and Urban Development providing a unique opportunity to invest in the future and advance Burlington's place as one of America's most livable and sustainable communities. Burlington struggles to address complex urban challenges in a small, under-resourced New England community with big ideas and even bigger ideals.

This planning grant makes possible PlanBTV—a new comprehensive land use and development master plan for Burlington's Downtown and Waterfront— which will refine broad city-wide goals for sustainable development into focused, actionable, area-specific strategies to ensure the vitality of the central core of our community and enable us to achieve our community vision. The intent is to identify, understand, and address current barriers to the creation of new infill development.



### **PlanBTV Goals/Desired Planning Outcomes**

PlanBTV will provide recommendations, tools, and strategies that will help achieve the following goals and outcomes:

- Maintain Burlington as a regional population and economic center that offers meaningful jobs at livable wages and a diverse housing stock that serves all incomes, while encouraging the continued growth of the city's commercial the tax base.
- Promote urban development measures that facilitate economically competitive, environmentally sound, socially responsible, and aesthetically-pleasing land-use combinations and urban design elements.
- Emphasize the importance of preserving historic and cultural features and architecture, and encouraging high-quality building design to complement the existing fabric.
- Strengthen the linkages between the Downtown, Downtown Waterfront, and surrounding neighborhoods, including the Hill institutions (University of Vermont, Champlain College, and Fletcher Allen Health Care).
- Promote a mix of land uses including the need for affordable/workforce housing, both local and world class businesses, entertainment and culture, live/work spaces, etc.
- Provide a focused sustainable transportation and accessibility system within the context of the existing street network and emphasizing alternatives to the single occupancy vehicle (SOV). This should build upon the Complete Streets system and Street Design Guidelines already included in the adopted Citywide Transportation Plan.
- Provide a comprehensive parking allocation and management system that meets visitor, business, and resident needs consistent with the goal of increasing public transit and reducing dependence on the single-passenger automobile.
- Provide the quality and capacity of public infrastructure, including pedestrian, bicycle, parking, and/or transit-related facilities, necessary to support new or expanded commercial and residential development.
- Strengthen Burlington's leadership position in clean energy and climate action planning by enabling broad-based community participation in the identification, quantification, visualization, and decision-making related to the energy and greenhouse gas impacts.
- Provide the foundation for the development of a code for the Downtown and Downtown Waterfront to guide and regulate future development in a coherent and consistent manner centered on urban form, design, and performance.

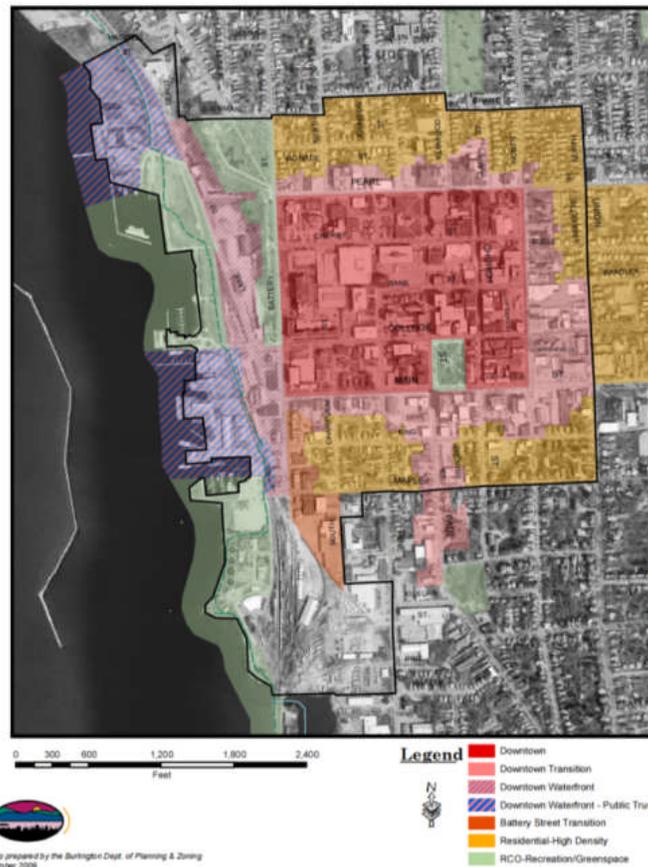
## PlanBTV Transportation Study

The central goal of PlanBTV is to identify, understand, and address current barriers to new infill development. This Transportation Study for PlanBTV provides important information, perspective, analysis and recommendations that will be used to inform the planning process with regard to parking and circulation, and includes the following elements:

- Synthesis of Prior Plans and Studies
- Existing and Future Circulation
- Existing and Future Parking
- Parking Ordinance and Policy Review
- Involvement and Participation of Local Planning and Development Stakeholders
- Recommendations for Overcoming Transportation and Parking Barriers to Infill Development

The study area is shown in Figure 1. Rather than serve as a stand-alone plan, this report and the information, analysis, and recommendations provided in it are intended to inform the upcoming master planning and code development phases of PlanBTV.

Figure 1: Study Area and Land Use Zoning



### 1.1 Synthesis of Prior Plans and Studies

The Synthesis of Previous Plans and Studies reviews documents which have brought Burlington to its current state and established the future vision for the City. Major themes from these plans include the need to **develop a seamless transportation system that provides high bicycle and pedestrian connectivity and convenient, reliable, and comfortable transit**. Other major take-aways from these documents are **improving access to parking**; that is, improving parking efficiency, traffic circulation, and the users' experience (and consequently economic vitality); and the need for improved **parking management**, such as wayfinding improvements and implementation of 'smart signs' that convey real-time parking information. Another common recommendation is for the development of a **multimodal transportation center**. CCTA identifies this as its "most needed facility investment" in its 2010 Transit Development Plan. A multimodal transportation center is critical in advancing improvements in the overall system. Expanding transit system routes (in terms of frequencies, service hours, and geography) is also a priority.

Plans which have special significance to PlanBTV include the **Waterfront South Access Study**, which developed alternatives for access and circulation to promote economic development in the southern portion of Burlington's Waterfront. The plan identifies various forms of a new grid street network to increase frontage and property access, remove truck traffic from neighborhoods, facilitate multimodal movements, and develop economic potential while accommodating the railyard.



In addition, construction plans for recommendations of the **Waterfront North Access Project** are currently in development, including:

- Re-alignment of northern Lake Street and the bike path, including pedestrian amenities, stormwater improvements, undergrounding of utilities, street lighting, landscaping, and parking, which will support adjacent development opportunities.
- Continued investigation of improvements to Depot Street to make it a bicycle/pedestrian only route and development of a stairway extending from Sherman Street to the Waterfront. These improvements will address public safety; enhance waterfront access from the Old North End, and upgrade stormwater, utilities and street lighting.
- Other concepts identified in the 2009 scoping study such as north-south transit along the Waterfront, in-slope parking, and funicular require additional study. With respect to the parking and funicular, the City should pursue partnerships with private property owners.

The **Burlington Transportation Plan** (BTP) assumes the role of the transportation element of the Municipal Development Plan. One of the most significant aspects of the 2011 Transportation Plan is its adoption of a Complete Streets strategy to accommodate all users. The Plan suggests different classifications for City Streets (e.g., Complete, Transit, Bicycle, Slow, State Truck Route, and Neighborhood) and provides guidelines for each type. Within the PlanBTV study area (Figure 2), the majority of the streets are “Slow Streets,” while Battery St. and Winooski Ave are “Complete Streets” that include transit, bicycles, and pedestrians. Pearl, Main, and St. Paul Streets are to be “Transit Streets” that prioritize efficient transit movement. Whether the roadway volumes can be accommodated by the Design Guidelines will need to be determined in case-by-case analyses.

Finally, implementing the comprehensive recommendations of the 2008 **Burlington Wayfinding Plan** is expected to address several issues, such as pedestrian connectivity and parking management. One of the primary targets for the Wayfinding Plan was parking garage identification and information.

Figure 2: Burlington Transportation Plan Adopted Street System



## 1.2 Circulation

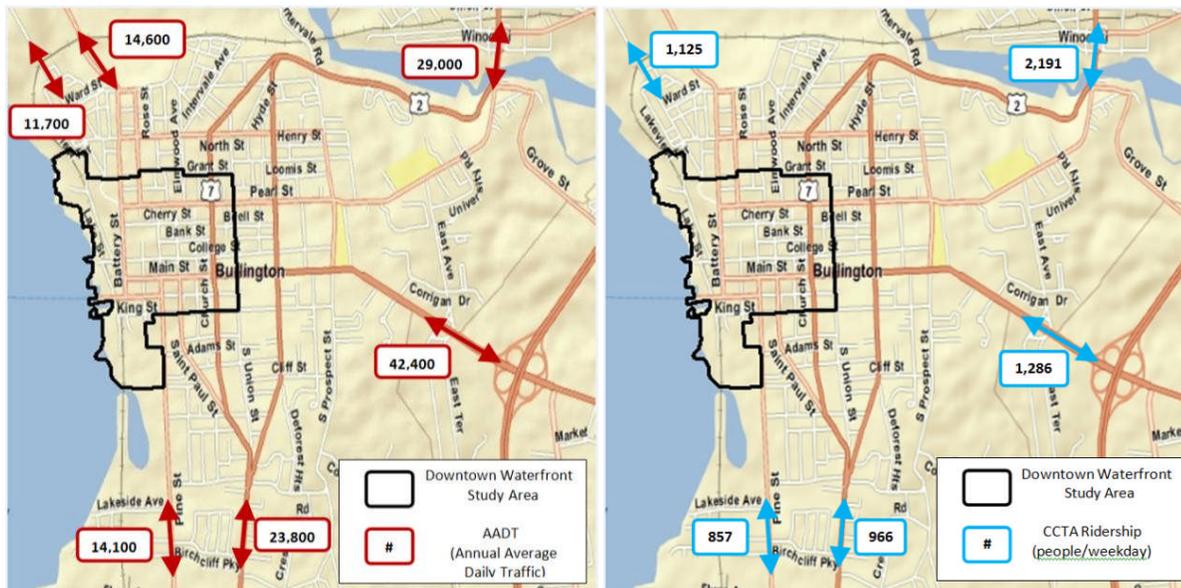
This section provides an overview of existing and future circulation conditions, including street design guidelines, transit and carsharing, traffic volumes, and bicycle and pedestrian circulation.

### 1.2.1.1 Arriving in Burlington

Figure 3 shows the proportions of traffic (Average Annual Daily Traffic or AADT) at each of Burlington’s six entry points. US 2/Williston Road is by far the largest gateway, followed by the Winooski Bridge, VT 127 & North Avenue (combined), and US 7/Shelburne Road. These splits differ from CCTA ridership: in Figure 4, the number of riders is shown for all CCTA routes entering at that point on an average weekday. The majority of riders enter Burlington from the northeast gateway at the Winooski Bridge. The North Avenue and US 2/Williston Road routes are the next largest, while ridership from the south is split between Pine Street and Shelburne Road.

Figure 3: 2007 Traffic Volumes (AADT) for Burlington’s Entry Points (source: CCRPC)

Figure 4: CCTA Average Weekday Ridership by Entry Corridor (source: CCTA 2010 Transit Development Plan)



### 1.2.1.2 Transit

The CCRPC Metropolitan Transportation Plan notes that approximately 40% of peak hour-person trips begin and end in Burlington, South Burlington, and Winooski. Therefore, improving transit service between these three areas may help to address the high volumes on Main Street, Pearl Street, and Pine Street (Figure 5). Although inter-regional services such as the LINK Express routes are needed and are very successful, focus on shorter, more local transit service has been suggested in previous plans and studies. Past recommendations to improve the transit system have included expanding system convenience, particularly by increasing service hours and frequencies on the major corridors that serve the City: North Ave, Colchester Ave/Pearl Street (VT 15), Williston Road/Main Street (US 2), and Shelburne Road (US 7). These routes have the highest ridership in the CCTA system. Looking forward, the College Street Shuttle is repeatedly identified as the model of how transit in Burlington should operate: high-frequency, convenient, user-friendly, and easy to understand.

Based on the Synthesis of Previous Plans and Studies (Section 2.0), two prerequisites to addressing transit service gaps are 1) developing a multimodal transportation center and 2) reforming the transit



funding framework to provide the adequate support and resources. The current funding framework is based on property taxes of the towns that are members of CCTA. Reforming this framework so that transit is funded by a dedicated transportation source such as a fuel tax, parking revenues, or driver's licenses/vehicle registration fees, are alternative funding possibilities.

### 1.2.1.3 Single Occupancy Vehicles

Burlington aims to create a “park once” situation for drivers either at the periphery of the City with high-frequency shuttle service into the downtown core for commuters, or within the core itself to serve shoppers and visitors. Figure 5 shows the volumes on the roadways within and approaching the study area: Main and Battery Streets carry the most traffic, followed by Pearl, Pine, and St. Paul Streets and North Avenue. The CCRPC MTP notes that the regional transportation demand model predicts significant congestion by 2025 along most of North Avenue.

Figure 5: 2007 Average Annual Daily Traffic (AADT)(source: CCRPC)



### 1.2.1.4 Bicycles and Pedestrians

The Downtown and Waterfront areas are quite walk-able, with a comprehensive system of sidewalks, crosswalks, and pedestrian signals. There are blocks where the streetscape is much more attractive and inviting to pedestrians. For example, it is generally considered that walking past pedestrian-scale storefronts and residences (such as on College Street) is more inviting than continuous stretches of undifferentiated exterior walls in evidence in some downtown locations. For bicycles, one of the most significant east-west barriers is the hill from the Waterfront to Downtown. In addition, bicycle facilities are mostly north-south rather than east-west.

## 1.2.2 Future Circulation

The future circulation analysis component of this study has been performed using the Chittenden County Travel Demand Model. This model represents daily traffic (AADT) and has been calibrated to 2005 traffic conditions. RSG has developed this model for the CCMPO. The CCMPO uses this model for a variety of transportation planning purposes, including for projecting future year land use and transportation activity.

For the PlanBTV Transportation Study, the CCMPO model was run to 2040, assuming 1% annual growth in the region's population and employment. From this “CCMPO 2040 Base Case”, a new “Burlington Downtown-Waterfront 2040 Base Case” was developed for this analysis incorporating specific future

growth within the study area provided by the Department of Planning and Zoning. The purpose was to test the impact on congestion of achieving a more favorable ratio of jobs to housing.

The model was run using the new Burlington Downtown-Waterfront 2040 land use to obtain traffic volumes and volume-to-capacity ratios for six arterial roadways<sup>2</sup>:

1. VT127
2. North Avenue
3. US7/Shelburne Road
4. Pine Street
5. Main Street/US2
6. Colchester Avenue/Riverside Avenue

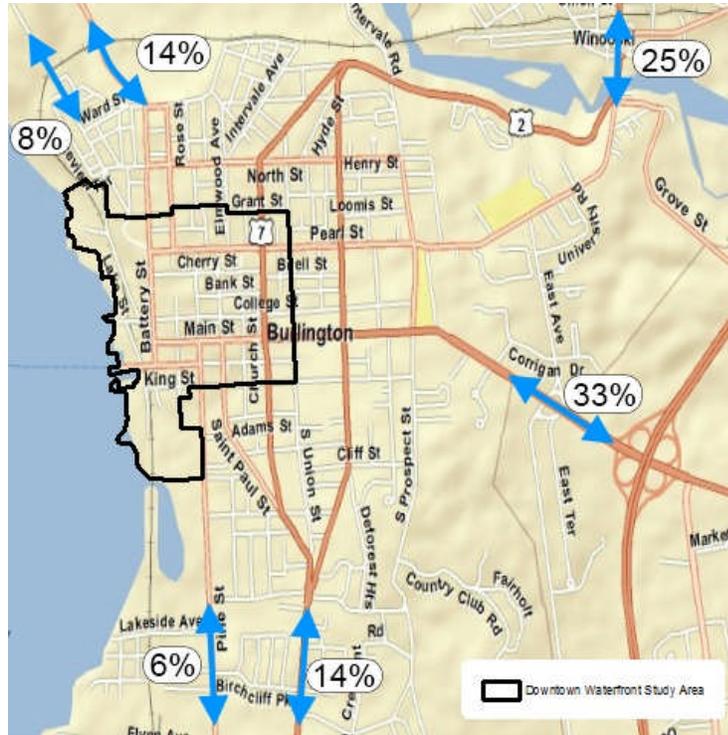
Figure 6 shows the source (or origin) of external traffic destined for locations within the study area.

The model was run to test circulation results for two scenarios, as follows:

1. **Scenario 1** includes three Park and Ride lots (Exit 14—1200 spaces, Exit 16—800 spaces, South End Transit Center—1000 spaces) as recommended in the 2011 CCMPO Park&Ride Plan. This scenario also includes increasing CCTA service frequencies to 15 minutes for the six routes serving the study area.
2. **Scenario 2** models a “balanced” land use scenario within the core study area, seeking to increase the amount of housing relative to jobs, as consistent with the Burlington Legacy vision. It includes the elements of Scenario 1 as well.

Table 1 summarizes the jobs and households located within the study area for each model scenario. For comparison purposes, the land uses assumed by the 2010 and 2040 CCMPO models are provided. Note that Scenario 1, which models higher CCTA bus frequency and implementation of the three intercept parking facilities, uses the 2040 BDW Base land use assumptions.

Figure 6: Source of External Traffic Destined for the Study Area<sup>1</sup>



<sup>1</sup> The data in Figure 28 are from the CCMPO Travel Demand Model and represent projected 2040 travel conditions.

<sup>2</sup> Note that the v/c ratios reported are for roadway segments and not for intersections. Intersection v/c ratios are generally higher than roadway segment v/c ratios due to the presence of conflicting traffic. The roadway segment v/c ratios are best understood in comparison across the 3 alternative scenarios.



Table 1: Land Use Assumptions from the CCMPO Travel Demand Model for the Downtown-Waterfront Study Area

	Jobs	Households	Jobs per household
2010 CCMPO	12,959	2,535	5.11
2040 CCMPO	14,579	3,502	4.16
2040 BDW Base	19,780	4,225	4.68
2040 BDW 'Balanced'	14,579	4,858	3.00

The amount of new housing depicted in the 2040 BDW “Balanced” scenario represents a 91% increase in housing within the study area. This points to the need for substantially increasing allowable residential densities within the study area to achieve the land use vision expressed in the Burlington Legacy project. Specific zoning amendments will be necessary to facilitate increased residential densities. For this to be achieved the City will need to eliminate the limit set forth in Section 4.4.1 (d) 1.B. of the Comprehensive Development Ordinance which restricts residential use in the Downtown and Downtown Waterfront Districts to 50% of the gross floor area of a site.

For both scenarios and for both times of day, arterial link volumes are either equal to or less than the base case. Volume-to-capacity ratios are reduced as a result. Of the two scenarios, the “balanced” land use scenario, which concentrates significantly more residential development within the study area, is more effective at reducing arterial congestion. This point is reinforced by Figure 7 which depicts the downtown Burlington street network and shows the relative change in travel time between the 2040 Base Case and Scenario 1 (left) and Scenario 2 (right). The green highlighting indicates streets where delays are reduced >10% relative to the base case; red indicates areas where delays are increased >10% relative to the base case; and, no change indicates similar travel time performance between the base case and the scenario.

These figures indicate that both scenarios are effective at relieving congestion in the study area, but that Scenario 2 is significantly more effective since a much larger amount of trip making can be made with non-automobile modes due to the higher concentration of residents in the downtown.

Figure 7: Comparison of 2040 Base Case Travel Times with Scenario 1 and Scenario 2 Travel Times



This is a compelling result that supports the Burlington Legacy Vision and reinforces the transportation benefits of encouraging housing investment within the study area. Other initiatives within this project point to parking policies designed to encourage investment in downtown housing. Combined – the lower parking requirements and the positive travel time results – show that policies to encourage housing development in the downtown are synergistic.

## 1.3 Parking

In Burlington, the Department of Public Works manages the public parking supply, including parking meters and revenue collection. Public Works subcontracts enforcement to the Police Department. In 1999, the City established a Downtown Improvement District (which is roughly encompassed by this study area). An annual tax levied on nonresidential properties within the District funds a parking program which provides two hours of free parking in any designated municipally or privately owned or operated off-street parking facility within the District.

This section describes existing and future conditions.

### 1.3.1 Existing Parking Conditions

This section summarizes parking capacity and operations, occupancy, and ownership and use.

Figure 8: Parking Capacity in the Study Area by Type

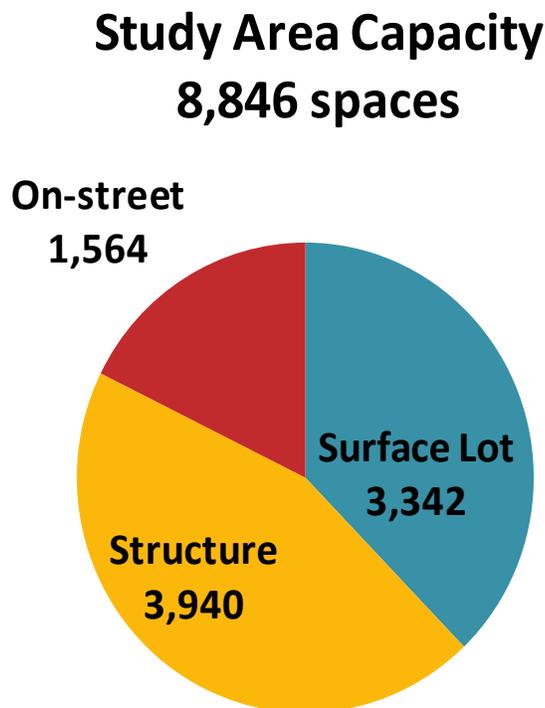
#### 1.3.1.1 Parking Capacity and Operations

As shown in Figure 8, there are 8,846 parking spaces within the study area. The City's three downtown parking structures and the Burlington Town Center garage (privately owned but open to public parking) are able to offer the first two hours of parking for free thanks to the Downtown Improvement District. The majority of parking (not including leased or monthly permit parking) costs an average of \$1/hour; three facilities charge somewhat more or less.

#### 1.3.1.2 Occupancy

Parking counts were performed in summer 2011 following the methodology of the 2003 Downtown Burlington Parking Study. The counts confirmed that the peak parking occupancy occurs between 1:00 and 3:00PM on Friday afternoon, when it is likely that weekend visitors are entering Burlington and overlapping with downtown employees who are still at work.

An occupancy of 85% is suggested as the level at which parking supply is used most efficiently because parking spaces are being used but there are still enough spaces empty to allow for turnover.<sup>1</sup> As shown in Figure 9, the total occupancy of the study area during the peak period was 65%, well below the 85% optimum. However, there are specific facilities and locations within the study area that are used more



<sup>1</sup> Donald Shoup (2005), *The High Cost of Free Parking*, Planners Press ([www.planning.org](http://www.planning.org)).



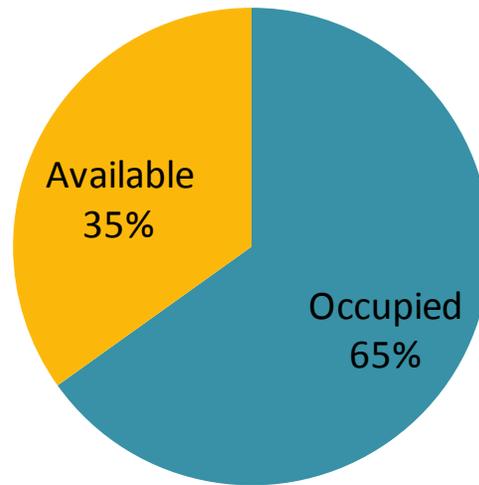
than others. The data are generally consistent with the patterns identified in the 2003 parking study, except that occupancies in 2011 were slightly lower.

Figure 10Figure 40 shows that on-street spaces are more occupied than garages and lots in Zones 2, 3, 4, and 9. This, combined with the highly visible conflicts that develop when the Marketplace garage (Zone 2) fills up, creates a strong perception that there is a shortage of parking. However, there are 988 empty parking spaces in the lots and structures of these zones at the same time;<sup>1</sup> 429 of these empty spaces are in Zone 2. Empty spaces are distributed throughout the zones (as opposed to a few specific facilities that are underutilized); however, since many are restricted to private property users and/or are difficult to find, they are underutilized.

This analysis suggests an opportunity for shifting parking demand to underutilized facilities such as the Lakeview garage (66% occupied), through improved user information (advertising 2-hours free parking in garages, as well as smart signs indicating available spaces three blocks away) and/or pricing (for example, installing parking meters with variable pricing technology to charge more during the peak period for parking adjacent to the Marketplace compared to a block or two away).

*Figure 9: Total Parking Occupancy in the Study Area during the Friday 1-3PM Peak Period*

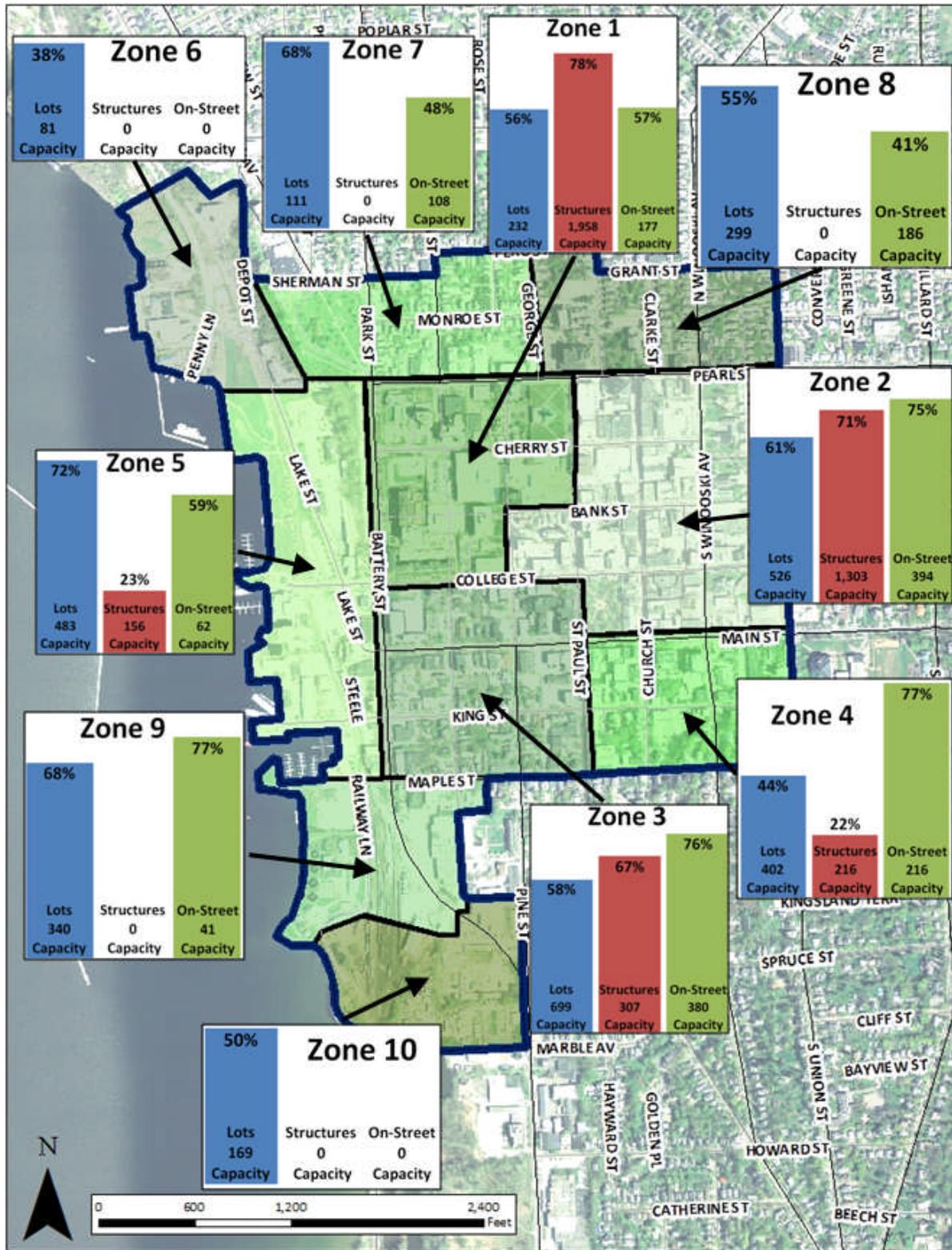
**Study Area Capacity: 8,846 spaces**  
**Total Occupancy during Peak Period**



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<sup>1</sup> This includes empty spaces in privately owned facilities that are only available to that property's affiliates. Shared parking arrangements, which would allow more people to use these facilities, would make more efficient use of the existing parking supply.

Figure 10: Zone Occupancy by Type of Parking



### 1.3.1.3 Facility Ownership and Use

As in the 2003 parking study, facilities were considered in light of ownership and use:

- Public/Public lots and structures are owned by the City and open to the public.
- Private/Private facilities are privately owned and are open only to the owners' clients and/or employees.
- Private/Public lots and structures are privately owned, but open to the general public.

In addition, there are facilities that are Private/Private during business hours, but open to the public at other times. For example, Main Street Landing's surface lot on the Waterfront is permit-only for tenants Monday through Friday until 6PM; at other times the general public can park there for a fee. This example presents a valuable opportunity for sharing parking: efficiency can be improved by sharing parking among uses during off-peak or non-operating hours.

Figure 11: Surface Lot and Structure Parking Capacity by Ownership/Use

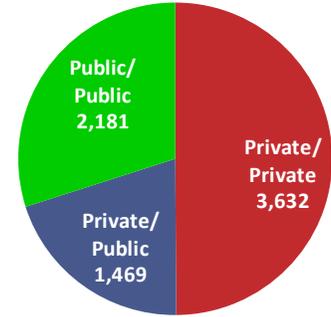
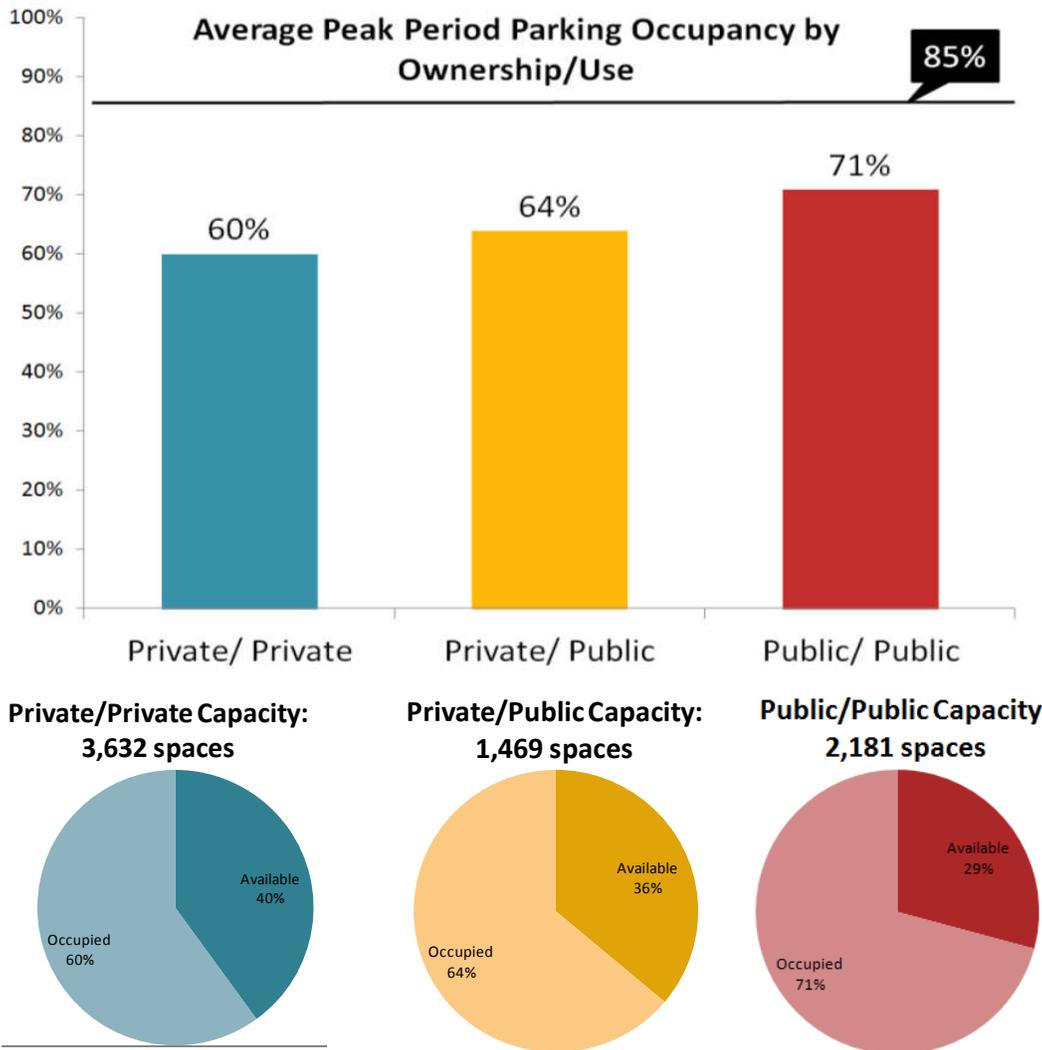


Figure 12: Peak Period Parking Occupancy by Ownership/Use



The Department of Public Works Traffic Division provided information regarding the amounts and sources of parking revenue - totaling approximately \$8.3M annually. This includes revenues from on-street parking meters, City-owned garages both downtown and at the Airport, and the Downtown Improvement District special assessment to provide 2-hrs of free parking downtown. While over 90% of these revenues are used to cover operations and maintenance, approximately \$780,000 of parking revenues are used to pay for a variety of non-parking programs such as traffic signals, flower planting, and school crossing guard programs.

### 1.3.2 Future Parking Conditions

An analysis of the future parking supply necessary to support 2040 land use within the study area has been conducted for the same scenarios as the future circulation analysis, Section 3.2:

- 1) the 2040 Base Case (business as usual)(19,780 total jobs and 4,225 total residences in the study area) ;
- 2) Transportation Improvements (3 new park&ride/intercept facilities and increased CCTA frequencies) (19,780 total jobs and 4,225 total residences in the study area); and,
- 3) Balanced Land Use (addressing the jobs/housing imbalance by increasing the amount of housing relative to jobs) (14,579 total jobs and 4,858 total residences in the study area).

The jobs and household estimates provided in Table 2 have been converted into gross square footage based on housing and commercial square foot estimates developed for existing conditions. To maintain an 85% parking occupancy rate, the analysis shows that a ratio of 0.83 parking spaces per 1,000 square feet of commercial building area is necessary. Parking requirements for residential uses are tied to the current zoning requirements of one parking space per dwelling unit.

Table 2 shows the results of this analysis. As the study area is currently under a surplus parking condition (peak occupancy is 65%), the study area can accommodate the additional growth to increase utilization to the 85% occupancy rate. However, under the assumptions of high job growth projected for the Burlington Downtown-Waterfront (BDW) Base Case, where employment in the study area increases from a little under 13,000 jobs in 2010 to nearly 20,000 by 2040, an increased requirement of over 3,000 parking spaces is projected. This amounts to a 34% increase in parking supply within the study area. This projection assumes the continuation of current parking requirements for residential dwellings of one space per residential unit.

Scenario 2, the balanced land use scenario, projects an increase of over 1,600 jobs and 2,300 housing units in the study area. Under this more balanced land use projection, an additional requirement of 1,654 parking spaces are projected as necessary (a 19% increase over existing supply), further supporting the positive impact on parking and circulation that a more balanced jobs-housing ratio could provide. As with the Base Case, this projection assumes continuation of current parking requirements for residential dwellings of one space per unit. These findings are summarized in Table 2.

Table 2: 2040 Jobs, Households, Commercial and Housing Square Footage, and Parking Supply within the Study Area

	2040 BDW Base	2040 Balanced Land Use
Jobs	19,780	14,579
Households	4,225	4,858
SF in Commercial (est.)	9,268,222	6,831,214
SF in Housing (est.)	6,441,435	7,406,507
BDW Parking Supply at 85% Occupancy	11,880	10,500
Net Change from Existing (8846)	3,034	1,654



Incorporating parking management factors, as described in Section 5.0, would be consistent with the overall goals and objectives of concentrated downtown development. Assuming that parking reduction factors, implemented over the planning horizon to 2040, would reduce the parking requirement for residential units from 1 space per unit to 0.5 spaces per unit, parking supply within the study area would only need to increase by approximately 500 spaces above the current supply (a 6% increase). Note that further reductions in residential parking requirements to as low as 0.33 per unit may be possible. Hence, the foregoing analysis projects a more conservative future condition where parking requirements are reduced gradually as other supporting travel demand management measures are co-implemented. Table 3 shows the results of this analysis compared with the results from Table 2.

*Table 3: Jobs, Households, Commercial and Housing Square Footage, and Parking Supply within the Study Area, Showing the Impact of Parking Reduction Policies for Residential Development*

	2040 BDW Base	2040 Balanced Land Use	2040 Balanced Land Use with Parking Reduction Policies
Jobs	19,780	14,579	14,579
Households	4,225	4,858	4,858
SF in Commercial (est.)	9,268,222	6,831,214	6,831,214
SF in Housing (est.)	6,441,435	7,406,507	7,406,507
BDW Parking Supply at 85% Occupancy	11,880	10,500	9,338
Net Change from Existing (8846)	3,034	1,654	492

## 1.4 Parking Ordinance and Policy Review

The city of Burlington, Vermont has strategic planning objectives that include more compact development, reduced motor vehicle travel and shifts to alternative modes, and more affordable development. Current parking policies contradict many of these objectives. Various policy reforms which result in more efficient use of parking facilities and reduce parking supply requirements can better align parking decisions with strategic planning objectives.

Burlington currently imposes conventional minimum parking regulations and provides modest incentives and support to businesses and residents to more efficiently manage parking. The minimum parking regulations are often significantly higher than needed, particularly in areas with compact and mixed development, and multi-modal transport systems (good walking, cycling and public transit). These generous and inflexible standards tend to contradict many planning objectives, including efforts to reduce drunk driving, encourage urban infill, reduce vehicle traffic, and increase development affordability. The City reduces parking requirements in the Downtown and Shared Use districts, but even there parking requirements are often excessive and contradictory.

These regulations reflect an old parking planning paradigm, which assumes that parking should generally be abundant and free, and parking management need only be implemented in special conditions where increasing parking supply is infeasible. A new parking planning paradigm favors reduced and more flexible parking requirements with more emphasis on parking management strategies.

There are more than a dozen parking management strategies that may be appropriate in downtown Burlington. Some are already being implemented (such as transit access, walkability, and off-site parking), but could be applied more. Although individually their benefits may appear modest, typically reducing parking requirements at a particular location by just 5-15%, their impacts are cumulative and synergistic (total impacts are often greater than the sum of individual impacts), so an integrated parking management program can often reduce the number of parking spaces needed to provide a given level of service by 20% to 40%, and often higher if implemented with other transport and land use policy

reforms. This can provide substantial savings and benefits, making parking management the most cost-effective solution to many problems.

### 1.4.1 Parking Management Strategies

The following management strategies should be pursued in Burlington:

1. *Reduced and more flexible parking requirement.* Significantly reduce minimum parking requirements, particularly in central areas (downtown and nearby neighborhoods, and other major commercial centers). Incorporate standard adjustment factors by which minimum parking requirements are reduced for specific demographic, geographic and management factors. The existing conditions assessment of this report suggests that parking occupancies are generally lower than the recommended 85% level, so the parking supply is not being used as efficiently as it could be. Therefore existing facilities should be managed more efficiently rather than building additional parking that will not be optimally used.
2. *Improve user information.* Providing convenient information to travelers on their parking supply and pricing options (such as real time information on the location and price of available parking spaces), and travel options (such as how to use public transit) allows travelers to choose alternative parking locations and transport options. The existing conditions assessment and stakeholder input indicate that finding parking is difficult, which speaks to the need for better user information to improve parking efficiency.
3. *Public-private partnership (PPP).* A PPP could provide parking brokerage services (facilitating sharing of parking facilities among downtown businesses) and provide other parking and transportation management services. Currently, the lack of a single entity to organize and facilitate transportation and parking demand management programs and strategies prevents Burlington from realizing a more efficient and seamless transportation system. A PPP would organize services such as Guaranteed Ride Home Programs, bicycling and walking incentives, transit pass subsidies, parking brokerage and shared parking facilitation, and parking system data collection and management. The PPP could be funded by a parking enterprise fund, as described below.
4. *Shared parking.* As much as possible, parking facilities should serve multiple destinations, particularly downtown. This means encouraging use of on-street (curb) parking and shared off-street parking facilities in place of individual, dedicated off-street parking facilities at each destination. Shared parking would be facilitated by a PPP and would improve the utilization and efficiency of existing facilities that are less than 85% occupied during peak periods, reducing the need to build new parking.
5. *Parking enterprise fund.* This fund would generate revenue for parking demand management and operations management of existing facilities. The fund would be paid into as an alternative to building parking supply on private parcels. In contrast to in-lieu fees, this enterprise fund would be assured to be reinvested into the system. The enterprise fund would be used to pay for improvements such as parking wayfinding, meter upgrades, data collection, and parking demand management programs and services.

## 1.5 Parking & Transportation Issues and Opportunities

To inform this section, we met with developers to gain an understanding of their experiences with development in Burlington and the barriers that they encounter. Based on these meetings, the synthesis of prior plans & studies, the existing conditions assessment, and the review of the current parking ordinance, the following issues and ideas have been identified.



### 1.5.1 Parking

1. *Issue:* There is a common perception that there is a shortage of parking within the study area, and most agree that parking is very difficult to find due to a lack of user information. The parking inventory and utilization analysis, however, shows that parking is not being used optimally; that is, even during the peak period, most parking facilities (with the exception of on-street and the Marketplace garage) are less than 85% occupied. Therefore, while there may be some limited opportunities to create additional parking over the long-term, **the City's priority should be to manage existing parking resources more efficiently.**
2. *Issue:* Since parking can be very difficult to find, visitors and customers get frustrated with Burlington before they even get out of their vehicle. The **parking experience needs to be improved,** as this is the first impression of Burlington that visitors and customers will have.
3. *Issue:* Currently, cost and the availability of space for **parking determines redevelopment potential.** Therefore, one of the reasons that infill development is not taking place at the rate at which the City would like is because the requirements to provide parking make many projects infeasible from the developers' point of view. How can parking be managed and regulated so that it is not a barrier to infill development? What regulatory and management strategies can be implemented to provide alternatives to increasing parking capacity?
4. *Opportunity:* Being **pro-active in parking management,** for example, deploying new meter technologies, working with private property owners and developers to share parking, collecting data and surveying users, developing and administering demand management programs, etc., will help to improve efficiency. Public Works is in the process of improving **parking payment systems/meters and wayfinding.** This will enable management strategies that involve pricing, such as variable/peak period pricing, and improve user information. Wayfinding will reduce congestion resulting from drivers circulating as they hunt for a parking space. In addition, there are many great ideas and strategies to manage parking, but these initiatives need a home in order to be implemented. A **public/private partnership** to organize these efforts and to manage daily operations of the parking supply is needed.
5. *Issue:* **Lack of ongoing parking data collection.** Specifically, utilization (including turnover), user groups, and any spillover parking issues should be monitored so that operational issues can be identified and addressed. For example, parking leases could be moved to underutilized facilities if occupancy data were more readily available. Particularly because parking demand fluctuates depending on time of day, week, and year, ongoing data collection (such as a parking census) is needed to indicate parking trends and management gaps. As the saying goes, "you can't manage what you don't measure."
6. *Opportunity:* **If additional parking were needed in the future, where could it be built? How could it be paid for?** Does the current distribution of parking support Downtown and Waterfront destinations; is parking located where it is needed now and in the future? New parking would likely take 5-10 years to develop. Therefore, optimizing efficiency and use of the existing parking supply as a resource is necessary to minimize the need for new parking.

### 1.5.2 Circulation and Connectivity

1. *Opportunity:* There is an opportunity to develop **a seamless transportation system,** particularly through improvements to transit and to bicycle/pedestrian connectivity. The quality of existing transportation alternatives is not adequate to attract choice users and reduce parking and transportation demand.
2. *Opportunity:* Developing Park&Ride facilities to **intercept traffic entering the core.** Creating off-site parking connected to downtown via high-frequency shuttle will reduce parking demand and congestion in the core.

3. *Opportunity:* Improvements to **bicycle and pedestrian connectivity** (particularly Downtown to Waterfront, and north-south and east-west bicycle connections).
4. *Opportunity:* Improving **walkability**: even though physical infrastructure may be in place, the experience is not pleasant enough to attract pedestrians (e.g. College Street vs. Cherry Street).
5. *Opportunity:* To improve parking efficiency, enhanced **traveler information** such as signs, maps, websites, and GPS, should be integrated to indicate parking availability relative to popular destinations. Improvements to **wayfinding**, including real-time parking information, are currently underway by the City.

### 1.5.3 Land Use

1. *Opportunity:* **Downtown's function as a 'neighborhood'** needs to be maintained; it cannot serve visitors only, it needs to include services for residents and employees.
2. *Issue:* **Jobs/housing balance**: land use in the study area is heavily imbalanced toward jobs. Significant advantages are generated when jobs and housing are in better balance. Incentives to construct downtown housing, including reduction in parking requirements and enabling the unbundling of parking from housing, would help reduce barriers to infill housing development. Community input has specifically suggested a shortage of mid-level/"workforce" housing.

## 1.6 Recommendations

This section presents regulatory, organizational, and infrastructure recommendations to overcome parking and transportation barriers to infill development. This study has indicated that parking is underutilized because available spaces are hard to find and many spaces are restricted to private property owners and their clients. The study has also shown that addressing the jobs/housing imbalance in Burlington is estimated to more positively impact congestion and parking demand than transportation improvements alone. The recommendations focus on ways to improve parking efficiency to effectively utilize existing parking capacity, reduce parking demand, and stave off the need to build additional parking until existing resources are shown to be utilized to their fullest capacity.

### 1.6.1 Regulatory Recommendations

- **The primary recommendation of this study is to focus on residential development in the study area.** Not only does addressing the housing-jobs imbalance<sup>1</sup> in Burlington help to reduce congestion and parking demand by allowing more employees to walk, bike, or take transit to work, but there are also several tools to manage the parking demand associated with residential development. Section 4.4.1 (d) 1.B. of the Comprehensive Development Ordinance limits residential use in the Downtown and Downtown Waterfront Districts to 50% of the gross floor area of a site; this limit should be eliminated and the residential/non-residential mix of uses determined by the market.
- **Facilitate and encourage shared parking.** Because much of the existing parking supply in Burlington is restricted to private property owners and their clients, making existing parking accessible to more people is critical to increasing efficiency. The strategy is to use existing parking more intensively (for more hours of the day) rather by working with the private owners to develop arrangements that can make these spaces available to more potential users and thus improve their efficiency.

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<sup>1</sup> As noted in the Burlington Municipal Development Plan, the CCMPO Metropolitan Transportation Plan, the CEDO Economic Development Plan, and others.



- **Parking requirements should be more flexible for developers if they incorporate demand offsetting elements** such as: being located near carshare pods; including vehicle limitation covenants or unbundled parking for residential developments; arranging shared parking.
- **Consider creating a parking enterprise fund.** The enterprise fund would be used to pay for improvements such as parking wayfinding, meter upgrades, data collection, and parking demand management programs and services.

### 1.6.2 Organizational Recommendations

City staff and developers have agreed (in meetings for this study) that **the public and private sectors have their strengths and weaknesses and should work together through a public-private partnership (PPP) for an optimal result.** Currently, the lack of a single entity to organize and facilitate transportation and parking demand management programs and strategies prevents Burlington from realizing a more efficient and seamless transportation system. The PPP would manage parking and provide a single point of contact to **organize and coordinate the multitude of parking facilities and operate the parking supply as one system.** The PPP could be funded by a parking enterprise fund as described above. Among its functions would be:

- **Broker parking arrangements and negotiate shared parking.**
- **Provide a home for Transportation Demand Management (TDM) programs.** It is important to keep in mind that TDM **solutions are not all-or-nothing.** Implementing an employee commute reduction program does not mean that employees can never drive into Burlington ever again- even switching to an alternative mode just one day per week would be a 20% reduction in demand. **Flexibility can and should be built into solutions.**
- Data collection and **developing/maintaining a parking database** is important to being able to plan and manage the parking supply effectively. The PPP would collect and maintain data to inform how, where, and when parking is used in order to support daily operations and management decisions, and to plan for future use.
- Parking is hard to find and much of the existing parking supply in Burlington is restricted to private property owners and their clients. The result is underutilized parking: this study and the 2003 Downtown Burlington Parking Study indicate that peak period occupancies do not typically meet the suggested 85% target for maximum efficiency. (Although specific facilities such as the Marketplace garage do reach capacity, there is available capacity at nearby sites such as Town Center, College Street, and Lakeview.) **Parking efficiency needs to be improved through traveler information, wayfinding, marketing, data collection, technology updates, and other management strategies to guide people to the unused parking.** As the manager of daily operations, the PPP would be responsible for this critical part of the parking system. Improvements to wayfinding (including electronic parking signs) are currently underway by the City of Burlington.

### 1.6.3 Infrastructure Recommendations

The first priority put forward by this study is to improve efficiency in the management, operation, and utilization of existing parking facilities; still, the future parking analysis estimates that about 500 additional spaces would be needed by 2040 given the assumed parking requirement adjustments. Therefore, a critical question to be answered is: **If new, additional parking capacity were needed, where, when, and how could it be built?** While the recent CCRPC Park & Ride Plan has identified intercept facilities (Exit 14, South End Transit Center, I-189 & Shelburne Road), other studies<sup>1</sup> have identified potential locations for new parking within the study area. Options that have been identified over the years include:

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<sup>1</sup> Waterfront North (2009) and Waterfront South (2010) Access Studies.

- the lot on the southwest corner of Main and St. Paul Street: currently occupied by TD Bank;
- the “Superblock” on the northeast corner of Main Street and South Winooski Avenue;
- a parking garage built into the slope on the west side of Battery Street between Cherry and Pearl Streets;
- a garage on the existing surface lot west of Vermont Wine Merchants and northeast of the railyard;

Staff agree that the timeline for new structured parking would be at least 5 to 10 years and would likely require a public-private partnership to develop.

