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## Memorandum

**To:** Bryan Osborne, Colchester Director of Public Works  
**From:** David Roberts, Senior Transportation Planner  
**Date:** June 30, 2009  
**Subject:** Biscayne Heights Technical Assistance

### Summary

The CCMPO received a technical assistance request from the Town of Colchester in January 2008 to examine bicycle and pedestrian issues in the Biscayne Heights neighborhood. In response to this request, CCMPO completed the following tasks:

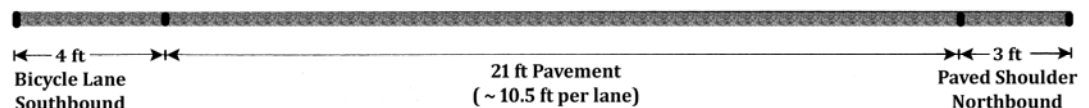
- Motor vehicle and bicycle/pedestrian counts in the summer of 2008 (see attached summary).
- Site visit for roadway measurements and video log in fall 2008.
- Review of safety history and discussion with Colchester DPW staff in February 2009.
- Follow-up site visit and video log on Sunday, June 14, 2009.

As indicated in the analysis below, the Biscayne Heights neighborhood meets Vermont standards for bicycle facilities. The town's review of 10 years of crash history in the neighborhood indicated no bicycle or pedestrian related crashes, so there does not appear to be a critical safety problem. The addition of a sidewalk or more paved shoulder width would enhance the pedestrian and bicycling characteristics of Biscayne Heights. However, improvements to Biscayne Heights should be balanced with the town's resources and other needs. CCMPO reviewed Colchester's prioritization of additional pedestrian facilities along Biscayne Heights and concurs with the current ranking.

### Analysis

Biscayne Heights is a Class 3 town highway with a functional classification of urban local road providing access to residential uses. Traffic generally moves at 30 mph or below and average daily traffic is around 400-500 vehicles per day in the summertime. Figure 1 below illustrates the current roadway cross section.

**Figure 1: Biscayne Heights Cross Section**



The road provides an important bicycle and pedestrian connection between the Winooski River bicycle and pedestrian bridge via Delta Park/Windemere Way and the Colchester Causeway via Airport Park. A typical summer weekend may see several hundred pedestrians and bicyclists on the road over the course of the day (see attached data summary).

The Vermont State Standards for local roads and streets specify a minimum lane width of 9 feet with 2 foot shoulders for a local road with Biscayne Heights' speed and volume characteristics (source: <http://www.aot.state.vt.us/progdev/Standards/06local.htm>). As illustrated in Figure 1 above, Biscayne Heights is well in excess of these standards.

The Town of Colchester has adopted public works standards for local roads. Although these standards were not in place when Biscayne Heights was constructed, the road does meet the standards for a highway with 500 or less Average Daily Traffic (ADT), which calls for a minimum of 10 foot travel lanes with 3 foot shoulders. The town might consider restriping the northbound edge line to provide an additional foot of width for a formal bicycle lane. This would still allow approximately 20 feet of pavement width for travel lanes which is in excess of the 9 foot minimum in the Vermont State Standards and meets the town's standards as well.

The Vermont Bicycle Pedestrian Design Manual has recommended practices for facility design as shown in Table 1 below.

**Table 1: Vermont Recommended Practice for Neighborhood Streets with No Curbing or Parking**

Facility Type	Minimum Width	Preferred Width
Bicycle Lane (southbound Biscayne)	4 feet	5 feet
Paved Shoulder (northbound Biscayne)	N/A	3 feet

Biscayne Heights meets the Vermont recommended practices for bicycle facilities, although the southbound bicycle lane would be enhanced with an additional foot of width to meet the 5 foot preferred width. There is no existing sidewalk on either side of Biscayne Heights. The standards recommend sidewalks on at least one side of a street for residential neighborhoods, but do recognize pedestrians are able to use paved shoulders for separation from vehicle traffic. A new sidewalk on one or both sides of Biscayne Heights would enhance bicycle and pedestrian safety by separating pedestrians from bicyclists and providing additional separation of pedestrians from motor vehicles.

On-street parking is a concern as it may create conflicts between vehicles and bicycle pedestrian use. The relatively low speeds and traffic volumes on Biscayne combined with the lack of crash history indicate the current roadway cross-section and parking policies are adequate. MPO staff observed few vehicles parked along the roadway on three site visits to the neighborhood, so it does not appear residents or visitors are commonly parking on-street. The town may consider soliciting neighborhood feedback on restricting parking, particularly along the east side (northbound lane) of Biscayne Heights as there is less width for bicycle and pedestrian use. However, given the lack of crash history, low vehicle speeds, and low volumes, it does not appear to be necessary at this point.

If the town continues to allow parking on Biscayne Heights, then the use of “sharrows” could be investigated. These are pavement markings designed to provide motorists a visual cue of the presence of cyclists as well as providing non-motorized users with an indication of where they should ride in the roadway. These markings will be included in the next update of the Manual on Uniform Traffic Control Devices (MUTCD). Several communities in Vermont are considering their use. The City of Burlington intends to install these on the east side of Pine St as well as North Ave this summer. Here are several links with more information on these devices:

<http://www.seattle.gov/Transportation/sharrows.htm>

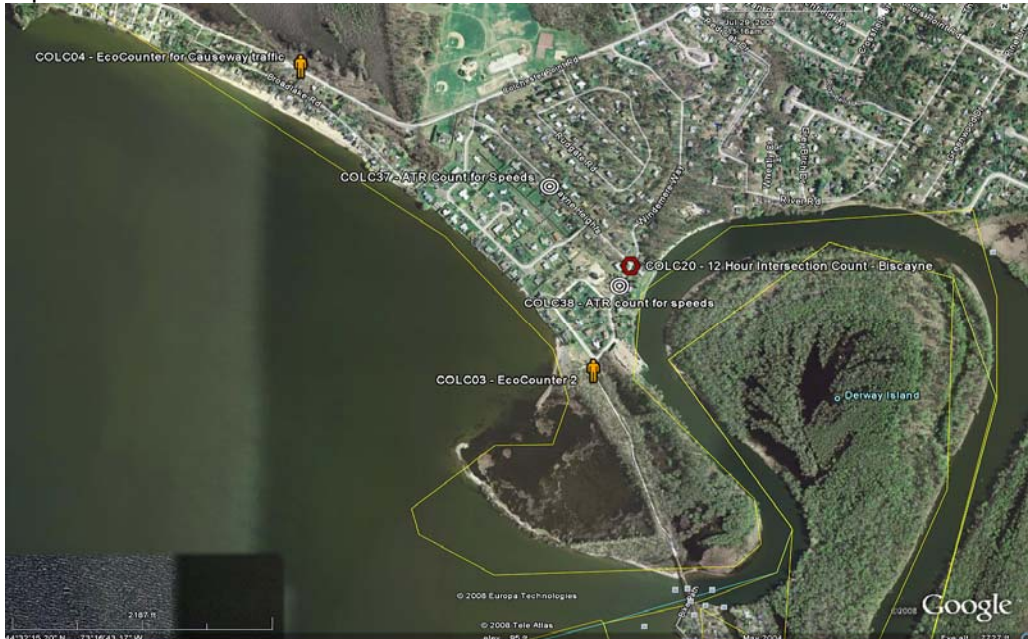
<http://www.bicyclinginfo.org/faqs/answer.cfm?id=972>

<http://www.altaplanning.com/technical+assistance+and+research +san+francisco+ ca +shared+ lane+marking+study.aspx>

**Colchester Biscayne Heights Multi Use Study**  
**Summer 2008 Data Summary**  
 revised 6/10/09

Video of Biscayne Heights Northbound: <http://www.vimeo.com/3201361>  
 Video of Biscayne Heights Southbound: <http://www.vimeo.com/3201402>  
 Includes section of Windemere Way to Delta Park entrance

**Map of Count Locations**



**Automatic Traffic Recorder Count**  
**COLC37 ( on Biscayne Heights ), 7/10/2008 - 7/17/2008**  
**Car Vehicle Data**  
 ADT 410  
 85th Percentile Speed - 30 mph; Mean speed - 20 mph  
 Peak Hour - Sat - 7/12 - 10am - 100 veh/hr

**COLC38 ( on Windemere Way ), 7/10/2008 - 7/17/2008**  
**Car Vehicle Data**  
 ADT 560  
 85th Percentile Speed - 25 mph; Mean speed - 20 mph  
 Peak Hour - Sat - 7/12 - 10am - 155 veh/hr

**12 Hour Turning Movement Manual Counts**

**Saturday, 7/12/2008 - 7:00 am - 7:00 pm**

975 vehicles ( ~ 33% coming out or turning onto Biscayne)  
 1021 cyclists/pedestrians ( 89% cyclists)  
 20 vehicles with trailers turning off Biscayne onto Windemere (to launch); 12 turning from Windemere onto Biscayne (from launch)  
 29 vehicles with trailers straight on Windemere westbound (to launch); 24 straight on Windemere eastbound (from launch)

**Saturday Peak Hour 10:00 am - 11:00 am**

60 cars EB & WB Windemere, 18 turning out of Biscayne  
 140 pedestrians/bicyclists crossing Windemere and Biscayne

**Tuesday, 7/15/2008 - 7:00 am - 7:00 pm**

360 vehicles ( ~ 22% coming out or turning onto Biscayne)  
 874 cyclists/pedestrians (87% cyclists)

**Tuesday Peak hour 3:15-4:15 pm**

20 cars on EB & WB Windemere, 4 turning out of Biscayne  
 60 pedestrian/bicyclists crossing Windemere and Biscayne

**Saturday, 7/12/2008 - 12 Hour Automobile Flow Patterns at Biscayne Heights / Windemere Way Intersection**

