

# EXHIBIT 2D: EXAMPLE SEPARATED BIKE LANE CONFIGURATIONS ON A TWO-WAY STREET

| Corridor-level Planning Considerations  | One-way SBL Pair                                                                | Two-way SBL                                                                                     | Median Two-way SBL                                                                                                                                                    |
|-----------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                         |                                                                                 |                                                                                                 |                                                                                                                                                                       |
| Access to Destinations                  | Full access to both sides of street                                             | Limited access to other side of street                                                          | Limited access to both sides of street                                                                                                                                |
| Network Connectivity                    | Accommodates two-way bicycle travel                                             | Accommodates two-way bicycle travel                                                             | Accommodates two-way bicycle travel                                                                                                                                   |
| Conflict Points (see Chapter 4)         | Fewer because pedestrians and turning drivers expect concurrent bicycle traffic | Pedestrians and turning drivers may not expect contra-flow bicycle traffic                      | Pedestrians and turning drivers may not expect contra-flow bicycle traffic, but median location may improve visibility and create opportunities to separate conflicts |
| Intersection Operations (see Chapter 6) | May use existing signal phases; bike phase may be required depending on volumes | Typically requires additional signal equipment; bike phase may be required depending on volumes | Typically requires additional signal equipment; bike phase may be required depending on volumes                                                                       |

### 3.2.1 SIDEWALK LEVEL SEPARATED BIKE LANE

Sidewalk level separated bike lanes are typically separated from the roadway by a standard vertical curb (see [EXHIBIT 3D](#)). The design of sidewalk level bikes lanes should provide a sidewalk buffer that discourages pedestrian encroachment into the bike lane and bicyclist encroachment onto the sidewalk. This can be achieved by providing a wide buffer, a sidewalk buffer with frequent vertical elements, or a significant visual contrast between the sidewalk and bike lane. In constrained corridors, the sidewalk level separated bike lanes may help facilitate passing maneuvers in areas of low bicycle or pedestrian volumes if a portion of either the sidewalk or street buffer space is usable by bicyclists.

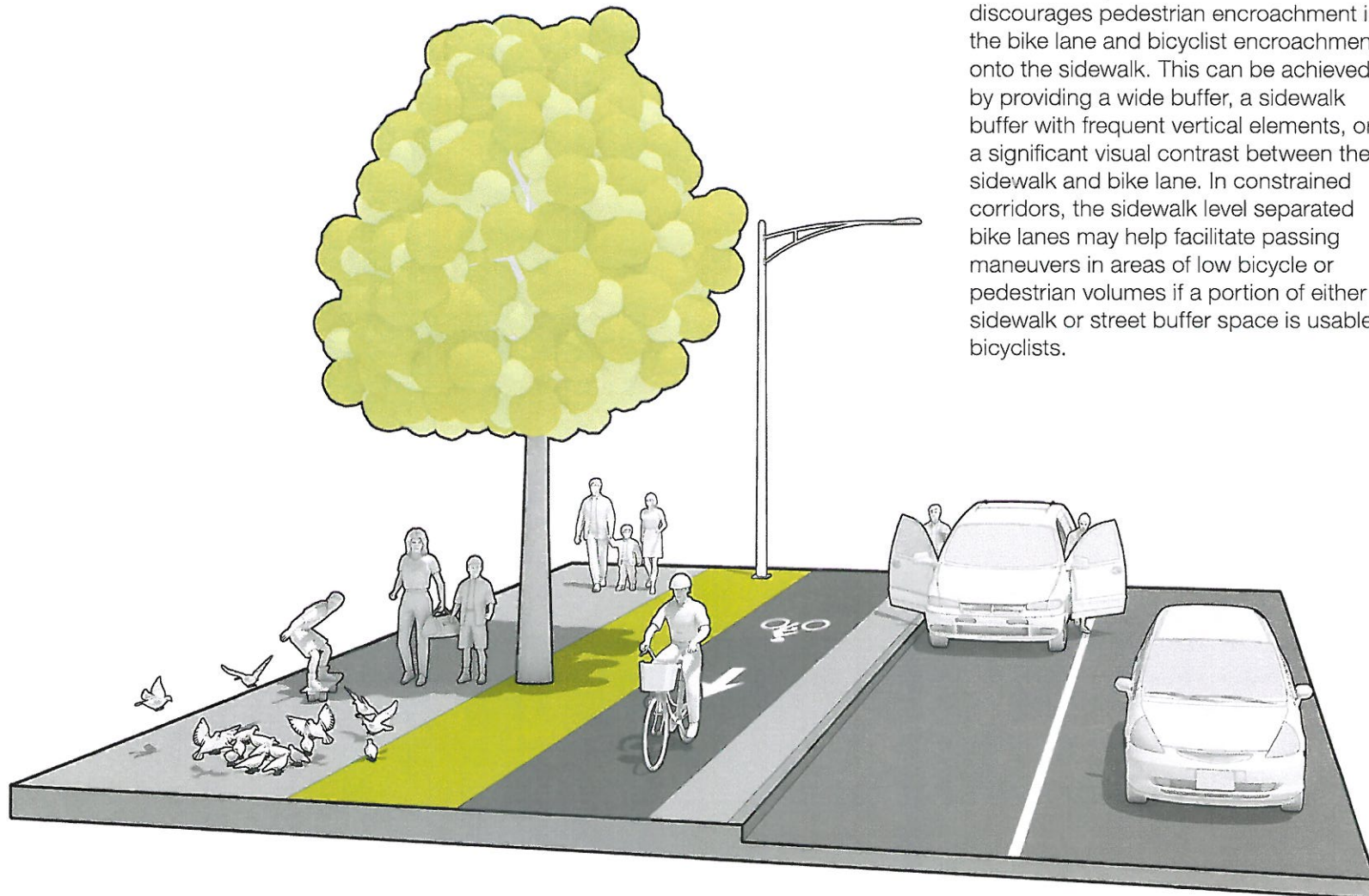


EXHIBIT 3D: Sidewalk Level Separated Bike Lane

### 3.2.4 RAISED BIKE LANE

Like intermediate level separated bike lanes, raised bike lanes may be built at any level between the sidewalk and the street (see [EXHIBIT 3G](#)). They are directly adjacent to motor vehicle travel lanes at locations where provision of a street buffer is not feasible. Their street-facing curbs are flush with the bike lane surface and are mountable to motorists and bicyclists. Stormwater may drain either toward the street buffer, or to existing catch basins along the sidewalk buffer.

Raised bike lanes are only appropriate in constrained locations where the combined bike lane and street buffer width is **less than 7 ft.** and sidewalks are narrow or the sidewalk buffer is eliminated (see [Section 3.6](#)). Because of their narrow street buffer, raised bike lanes are not recommended for two-way operation or adjacent to on-street parking. Their narrow street buffer also presents snow storage challenges.

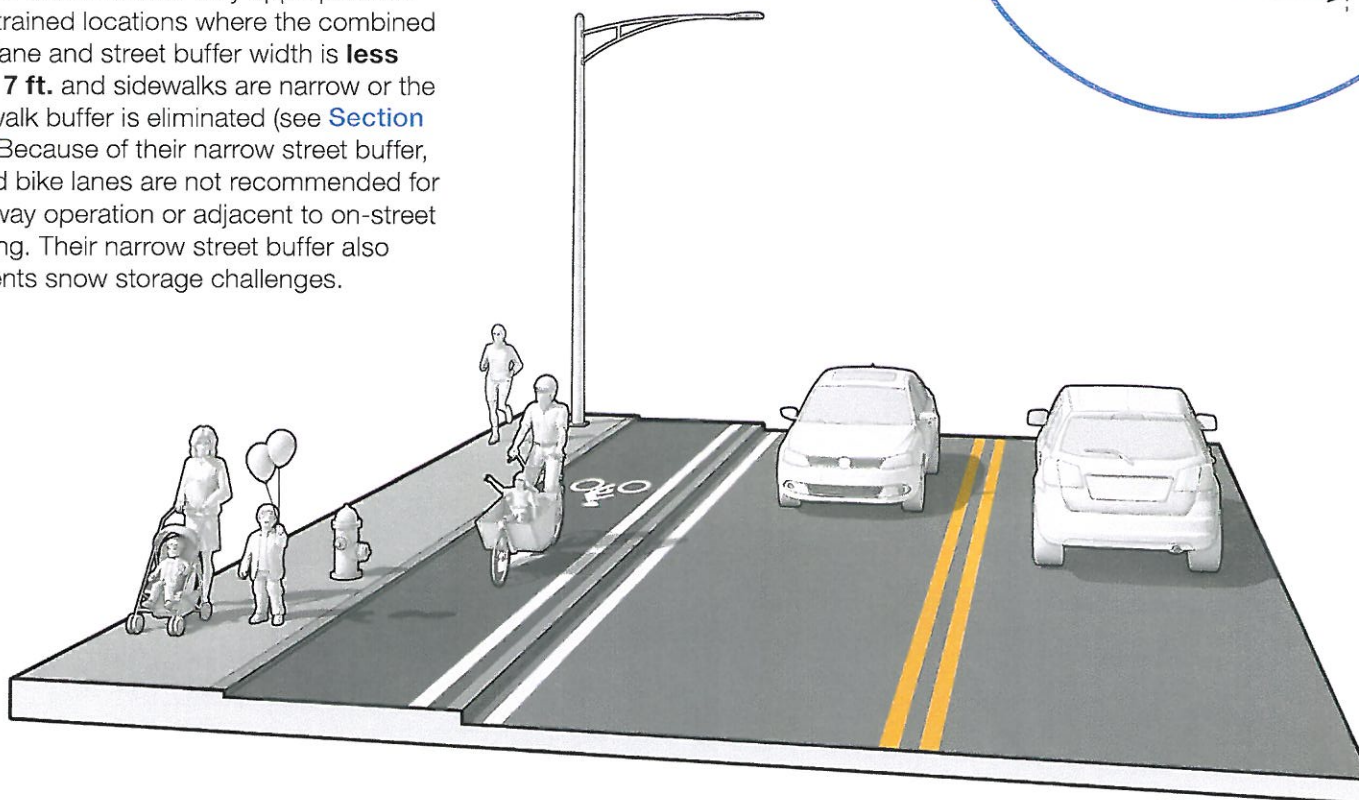
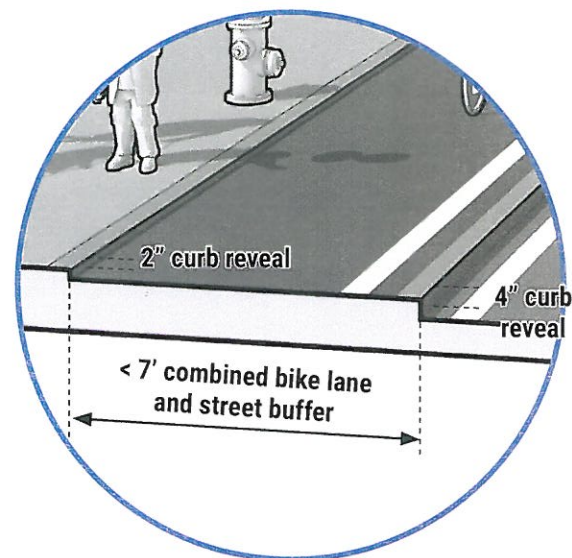


EXHIBIT 3G: Raised Bike Lane

### 3.5 SIDEWALK BUFFER ZONE

The sidewalk buffer zone separates the bike lane from the sidewalk. It communicates that the sidewalk and the bike lane are distinct spaces. By separating people walking and bicycling, encroachment into these spaces is minimized and the safety and comfort is enhanced for both users. Design strategies for the sidewalk buffer include object separation (e.g., street furniture or landscaping), curb separation or visual separation (i.e., variation of surface materials). The design team may use a combination of these strategies, for example supplementing street furniture with brick or unit pavers.

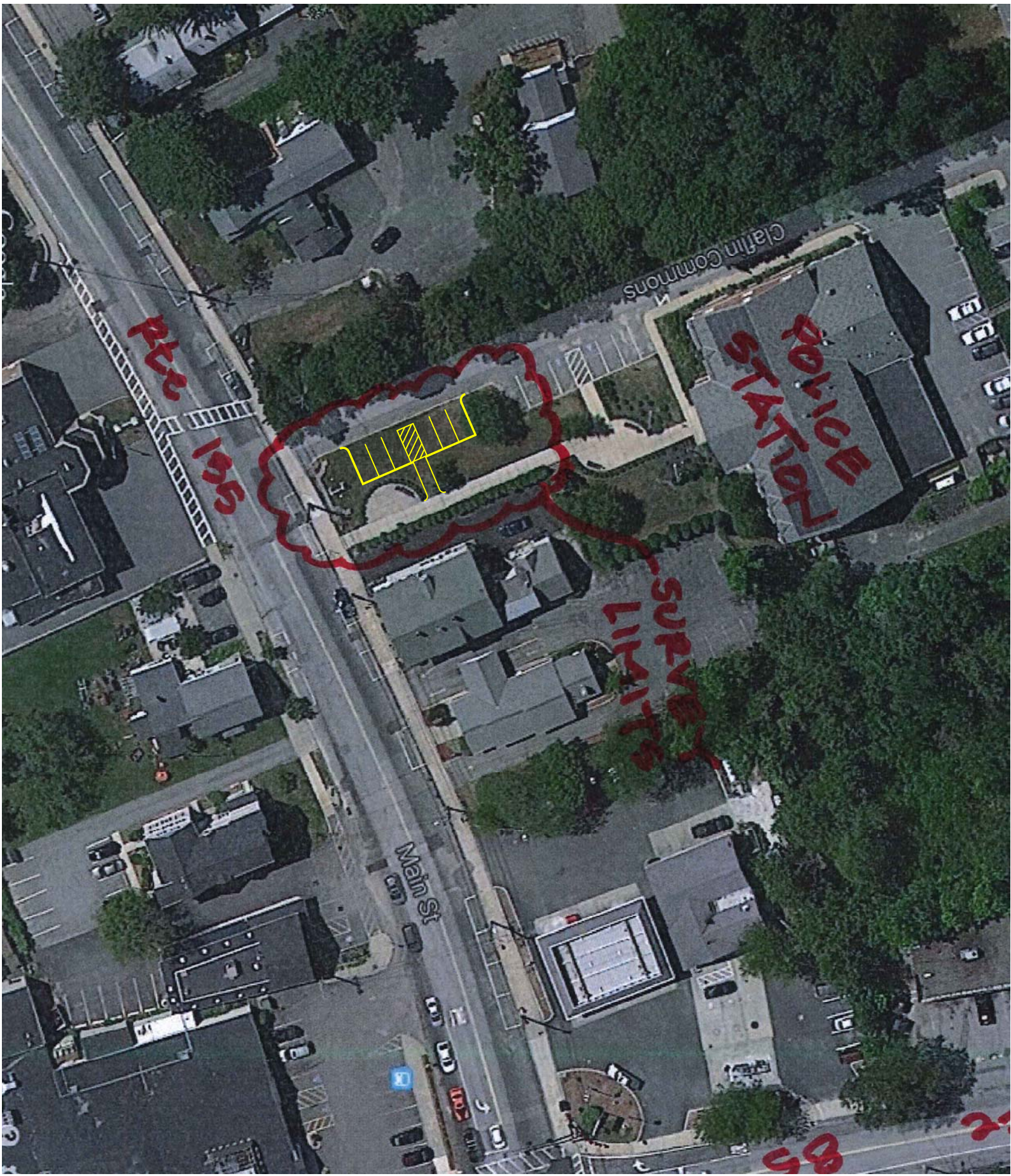
Physical separation with street furniture, landscaping or other objects is recommended for the sidewalk buffer provided that an accessible path of travel and sufficient sidewalk width is maintained for unobstructed pedestrian flow.

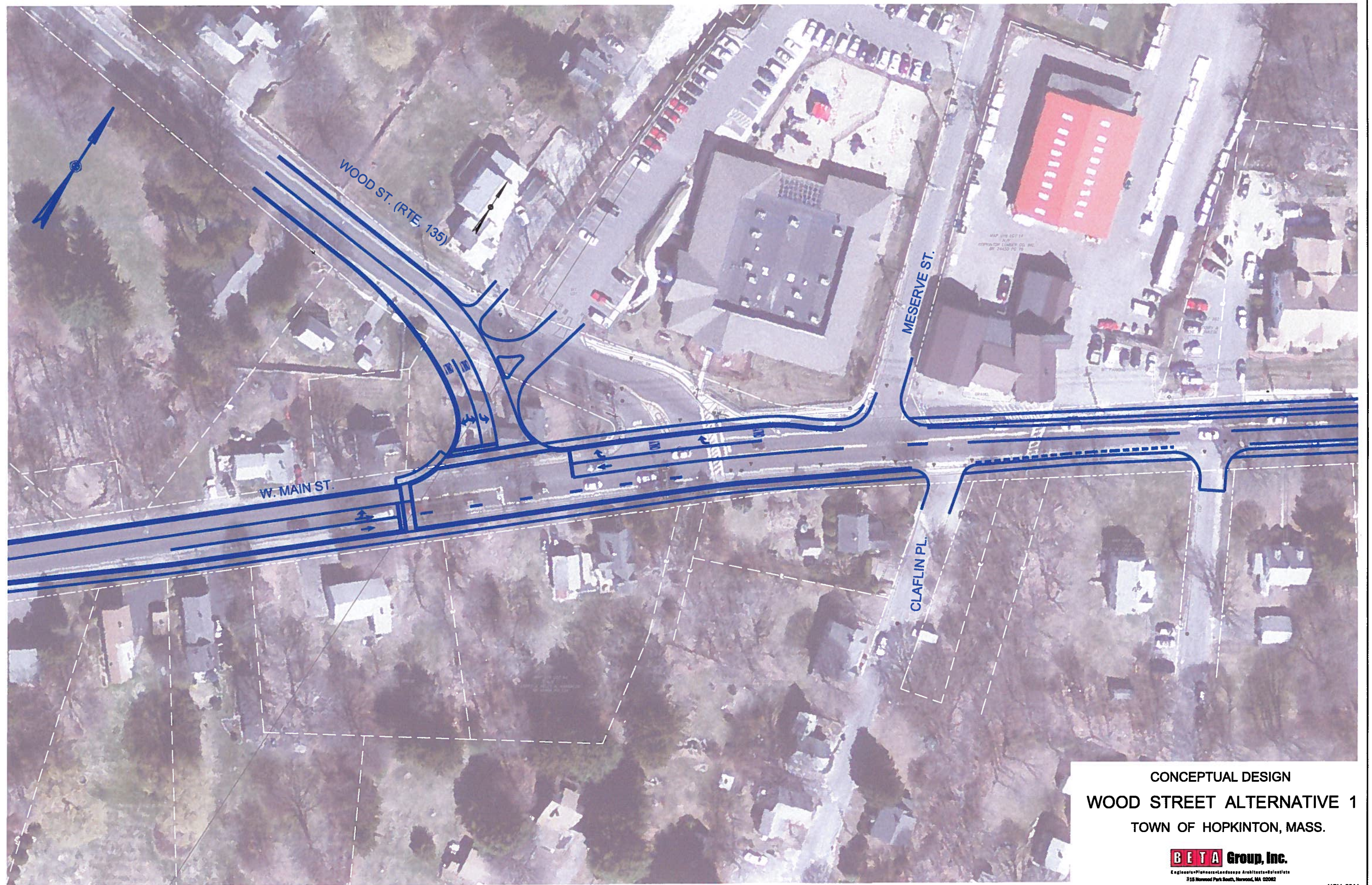
In constrained locations where physical separation is desirable because of moderate to high pedestrian demand, for example town centers and urban areas, curb separation is preferable to ensure pedestrians do not walk in the bike lane, and bicyclists do not ride on the sidewalk. However it is also possible to achieve the desired separation when the sidewalk and bike lane are at the same elevation and are directly adjacent to each other by providing a high degree of visual contrast between the two. This can be accomplished through the utilization of different materials for each zone, stained surfaces, or applied surface colorization materials.

- Sidewalks must provide a **4 ft.** minimum continuous and unobstructed clear width, excluding the width of the curb.
- A sidewalk width narrower than **5 ft.** excluding the width of the curb requires a design exception. Wider sidewalks ranging from **6 ft. to 20+ ft.** are recommended for town centers and urban areas (see Section 5.3.1 of the PD&DG).
- Shy distances to objects and curbs may impact the usable width of the bike lane (see Section 3.3.3) and the sidewalk (see Section 5.3.1 of the PD&DG).
- Maintain adequate offsets between objects (e.g., trees, streetlights, hydrants, etc.) and locations (e.g., driveways, loading zones, transit stops and intersections).
- Refer to local streetscape and historic district guidelines for recommended sidewalk buffer materials.
- Sidewalk buffer may utilize permeable pavers to assist with on-site stormwater management (see Section 3.8.2).



Note; Concept based on plan developed by Beta Group and provided to VHB by the Town of Hopkinton.





CONCEPTUAL DESIGN  
WOOD STREET ALTERNATIVE 1  
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