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# MEMORANDUM

August 23, 2022

To: Bryan Davis Organization: Chittenden County Regional Planning Commission (CCRPC) From: Jake Berman, Theja Putta, Lucy Gibson, Michael Blau Project: Chittenden County Regional Planning Commission Active Transportation Plan Update

#### Re: Task 4.1 – DRAFT Bicycle Network Recommendations

## **Draft Bicycle Network Recommendations**

The draft bicycle network recommendations for Chittenden County include about 200 miles of streets that would allow users of all ages and abilities to traverse the county on comfortable bicycle facilities. The draft network was developed by the project team based on information gathered from the existing conditions, including the Trip Potential Analysis, Bicycle Network Analysis (BNA), public input, existing bicycle facilities, Transportation Improvement Program (TIP) and Metropolitan Transportation Plan (MTP) project locations, and important destination locations.

The project team overlaid Trip Potential Analysis and BNA results to manually develop the preliminary countywide bicycle network. These routes were drawn through cities and towns to ensure intercity connectivity as an essential part of this network. Local pedestrian recommendations will be added during network revisions/updates after client review.

The draft network, shown in Figure 1, identifies the routes that will be included in the CCRPC Active Transportation Plan Update. The draft network identifies routes similar to many of the high priority corridors identified in the 2017 Proposed Regional Active Transportation Network, further highlighting the need for active transportation upgrades on these streets. Exact project extents and facility types have not been identified for these routes yet. Existing off-street shared-use paths and trails were also included in Figure 1 to highlight the high-comfort network connectivity that will be achieved once the network is implemented.



Figure 1: Draft Bicycle Network Recommendations

### **Trip Potential Analysis**

The bicycle Trip Potential Analysis identifies areas where connections between land use factors, including commercial activity, employment, K-12 schools, parks, population, and transit, support bicycling trips regardless of current infrastructure. It is useful both for identifying where existing bicycling facilities are likely to support high activity or where improvements in infrastructure would be expected to increase activity. The results, shown in Figure 2, highlight areas with higher trip potential scores with darker shades of red, while lighter shades indicate areas with relatively lower trip potential. The urban core of Burlington, South Burlington, Winooski, Essex Junction, and Colchester has a high potential score, highlighting the need for a network to have dense connectivity in this area. Outside of the core, trip potential extends radially along corridors that lead towards town centers such as Shelburne, Hinesburg, Saint George, Richmond, Jericho, Essex, Underhill, and Milton. Results also show potential between some of these centers that are near each other, such as between Shelburne, Charlotte, and Hinesburg and between Richmond, Jericho, and Essex.



#### **Bicycle Network Analysis**

The BNA scores Census Blocks throughout the county based on whether people can ride their bicycle to important destinations on comfortable bicycling facilities. The project team used the BNA results in conjunction with the Trip Potential Analysis to identify areas where there is a high demand for bicycling but poor comfortable access. These areas indicate a need for better bicycling connectivity so people can bike to schools, shops, workplaces, medical care, and other important destinations.

The project team developed two BNA metrics: Measure 1 only compares high-comfort access to destinations with destinations that also have low-comfort access; Measure 2 compares high-comfort access to both destinations with low-comfort access and destinations which there is no current bicycling access. Please refer to Task 3.1 Bicycle Network Analysis – Revised Results memo for more detail. For the purposes of network development, Measure 2 was used to identify areas by total high-comfort bicycling access. These results, shown in Figure 3, identify areas with the lowest high-comfort bicycle access to destinations with BNA scores closer to 0 and highest access closer to 100. The towns around the urban core such as Charlotte, Saint George, Jericho, and parts of Shelburne, Williston, Essex, Colchester, and Milton as have the fewest destinations accessible to people biking on the high comfort network and therefore have the highest need for greater bicycling connectivity.

As part of the BNA, the project team developed scenarios showing how the BNA scores would change with bicycle facility improvements on targeted streets, which is outlined in greater detail in the Task 3.1 Bicycle Network Analysis – FINAL memo. While this process was completed independently from the bicycle network recommendations, both have overlaps with the eventual network. Scenario 1 shows how BNA scores change along Route 2 from Williston into Burlington; this corridor is already included in the draft Bicycle Network Recommendations.

The other scenario selects high-stress segments in areas with a high proportion of BIPOC population, households without vehicle access, and/or households with income below the poverty level to create an equity-focused scenario. Many of these segments overlap with segments selected in the draft Bicycle Network Recommendations, which are shown in Figure 4. In both scenarios, BNA scores increase to very high levels in the areas directly surrounding network improvements, but quickly decline to baseline levels outside those areas due to high-stress segments nearby. This scenario highlights the importance of a connected high-comfort bicycle network, which the Draft Bicycle Network Recommendations intend to achieve.





Figure 4: EJ Scenario Network Overlap



### Public Input, Existing Bicycle Facilities, TIP, MTP, and Other Destinations

The project team refined bicycle network recommendations by examining desired and actual connections to other planned or existing facilities. Network recommendations connect to existing trails to ensure the recommendations lead to a connected network of comfortable facilities. For example, approximately half a mile of Harbor Road in Shelburne was added to the network to provide a connection between Shelburne Road and the Ti-Haul Trail. Other recommendations end at existing trails, such as the northern terminus of the Spear Street recommendation in South Burlington and the West Lakeshore Drive and Prim Road recommendations in Colchester.

Public feedback indicated desires for connections to facilities like the Waterfront Park in Burlington, which are also included at multiple points. This feedback also indicated desires for connectivity over the interstates separating Burlington from South Burlington, so multiple connections are included in the network.

Many of the network recommendations are located in areas with projects planned in the TIP and MTP. Please refer to Task 1 Materials Review memo for a list of these projects. While some of these are already planned as bike/ped projects, like the path along Williston Road in Williston and the path on Spear Street crossing I-189 in South Burlington, most of these projects are highway-related. These projects present opportunities to incorporate high-comfort bicycle and pedestrian facilities where they coincide with network recommendations. In addition to routes connecting more rural towns with Burlington, such as the TIP project along Shelburne Road through Shelburne and South Burlington, many of these TIP projects make up the core network in Burlington itself where the demand for bicycle facilities is highest. The TIP and MTP projects are shown alongside the bicycle network recommendations in Figure 5.

Finally, the network is designed to accommodate connections to important destinations, particularly schools and future growth centers. For example, connections to the existing network near the University of Vermont are included along Main Street in Burlington and via Spear Street. Since the catchment area for Richmond schools include children in Jericho and Underhill, Browns Trace is included in the network to connect these towns. Similarly, since Hinesburg schools include students living in Shelburne, it was important to include the Shelburne Falls Road/Dorset Street/Irish Hill Road connection in the network in addition to connections to Charlotte, St. George, and Williston that were included as part of the Trip Potential process. The future "growth center" identified in the CCRPC Future Land Use Plan in Colchester is connected to nearby schools, residential areas, and commercial areas with network connections on Roosevelt Highway and Severance/Blakely Roads.



Figure 5: Draft Bicycle Network Recommendations with TIP and MTP Project Locations

#### **Next Steps**

Once CCRPC staff and the Advisory Committee review the draft network, the project team will divide each route into segments. Segments will follow logical breaks, like jurisdiction lines, changes in land use, or natural dividing lines like major corridors, bridges, changes in terrain, etc. We will assign each segment a project ID and include information such as

- Extents
- Facility type
- Comfort level
- Jurisdiction(s)
- Length
- Connections to other facilities

Dividing routes into segments allows for a more nuanced prioritization approach since different segments of the same route can receive unique prioritization scores. Detailed recommendations will provide a description of each project that clearly justifies the project's purpose and the needs that it will address.

Pedestrian infrastructure recommendations will focus on Milton and South Burlington as examples, using the Trip Potential Analysis results for each community as a starting point, and provide guidance on how to replicate this process for other communities in the county.