Citywide Active Transportation Plan

FINAL DRAFT

June 2022

Thanks, Everyone!

Thank you to the hundreds of New Haven residents, the City of New Haven, and the Community Alliance for Research & Engagement for participating in, and helping create, this Citywide Plan.

Project Team

City of New Haven, Department of Transportation, Traffic, & Parking (TT&P)

City of New Haven, Engineering Department

Community Alliance for Research & Engagement (CARE)

Street Plans

A special thanks to the Safe Routes For All Steering Committee, which provided review and guidance to the project team at regular intervals along the way and substantially amplified the project team's outreach efforts.

Image Credit (Cover): Street Plans

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A Letter from the Mayor

Dear New Haven Residents,

Decades ago, policy makers in cities around the country—including New Haven—built a transportation system primarily designed for one type of user: automobile drivers. This model is outdated and in need of change. Locally, we're making progress towards reorienting away from this model and our Safe Routes for All Plan builds on that work. Our Safe Routes for All Plan moves beyond infrastructure designed for only cars and prioritizes safety and accessibility for everyone who is on the go—including bikers, walkers, skaters, scooters. Active transportation has numerous benefits including health, equity, and fiscal impact. And, as someone who bikes and walks throughout this city, I'm excited about the impact of these investments.

Planning for Safe Routes for All was led by our Transportation, Traffic, and Parking (TT&P) Department and our project partner, Community Alliance for Research and Engagement (CARE). It's the result of years of community input, data collection, and analysis of what other communities around the country are doing. While there is more work to do, this plan, when implemented, will be a huge step in the right direction for our city. The plan consists of three main components: (1) Walk New Haven (2) Ride New Haven (3) Bike New Haven. Taken together, these three components combined form the backbone of our active transportation plan.

- **Walk New Haven** includes things like enhanced crosswalks, curb ramps, tactile pads, and sidewalks of adequate width to make walking in the Elm city safer. The plan takes an intersection-by-intersection look at the city and creates custom plans to address hotspots.
- **Ride New Haven** aims to complement CTransit's operations with enhanced transit infrastructure. These upgrades include changes to bus shelters, bus-only lanes, wayfinding and route information, and beautification and placemaking at bus stops.
- **Bike New Haven** evaluates our existing network and infrastructure and proposes upgrades and expansion of the network by looking to best practices currently in use by cities around the country. The proposal calls for a five fold increase in the total mileage of protected bike lanes.

Taken together, these changes will catapult New Haven from a 1960s era infrastructure system built for cars, to a modern, vibrant, system built for people.

Warm wishes,
Mayor Justin Elicker, New Haven, CT

Executive Summary

The City of New Haven, the Community Alliance for Research and Engagement (CARE), and Street Plans are delighted to put forth New Haven's first Citywide Active Transportation Plan, a blueprint for the City to build supportive infrastructure for walking, riding transit, and biking in the coming years. To skip to the Plan's priority recommendations, view the table starting in the Appendix on pg. 129.

In the following pages, readers will find varying scales of recommendations. They are based on existing data and conditions analyses, review of previous plans and studies, and public feedback. The document includes both Citywide policy and infrastructural recommendations based on best practices to inspire and give the City direction on implementation. Priority recommendations are centered around the City's Priority Neighborhoods, defined on pg. 10, to create an equitable implementation framework.

After an introduction, existing conditions evaluation, and public outreach summary, the document is divided into three mode chapters: **Walk New Haven, Ride New Haven, and Bike New Haven**. Within each mode chapter are analyses of the existing challenges facing residents, recommendations for improving the experience of traveling by that mode in the City, and detailed drawings (11 total throughout the document) of proposed safety improvements for spot locations. While based on sound initial analysis and expertise, these drawings are illustrative, and provide one set of improvements per location. Further engineering, design, and public engagement will be necessary to verify the feasibility of each set of improvements before moving into a more detailed technical design and construction phase.

The document concludes with an Action Plan and Funding Recommendations to give the City options for how to translate what's in the Plan to the streets of New Haven. Central to the Action Plan is the creation of a Plan Implementation Task Force, an entity conceived of by the Department of Transportation, Traffic, & Parking (TT&P). This entity will be created primarily to move Plan recommendations from the paper to the pavement, and bring the community along in the process to track project implementation and maintain transparent public communication channels.

The recommendations in the Action Plan are dependent on the availability of resources and capacity within the City. Knowing that all projects in the Citywide Active Transportation Plan may not be implemented, and on the same time scale, the City can use the Action Plan to align Plan implementation with routine milling and repaving, increases in department funding, new development, pilot projects, and capital projects to steadily work toward making New Haven a better place to walk, ride transit, and bike for all.

01 Introduction

Image Credit: Street Plans

What is Active Transportation?

Active transportation includes all forms of transportation that rely on human power.

Biking, walking, rollerblading, scooting, etc. are all ways of getting around our urban areas that don't rely on a motor. These transportation options are critical for those who don't have cars, prefer to make their commutes more active, or want to safely and leisurely enjoy their streets and public spaces.

WHY PLAN FOR ACTIVE TRANSPORTATION?

Most cities in the United States are designed around private automobile ownership, with capital investments often prioritized for things like road widenings so that people travelling in cars might move swiftly and conveniently between destinations. But what about everyone else who is too young, too old, or simply doesn't need or can't drive to access local parks, commercial districts, places of worship, or school?

This Citywide Active Transportation Plan offers the City of New Haven an opportunity to re-prioritize its investments, and the City is committed to doing so for the following reasons:

- **Active transportation infrastructure is essential public infrastructure.** Every New Haven resident has a right to connect safely and efficiently to jobs, schools, parks, social opportunities, entertainment, and other city services without needing to own/operate a car.

- **Active transportation is healthy.** Residents living in areas with more active transportation have lower obesity rates and other ailments than areas without infrastructure that supports active transportation.

Image Credit: Street Plans

- **Active transportation can advance equity.** American urban planning has an autocentric, technocratic, and racist and discriminatory history that continues to impact neighborhoods primarily inhabited by Black, Indigenous, and People of Color (BIPOC). Today, these neighborhoods tend to receive less public and private investment in public infrastructure, including walking, biking, and transit amenities.

- **Active transportation is fiscally responsible.** Less cars on the road means spending less on road maintenance, parking facilities, emergency and public safety services, and health care. Active transportation improvements can also boost tourism and generate other economic activity. For residents, not needing to own one or more cars means saving thousands of dollars per year that would otherwise go to car payments, gas, maintenance, repairs, and insurance.

More and more communities are adopting policies and plans to advance active transportation, acknowledging the myriad of benefits, and in most cases the urgent need, to transform streets that work for people of all ages and abilities. According to Smart Growth America's Complete Streets Policies Inventory, more than 1,600 (2021) communities nationwide, including New Haven, have adopted Complete Streets policies as a framework for future street design. While these policies are but one tool to advance active transportation, they are an important acknowledgement that streets are essential infrastructure that must not only move people but serve a variety of other social, economic, and environmental functions.

The capacity for streets to serve multiple purposes was even more apparent during the COVID-19 pandemic. According to the National League of Cities and Bloomberg Philanthropies' COVID-19: Local Action Tracker, municipal responses focused on mobility and transit accounted for 49% of the total actions tracked. These actions include ensuring safer travel, dining, socializing, protesting, and voting, highlighting just how much of our daily life can take place in the streets.

Image Credit: Info New Haven

In times of crisis, and everything in between, streets serve a much broader purpose than moving people and goods alone; they are the armature for livable communities of all types and scales.

About the Plan

This is New Haven's first Citywide Plan to advance active transportation.

Led by the Department of Transportation, Traffic, & Parking, in partnership with the Community Alliance for Research and Engagement (CARE), this Plan is a blueprint for action. It is a way for the City to translate years of feedback and community conversations into infrastructure improvements that will touch every Elm City neighborhood.

Not only does the Plan identify specific capital improvements for the near-term, but it also gives the City a roadmap to operationalize and streamline future active transportation projects. This will help ensure that active transportation improvements remain a priority, are more efficiently translated from the paper to the pavement in the future, and are more responsive to community input.

This Plan is a result of years of outreach, data collection, and analysis. In the following pages, readers will find a summary of the public input given to the project team, and how this is reflected in priorities for biking, walking, and riding CT*transit*. The Plan puts forth priority projects and recommendations for guiding the City in implementing active transportation improvements that mutually reinforce a safer and more accessible city no matter how you move about town.

Although the Plan includes many strong, aspirational recommendations in the Plan, it should be noted that further community engagement, design, and engineering will be required for implementation.

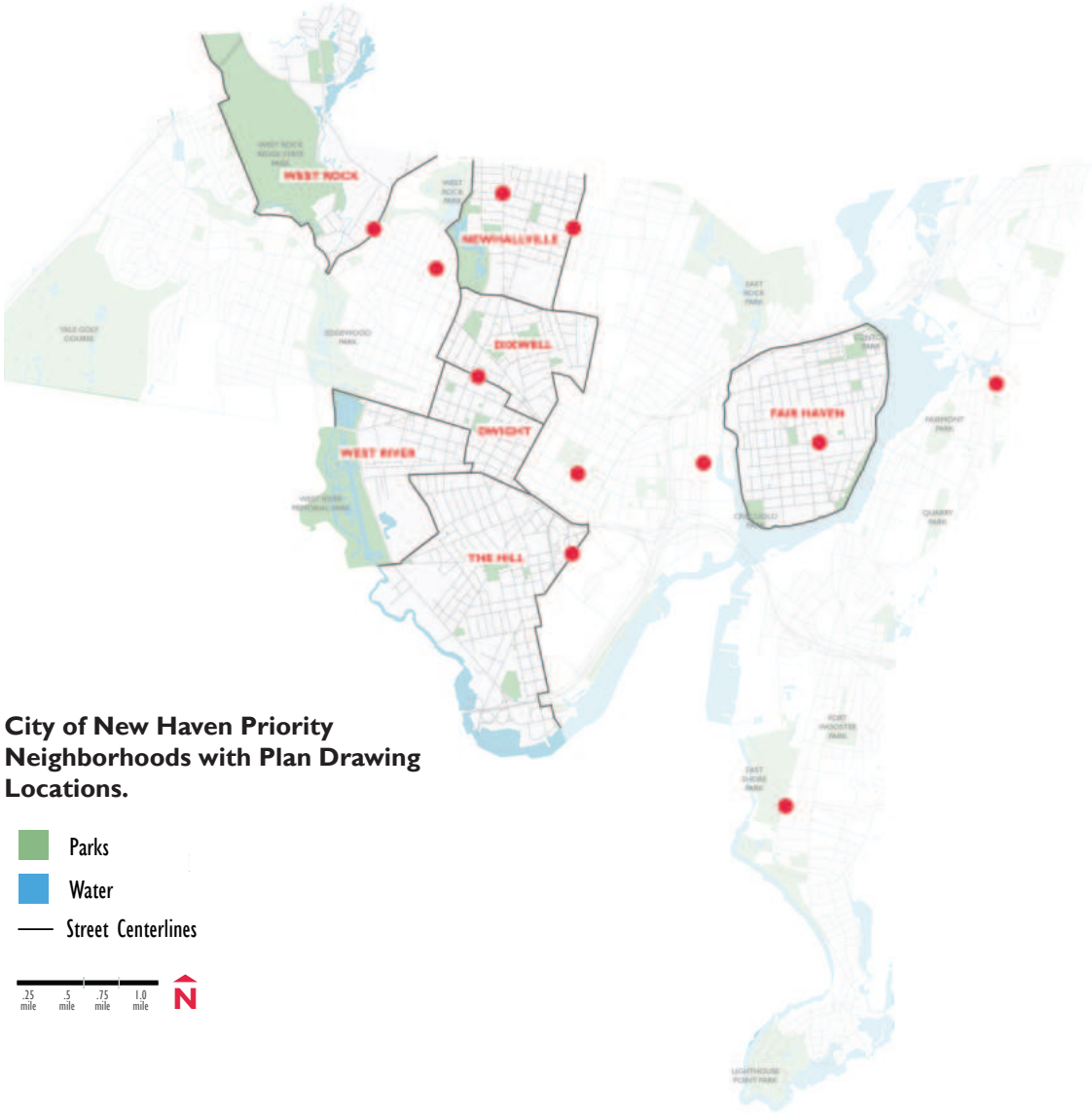
Image Credit: Street Plans

Across all three mode chapters, 11 locations (mapped on the following page) are visualized with conceptual proposals for areas of the City that are deficient in active transportation infrastructure and are located within the Plan's Priority Neighborhoods (also defined on the following page). The design proposals address a variety of conditions with a range of infrastructure types that may be appropriate in many other places around New Haven.

Priority Neighborhoods are historically defined low-income communities and communities of color, and include Dixwell, Dwight, Fair Haven, Newhallville, The Hill, West River, and West Rock.

These Priority Neighborhoods historically and currently endure disproportionate economic, social, and health disparities, and have been the focus of community and social programs by organizations like CARE to address such inequities. In New Haven overall, 49% of residents are low-income, compared with 23% statewide. Disparities in income, life expectancy, and health, widen further in these neighborhoods, which are predominantly communities of color (see map on pg. 11). The gap in life expectancy is nearly 12 years between these neighborhoods and other New Haven neighborhoods. For example, Newhallville is 67% low-income residents with a life expectancy of 72 while Westville is only 20% low-income with a life expectancy of 84 (DataHaven, 2019). Residents of the Priority Neighborhoods also have higher rates of chronic disease like diabetes, high blood pressure, and heart disease (CARE, Health in New Haven, 2018) and are less likely to own cars. Lack of equitable access to active transportation facilities contributes to the disparity.

These factors necessitate a focused approach for prioritizing improvements outlined within this Plan, and provide the overall framework for equitable distribution of active transportation funding and priority projects found in the following pages.

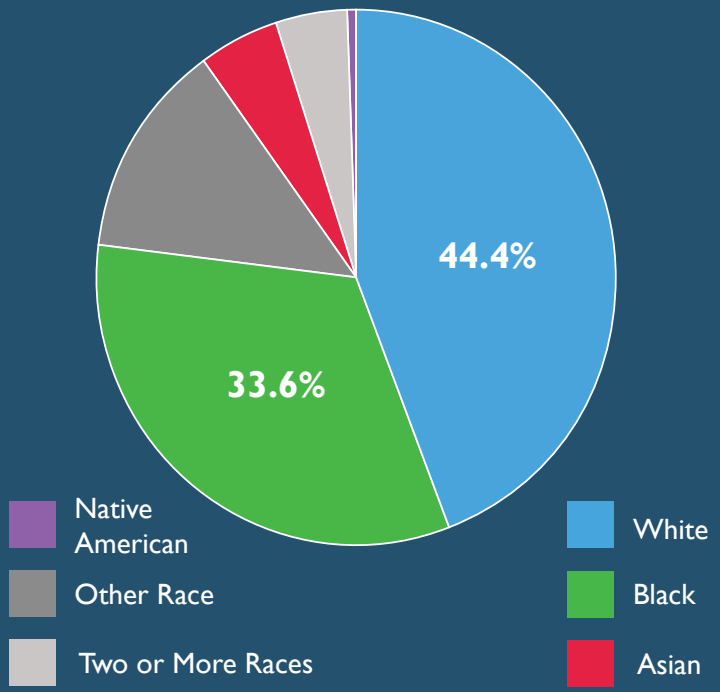


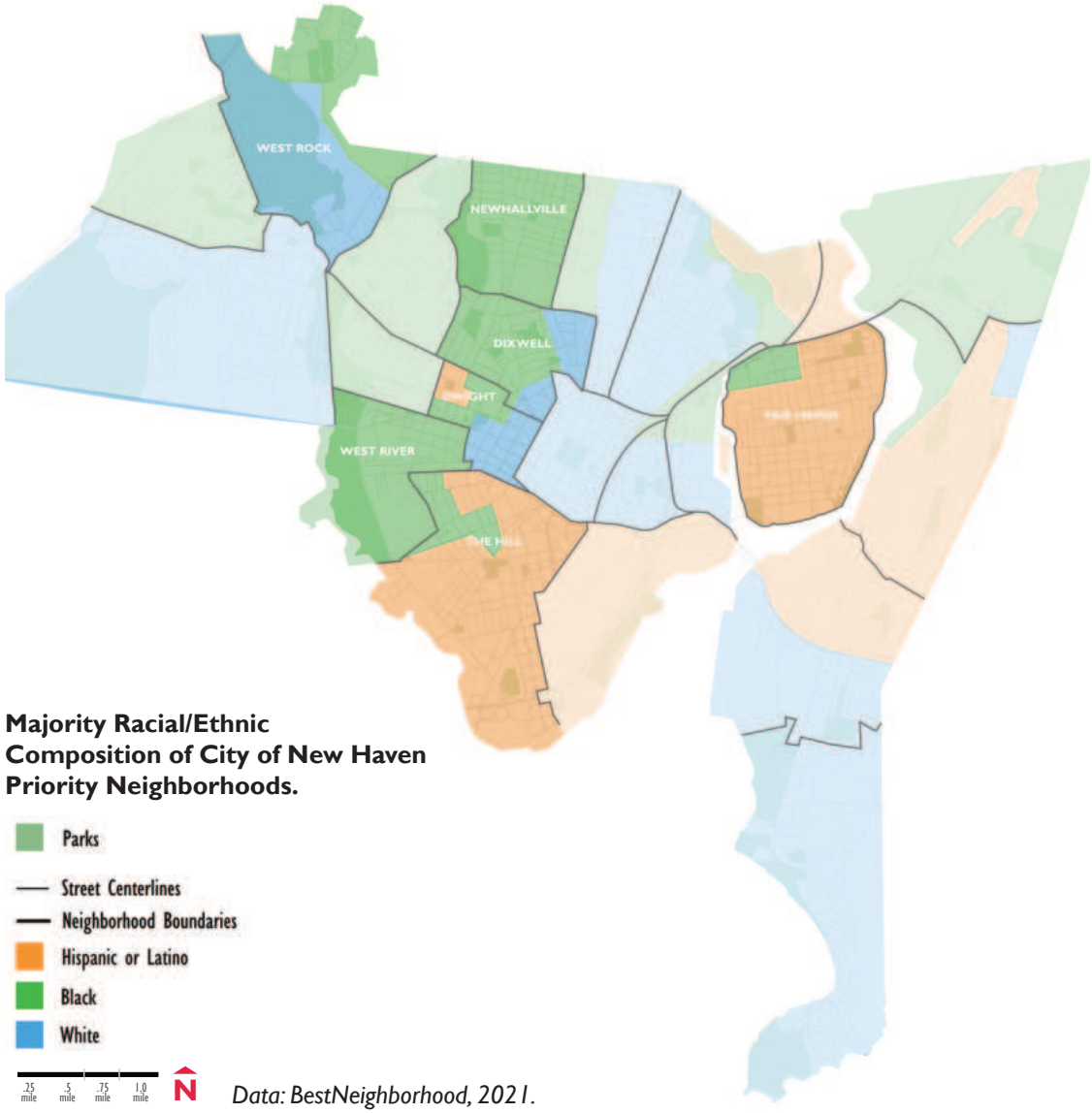
City of New Haven Priority Neighborhoods with Plan Drawing Locations.

WHO LIVES IN NEW HAVEN?

The map at right illustrates the majority race or ethnicity per neighborhood in the City of New Haven. Priority Neighborhoods appear in bolder colors.

According to the Census Bureau's July 2021 population estimates, the racial composition of New Haven is below, with **31% of the population identifying as Hispanic or Latin ethnicity:**





Majority Racial/Ethnic Composition of City of New Haven Priority Neighborhoods.

Data: BestNeighborhood, 2021.

Designing Safe Routes for All

Safe routes for all is a framework to approach the design of New Haven's streets, and the prioritization of roadway projects. Providing safe routes for all means that every New Haven resident, regardless of age, ability, or income, has a variety of safe ways to access leisure and employment destinations in the City. Residents need to be able to go about their lives without experiencing reckless driving, a lack of a crosswalk or curb ramp at a CT*transit* stop, a disconnected sidewalk network, or the absence of bicycle facilities.

To accommodate all ages, abilities, and incomes, streets must:

Be designed to accommodate disproportionately affected users. This includes the elderly, the mobility, sensory, or mentally impaired, BIPOC, and individuals from low-income communities.

Incorporate design cues to influence user behavior. To retrofit streets currently designed to primarily move motor vehicles with design interventions like curb extensions, raised crossings, and on-street parking.

Offer a variety of transportation options in a connected network. All New Haven residents should be able to choose their preferred mode of transportation for a given trip and not be restricted by a lack of infrastructure or unsafe conditions. Transportation options should be connected to form a network that allows users to seamlessly travel between neighborhoods and across the City.

Image Credit: Street Plans

Extend to all corners of a City. Safe streets must reach the city's priority neighborhoods so low-income and/or communities of color have equitable access to jobs, recreation, education, and social activities.

Acknowledge that safety is not always just about concrete. Beyond traffic safety, safe streets improvements should be responses to all the ways that New Haven residents feel unsafe, including lack of lighting, aging infrastructure, or crime.

Image Credit: Street Plans

02 Getting Around New Haven

Image Credit: Street Plans

The Current Experience

The Elm City is ready to become united by an interconnected network of active transportation infrastructure.

New Haven is ready for this Plan. The city's 2010 Complete Streets Policy and Design Manual; the Vision 2025 Comprehensive Plan Transportation Chapter (2015); and the recent 2019 Move New Haven Transit Mobility Study all provide an important starting point for the City's first Active Transportation Plan. Recent outcomes of this foundational work include building the state's first protected bike lane, initiating traffic-calming projects on many of the city's heavily trafficked corridors, improving pedestrian and bicycle connectivity, and initiating one of the country's leading highway removal projects.

Ongoing data collection and project tracking document New Haven's progress but also highlight where there is more work to be done. In this regard, the ongoing use of online tools like SeeClickFix and the City's online Project Request Form helps city staff pinpoint where citizens want to see safety and access improvements made. In addition to City action, New Haven has an active community advocacy sector that regularly promotes and advocates for active transportation improvements including the delivery of the *The Elm City Cycling Bike & Pedestrian Plan* (2013), the *New Haven Bike Vision* (2021), and *New Haven to West Haven: An Intercity Cycling Report* (2018).

The Citywide Active Transportation Plan is an opportunity to take stock of the current experience of biking, walking, and riding transit in New Haven, and lay out an action plan for delivering timely improvements, using key recent projects like the Crescent Street and Edgewood Avenue cycle tracks as a springboard for citywide improvements.

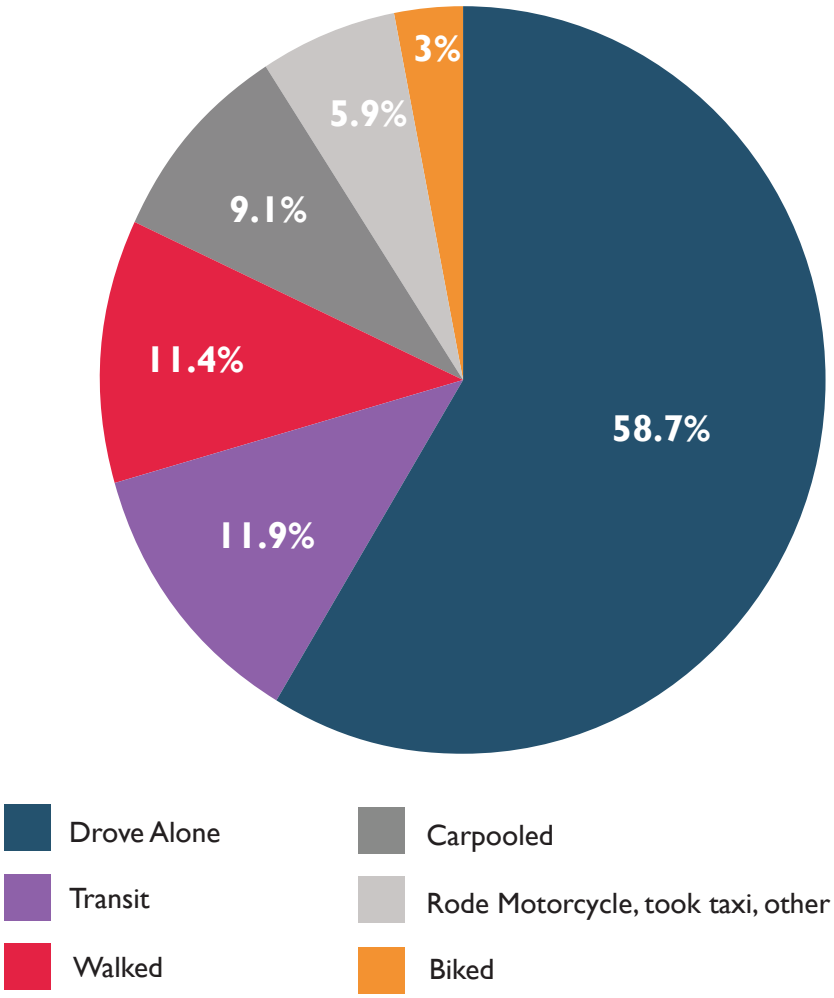
HOW NEW HAVEN MOVES

Nearly 60% of New Haven residents travel to work alone in a vehicle. As of 2019, 12% ride transit, 11% walk, 9% carpool or utilize rideshare, and approximately and 3% bicycle (U.S. Census Bureau, ACS 5-year Estimates). While the current cycling rate may seem low, it is three times the national average. It also shows a great potential for growth as a more connected network of safe and comfortable bikeways are built.

The City of New Haven has the highest transit mode share in the region. According to the 2019 Move New Haven Transit Mobility Study, 29% of the City's households are zero-car households, meaning nearly 1 in 3 households rely on transit, carpooling/rideshare, walking, or biking to move around the region. These statistics emphasize how crucial a functioning transit and active transportation system is for New Haven residents. While New Haven does well compared to most municipalities in the United States, many improvements are needed to ensure that job centers and essential services are available to all, especially car-less individuals and households.

It should be noted that the COVID-19 pandemic impacted travel patterns, with long-term effects still unknown. At a high-level initial data reveals a shift away from transit to driving as well as more walking and bicycling. If this trend holds, more people could be at risk if safe infrastructure upgrades aren't made.

PLAN GOAL: Increase the bicycle mode share to 10% by 2032, and the walking mode share to 15%.

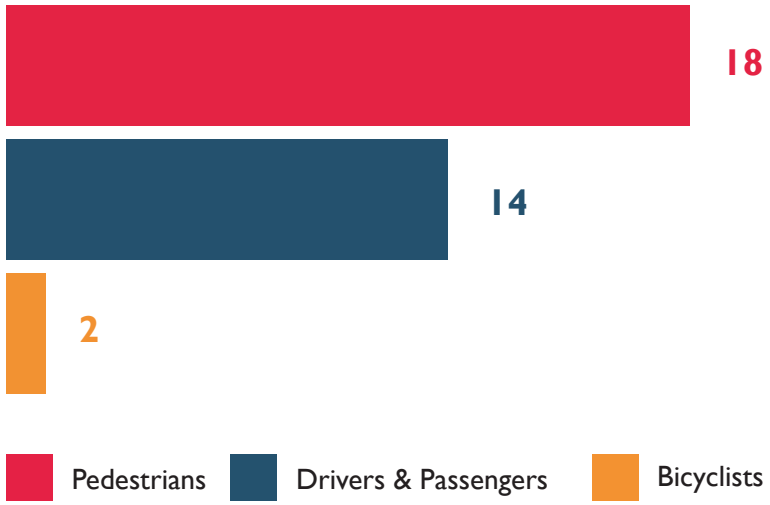


Percentage of New Haven Travelers by Transportation Mode, 2019.
Data: American Census Bureau, ACS 5-Year Estimate

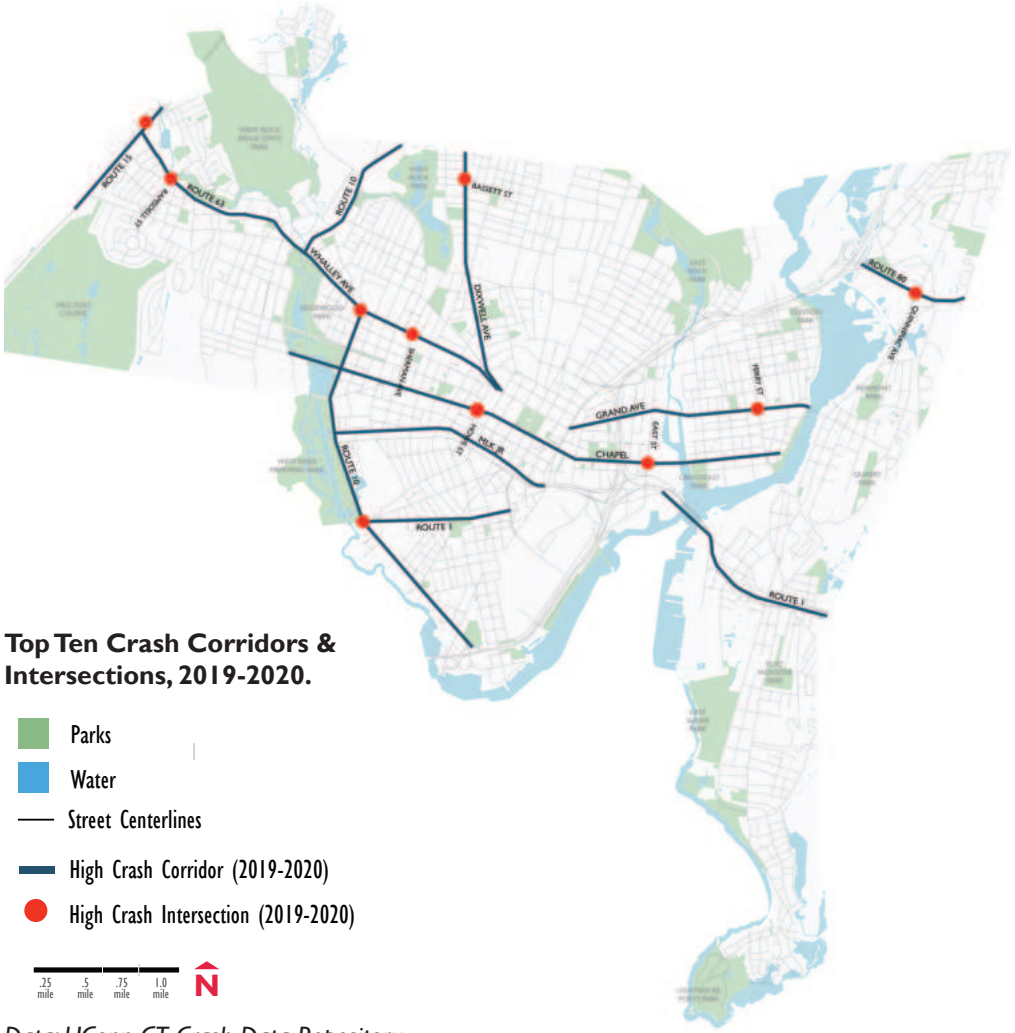
SAFETY & SECURITY

Traffic crashes are a leading cause of death in the United States for people aged 1-54, according to the Centers for Disease Control and Prevention (CDC). Understandly, fear of such collisions is the largest deterrent to walking or biking as a primary means of transportation.

Since 2019, collisions in New Haven involving pedestrians made up approximately 3% of the total traffic crashes overall, but over 50% of total fatalities. Statistics like these emphasize the vulnerability of those who walk or bike.



Number of Crash Fatalities in New Haven by Mode, 2019 - 2021.
Data: UCONN CT Crash Data Repository



Top Ten Crash Corridors & Intersections, 2019-2020.

Data: UConn CT Crash Data Repository

The top ten corridors and intersections with the most traffic crashes in 2019 and 2020 are mapped at left. Many of the most dangerous corridors are also primary east-west arterials through the City, making inter-neighborhood travel in these directions particularly dangerous for more vulnerable travelers, like those walking and cycling.

Although crash data may change the top ten corridors each year, it is recommended that improvements be focused along the illustrated corridors where possible given additional analysis conducted in the creation of this Plan.

Additional layers of crash analysis, like roadway contributing factors and the severity of crashes by type, informed design decisions and Plan recommendations (see Appendix).

PLAN GOAL: Reduce annual bicycle and pedestrian fatalities to 0 by 2032.

EQUITY & ACCESS

According to the nationally recognized organization People for Bikes' 2021 Places for Bikes City Ratings, New Haven's Network Score is below the average score for other mid-size cities. This Network Score is an assessment of how well the City's existing bicycle network gets its residents to six primary destinations: Neighborhoods, Opportunity, Essential Services, Recreation, Retail, and Transit. Access to transit scores the lowest, with a 4 out of 100, and access to opportunity and recreation scores the highest (28 and 26 out of 100, respectively).

For those without a car, these challenges of connectivity and access become even greater, impacting people of color more significantly. According to a 2014 study produced by DataHaven, 21% and 26% of Black and Latino households, respectively, do not own cars, compared to 10% of white households. For Black and Latino residents in New Haven today, underemployment is correlated with less car ownership. The Greater New Haven Community Index illustrates that the City of New Haven has become the region's primary job center, with most regions losing commuters daily, and New Haven gaining them. Access to these jobs within New Haven is as critical as ever to maintain employment for low income and non-white communities.

In a society that prioritizes cars and repeatedly institutes land use policies that favor driving, a lack of car ownership can be extremely detrimental to upward economic mobility. Although active transportation is vastly better for health and climate, for example, there is no mechanism to reward car-less households and individuals for not worsening the impacts of increased greenhouse gas emissions. Moreover, existing infrastructure and transit service does not currently work for all.

Image Credit: Street Plans

PLAN GOAL: Close the gap between the rates of those with and without a car, in New Haven by 10% by 2032 to improve access to employment and services.

HEALTH

In the United States, physical inactivity is a major contributor to the rise in prevalence of ailments like heart disease, obesity, diabetes, and other chronic conditions. Due to this, institutions like the CDC say that strategies to promote exercise and activity, like the provision of walking, cycling and transit infrastructure, are essential to the health of our communities.

Nationwide studies have documented statistically significant relationships between bicycling and conditions like diabetes and obesity. When health and travel data were cross-examined in all 50 U.S. states in a 2010 study in the American Journal of Public Health, communities with higher rates of active travel were found to have considerably less instances of diabetes.

As of 2017, according to DataHaven's 2019 Community Wellbeing Index, the City of New Haven's hospitalization rates for chronic conditions like diabetes, asthma, and heart disease are worsening at the highest rate in the region. The prevalence of asthma in New Haven's school district (14.7%) is the highest of all other school districts in the region, as well as the statewide prevalence rate of 14.3%.

Making it safer for kids to walk and bike to school, for adults to access their jobs on bike, and for all residents to more easily access recreational opportunities could substantially impact the health of the City's residents in the coming years.

PLAN GOAL: Reduce the prevalence of asthma in New Haven's school district to below the statewide average by 2032.

Image Credit: CARE

Existing Plan Review & Summary

The project team reviewed a total of 17 previous plans and studies relevant to active transportation in New Haven.

What this should reinforce to readers is that the City of New Haven has been planning for and implementing active transportation improvements since as early as 2004, with the Plan for Greenways & Cycling Systems. This plan discussed not only how to create off-street routes for bicyclists through parks and other trails, but it also incorporates the street network in the proposed greenway designs.

A connected network of on- and off-street active transportation infrastructure has been in the works for almost two decades.

Below are the plans and studies included in the literature review:

- 2004 Plan for Greenways & Cycling Systems
- 2008 Route 10 Corridor Study
- 2009 Downtown Bicycle & Pedestrian Gap Analysis
- 2010 Whalley Avenue Corridor Study
- Elm City Cycling 2013 Bike & Pedestrian Plan
- 2013 Hill to Downtown Community Plan
- 2014 Two-Way Conversion Report
- 2015 Park New Haven Mobility Study (Medical District)
- 2015 Comprehensive Plan - Vision 2025
- 2016 Wooster Square Planning Study
- 2017 Fair Haven Mobility Study
- 2017 Newhallville Mobility Study
- 2018 Union Ave. Road Diet & Cycle Track Analysis
- 2018 New Haven to West Haven: An Intercity Cycling Report
- 2019 Long Wharf Responsible Growth Plan
- 2019 Move New Haven Transit Mobility Study
- 2021 New Haven Bike Vision

Only three previous plans are at the Citywide scale. While most are for different corridors or city subareas, certain priorities and recommendations are more consistent throughout.

1. **Previous plans repeatedly call for continuous East-West and North-South bicycle connections through and outside of the City.**
2. **Mobility studies have been conducted in only two of the Priority Neighborhoods, with other areas of focus being Downtown and Wooster Square.**
3. **Connections to proposed greenways are repeated priorities of existing plans and studies.**
4. **All existing plans and studies place emphasis on protected bicycle facilities, traffic calming solutions, and expanding neighborhood greenways.**
5. **Multiple plans call for two-way conversions, especially in the Downtown core, as crucial mobility and placemaking improvements.**

Additional findings are on the following page, organized by active transportation mode.

BIKE NEW HAVEN

Chapel, College, Elm, Grove, Orange, State ,Water, and York Streets; Congress, Edgewood, Forbes, Grand, Howard, Whalley, and Whitney Avenues; and MLK Jr Boulevard are corridors that are repeated across the plans for dedicated and/or protected bicycle infrastructure. An emphasis is placed on delivering protected facilities where feasible, with neighborhood greenways and traffic calming interventions as supportive recommendations

Implementing an interconnected network of greenways is also repeated in multiple studies.

WALK NEW HAVEN

Pedestrian improvements are put forth broadly through neighborhood greenway, traffic calming, Complete Streets, and one-way to two-way street conversion recommendations.

Specific interventions like Leading Pedestrian Intervals (LPIs), raised crossings, shared or slow streets, no right turns on red, curb extensions, and new and improved sidewalks are presented in individual plans. For example, the 2015 Comprehensive Plan calls for new sidewalks along the city's "connector streets," and within Newhallville, Dixwell, and The Hill. Neighborhood greenways, traffic calming, and other references to specific interventions are discussed in Newhallville, Fair Haven, and Downtown's individual plans, and in the corridor studies.

RIDE NEW HAVEN

One plan in particular focuses on transit improvements. The 2019 Move New Haven Transit Mobility Study put forth potential transit supportive options to strengthen and modernize the CTtransit New Haven bus system. Recommendations include dedicated bus lanes, new BRT routes, signalization improvements, bus stop consolidations, and shelter improvements.

BRT routes are proposed along Dixwell and Grand Avenues between Putnam (Hamden) and Ferry Streets, and along Congress and Whalley Avenues between the City of West Haven and Blake Street in New Haven. Several of the corridors proposed for dedicated bus lanes are also corridors that were repeatedly proposed for dedicated and/or protected bicycle infrastructure, like Church, Elm, and State Streets, and Whalley Avenue.

With the most recent Move New Haven Transit Mobility Study, and goNewHavengo initiative, there is a more recent push to implement projects that enable people to more comfortably walk, bike, ride, and roll through the City. Current efforts to install Citywide LPIs, construction of the Edgewood Avenue cycle track, and the redesign of the Yale Avenue and Chapel Street intersection, are moving the needle forward.

The Citywide Active Transportation Plan not only builds upon previously identified projects, but also helps the City of New Haven prioritize which of those and newly identified projects can help achieve an equitable, well-distributed, connected bicycle, pedestrian, and transit network for all residents.

Today: A Day on the Move

This Plan is about helping people get to where they need to go, and enjoying the journey along the way.

Image Credit: Street Plans

Nora, a 60 year old resident, takes care of her elderly mother in West River, who is in a wheelchair. For the most part, there are services and amenities within walking distance to where her mother lives. Her favorite place to go to once a week is the Wilson Library in The Hill.

Her mother lives just over a mile away from the library, and it takes about the same amount of time to take the bus as it does to walk, so she likes taking advantage of the opportunity to get some exercise while pushing her mother. However, even though it's a doable distance, the walk isn't exactly pleasant. Sidewalks at main intersections in West River in particular are not in good condition, and they always get really nervous crossing North Frontage Road and Legion Avenue.

After they get across the major arterials, they walk down Ward Street/Daggett Street, which is sometimes littered with trash.

She thinks to herself that she could take her mother to enjoy the library much more often if the infrastructure to support their walk and roll were improved. For now, they'll stick to once a week visits.

Alvaro, a 42 year old Fair Haven resident whose car is in the shop, doesn't have a bike because he doesn't feel like there are enough facilities around where he lives to help him bike safely.

He has a doctor's appointment at Yale's Orchard Avenue Medical Center in the afternoon, and has to pick his daughter up from extracurricular activities at Clinton Avenue School shortly thereafter, so he checks the bus schedule. The fastest route on one bus will take him 33 minutes along Lombard Street, State Street, and Chapel Street, but his trip on the way back could be longer because of afternoon traffic.

He sets out to walk to the nearest bus stop, but almost misses it because the stop is so inconspicuous. There's no shelter, seating, or prominent wayfinding. Sure enough, after his appointment, traffic on Chapel Street and State Street going through downtown makes him late to pick up his daughter.

He wishes there was a way to expedite bus service during rush hour, and make the entire experience of riding transit more pleasant.

Mary, a 34 year old resident, just got a bike so that she could enjoy more active outings with her two children, who each got bikes for Christmas. She doesn't feel comfortable letting them bike alone yet. She'd feel most comfortable biking with them in protected bike lanes, or within large parks, neither of which are in her immediate vicinity living in Amity.

One Saturday, she looks up a map of the city's bike network to see if there are any safe routes that could get them to Edgewood Park. Disappointed, she realizes that there is not any dedicated infrastructure, or even shared lane markings, to guide her family to the park.

In addition to it being hilly in her neighborhood, there are multiple high-speed arterials between them and the park that would feel too scary to bike on, or across.

They end up zigzagging through the calmer residential streets, taking a less direct route to the park. She recalls thinking that improvements could even be made to these streets to make it more clear that they're low stress biking routes. Nearing the end of their park visit, she had forgotten how they got there, and instead they rode on the sidewalks along the busier streets to get home.

03 Public Input

Image Credit: Street Plans

Public Outreach Summary

The Citywide Active Transportation Plan employed a variety of digital and on-the-ground strategies to engage New Haven safely and effectively.

Plan public engagement began in the summer of 2019, with a June public meeting and subsequent installation of pedestrian Quick Build projects in each of the City's Priority Neighborhoods. The Quick Build methodology, also known as Tactical Urbanism, is a way of delivering improvements to streets and public spaces made with resident participation in a less expensive, more inclusive, and faster manner than typical capital projects. These temporary projects deliver projects on a faster timeline than permanent capital projects, and also allow communities to evaluate how they function before much larger investments are made in long-term infrastructure. The intention behind kicking off the planning process with the Quick Build projects was to demonstrate from the outset what kinds of projects could be included in the Plan, and to also use the planning process as a way to expeditiously deliver improvements while the plan was drafted.

Temporary pedestrian enhancements were installed in August and September 2019 at the following six intersections throughout the City:

- **Dixwell:** Dixwell Avenue & Shelton Avenue; Dixwell Avenue & Munson Street
- **Dixwell-Dwight:** Whalley Avenue & Orchard Street
- **Fair Haven:** Houston Street & Chapel Street; Ferry Street & River Street; Ferry Street & Chapel Street

Image Credit: Street Plans

- **Newhallville:** Bassett Street & Dixwell Avenue
- **The Hill-West River:** Winthrop Avenue & Sylvan Avenue & Auburn Street
- **West Rock:** Wintergreen Avenue & Springside Avenue

The project team designed and installed a total of 28 artistic curb extensions, completed one bus stop enhancement, one protected bike lane, and numerous new crosswalks across the six intersections.

In **Dixwell**, five curb extensions made pedestrians more visible, shortened crossing distances and tightened curb radii to slow the turning speeds of vehicles. A short segment of protected bike lane was also included.

In **Newhallville**, four curb extensions shortened pedestrian crossing distances and tightened curb radii to slow the turning speeds of vehicles. A bus stop on Dixwell Avenue was enhanced with an artistic pavement treatment.

In **Dixwell-Dwight**, three curb extensions shortened pedestrian crossing distances and tightened curb radii to slow the turning speeds of vehicles.

In **The Hill-West River**, five curb extensions shortened pedestrian crossing distances and tightened curb radii to slow the turning speeds of vehicles.

In **Fair Haven**, eight curb extensions shortened pedestrian crossing distances and tightened curb radii to slow the turning speeds of vehicles. An underutilized portion of asphalt that had been used as an informal parking lot was reclaimed for pedestrian space.

In **West Rock**, three curb extensions shortened pedestrian crossing distances and tightened curb radii to slow the turning speeds of vehicles. Additional artistic asphalt treatments were added to bring attention to the intersection.

Image Credits (All): Street Plans

THE HILL-WEST RIVER
46% CROSSING DISTANCE REDUCTION

WEST ROCK
40% CROSSING DISTANCE REDUCTION

FAIR HAVEN
38% CROSSING DISTANCE REDUCTION

NEWHALLVILLE
34% CROSSING DISTANCE REDUCTION

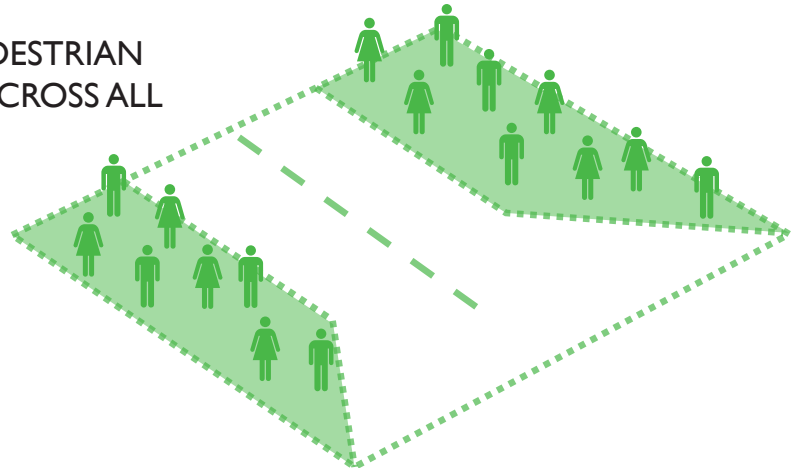
DIXWELL
25% CROSSING DISTANCE REDUCTION

DIXWELL-DWIGHT
22% CROSSING DISTANCE REDUCTION

34% CROSSING DISTANCE REDUCTION ACROSS ALL SITES

19,492

RECLAIMED PEDESTRIAN SQUARE FEET ACROSS ALL SITES



Public outreach for Phase II of the plan resumed in March 2021 with the first public workshop, when COVID-19 vaccinations were more widely available to New Haven residents. From that point until the unveiling of the plan draft, in partnership with CARE, the project team utilized the following tactics to reach New Haven residents for feedback on the state of active transportation in their City:

- **Public Workshops (Virtual and In-Person)**
- **Steering Committee Meetings**
- **Handlebar & Walkabout Surveys**
- **Safe Routes for All SeeClickFix Platform**
- **Additional Community Conversations**

PUBLIC WORKSHOP #1

WHAT WE DID

The first public workshop for the Safe Routes for All Citywide Active Transportation Plan was hosted virtually in English on March 24, 2021. 53 participants joined the project team for a 90-minute introduction to the project, review of the Phase I Quick Build installations, and an interactive live mapping feedback exercise using the City's Veoci platform. Following a presentation from the consultant, the participants and project team representatives were broken up into Zoom Breakout Rooms. Within each Breakout Room, participants were instructed to take a few minutes to input any feedback into the Veoci 3/24 Meeting Map Form (image at right). In the form, participants were asked to add geolocated intersections or segments of streets where they'd like to see active transportation improvements, and to elaborate on the specific challenges they experience there.

The meeting map form asked participants to specify whether they were leaving feedback for an intersection or street, what the challenge there was, and to elaborate in an open format question.

After participants added their feedback, Breakout Room leaders shared the map that illustrated all of the entries, and facilitated a discussion about specific inputs.

During the workshop, participants entered a total of 197 inputs, either specific corridors or intersections of concern.

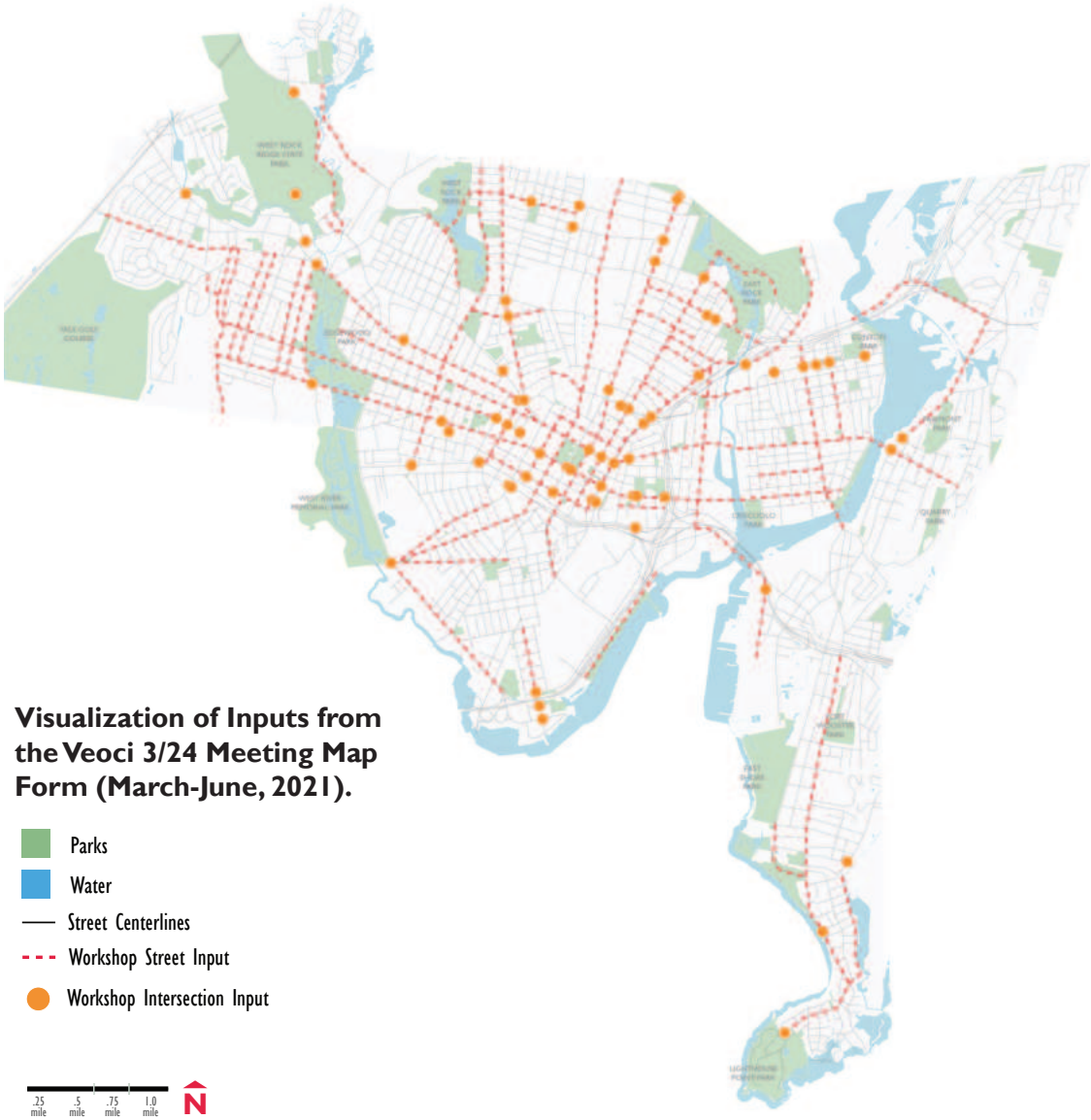
Following the workshop, the link to fill out the Veoci Map Form was posted on the Safe Routes for All website for additional entries, for those who could not attend the initial public engagement. 32 more entries were added to the map between the workshop and when its link was replaced with the SRFA SeeClickFix link in June.

The same workshop was executed entirely in Spanish on March 31, 2021. A separate Map Form in Spanish was created to collect live responses during the workshop. 3 participants entered a total of 11 inputs, leaving feedback for 9 corridors and 3 intersections.

WHAT WE LEARNED

From March-June, the two Veoci maps recorded a total of 240 entries. Of those 240 entries:

- **Chapel Street, Whitney Avenue, Elm Street, and Orange Street** were mentioned most frequently. Whalley Avenue, Trumbull Street, and State Street all tied for being the fifth most-mentioned problematic corridor.
- **Whitney Avenue & Cliff Street, S Frontage Road & York Street, State Street & Trumbull Street, and Elm Street & York Street** were the most frequently mentioned intersections of concern.
- **Speeding cars and a lack of bicycle infrastructure** were the more prominent concerns from the English workshop, whereas a lack of



Visualization of Inputs from the Veoci 3/24 Meeting Map Form (March-June, 2021).

crosswalks or adequate sidewalks was most mentioned in the Spanish workshop.

- **Requests for separated bicycle facilities** dominated the English workshop's bicycle-specific feedback inputs. Concerns of dooring and of cars parking in existing, unprotected lanes were also frequent.

The consultant team used the inputs and conversation from the first workshop to help create the the Handlebar & Walkabout Survey routes in April and May, to experience the challenges communicated in the workshop on the ground. This feedback also formed the foundation of the bike network and pedestrian priority projects, reiterating problematic corridors and intersections from the existing plan review, and bringing to the attention of the consultant team new areas of focus.

PUBLIC WORKSHOP #2

WHAT WE DID

The project team held multiple workshops for the Draft Plan review from Tuesday, September 28th to Thursday, September 30th. On Tuesday and Thursday, the team delivered virtual presentations of the Plan via Zoom. On Wednesday, September 29th, the team interacted with community members in person at Scantlebury Park to seek feedback on the Draft recommendations and drawings.

WHAT WE LEARNED

Approximately 30 residents joined the project team to review large-format printed boards of the Draft Plan. Workshop participants filled out worksheets, including any comments or questions per board. The boards were broken up according to the mode chapters in the Draft Plan.

Image Credit: Street Plans

The most common feedback heard from participants was that the timelines for some of the draft recommendations were not ambitious enough, and that residents were ready for improvements to be implemented on a faster time scale. The project team recorded and discussed each piece of feedback given, and collected digital feedback for the first two weeks of October through the Plan website.

STEERING COMMITTEE MEETINGS

WHAT WE DID

The project team brought together a group of both City department staff and representatives from active transportation advocacy/ action groups for the Citywide Active Transportation Plan Steering Committee, a body that provided the project team feedback and direction at regular touch points during the planning process, and helped involve their networks in public engagement events. The Steering Committee was comprised of 26 individuals, representing the following entities within the City of New Haven:

- Transportation, Traffic, & Parking Department (TT&P)
- Traffic Authority
- Parking Authority
- Parks Department
- Department of Arts, Culture, & Tourism
- Board of Education (BOE)
- Disability Commission
- New Haven Free Public Library (NHPL)
- CARE REACH Steering Committee
- Safe Streets Coalition of New Haven
- Elm City Cycling
- Bradley Street Bicycle Coop
- New Haven Adult Education Center
- ICE the Beef
- SPORT Academy
- The Devil's Gear

The Steering Committee also included several residents not officially affiliated with any of the above entities.

The first Steering Committee meeting was hosted virtually on Zoom by the project team a week before the first workshop. In addition to a project overview and description of the Committee roles, the meeting included a similar feedback exercise as the first workshop. All participants were divided into Breakout Rooms, and instructed to discuss the challenges and opportunities for active transportation in New Haven by mode: biking, walking, and riding transit.

The second Steering Committee meeting was held during the first week of June, primarily to recap the April and May Handlebar Surveys, and to discuss the rest of the plan schedule. The Steering Committee provided feedback on ways to better engage more residents over the summer in preparation for the Draft Plan unveiling.

WHAT WE LEARNED

Below are highlights from the first Steering Committee meeting, categorized by mode:

Walking

- Better lighting is needed on most streets.
- Education for all road users could improve safety for all.
- Speeding and traffic calming is a deterrent to walking on most streets.
- Bicyclists having to ride on the sidewalks creates conflicts with pedestrians.
- Crosswalks need to be more clearly marked, and the

pedestrian signal crossing times are often too brief.
- Dixwell, Grand, and Whalley Avenues should be pedestrian priority corridors.
- Residents want a safer connection from Middletown Avenue and Front Avenue to Walgreens and Walmart at Foxon Boulevard and Quinnipiac Avenue.

Biking

- Whalley Avenue has high ridership, but feels very unsafe.
- Not enough bike lanes can take a bicyclist very far, the network is too disconnected.
- Getting over the Tomlinson Bridge and into the Port is unsafe.
- More access to biking education is needed.
- People would feel much safer with more protected routes.
- More people would like to bike, but they don't want to share the road with cars.
- Safer biking routes to school are needed.
- Residents sometimes push back against installation of new bike lanes.

Riding Transit

- Bus stops need more amenities, like seating, shade, and wayfinding.
- Union Station and Chapel Street are locations of the confluence of multiple modes. These areas can be made safer.
- Residents want the buses to be faster and more reliable. Buses get delayed in traffic having to share lanes with cars.
- Bus stops are too close together, buses stop too frequently.
- Many bus stops are missing sidewalks.
- Wayfinding could be clearer and more legible.

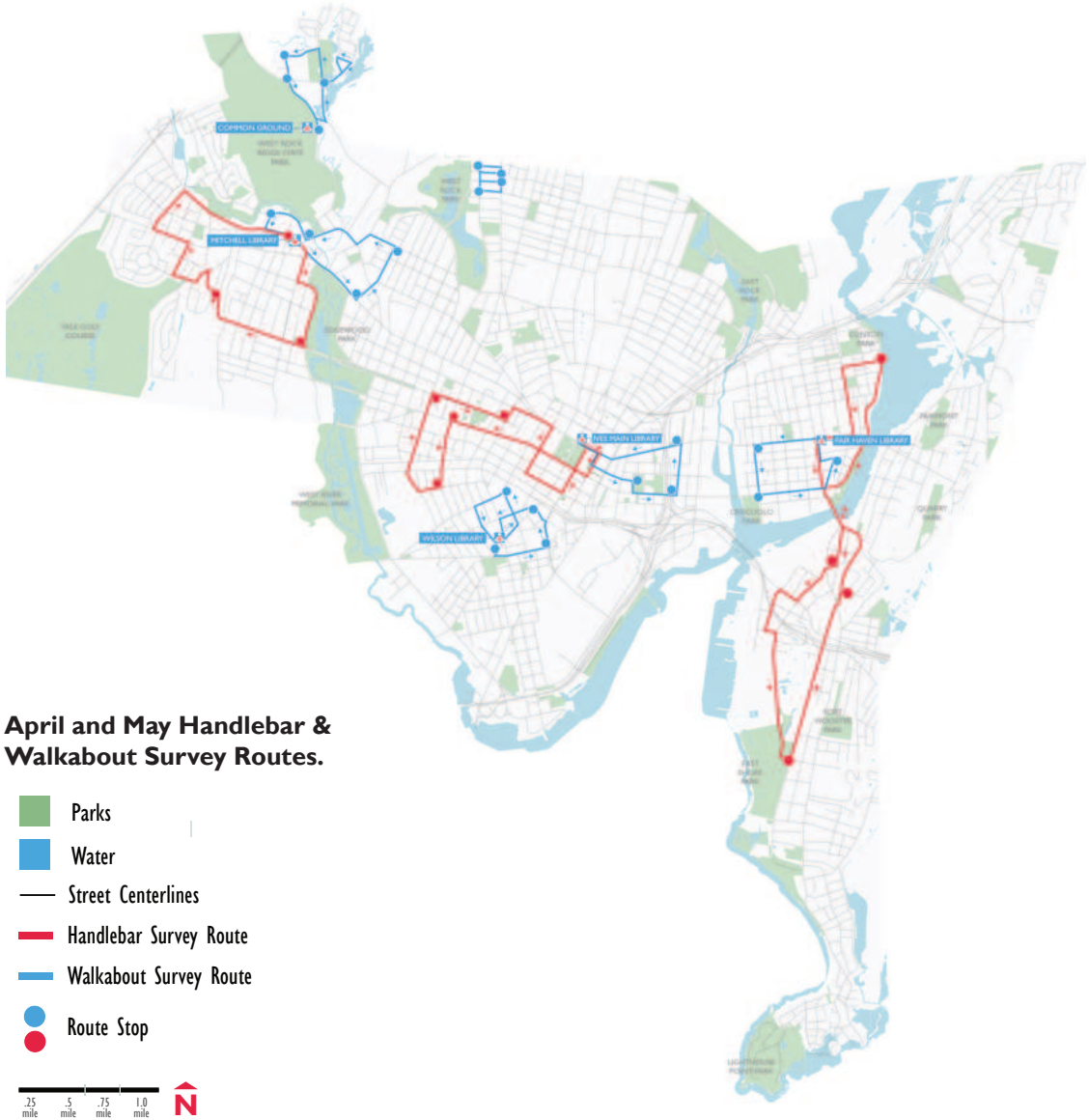
The third Steering Committee meeting was held on September 14th, 2021, and was intended to be the first presentation of any of the Draft Plan to people in the community outside the internal project team. The project team presented to 15 Steering Committee members, and received feedback on the initial detailed drawings, as well as how well the Plan will set the City up for successful implementation.

HANDLEBAR & WALKABOUT SURVEYS

WHAT WE DID

The project team hosted Handlebar (biking) & Walkabout Surveys at 11:00am and 2:00pm on Saturday, April 17th, 4:00pm on Wednesday, April 28th, 4:00pm on Thursday, May 13th, and 11:00am and 2:00pm on Saturday, May 15th. An additional date on Thursday, April 15th was cancelled due to inclement weather. The project team distributed information about the ground surveys via the project's Facebook page, flyers to the Community Management Teams (CMTs), and notices to the Steering Committee. Members of the community joined the consultants in surveying the experience of biking and walking along predetermined routes. Along the rides and walks, the groups discussed and scored the conditions along different street segments using worksheets that the consultant team had prepared. Across all four days of surveys:

- **70 total community members were engaged.**
- **9 different walking and biking routes were surveyed.**
- **29 different streets, within 13 different neighborhoods, were scored.**
- **22+ miles of New Haven were covered!**



April and May Handlebar & Walkabout Survey Routes.

Survey sheets were created in both English and Spanish, and were filled out during the rides and walks, and submitted to the project team upon route completion. The routes devised for each date were done so based on feedback from the first public workshops and Steering Committee meeting. The City's free public libraries were used as the meeting points from which participants set out on the rides and walks, and the project team made sure to ride and/or walk through each of the Priority Neighborhoods. Additional rides and walks had been scheduled and predetermined, but did not receive participation from the community (eg. in Newhallville).

WHAT WE LEARNED

At right is a map of all 27 Walkabout Survey street segments scored on April 17th, April 28th, May 13th, and May 15th. Street segments were scored on a scale of 1-4 across six different questions, for a maximum total score of 24. Wintergreen Avenue, Columbus Avenue, Lafayette Street, Bassett Street, Sherman Parkway, Elizabeth Street, Dixwell Avenue, Pond Street, and Dorman Street all received the lowest average scores (an indication of unfavorable walking conditions).

Dixwell Avenue, Sherman Parkway, and Bassett Street in Newhallville received the lowest average walking scores of 6.

Hamilton Street in The Mill River District received the highest average walking score of 21.6.

Walkabout Survey Street Segment Average Scores.

At right is a map of all the 16 Handlebar Survey (biking) street segments scored on April 17th, May 13th, and May 15th.

All but two biking street segments ended up with average scores below 15.

Woodward Avenue received the highest average score of 17, and Whalley Avenue received the lowest average score of 6.17.

What was particularly notable to the project team was that none of the Walkabout and Handlebar Survey scores of the same street were scored the same. For example, Chapel Street for bicyclists scored below 10, whereas for pedestrians it didn't score so low. The segment of Whalley Avenue through Downtown Westville and along the north edge of Edgewood Park scored favorably, but not for bicyclists.

Street segments that were more comfortable for pedestrians are ideal priority corridors for bicycle improvements, as the high pedestrian score is an indication that the land use and other amenities provide a good foundation for a Complete Street.

"We're able to get involved and work on the things we care about. That's what I love about living in New Haven."


NEW HAVEN INDEPENDENT

Valley Independent Sentinel La Voz Hispana

Where The Sidewalk Mends

by ISAAC YU | May 14, 2021 10:58 am
(2) Comments | Commenting has been closed | E-mail the Author
Posted to: Transportation, Westville, Whalley


NEW HAVEN INDEPENDENT

Valley Independent Sentinel La Voz Hispana

Cyclists, Pedestrians Track Trouble Spots

by ZSHEKINAH COLLIER | Apr 19, 2021 10:04 am
(5) Comments | Commenting has been closed | E-mail the Author
Posted to: Transportation, Downtown, Edgewood, The Hill, Learn / Act

"New Haven is flat, and it's relatively dense. It should be a world-class bike city, and I would love to see us lead on that."

On Saturday morning, April 17th, participants biked over four miles through parts of Downtown, Dwight, The Hill, and West River. Walking surveys took participants two miles through Downtown, The Mill River District, and Wooster Square.

On Saturday afternoon, April 17th, participants walked two miles through The Hill.

On Thursday, May 13th, participants biked over four miles through parts of Westville and Amity. Walking surveys took participants over two miles through Beaver Hills, West Rock, and Westville.

On Saturday, May 15th, participants biked over four miles through parts of Westville and Amity in the morning, and approximately five miles through East Shore, Fair Haven, and The Annex in the afternoon. Additional participants joined a Fair Haven walking route in the afternoon.

Image Credits (All): Street Plans

SAFE ROUTES FOR ALL SEECLICKFIX PLATFORM

WHAT WE DID

The Citywide Active Transportation Plan project team utilized the existing SeeClickFix platform for digital feedback, collecting responses from the platform prior to the start of Phase II, and eventually creating a Plan category to streamline inputs during Phase II.

122 entries between July 2020 and May 2021 were collected, plus 21 additional entries in June 2021, and 15 in July 2021 for a total of 158 entries.

Of those 158 entries:

- **Chapel Street and High Street** were mentioned most frequently. Edgewood Avenue, Elm Street, Ella T Grasso Boulevard, Long Wharf Drive, Peat Meadow Road, and State Street all tied for the third most-mentioned corridor for feedback.
- **Whitney Avenue & Cliff Street** was the most mentioned intersection of concern, and multiple intersections that were a part of the SeeClickFix feedback overlapped with that from the workshops: Chapel Street & Yale Avenue, S Frontage Road & York Street, Edgewood Avenue & Howe Street, Lincoln Street & Trumbull Street, and Rowe Street & Peck Street.
- **The need for speed bumps and other traffic calming, lack of sidewalks, distracted drivers, and crashes** were repeatedly mentioned in the feedback.

ADDITIONAL COMMUNITY CONVERSATIONS

WHAT WE DID

In addition to the project team's organized public engagement activities, ongoing outreach and community conversations occurred at the outset and throughout the planning process.

On Friday, January 8th, the project team engaged Alder Abby Roth, Yale's Environmental Health and Safety Department, and Yale's Traffic Safety Subcommittee for a walk audit of the Medical District. The group surveyed Cedar, George, Park, and York Streets, and Howard Avenue and MLK Jr Boulevard. The group discussed desired changes to York Street, as well as improvements to the intersection with S Frontage Road. The CARE team employed a number of different strategies from July-September 2021 to get the word out about the second public workshop, including a physical presence at existing community events and canvassing to distribute postcards and door hangers about the second public workshop. CARE used similar routes as the Walkabout Surveys to distribute materials about the second public workshop in Beaver Hills, Dixwell Fair Haven, Newhallville, The Hill, and the Mill River District. Volunteers from the Safe Streets Coalition and the Steering Committee joined them in the outreach.

The Draft Citywide Active Transportation Plan document was made available to the public on November 1, 2021, and the project team sought feedback on the full document for four weeks. During these four weeks, the project team received a handful of comments submitted online, as well as comments from the project's Steering Committee. Public feedback was incorporated into the Draft Plan in December 2021 and January 2022.

How Feedback Shaped the Plan

What We Heard

Active transportation improvements are often only implemented in certain neighborhoods rather than, distributed throughout the City.

More protected bike lanes are needed to make more residents feel comfortable riding their bikes, and to minimize bicyclist injuries and fatalities on the streets.

Communities of color and residents whose first language is not English feel as though conversations about safe streets are not welcoming to them.

Moving and storing motor vehicles seem to be the priority in New Haven, as is evident by the disproportionate number of pedestrian and bicyclist deaths in 2020 alone.

What We Did

The Plan includes analysis, outreach, and recommendations for the entire City, with emphasis on where improvements are needed most, especially in the Priority Neighborhoods.

The Newly Proposed Bikeways included in this Plan increase the street mileage of existing and in-construction protected bike lanes by almost five times Citywide.

The Action Plan included in this Plan proposes a City-led quarterly roundtable for the discussion of, and creation of active items to advance, how streets can be holistically safer for communities in New Haven.

The Plan puts forth an ambitious goal of reducing annual bicycle and pedestrian deaths to 0 by 2032, and the Action Plan includes recommendations for shifting attitudes toward streets from just thoroughfares for vehicles, to places of rest, gathering, and social and cultural programming.

04 Walk New Haven

Image Credit: Street Plans

Designing Streets for Walking

The number of people struck and killed in the United States has been steadily increasing each year since 2010.

Adequate infrastructure to support pedestrians of all ages, races, and abilities includes things like traffic-calmed streets, enhanced crosswalks, ADA-compliant curb ramps, pedestran safety islands, street trees, and sidewalks of adequate width. Of utmost importance is the interconnectivity between this infrastructure, which enables pedestrians to walk without concern for sidewalks that dead-end or that an intersection can't be crossed because of a lack of curb ramps.

Multiple other factors contribute to the experience of being on foot in a city that doesn't just involve concrete, paint, and landscaping, like lighting, active storefronts, places to sit, street vendors, etc. For women, Black, and Hispanic individuals, just setting out on foot can be threatening for reasons other than the lack of the elements stated above.

To have all residents feel comfortable and safe walking in their city is a complex feat indeed, but ensuring basic infrastructure like sidewalks, crosswalks, curb ramps, and pedestrian signals are up to best practice standards, and are present where they're needed most is a good place to start. These improvements also often contribute to the economic vitality of cities and districts. According to a 2018 study for the Transportation Research Board, walkability is directly correlated to things like decreased commercial vacancies, inreased retail sales, and increased home value.

Of course, treatments for safe bicycling and for increasing bicycle and pedestrian access to transit can also make for safer walking, as certain treatments often improve street safety for all users, including drivers.

According to the Vision Zero Network, only 40 communities nationwide have adopted Vision Zero strategies, initiatives that aim to eliminate traffic fatalities and severe injuries. A Vision Zero Community is defined as one that meets the following minimum criteria:

- A clear goal of eliminating traffic fatalities and severe injuries has been set.
- The Mayor has publicly, officially committed to Vision Zero.
- A Vision Zero plan or strategy is in place, or the Mayor has committed to doing so in a clear time frame.
- Key departments (including transportation, public health, and Mayors' offices) are leading.

New Haven's Complete Streets Policy and Design Manual (2010) commits the City to Vision Zero. With the recommendations in this Plan, the Vision Zero framework can be activated to deliver the projects that need to be implemented to reach zero annual fatalities by 2032.

Walking in New Haven

Within the City of New Haven are dense pockets of walkability, where services are accessible on foot, and walking feels pleasant and safe. However, these pockets are just that: disconnected areas that may be internally walkable, but are otherwise surrounded by fragmented land use, waterways, and unwelcoming transportation infrastructure (highways, rail lines, etc.).

That said, the City has made a lot of progress in recent years to track necessary pedestrian improvements, and involve the public in the process. GIS data has kept track of the sidewalk and pavement condition since 2012, although the most recent dataset is 2016. The City's SeeClickFix platform has also taken requests directly from the public for Complete Streets projects, and is continuously working on pedestrian improvements.

Other projects, like raised intersections and the woonerf planned for Orange Street, indicate a more progressive direction in pedestrian infrastructure design.

Recently, legislation passed the Connecticut State Senate and House of Representatives that includes provisions like increased fines for distracted driving, and greater local control of City speed limits, which will enable pedestrian-specific street designations like slow zones and neighborhood greenways.

The analysis performed as a part of this Citywide Active Transportation Plan provides the City with updated data at the City scale, identifying not just which areas or neighborhoods of the City are in most need of improvements, but also which intersections to prioritize in response to safety and public concerns.

Image Credit: Adam Weber Photo

Design recommendations in this plan will bolster the enforcement provisions included in the recent legislation for a multi-pronged approach to improving pedestrian safety Citywide.

EXISTING CHALLENGES

The following challenges make walking in New Haven challenging or feel unsafe.

1. There are over 200 intersections that are in need of upgraded sidewalks and/ or crosswalks; ADA-compliant curb ramps, and pedestrian signal heads are also needed in many locations.

2. Pedestrian crashes and fatalities are re-occuring across the City along a relatively small number of corridors and intersections.

3. While basic physical design improvements to intersections are crucial, operational improvements are also needed to make crossings at large intersections more comfortable.

4. Accessing transit by foot can be uncomfortable in many parts of the City, especially in lower density neighborhoods where the sidewalk network is incomplete.

KEY RECOMMENDATIONS

Four key recommendations for immediate improvements to the pedestrian network in the City of New Haven are below:

1. Consult the Intersection Database before undertaking routine maintenance and / or intersection upgrades projects and cross-reference with Priority Neighborhoods for equitable distribution.

2. Prioritize street safety investments at the top 10 most dangerous intersections for pedestrians (see pg. 49) by 2027.

3. Adjust pedestrian signal timing at intersection legs with four or more travel lanes to provide more time to cross; Prioritize Leading Pedestrian Intervals (LPIs) at high crash intersections.

4. Prioritize pedestrian improvements wherever Bus Stop Type #1 is found (see pg. 72), especially when found at any of the locations identified in the Intersection Database.

The Intersection Database

The consultant team analyzed the conditions of all 1,566 intersections in the City of New Haven.

Using a combination of on-the-ground analysis, aerial imagery, and Google Street View (2019-2020), the consultant team reviewed the following elements at every intersection in New Haven:

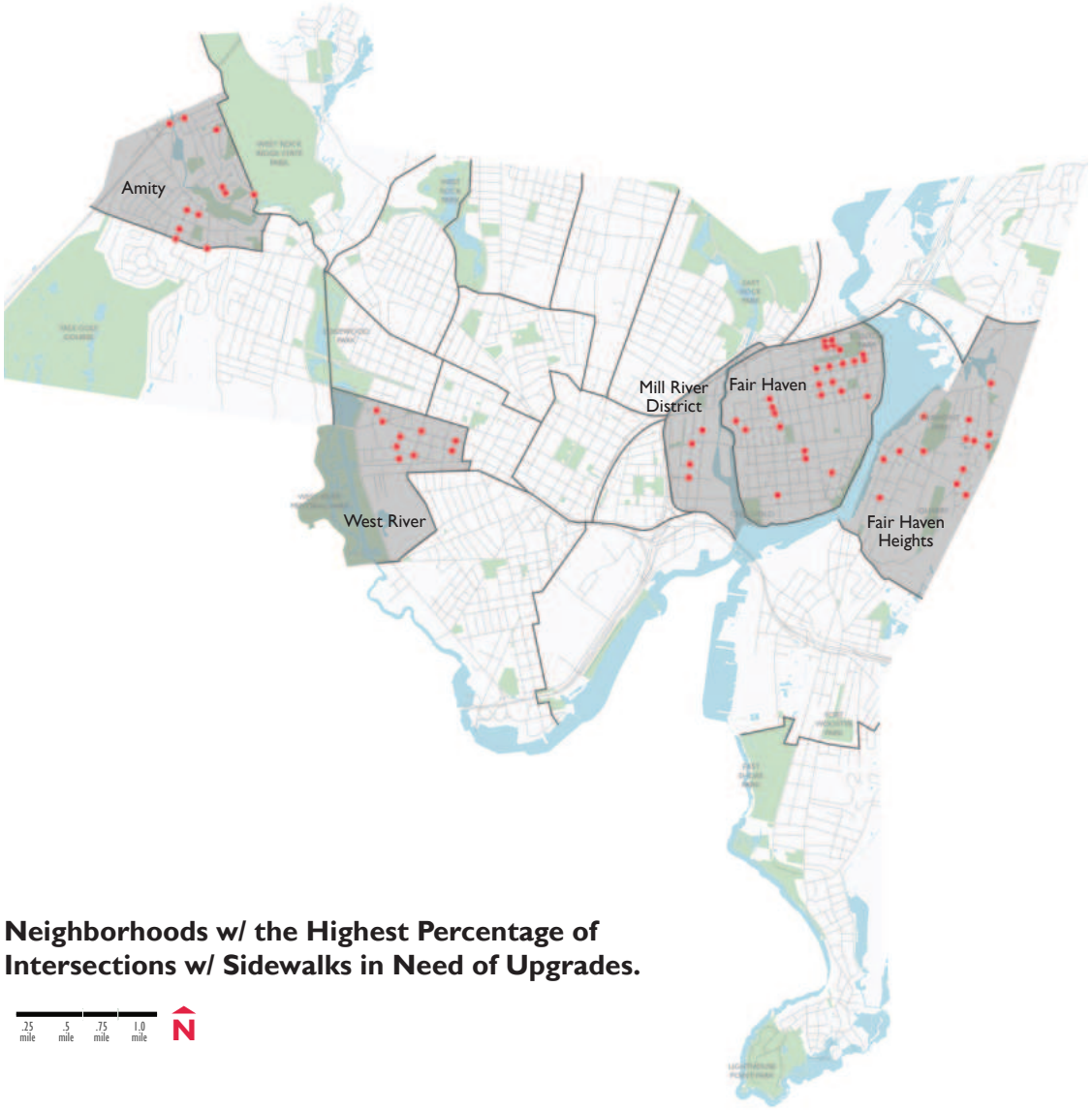
- The presence of **pedestrian signals** at signalized intersections
- The **condition of the sidewalks** leading up to (approximately 30' from the intersection along each leg)
- The **number of crosswalks**
- The **condition of the crosswalks**, if present
- The **crosswalk type** (transverse vs. continental)
- The **number of curb ramps and tactile warning pads** (If the curb ramp does meet the asphalt or does not appear to be ADA-compliant it was not counted
- The **presence of bikeway facilities** at the intersection (bike lanes, bike boxes, two-stage turn boxes, crossbike markings, bikeway signals etc.)

Overall this intersection database is a snapshot in time and is meant to be a living document, as regular updates will need to be made to maintain its usefulness. It should be noted that the database was cross-referenced with the most recent repaving projects (2019) and sidewalk projects (2020) dataset. Additionally, although most Street View imagery is sourced from 2019 or 2020, there were intersections that did not have updated imagery and therefore the condition observed may not be as current.

To analyze the condition of each intersection element, the consultant team used a scale of Needs Upgrades, Moderate, Good, and Excellent. For sidewalks, a rating of Needs Upgrades meant that the sidewalk would be difficult to traverse in a wheelchair, or contained severe cracks or heaving from tree roots, etc. Sidewalks that were rated as Excellent were mostly those that looked very new or recently constructed.

For the condition of crosswalks, a rating of Needs Upgrades was given to those that had extremely faded striping (to where less than 50% of the crosswalk markings were visible), and/or if the asphalt contained any large cracks or potholes that create tripping hazards. Again, most of the Excellent crosswalks looked to be a part of relatively recent repaving / re-striping project.

The intersection database provides a current snapshot of street conditions that impact the pedestrian experience. It was used to inform priority projects and recommendations included in this Plan. While the data and priorities will change in the coming years, the ongoing collection of data should continue and help the City allocate limited city resources to neighborhoods and/or corridors that are most in need of improvements.



Neighborhoods w/ the Highest Percentage of Intersections w/ Sidewalks in Need of Upgrades.

SIDEWALKS AT INTERSECTIONS

According to the Intersection Database, the neighborhoods listed below have the highest concentration of intersections (64 in total) with at least one approaching sidewalk that needs to be improved. The percentage of intersections per neighborhood in need of repair is also included for each neighborhood.

1. **Fair Haven Heights - 24%**
2. **The Mill River District - 21%**
3. **West River - 21%**
4. **Fair Haven - 16%**
5. **Amity -15%**

Of these neighborhoods, two (Fair Haven, West River) are also Priority Neighborhoods, which underscores the need for investment in these historically underserved areas.

It is important to note that only existing sidewalks were evaluated as a part of the intersection database. Many intersection legs throughout the City are in fact missing sidewalks. This means a four-way intersection may only have sidewalks on three sides, making it difficult to safely

or efficiently traverse the intersection. In Amity, for example, 20% of intersections also lack at least one approaching sidewalk. In Fair Haven Heights, 13% of intersections have no approaching sidewalks at all.

Although the land use context of these two example neighborhoods is lower density and more more car-oriented, the lack of basic pedestrian infrastructure limits mobility, especially for children, aging adults, caretakers, and/ or people with physical disabilities.

CROSSWALKS AT INTERSECTIONS

The top five neighborhoods with intersections that are missing marked crosswalks are listed below. They range from Quinnipiac Meadows, where crosswalks are not present at 86% of intersections, to Westville, which lacks crosswalks at just over a third of its intersections.

1. **Quinnipiac Meadows - 86%**
2. **East Shore - 71%**
3. **The Annex - 69%**
4. **Fair Haven Heights - 68%**
5. **Westville - 37%**

537 intersections, or 34% of intersections Citywide, do not have crosswalks.*

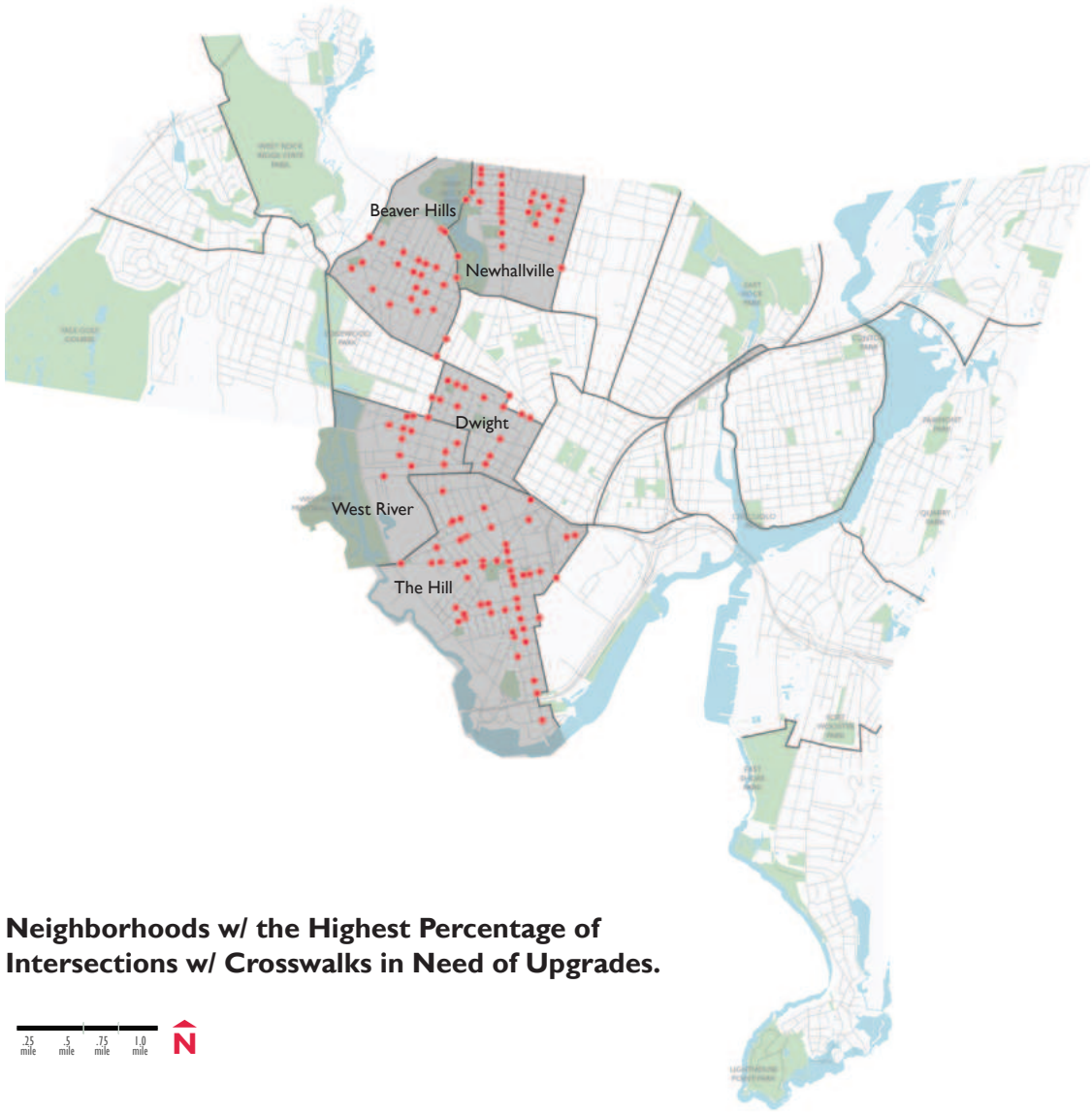
** Intersections withouth crosswalks should undergo additional analysis, as there may not be demand or feasibility for a crosswalk at every intersection (i.e. missing sidewalks).*

While none of the neighborhoods listed at left are categorized as Priority Neighborhoods, Fair Haven Heights does appears in the top five locations lacking sidewalks and crosswalks. Worth noting, too, is that a lack of crosswalks may be attributed to the lack of sidewalks. Many of the neighborhoods listed here feature industrial land uses and/ or were developed at a time when sidewalks were not commonly built.

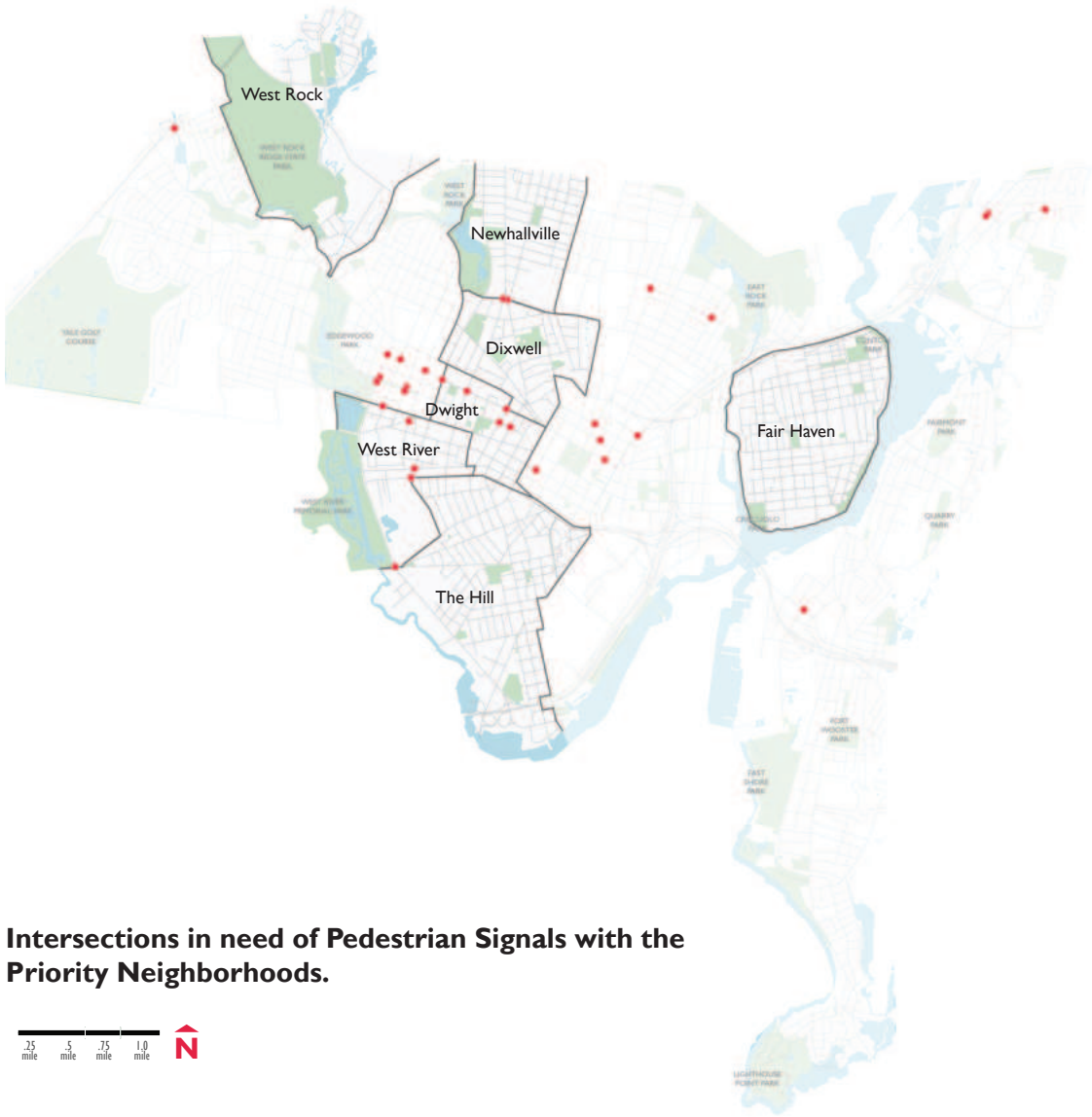
The neighborhoods highlighted on the map at right have the highest concentrations of intersections with at least one crosswalk in need of re-striping. About a third of the intersections in each neighborhood have at least one crosswalk that needs to be re-striped/resurfaced.

1. **Dwight** 33%
2. **The Hill** 33%
3. **Newhallville** 33%
4. **Beaver Hills** 32%
5. **West River** 29%

Four of the five neighborhoods where crosswalk re-striping is needed most are Priority Neighborhoods. West River appears in the top five for both sidewalks and crosswalks that are in need of maintenance / repair. **In total, 136 crosswalks would benefit from maintenance.**



Neighborhoods w/ the Highest Percentage of Intersections w/ Crosswalks in Need of Upgrades.



Intersections in need of Pedestrian Signals with the Priority Neighborhoods.

PEDESTRIAN SIGNAL HEADS

The map at left depicts signalized intersections that are also missing pedestrian signals. Of these intersections, four are where crosswalks also need to be re-striped (Sherman Avenue & MLK Jr Boulevard, Elm Street & Dwight Street, Elm Street & Orchard Street, and Derby Avenue & Winthrop Avenue). One of the intersections is also one that needs sidewalk repair (Whalley Avenue & Pond Lily Avenue).

There are additional signalized intersections throughout the City that are missing pedestrian signals, but these intersections either do not have crosswalks or sidewalks.

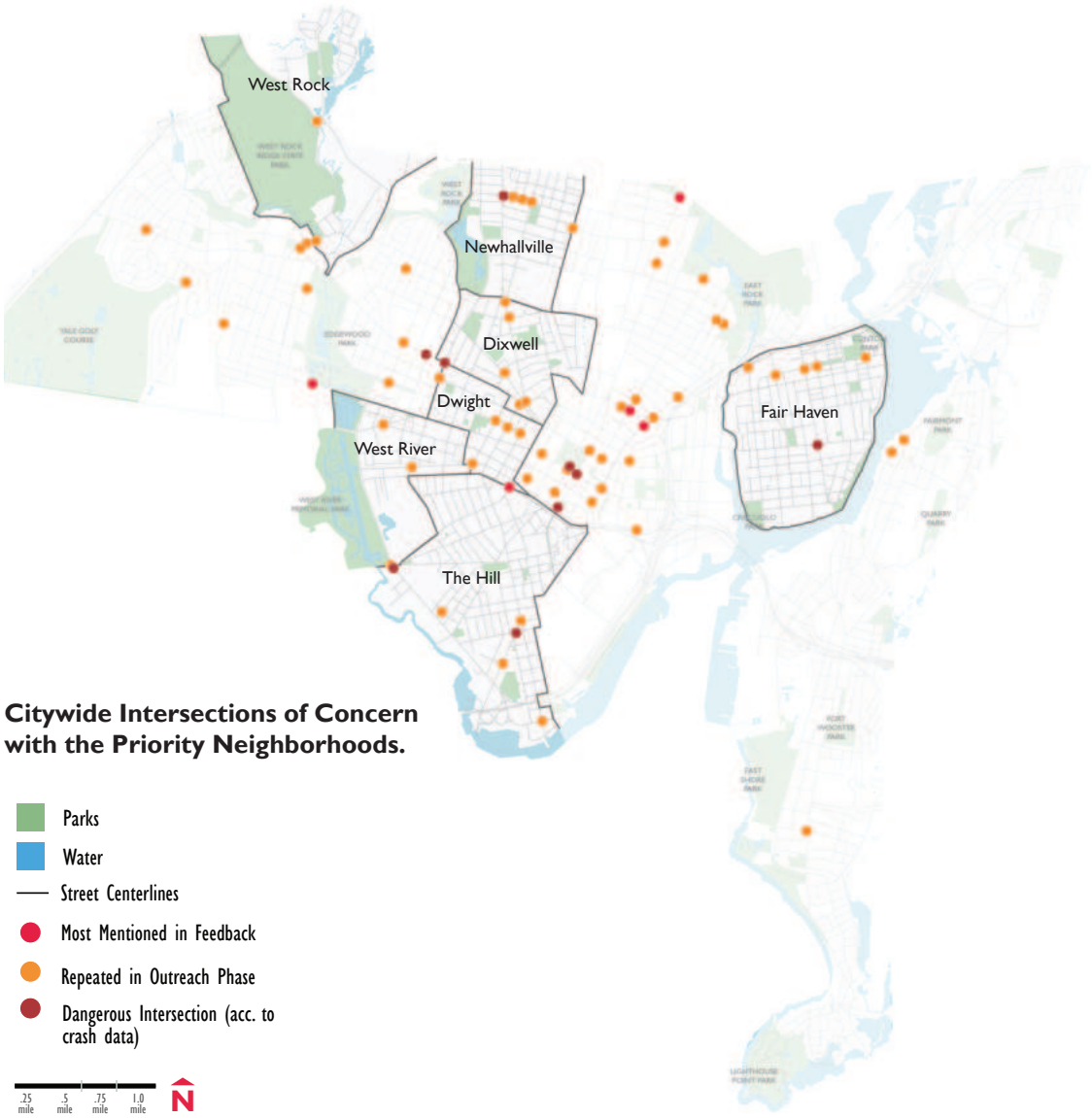
A total of 31 signalized intersections that have crosswalks need pedestrian signal heads Citywide.

Priority Intersections

Additional intersections of concern emerged through the planning process. Those mapped at right are the sites of the most pedestrian crashes and/or were repeatedly mentioned as unsafe or uncomfortable throughout the Plan's public outreach process. According to the UConn CT Crash Data Repository, the following ten intersections experienced the most pedestrian crashes since 2019.

1. **Dixwell Ave & Bassett St**
2. **Whalley Ave & Winthrop Ave**
3. **Whalley Ave & Norton St**
4. **Whalley Ave & Sherman Ave**
5. **Ella T Grasso Blvd & Columbus Ave**
6. **Temple St & Chapel St**
7. **Church St & Chapel St**
8. **Church St & MLK Jr Blvd**
9. **Kimberly Ave & Lamberton St**
10. **Grand Ave & Ferry St**

Suggested improvements for these intersections are included in the Project Bank (see pg. 132 of the Appendix), which can be cross-referenced with the Intersection Database and proposed bikeway improvements to arrive at more holistic safety and accessibility solutions.



Citywide Intersections of Concern with the Priority Neighborhoods.

In addition to the high pedestrian crash intersections, five additional intersections were mentioned the most across all feedback platforms:

Chapel Street & Yale Avenue. This intersection is currently slated for a peanut roundabout, with imminent improvements to pedestrian safety. The crossing distances are currently very wide, and pedestrians feel exposed to speeding cars. Cars are often not compliant with the flashing signal.

Recommendation: Move forward with the intersection improvements as designed by the City of New Haven.

Cliff Street & Whitney Avenue. Public feedback expressed repeated desires for at least a crosswalk at this intersection. Pedestrians currently desire a safer and more direct crossing to St. Thomas' Episcopal Church and Day School, as well as to Edgerton Park. Crossing Whitney Avenue feels too dangerous.

Recommendation: Improve the existing crosswalk across Cliff Street with enhanced crosswalk markings, and add a crosswalk across Whitney Avenue north of Cliff Street with a median pedestrian refuge. Improve the approaching sidewalk on the north side of Cliff Street on the west side of the street.

Orange Street & Trumbull Street. Pedestrians cite that cars start traveling faster between Whitney Avenue and State Street, since Trumbull Street takes them straight to I-91. This makes crossing Trumbull Street seem unsafe, and is difficult to accommodate for pedestrians. At this intersection, crossing distances are long, and the curb radius for cars coming off of I-91 to make a right turn on Orange Street is wide.

Recommendation: Update the two existing crosswalks with enhanced crosswalk markings. Add curb extensions to the northeast and northwest corners of the intersection to shorten the crossing distances and tighten up the turning radii. Consider a Leading Pedestrian Interval (LPI) to allow pedestrians a head start.

York Street & S Frontage Road. Wide crossings and vehicular speeds across S Frontage Rd. make this a difficult intersection for pedestrians to cross comfortably. This intersection is the location of three traffic-related deaths in the last 12 years, the most recent in October of 2020, which marked the 13th pedestrian or bicyclist death in the City that year.

Recommendation: Move forward with the raised crossings planned for this intersection, funded by the state's Local Transportation Capital Improvement Program. Properly integrate the protected bike lane west of the intersection to shorten the crossing distance on that north-south crosswalk. Consider an all-way pedestrian crossing signal for this intersection.

State Street & Trumbull Street. Drivers accelerate through this intersection to get onto the I-91 ramp, and the crossing is wide enough so that pedestrians need to hurry across the street before the signal turns. A wide radius at the on-ramp for cars heading north on State St. allows drivers to take the turn at unsafe speeds. It can also be difficult to cross the street to access the restaurants and services if parked on the opposite side of the street.

Recommendation: The on-ramp to I-91 can be narrowed, with curb extensions on either side of the crosswalk across the on-ramp to slow the speeds of turning cars and shorten the crossing distance. Across State Street, a median pedestrian refuge can replace the left-turn pocket to provide protection for crossing pedestrians. All existing crosswalks should be re-striped, and the two transvers crosswalks upgraded with enhanced markings. Analyze and consider pedestrian signals at this intersection.

Streets as Places

Streets are more than thoroughfares for movement. Underutilized asphalt can be transformed into dynamic, programmable community space.

In addition to elevating the New Haven's streets to better support active transportation, there are opportunities to program streets so that they expand social, cultural, and economic activity. Doing so is not new to the City. Prior to the pandemic New Haven permitted curbside parklets to enliven city streets through the provision of outdoor patio space for local restaurants. In 2020, New Haven's Outdoor Dining Initiative responded to the COVID-19 pandemic by partially or fully closing streets segments to support safe dining and social gathering.

Orange Street between Crown Street and Center Street, dubbed Orange Street Promenade, was fully closed to cars to accommodate tables, chairs, benches, and asphalt art. This block is one of the two blocks on Orange Street that may be transformed into a slow, shared, curbless street that allows pedstrians and vehicles to mix safely. Another block Downtown, College Street between Chapel Street and Crown Street, was converted to accommodate a shared use path. In Westville, Central Avenue between Fountain Street and Whalley Avenue was fully closed to cars, and received a bright asphalt art treatment to welcome people.

These responsive transformations now provide a great proof of concept for exploring their incremental transformation to permanence.

Image Credit: Street Plans

In addition to outdoor dining, the City should support neighborhood organizations and businesses who desire and deserve similar changes to the streetscape so that the economic, social, and public health benefits are distributed more equitably. At the center of this expansion should be a committment to creating enjoyable public spaces in neighborhoods that do not require patronizing a business and where public space is the most scarce. Initial recommendations for doing so may be found on the following page.

1. Test a temporary pedestrian plaza on Monroe Street between Clay Street and Blatchley Avenue in Fair Haven. This segment of Monroe Street is not essential to traffic flow in the area, and can provide a place for respite along the busy Blatchley Avenue. Seek inspiration from New York City's Plaza Program.

2. Consider converting DePalma Court into shared space to serve as an extension of the Wooster Square, further linking the businesses along Wooster Street, Paul Russo Memorial Park, and the neighborhood's namesake public space.

3. Take the next step on Central Avenue in Westville by using more permanent materials to create an interim, lasting public space that can be effecively programmed and stewarded by a local partner.

4. Leveraging lessons learned by the global Open Streets movement, pilot a re-occurring car-free route(s) that temporarily gives streets over to people walking, cycling, running, skating, scooting etc. With strong nodes of supporting programming, Open Streets could become a platform for the City's education, policy, and communication initiatives. They also help cities build support for a long-term paradigm shift towards more sustainable modes of travel. See the following page for a few potential Open Streets routes.

Image Credit: Downtown Atlanta

Atlanta's Broad Street Boardwalk is a one-block, interim pedestrian plaza constructed with wood decking. The plaza is flush with the curb, and contains both movable and stationary seating elements. Programming and use of the space will guide the City of Atlanta toward a permanent design.

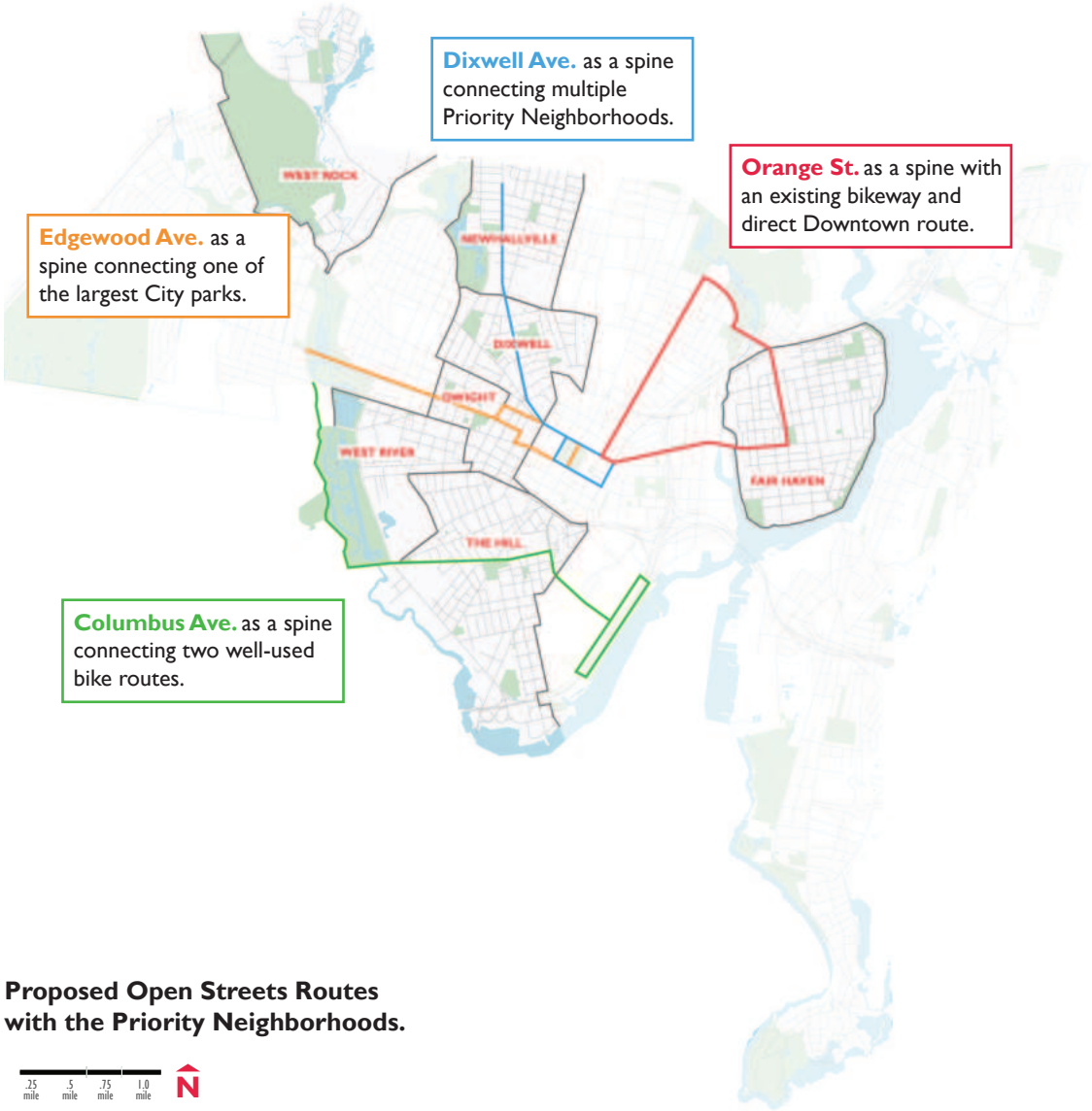
For a city the size of New Haven, Open Streets routes should be approximately 3 miles in length.

Route design depends on a multitude of factors, but generally, should do one or more of the following:

- Includes a clear "spine," a street where local residents already visit or travel along with regularity.
- Connect neighborhoods of varying socio-economic demographics, capturing a large number of residents within a 5 to 15-minute travel time to the route.
- Align with existing attractions like libraries, community centers, parks, popular public spaces, or bustling commercial districts.

Open Streets programs that are not planned as one-off events, but are rather scheduled as predictable opportunities for residents to be physically and socially active, are found to be the most successful. Thus, advance advertising of multiple dates per season is ideal to create predictability and more widespread momentum and enthusiasm. It also aids logistical planning and provides economies of scale for all outreach and marketing efforts.

At right are three possible routes proposed by the project team. Each of these routes could be implemented in the same year, as they touch on different areas of the City and would engage a wide variety of residents.



Proposed Open Streets Routes with the Priority Neighborhoods.

Detailed Drawings

This chapter includes four detailed plan view and section drawings featuring pedestrian, bike, and transit improvements, with an emphasis on pedestrian improvements in Priority Neighborhoods.

The drawings are illustrative, and seek to apply national best practices for enhanced walking infrastructure. Upon Plan adoption, further design and engineering will determine how each project is constructed, and final design may not exactly replicate the conceptual drawings included herein.

1 Dixwell Ave & Bassett St

WHY? This is one of the most dangerous intersections for pedestrians and bicyclists in New Haven. It also located within Priority Neighborhood. The Move New Haven Study also identifies Dixwell Avenue as a future Bus Rapid Transit (BRT) route, so pedestrian traffic at this intersection could substantially increase in the coming years.

2 Hemingway St & Eastern St

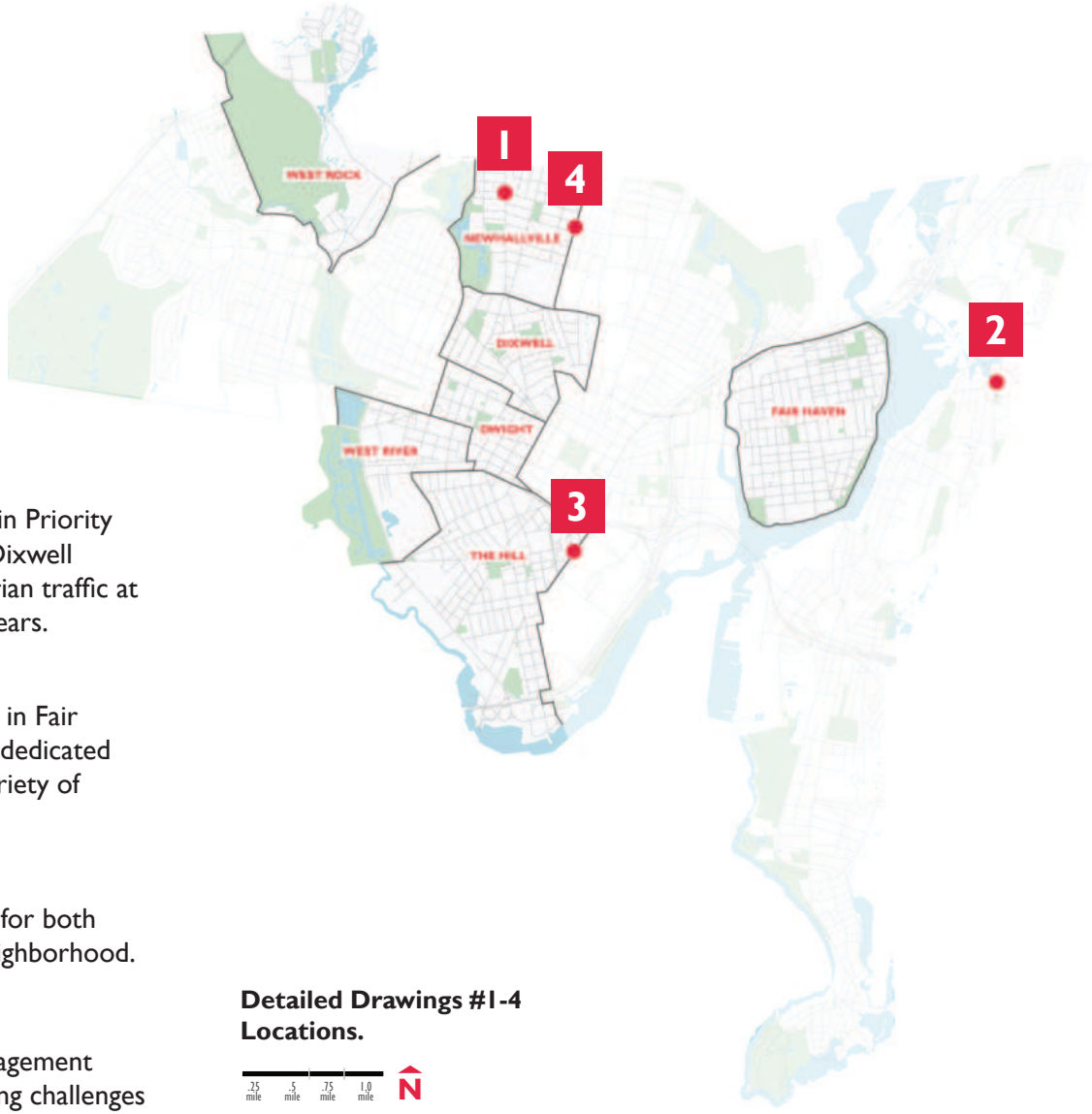
WHY? This intersection is one of many without crosswalks in Fair Haven Heights, a neighborhood that also currently lacks any dedicated bikeways. It was also drawn to ensure representation of a variety of contexts throughout the city.

3 Union Ave @ Union Station

WHY? This location was identified in previous City studies for both pedestrian and bicycle improvements, and is in a Priority Neighborhood.

4 Winchester Ave & Highland St

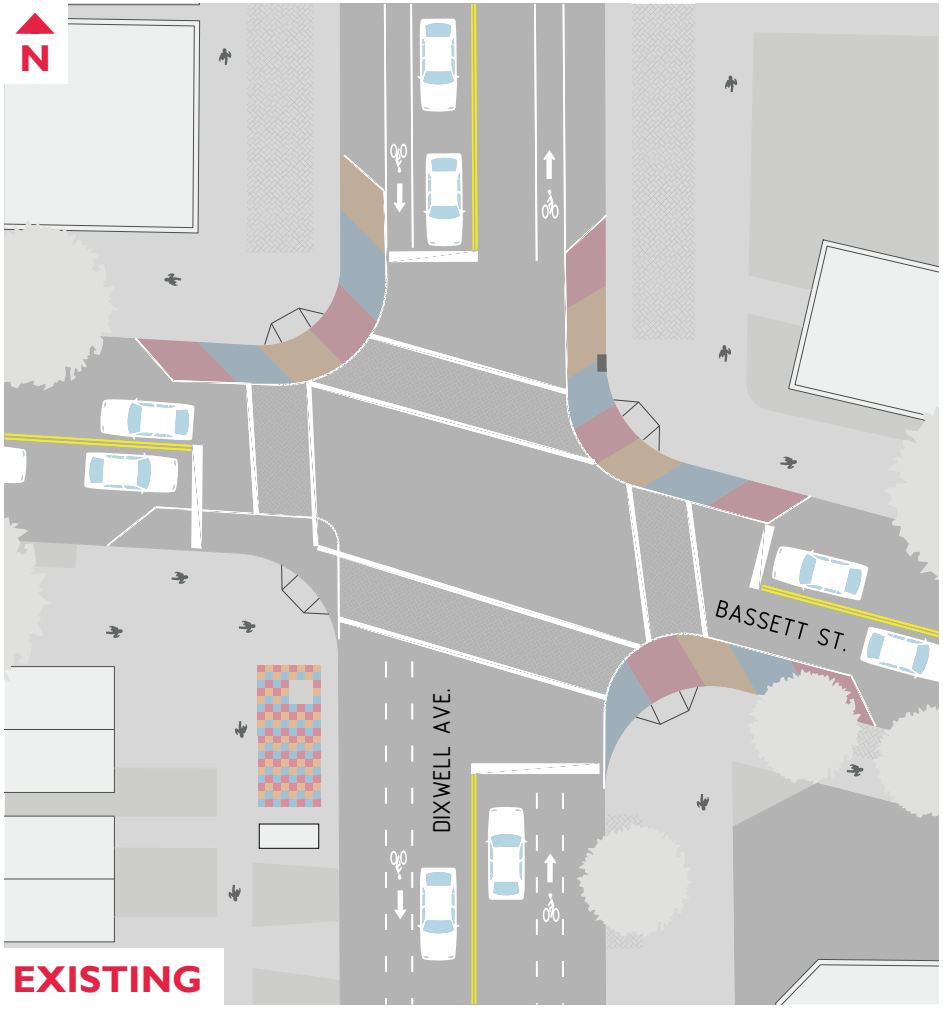
WHY? This location includes traffic volume and speed management strategies that can be replicated on other streets experiencing challenges like speeding and cut-thru traffic. It is also located within a Priority Neighborhood.



Detailed Drawings #1-4 Locations.

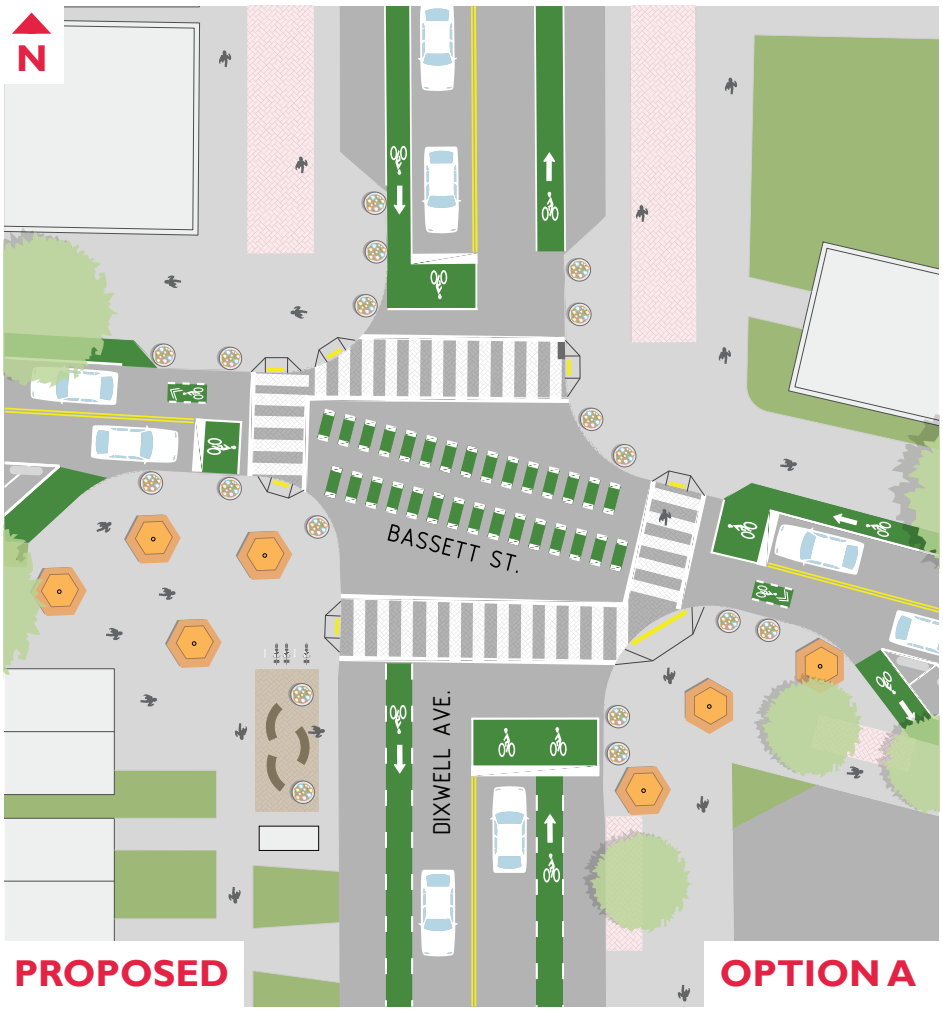
1. Dixwell Avenue & Bassett Street

All proposed designs are conceptual, and are subject to further design and engineering study.



EXISTING

As one of the more dangerous intersections for bicyclists and pedestrians, and as an intersection along a future proposed Bus Rapid Transit (BRT) route, Dixwell Avenue and Bassett Street could benefit from a number of bicycle and pedestrian improvements, some of which were trialed as part of the 2019 Safe Routes for All pilot projects.

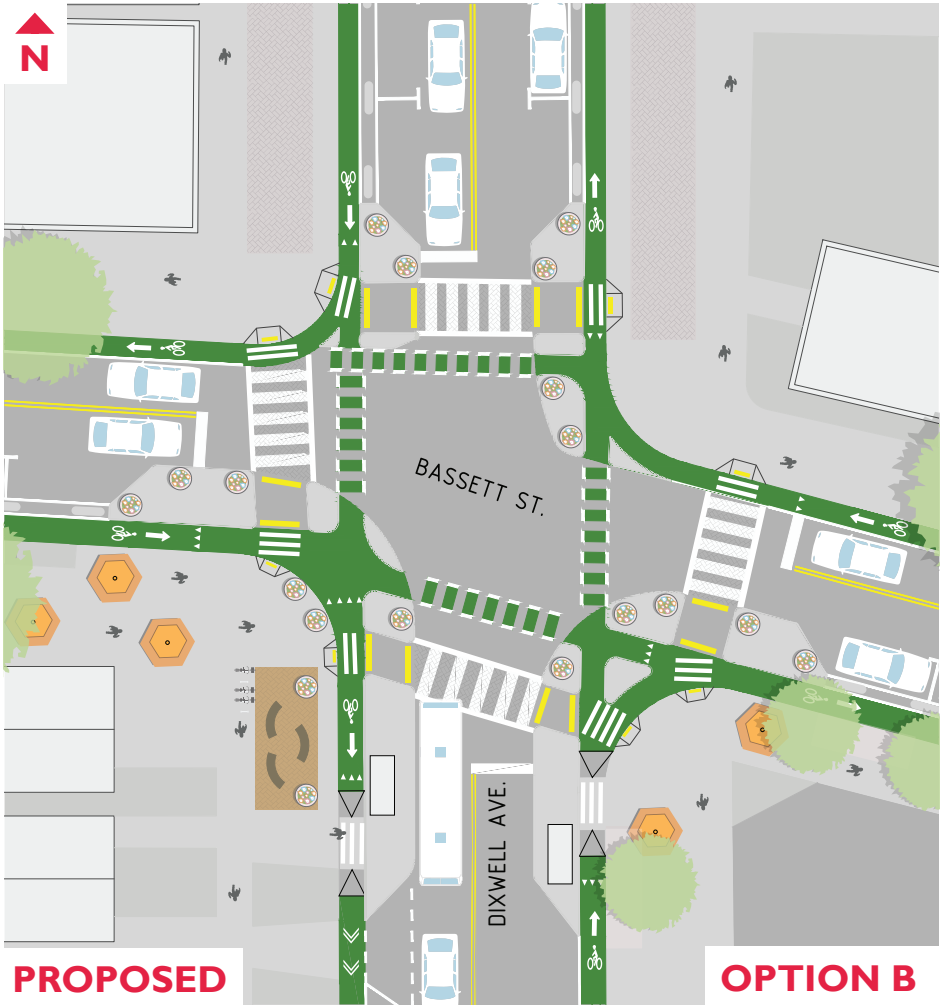


PROPOSED OPTION A

Along Bassett Street, **an eastbound parking-protected bike lane and a westbound bike lane** offer new bikeways, while also reducing the travel lane size to maintain speeds approaching the intersection. The previously piloted curb extensions are made permanent, and the temporary bus stop enhancement is enhanced further with more permanent seating, bike parking, and planters.

1. Dixwell Avenue & Bassett Street

All proposed designs are conceptual, and are subject to further design and engineering study.



PROPOSED **OPTION B**

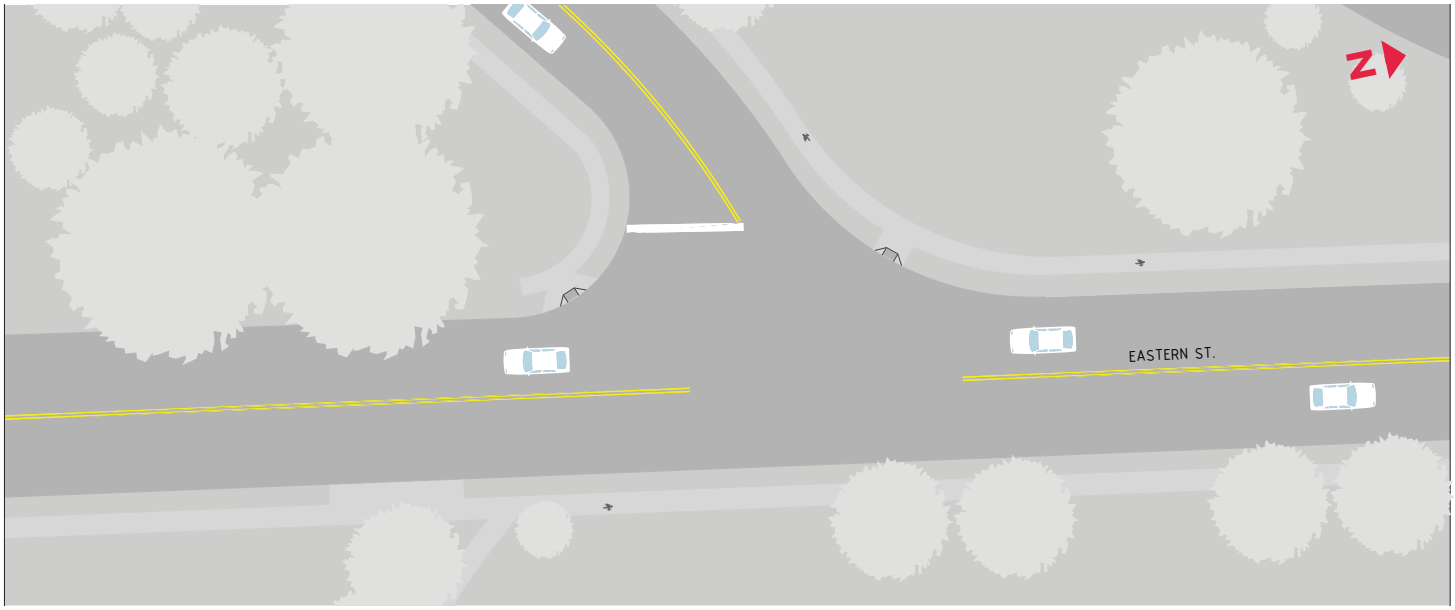
A second alternative design for this intersection features **a protected intersection.** This design maintains the shorter crossing distances and tighter curb radii, and also adds protection for bicyclists, substantially limiting the interaction between people driving and people bicycling and walking.

Image Credit: John Greenfield

Protected intersections, like the Chicago example shown above, reduce the exposure of people cycling and walking with vehicular traffic, particularly where people driving make right turns.

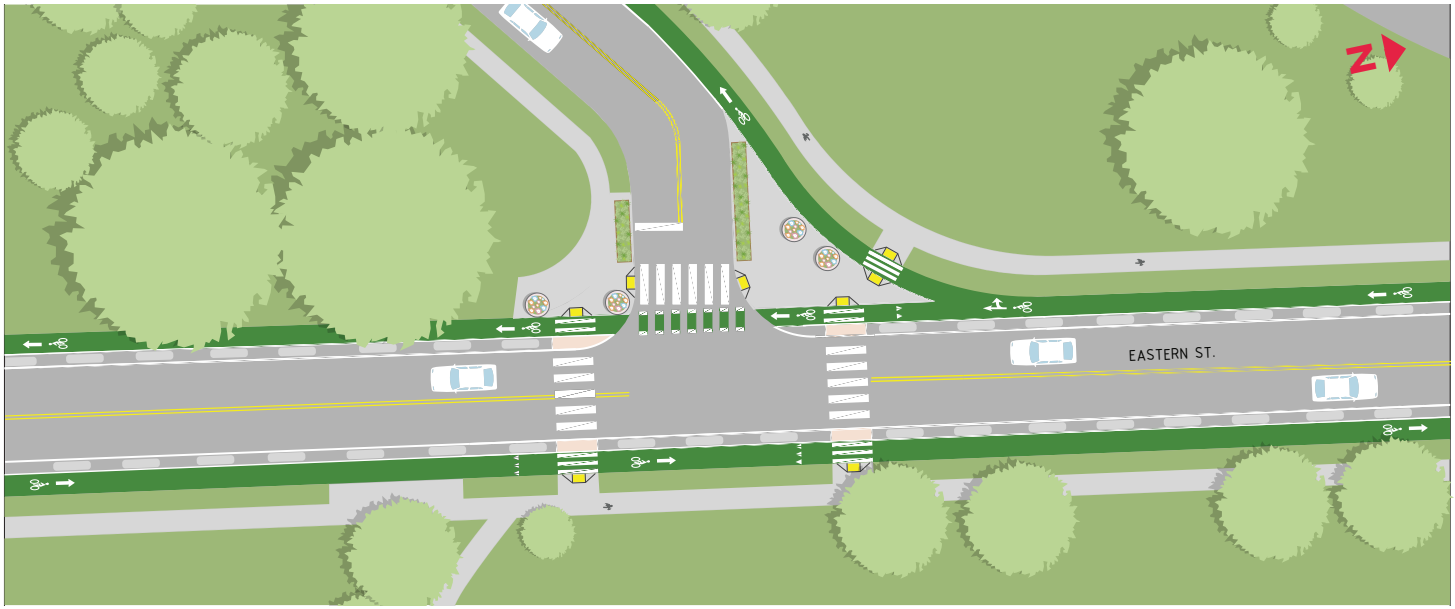
2. Hemingway Street & Eastern Street

All proposed designs are conceptual, and are subject to further design and engineering study.



EXISTING

This intersection currently lacks several basic pedestrian safety elements to support comfortable crossing adjacent to the Bella Vista and Eastview Terrace towers. The sidewalk on the west side of the street abruptly ends just south of the intersection, and there are no crosswalks to access the path to the Bella Vista towers.



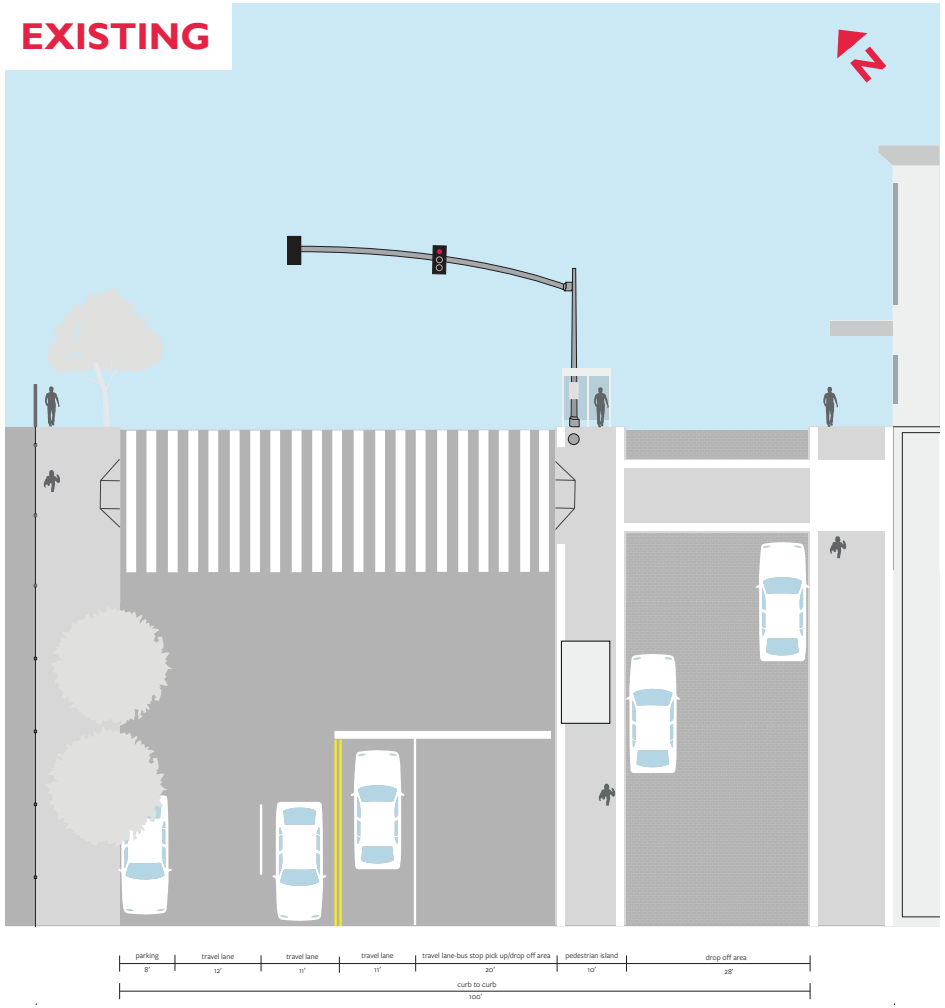
PROPOSED

The plan proposes **curb extensions** to narrow the crossing distance and correct the sweeping vehicular geometry along Hemingway Street, as well as provides **new crosswalks** on all three legs of the intersection. The proposed **protected bike lanes on Eastern Street** also help shorten the pedestrian crossing distance, as the 3' bike lane buffer provides a queuing area for pedestrians on both sides of the street.

3. Union Avenue at Union Station

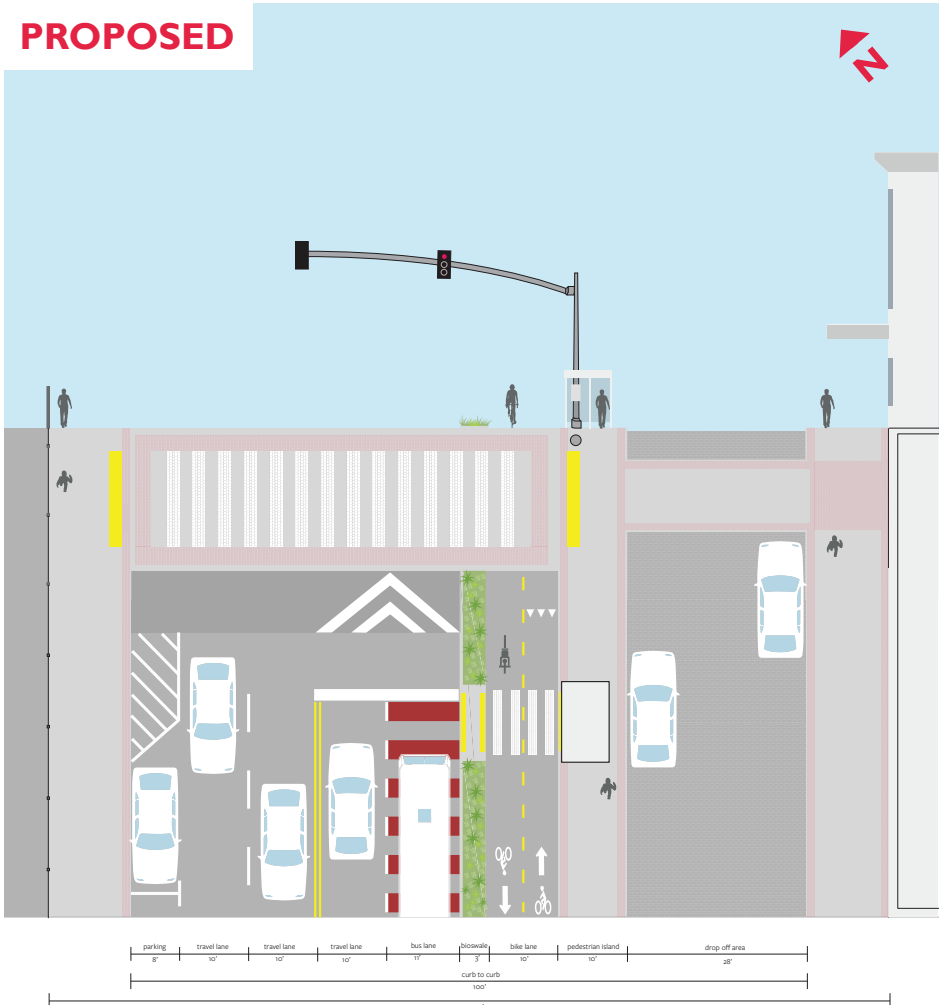
All proposed designs are conceptual, and are subject to further design and engineering study.

EXISTING



A wide crosswalk at Union Station currently provides a designated place for larger crowds of pedestrians entering and exiting the station. However, station access improvements can be made to the station across and along Union Avenue.

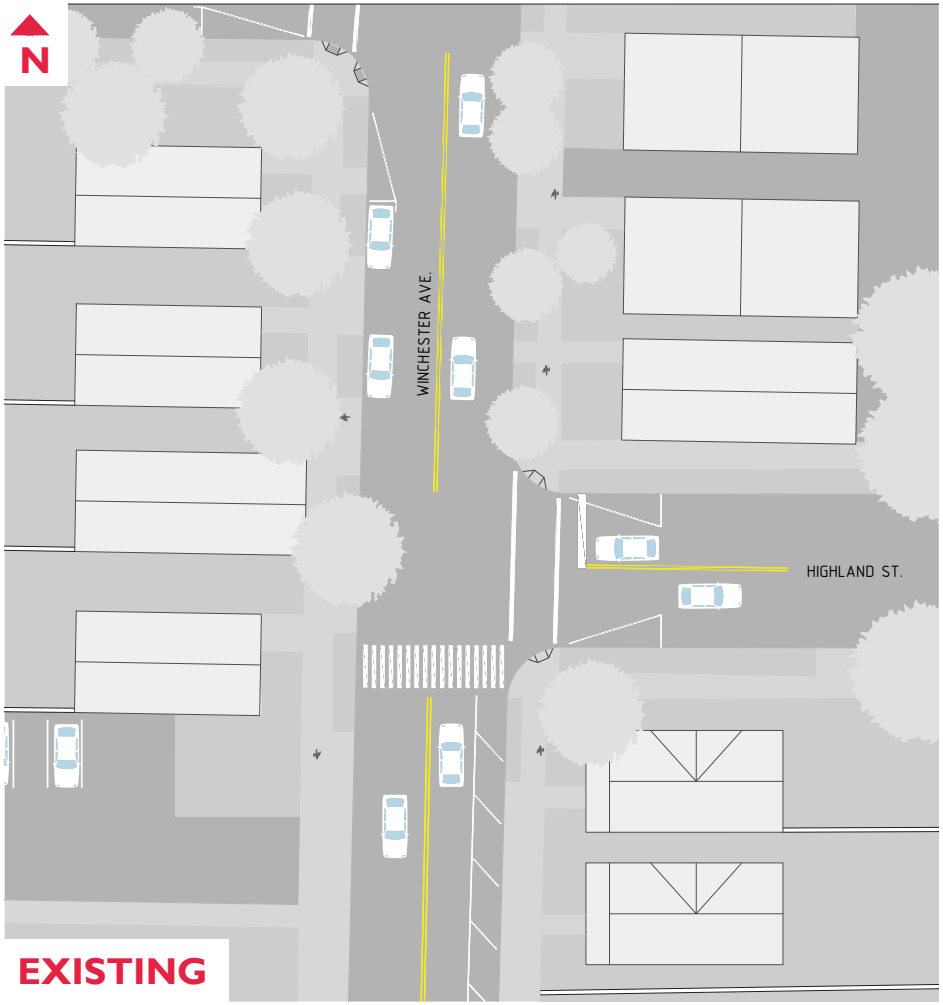
PROPOSED



A **protected, two-way bike lane** (curb height) is proposed for Union Avenue, consistent with recommendations made in the 2018 Union Avenue Road Diet & Cycle Track Analysis. **A raised crossing** that matches the brick inlay pattern is proposed at the crossing, as well as the addition of wider tactile warning pads to aid pedestrian detection.

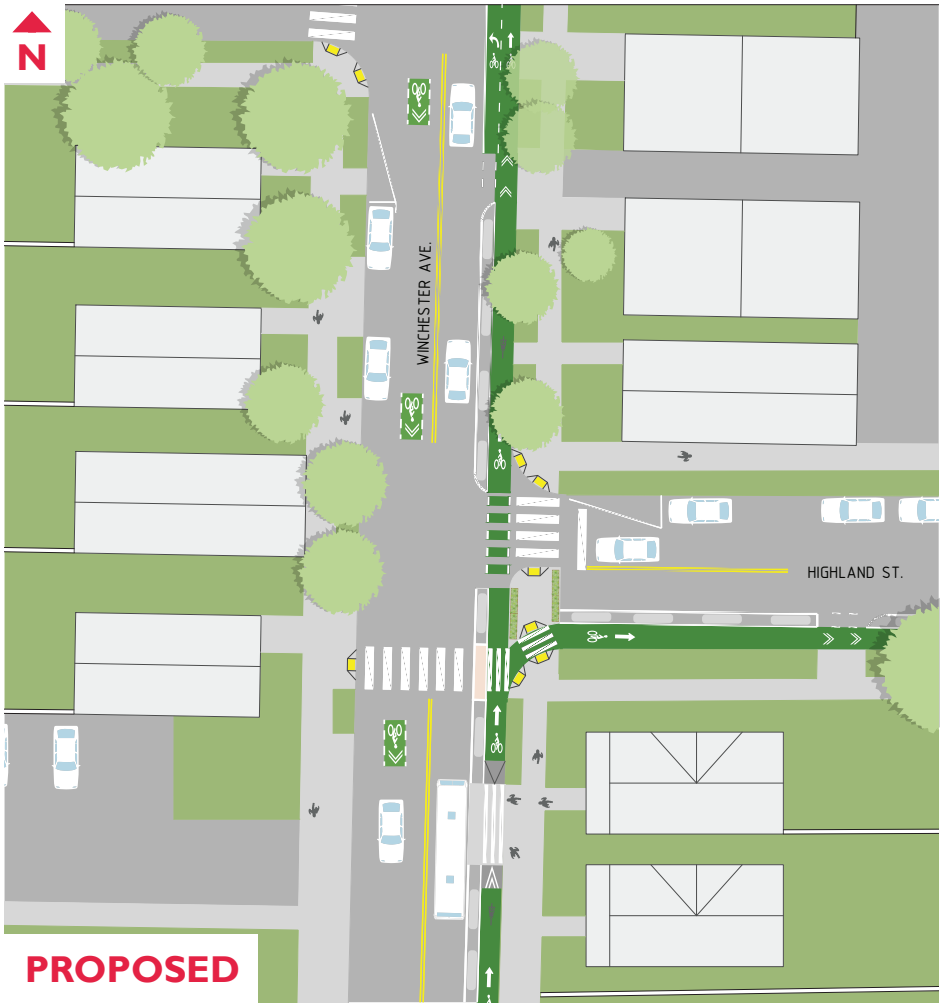
4. Winchester Avenue & Highland Street

All proposed designs are conceptual, and are subject to further design and engineering study.



EXISTING

Winchester Avenue is a continuous north-south connector street linking Yale, Newhallville, and Prospect Hill. It also is adjacent to Albertus Magnus College, and is a pleasant, tree-lined street mostly lined with multi-family housing.



PROPOSED

In addition to **proposed bikeways and a bus island** for more efficient boarding/alighting, multiple pedestrian improvements are proposed for the intersection. **An additional crosswalk, an enhanced crosswalk, curb extensions/shorter crossings, and improved curb ramps** will help pedestrians navigate the intersection, plus **a diverter** eliminates turning traffic onto Highland Street.

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05 Ride New Haven

Image Credit: Street Plans

Elm City Tactical Transit

CT*transit*'s New Haven system is "providing adequate coverage, but not necessarily good service."

According to the City's 2019 Move New Haven Transit Mobility Study, the current bus system needs modernization. While current bus routes are aligned well with planned development, bus headways, system efficiency, and user experience can be improved.

Specifically, the Plan emphasizes that "an incremental transition of the CTtransit New Haven system" is important for the City to remain economically vibrant and competitive.

The Study identifies four routes that are currently the most effective in the system (212, 238, 243, 265), on which to focus three key recommendations:

- Upgrade the four most effective routes listed above to bus rapid transit service (BRT)
- Develop cross-town routes to improve transit service in and out of Downtown New Haven
- Improve traffic flow alongside the New Haven Green and upgrade the user experience at this City's central transit hub.

To support BRT improvements the Study identifies both service and infrastructure features, like dedicated bus lanes, queue jump lanes, mini-hubs, Transit Signal Priority, and smart card payment systems. Specific cross-town routes are also recommended with improvements to the management of bus stops at the Green.

Image Credit: Street Plans

Although a phased approach is mentioned, the Study does not explicitly recommend undertaking an iterative pilot or "Quick-Build" approach to project delivery. Thus, the rest of this Plan section outlines how select bus improvements can be delivered in the short-term to inform and support long-term, lasting transit investments that help deliver the City's transportation, climate, and economic development goals.

Following national best practices, **the City of New Haven has the opportunity to utilize the Tactical Transit methodology to fast-track the Move New Haven Plan**, while also expanding public outreach during the process.

According to a 2019 publication funded by the federal Transportation Research Board (TRB) called *Fast-Tracked: A Tactical Transit Study* a project is considered a Tactical Transit project if it:

- Is implemented on a much faster timeline than a typical capital project;
- Uses flexible and/or low-cost materials;
- Is executed with a much smaller budget than a typical capital transit project (~ $1,00,000 or less);
- Is relatively short in duration, but supports a long-term investment plan;
- Is used to accelerate implementation of transportation infrastructure; or
- Some or all of the above.

The Tactical Transit report includes profiles 10 profile projects that tested dedicated bus lanes. One example, along Massachusetts Avenue in the Town of Arlington, Massachusetts, included a month-long pilot of a dedicated bus lane, Transit Signal Priority, queue jump lanes, and the temporary relocation of a bus stop.

SPOTLIGHT: BOSTON, MA

From demonstration project, to pilot project, to permanent dedicated bus lane, this project used multiple iterations to arrive at a permanent project.

In 2017, the City of Boston initiated a two-day test of a peak-hour, shared bus-bike lane, on a route identified in its Go Boston 2030 comprehensive mobility planning effort (picture at left). Six months later, the City chose to implement a four-week pilot project of the same bus lane to expand public outreach, and evaluate the potential future bus lanes. With positive data resulting from the pilot project, like a 20-25% decrease in bus travel times, the City immediately proceeded to install the permanent lane (pictured above).

Image Credits: Fast-Tracked: A Tactical Transit Study

SPOTLIGHT: LOS ANGELES, CA

In an underserved neighborhood in Los Angeles, a placemaking and transit accessibility project helped riders bike and walk safely to/from the bus stop, and enjoy their experience of waiting for the bus.

Led by urban design nonprofit LA Más, with a grant from New York City-based foundation TransitCenter, GoAve 26 was a multi-faceted pilot project that addressed community desires for placemaking and improved first-last mile connections in Northeast Los Angeles. The organization collaborated with local artists to install sidewalk and vertical art, wayfinding signage, and public space enhancements along a quarter-mile stretch segment of Avenue 26, adjacent to a Metro station and along multiple bus lines.

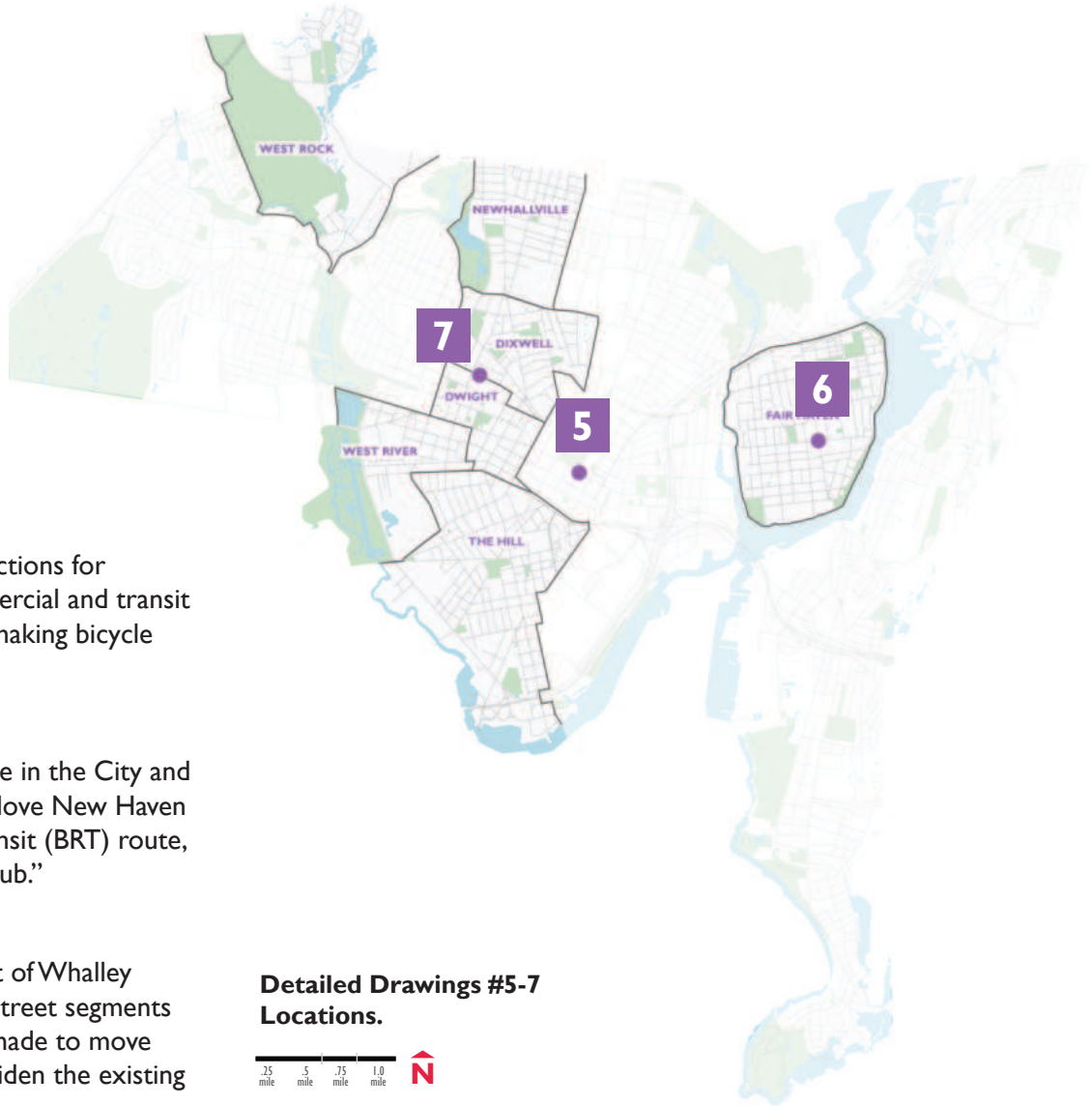
Image Credits: Fast-Tracked: A Tactical Transit Study

Based on the success and learnings of the pilot phase, permanent improvements were made one year later. The tactical transit approach therefore served as a foundation for exploring additional BRT routes and other bus service improvements, including bus boarding platforms and dedicated bus lanes.

The City of New Haven has the opportunity to learn from other successful Tactical Transbit projects by using a temporary or interim design approach to implementing the Move New Haven Transit Mobility Study. Doing so would help improve mobility in the near term while also providing a way for affected community groups, bus operators, and CT*transit*/City Staff to weigh in on the temporary changes before increased investment is made in more permanent infrastructure or operational changes to the bus network.

Detailed Drawings

This chapter includes illustrative plan view drawings that show potential bus, bike and pedestrian improvements along three key corridors identifed in the Move New Haven study. The map at right includes the location of each as well the relationship to the City's Priority Neighborhoods. The following pages outlines a Tactical Transit and more permanent infrastructure vision for each location. Upon Plan adoption, further design and engineering will determine how each project is constructed, and may not exactly replicate the drawings included herein.



Detailed Drawings #5-7 Locations.

5 Chapel St & Church St

WHY? This is one of New Haven's most dangerous intersections for bicyclists and pedestrians. It's also a major downtown commercial and transit activity node. Balancing the prioritization of bus traffic, and making bicycle and pedestrian improvements is a priority for this location.

6 Grand Ave & Ferry St

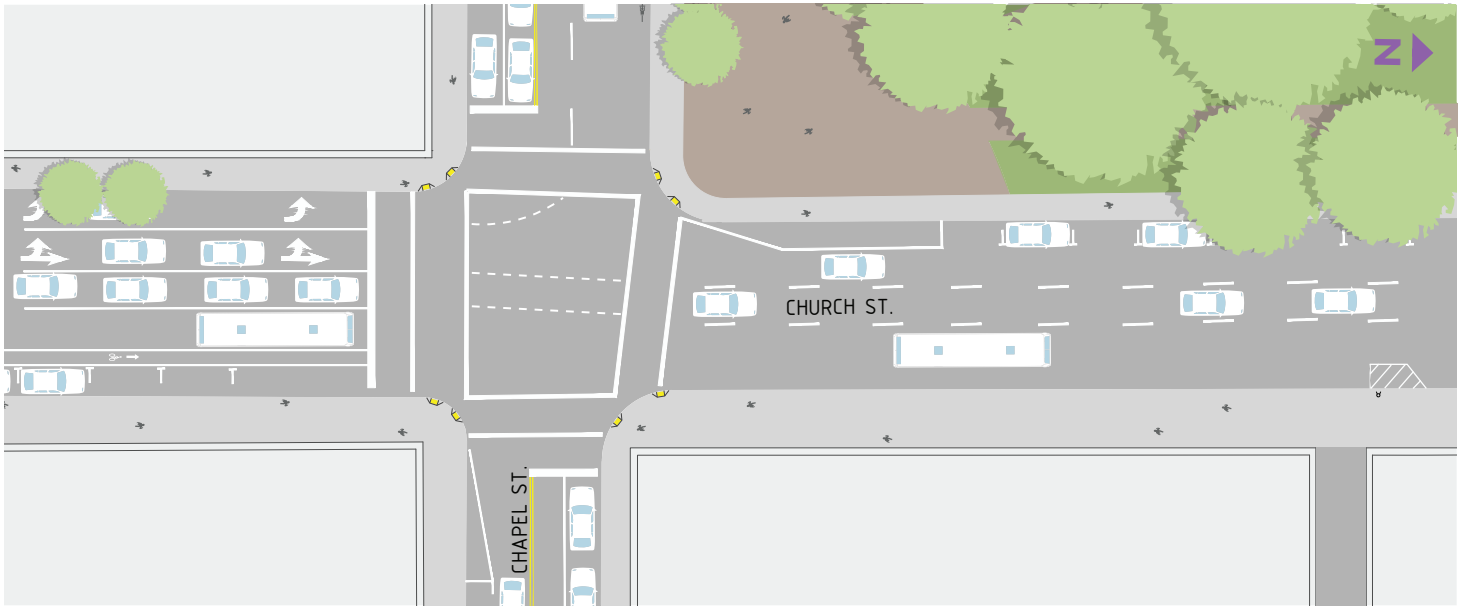
WHY? This intersection is also one of the most crash-prone in the City and is located within Fair Haven, a Priority Neighborhood. The Move New Haven Study also identifies Grand Avenue as a future Bus Rapid Transit (BRT) route, calling for this specific intersection to become a BRT "mini hub."

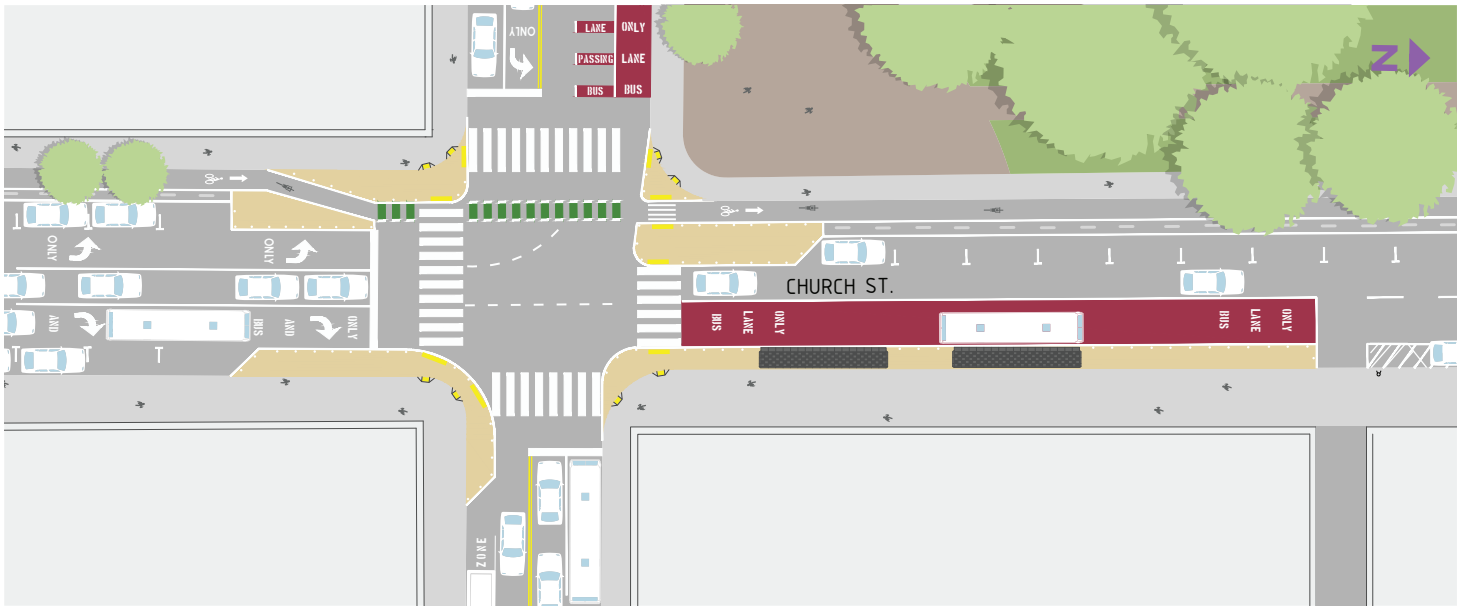
7 Whalley Ave @ Stop & Shop

WHY? The Move New Haven Study proposed this segment of Whalley Avenue for dedicated bus lanes. It is also one of the widest street segments in the entire City, which means a variety of changes can be made to move more people safely and more efficiently without having to widen the existing right-of-way.

5. Chapel Street & Church Street

All proposed designs are conceptual, and are subject to further design and engineering study.





EXISTING

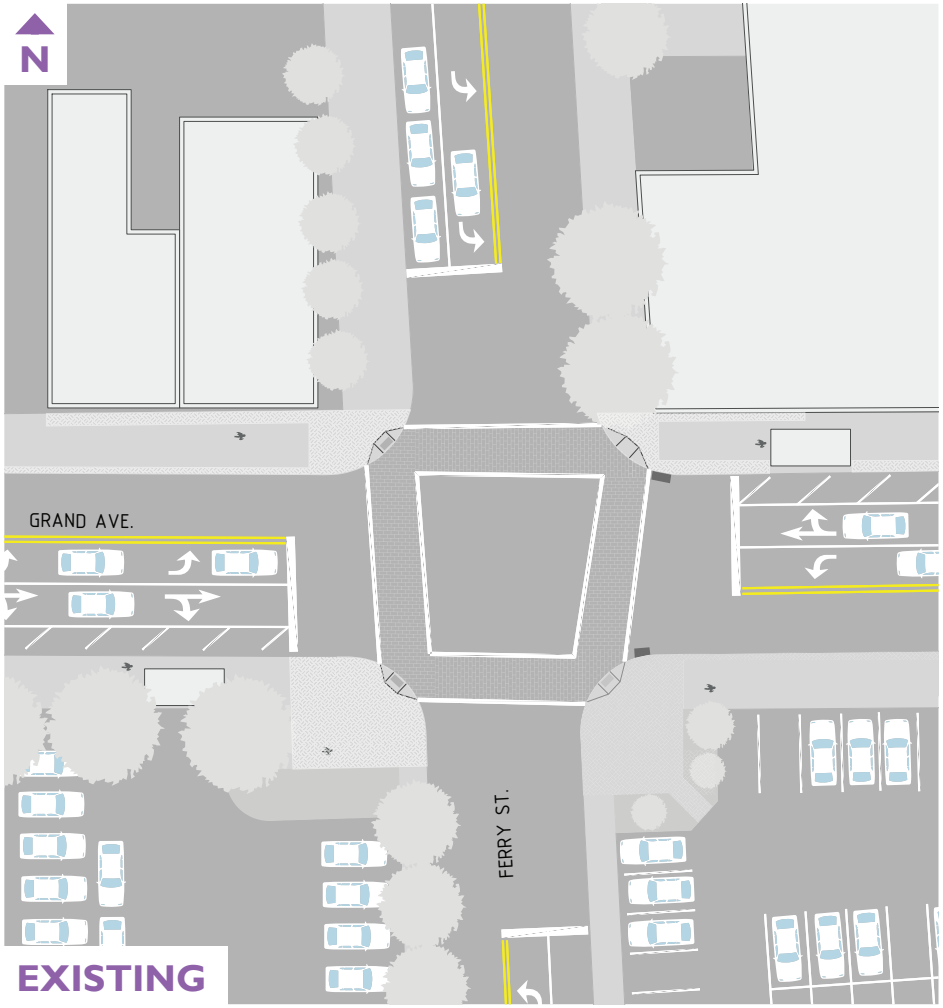
Chapel Street & Church Street is consistently one of the most dangerous intersections for people walking in the City. The number of travel lanes along Church Street provide a near-term opportunity to introduce dedicated transit infrastructure with supportive boarding/alighting and walking/cycling improvements that support and respond to future BRT investments and eventual two-way street conversions.

TACTICAL

A Quick-Build transformation includes **painted curb extensions, peak hour transit lane on Church Street, temporary bus boarding islands, and a protected bike lane**. Curbside bus lanes are highlighted with red surface treatments and pavement markings. Westbound bicycle traffic would be directed to an interim protected facility on Crown Street until Elm Street's two-way conversion.

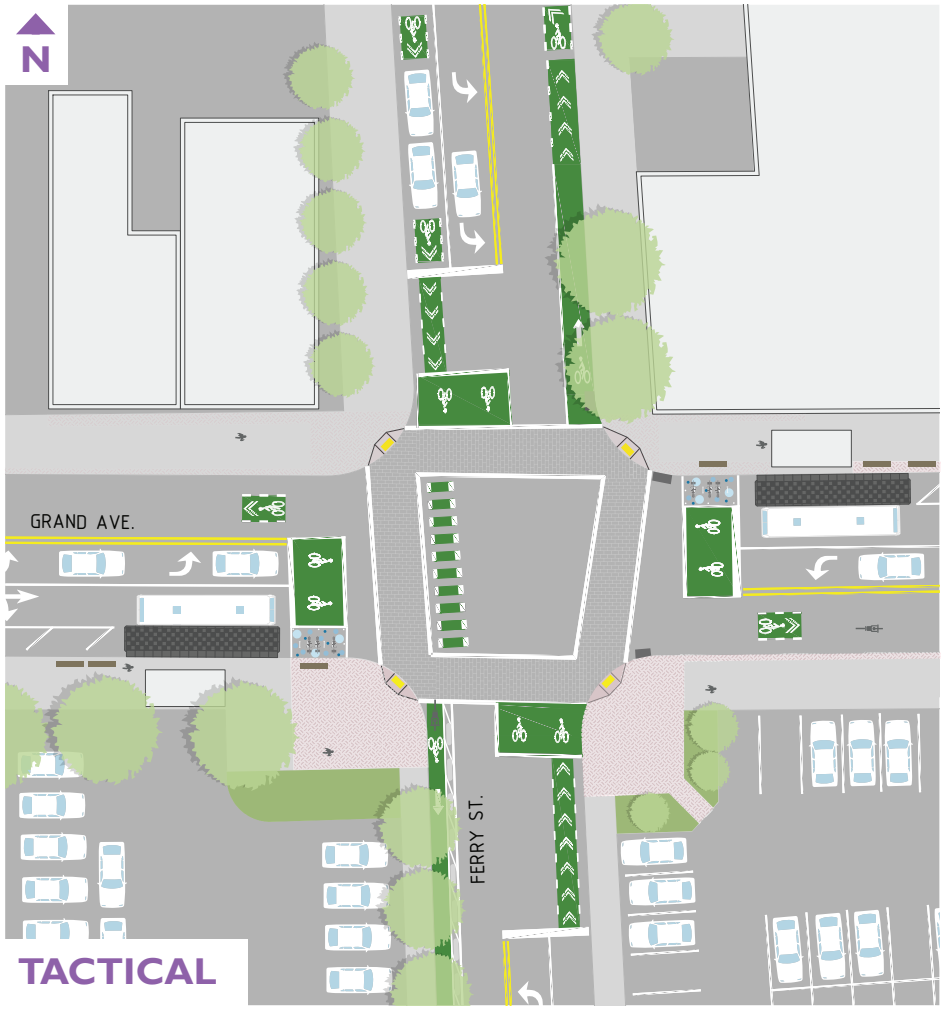
6. Grand Avenue & Ferry Street

All proposed designs are conceptual, and are subject to further design and engineering study.



EXISTING

This intersection is currently one of the most dangerous for bicyclists and pedestrians. Shared lane markings on Grand Avenue do not offer comfort for more timid bicyclists, and there are currently no bikeways on Ferry Street. The near side traffic signals at Ferry Street cause confusion for crossing pedestrians.

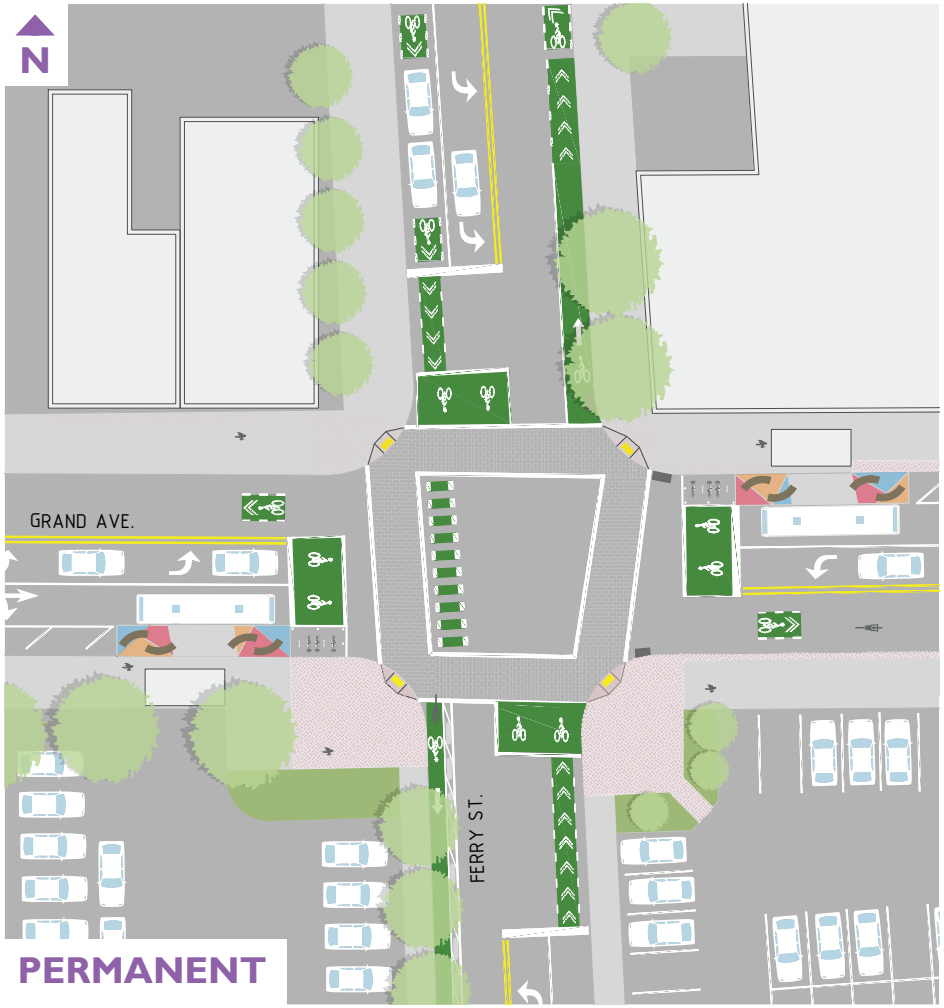


TACTICAL

In addition to **bikeways and bicycle intersection treatments**, **temporary bus boarding islands** are proposed for the current bus stops at the intersection to facilitate efficient boarding. **Temporary bicycle corrals** are also proposed, as well as **Tactical Transit benches.**

6. Grand Avenue & Ferry Street

All proposed designs are conceptual, and are subject to further design and engineering study.



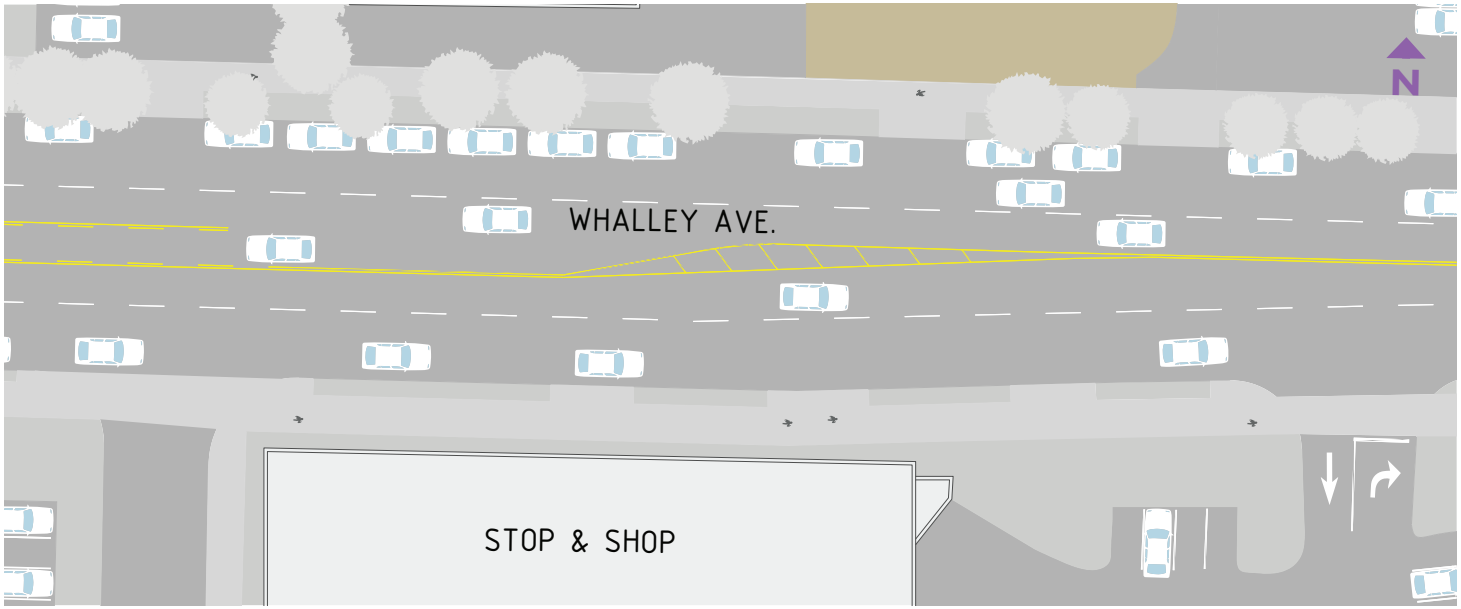
In an interim or permanent condition, **the bus boarding islands can be made more durable with concrete**, with the addition of more robust seating and furniture to improve the experience of waiting for the bus. Interactive art elements are also proposed for the bus stops.

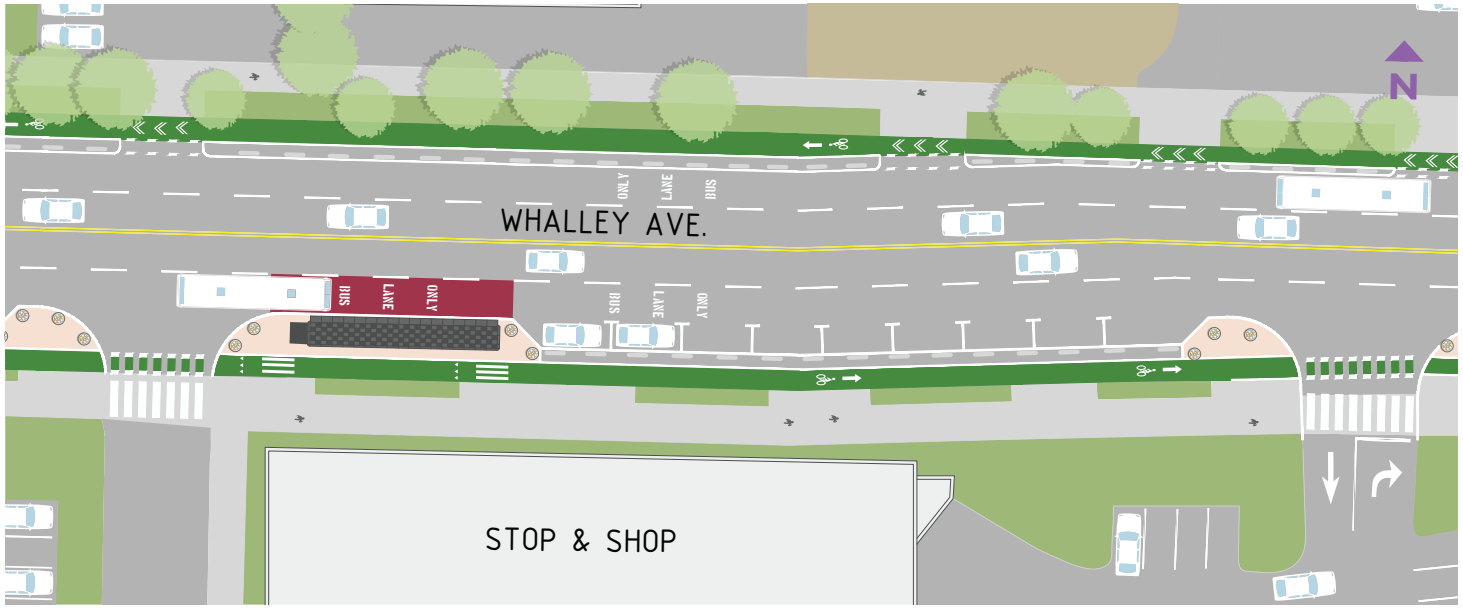
Image Credit: Ad Hoc Industries

In Everett, MA, BRT enhancements like platform-level boarding were tested, combined with artist installations at select bus shelters.

7. Whalley Avenue @ Stop & Shop

All proposed designs are conceptual, and are subject to further design and engineering study.





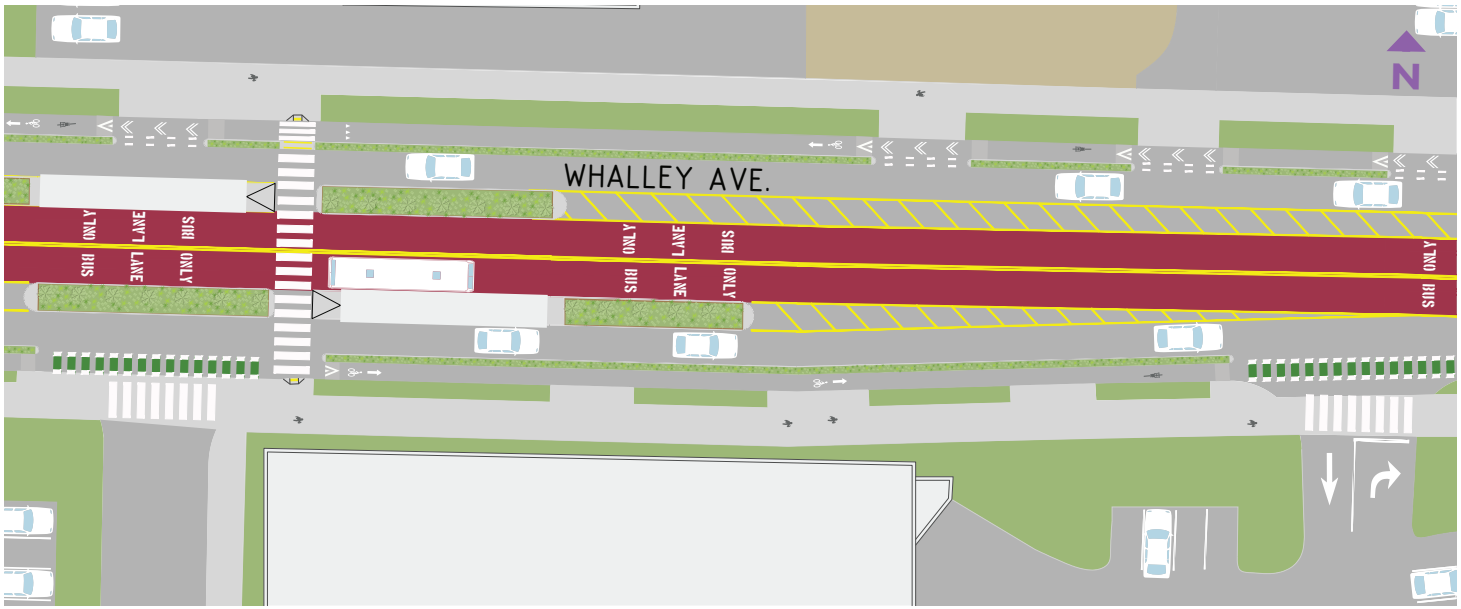
EXISTING

Whalley Avenue between Orchard Street and Sperry Street is 72' curb-to-curb, with two travel lanes, left-turn lanes, and on-street on both sides. The on-street parking in this segment of Whalley Avenue is less necessary, and often not fully used given the abundance of off-street parking. The width of the road encourages high travel speeds, and is dangerous and intimidating for people walking and cycling.

TACTICAL

A Tactical re-configuration of Whalley Avenue converts one parking lane and two travel lanes into **bus lanes, curb extensions, and protected bike lanes.** This approach would streamline vehicular travel to one travel lane in each direction, with left-turn lanes where needed. The addition of dedicated bus lanes is consistent with the Move New Haven Transit Mobility Study.

7. Whalley Avenue @ Stop & Shop



PERMANENT

In the long-term, **center running transit lanes with boarding platforms** are implemented. **A crosswalk is added** for pedestrian station access. Both bus stops are moved to be aligned with the crosswalk. The **protected bike lanes remain, but are at curb level**, with planting strips separating people cycling and those driving and walking.

All proposed designs are conceptual, and are subject to further design and engineering study.

Bus Stop Typology

Public amenities at bus stops are mentioned in the Move New Haven Transit Mobility Study, but recommendations are concentrated around the New Haven Green.

As a part of this Plan, the consultant team analyzed the condition of existing bus stops along the four priority routes in the Move New Haven Study, plus an additional bus route in each neighborhood so as to create an index of bus stop types across the City. In all, six bus stop types were identified and organized in the following pages by those with the least features to those with the most. General recommendations for near-term Tactical Transit improvements are also included, which may be pursued by CT*transit* and the City of New Haven alongside institutional, business, and local community partners.

1

Features: Sign post.

Near-Term Improvements: Compacted gravel path, coroplast route maps/information affixed to poles with zipties, Tactical Transit benches, lighting, boarding platform, placemaking elements.

In the rural corners of the City, some bus stops are without crosswalks or accessible surfaces to access them.

SPOTLIGHT: ATLANTA, GA

The MARTA Army in Atlanta, GA works with the Metropolitan Atlanta Rapid Transit Authority (MARTA) to organize citizen-led initiatives for basic improvements to bus stops like route signage and trash cans.

With their Adopt-a-Stop and Operation CleanStop initiatives, the MARTA Army raises money, solicits volunteers, and collaborates with the regional transit agency to post updated route schedules at bus stops around Metropolitan Atlanta, and as of 2019, installed trash cans at over 100 bus stops along the MARTA bus network.

Image Credits: Fast-Tracked: A Tactical Transit Study

2

Features: Sign post and sidewalk.

Near-Term Improvements: Sidewalk decals, coroplast route maps/information affixed to poles with zipties, Tactical Transit benches, placemaking elements.

3

Features: Sign post, sidewalk, partially enclosed shelter, trash receptacle.

Near-Term Improvements: Wayfinding and route information, seating, placemaking elements.

Shelters along Grand Avenue (bottom), for example, provide some protection from the elements, but seating and wayfinding are still lacking.

SPOTLIGHT: CINCINNATI, OH

In addition to successfully advocating for and implementing the city's first pilot bus lane on Main Street in Downtown Cincinnati, the Better Bus Coalition raises funds to install tactical benches at the 150+ bus stops within the network that lack seating.

The benches that the Better Bus Coalition makes are simply constructed, and easily installed. Made out of wood, they're firmly on the short-term duration of the Tactical Transit spectrum. However, it was the visibility from the tactical benches project that afforded the Coalition the opportunity to advocate for even longer-term projects, like the pilot dedicated bus lane.

Image Credits: Fast-Tracked: A Tactical Transit Study

4

Features: Sign post, partially enclosed shelter with bench, trash receptacle.

Near-Term Improvements: Wayfinding and route signage/information, placemaking elements.

5

Amenities: Sign post, enclosed shelter, trash receptacle, placemaking elements (sidewalk mural).

Near-Term Improvements: Wayfinding/route information, and seating.

At Dixwell Avenue and Bassett Street (above), an enclosed shelter lacks seating.

6

Amenities: Enclosed shelter, trash receptacle, seating, signage, route map, placemaking elements (shelter design).

Near-Term Improvements: Wayfinding.

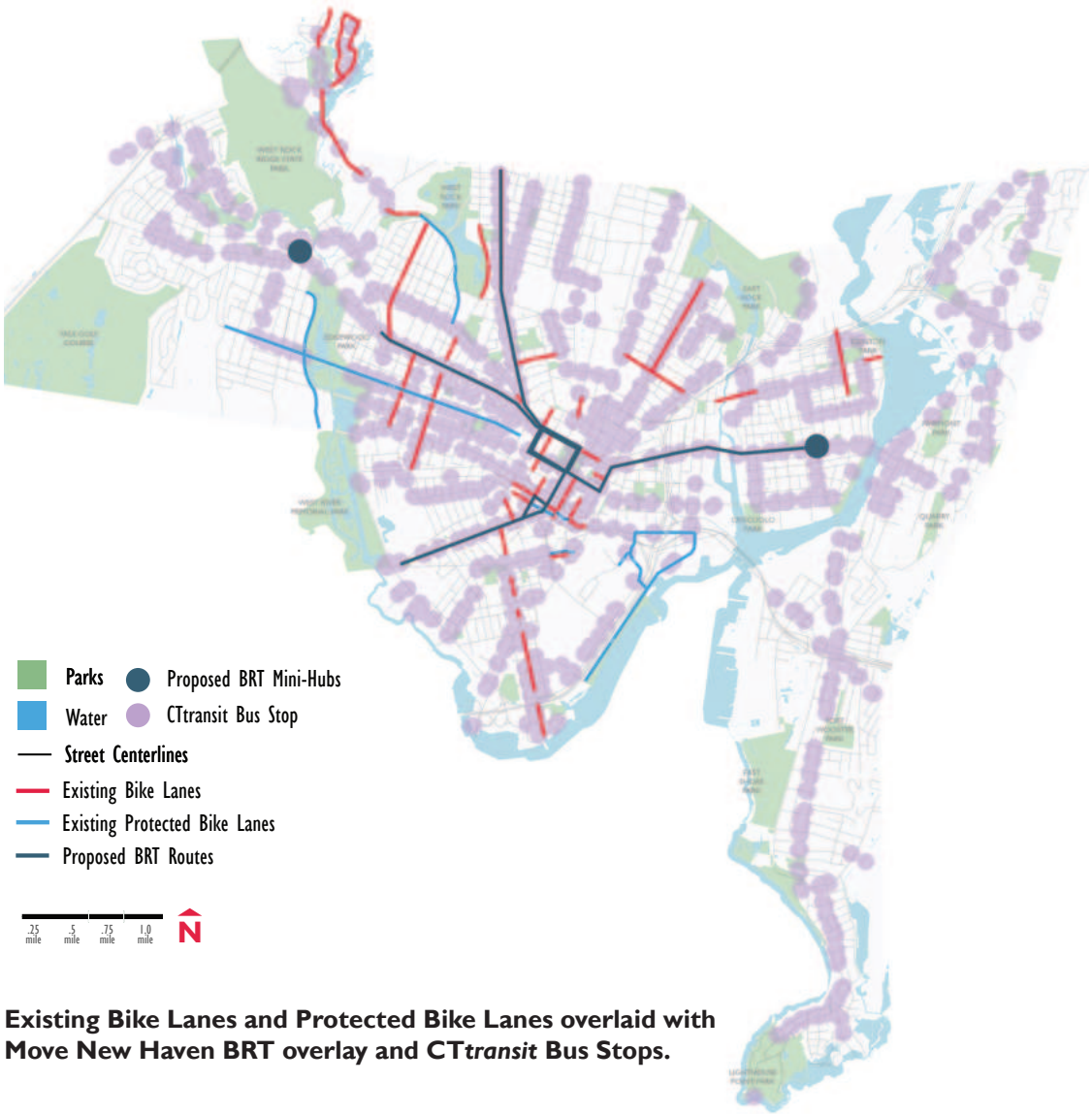
Bikes & Buses

The map at right depicts BRT overlay features (routes and mini-hubs) recommended in the Move New Haven Study, existing CT*transit* bus stops, and existing dedicated bikeways (conventional and protected bike lanes).

Currently, dedicated bikeway facilities provide direct access to approximately 12% of the total bus stops within CT*transit*'s network, meaning that a facility is either on the street segment adjacent to the bus stops, or meets an intersection with bus stops.

There are no dedicated facilities that would currently take bicyclists directly to the proposed BRT mini-hubs along Whalley and Grand Avenues, and only 13 existing facility segments intersect the proposed BRT segments.

Approximately 12% of New Haven bus stops are connected to the city's existing bikeway network.



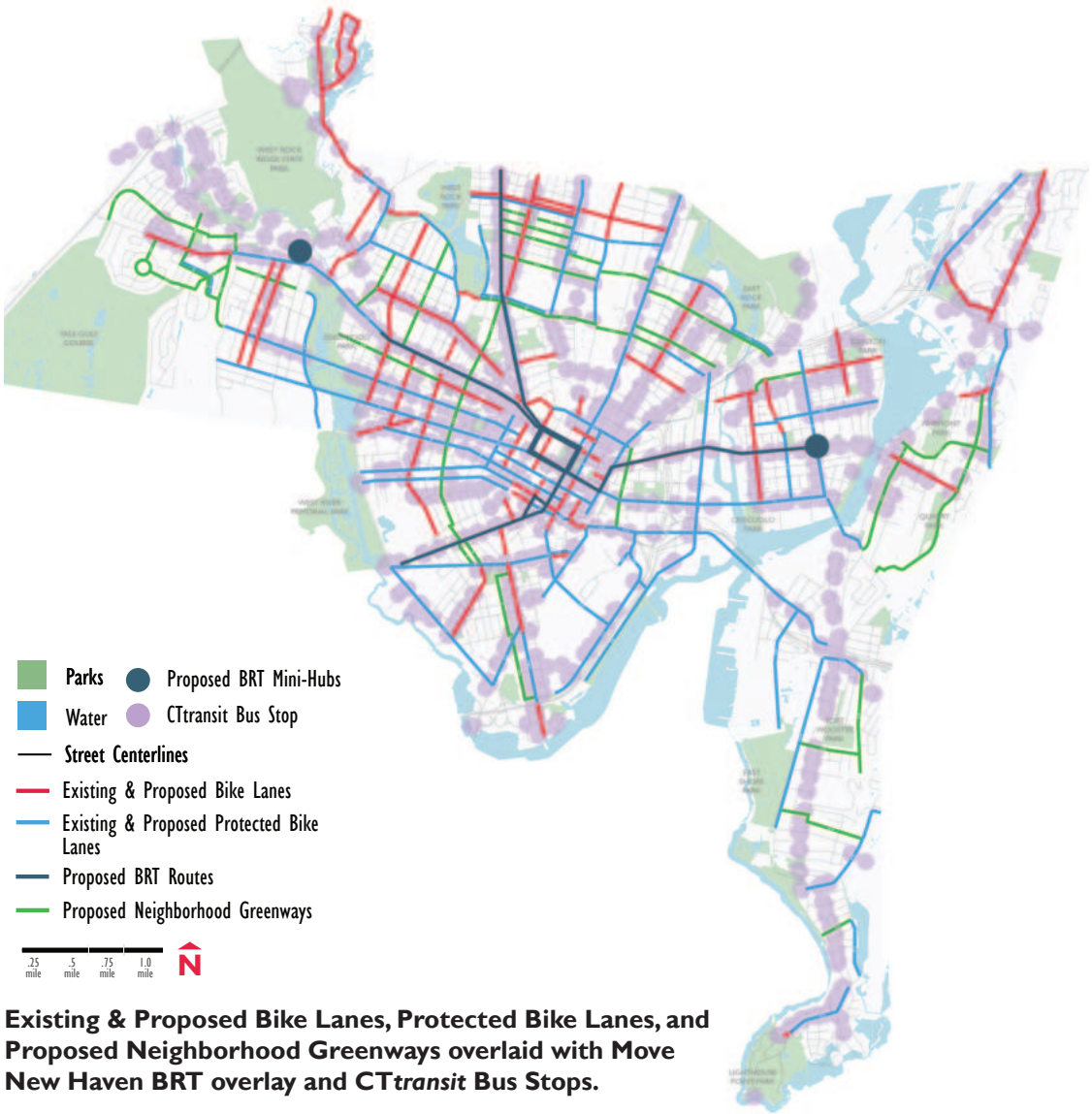
Existing Bike Lanes and Protected Bike Lanes overlaid with Move New Haven BRT overlay and CT*transit* Bus Stops.

If implemented as shown, New Haven's high capacity transit routes and hubs will become more accessible by bicycle. More dedicated bike lanes, especially protected bike lanes, will intersect key transit corridors, especially along Dixwell Avenue in Newhallville and Grand Avenue in Fair Haven. Proposed protected bikeways will run along all corridors identified for BRT that radiate from Downtown (Congress, Dixwell, Grand, and Whalley Avenues), offering the opportunity to transform these streets into true high-capacity, safe and complete Streets.

The proposed dedicated bikeway network will connect cyclists to approximately 85% of the City's bus stops, more than seven times the existing network connectivity. In addition, neighborhood greenways will offer additional, low-stress ways for neighborhood residents to walk and bike to/from the proposed BRT lines and the many destinations they'll serve.

As a result, neighborhoods previously devoid of dedicated or protected bikeways and frequent bus service will benefit from increased active transportation infrastructure to/from the regional CT*transit* network.

Approximately 85% of New Haven bus stops will be connected to the city's proposed, dedicated bikeway network.



Existing & Proposed Bike Lanes, Protected Bike Lanes, and Proposed Neighborhood Greenways overlaid with Move New Haven BRT overlay and CT*transit* Bus Stops.

As transit improvements transform the City of New Haven's streets in the future, special attention should be paid to how to integrate existing and proposed bikeways so as to not compromise safety, comfort, and service.

For the corridors where dedicated bus lanes or BRT lanes are proposed, and where these overlap with bicycle facilities, bus stop treatments that integrate bikeways will be critical to maintain accessibility and safety for both modes of travel.

Where protected or curbside bike lanes intersect with bus stops, in-lane bus boarding/alighting could be accomplished using bus boarding islands that are designed to minimize conflicts both modes. This would require the addition of pedestrian crossing markings across the bike lane, and a raised platform facilitate boarding/alighting. Such treatments are proposed in this Plan to Whalley Avenue at the Stop & Shop (see page 70) and Union Avenue at Union Station (see page 59).

Where there is not enough right-of-way to separate bikes and buses when dedicated bus lanes are desired, shared bus-bike lanes may be considered along routes with lower bus frequency. While this combined treatment typically attracts confident cyclists, it still offers a dedicated place for cycling separate from vehicular travel lanes.

Image Credit: Nicole Crescenzi

Image Credit: BikePortland

06 Bike New Haven

Image Credit: Street Plans

Best Practices for Safe Biking

Shared lane markings ("sharrows") are the most prominent bikeway type in the City of New Haven's existing network, but the number of protected bike lanes is growing.

Research conducted by Roger Geller, Bicycle Coordinator for the City of Portland, Oregon, identifies four general types of bicyclists, of which the majority seek more comfort and safety. "Riding a bicycle should not require bravery. Yet, all too often, that is the perception among cyclists and non-cyclists alike," says Geller. Although treatments like shared lane markings are essential to mark neighborhood greenways, for example, and alert that cars that bicyclists will share the travel lane in select contexts, they do not provide the level of safety and comfort needed to encourage the vast majority of people to ride.

Countless studies reinforce that dedicated bicycle infrastructure, especially protected lanes, not only increase bicycle ridership, but also increase street safety for other street users. For example, cities like Austin, Portland, San Francisco, Washington, DC, and Salt Lake City have all experienced substantial increases in ridership on corridors that received protected bike lanes, up to an increase of 171% (NACTO, 2016). Bicycle lanes have also been shown to have positive economic impacts, specifically on retail sales and commercial vacancies. In Salt Lake City's Downtown, for example, the addition of bike lanes and other pedestrian improvements along Broadway resulted in an 8.8% increase in sales along the corridor. A study conducted in Portland also confirmed that consumer spending by those using active modes of travel is competitive with consumers who arrive to retail in a motor vehicle. Finally, quality, safe bicycle infrastructure dignifies biking, and removes the stigma of not owning a car. This is especially important for low-income communities, and to create a transportation network that is inclusive and accessible for everyone. The City of New Haven is actively augmenting its protected bike lane network, with projects like the Edgewood Avenue and Yale Avenue bike lanes. The City has also identified additional corridors for protected bikeways, which are integrated into this Plan.

Cities with high bicycling rates tend to have lower crash rates for all users.

A 2014 study conducted by People for Bikes revealed that people of color and the lowest-income households are the most dependent on bicycling for transportation.

The average protected bike lane sees bike counts increase 75% in its first year.

Bikeway Glossary

Below are definitions of the bikeway types referred to in this chapter, in the order of most protected from vehicular traffic to the least.

SHARED USE PATHS

Off-street paths are physically separated from motorized vehicular traffic by an open space or barrier and are designed to accommodate walking, jogging, and other forms of active mobility and recreation. Generally located in parks, along waterfronts or linear rights-of-way such as rail lines, shared use paths limited motor vehicle interactions except at street crossings. Accordingly, shared use paths are a critical part of an urban bike network because they provide the safest and most pleasurable riding experience for people of all ages and abilities.

Farmington Canal Trail

Image Credit: Street Plans

PROTECTED BIKE LANES

Bike lanes that are separated from traffic via a minimum 2' buffer that includes some form of vertical barrier (delineator posts, concrete curbing, parked vehicles etc.), or are at the sidewalk level separated from vehicular traffic by at least 2' of sidewalk space. Protected bike lanes may be designed to allow bi-directional travel but where such facilities exist special care must be taken to mitigate conflicts at intersections.

Crescent Street

Image Credit: Street Plans

BUFFERED BIKE LANES

Bike lanes that are separated from moving and/or parked vehicular traffic by a striped buffer that does not include vertical barriers. This bikeway type is often recommended where separation from the travel lane is desired, but frequent intersections or curb cuts make more continuous protection challenging. The striped buffer(s) may be placed between the bike lane and the adjacent vehicular travel lane, and/or between the bike lane and on-street parking. The latter may reduce instances of dooring as more space is provided between opening car doors and the bike lane.

Sherman Parkway

Image Credit: Street Plans

CONVENTIONAL BIKE LANES

Conventional bike lanes consist of two parallel stripes that designate a linear (and lateral) space for people to bicycle. Bike lanes are typically located curbside or between an on-street parking lane and vehicular travel lane.

Orange Street

Image Credit: Street Plans

CONTRAFLOW BIKE LANES

Some bike lanes may be designed to allow cyclists to travel against the predominant direction of vehicular traffic. Such "contraflow" bicycle lanes allow continuous travel along a desired corridor where the direction of vehicle traffic flow may alternate or to link popular destinations or other bikeways where "wrong-way" cycling is commonly observed on the street or sidewalk. Contraflow lanes may be protected and/or part of a neighborhood greenway route. Such lanes may introduce additional conflicts with motor vehicles so additional safety measures may be required.

High Street

Image Credit: Street Plans

NEIGHBORHOOD GREENWAY

A signed, marked, and traffic-calmed local route for bicyclists and pedestrians that often parallels higher-volume arterial streets or connects residents to destinations (schools, commerical districts, parks, etc.) within or at the edge of the neighborhood. By introducing elements like enhanced shared lane markings, bicycle/pedestrian wayfinding signs, traffic diverters, protected crossings, and other design features, neighborhood greenways aim to reduce vehicular traffic trips to less than 1,500 per day and manage motor vehicle travel speeds to 15 miles per hour or less.

Burlington, Vermont

Image Credit: City of Burlington

SHARED LANE MARKINGS

Pavement markings that indicate to people operating motor vehicles that they should expect the presence of bicycles in the middle of the travel lane. Shared lane markings are appropriate on very low-speed or low volume streets such as neighborhood greenways or in instances where a connection needs to be made along a short stretch of narrow street between two more prominent bikeway facilities. Shared lane markings can be enhanced with green markings and / or oversized to be more visually prominent.

Key West, Florida

Image Credit: Street Plans

Existing Network

Approximately 37 miles of New Haven's street network (15%) has dedicated bicycle infrastructure or shared lane markings.

Including shared use paths, there are approximately 47 miles of designated cycling routes in the City.

Street Mileage of Existing Bikeways by Type.

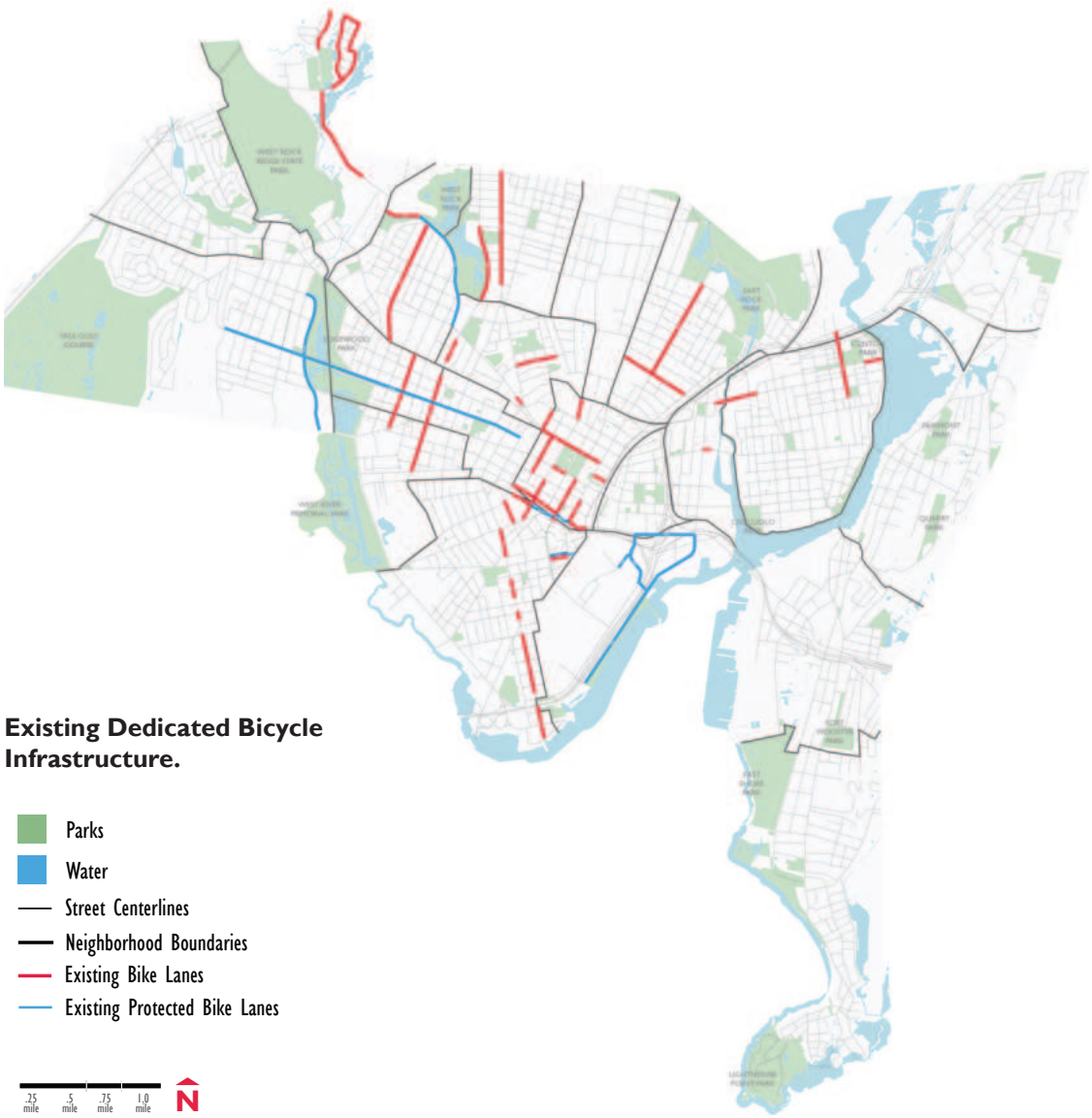
Existing Bikeways.

Currently, on-street bicycle infrastructure is present along 15% of the City's entire street network.

Existing conventional bike lanes and protected bike lanes, cover 8% of the City's street network (~20 miles).

Thus, there is a strong need to expand and upgrade the existing network, focusing new investment on the neighborhoods most deficient in bicycling infrastructure.

The streets of Amity, East Shore, Fair Haven Heights, Prospect Hill, Quinnipiac Meadows, and Wooster Square currently lack dedicated bicycling infrastructure. While infrastructure touches the edges of these neighborhoods, these large gaps make it difficult to travel by bike through large parts of the City.



Existing Dedicated Bicycle Infrastructure.

EXISTING NETWORK CHALLENGES

The following challenges make bicycling in New Haven challenging or feel unsafe.

1. Most conventional bike lane are located in the "door zone," between on-street parking and the travel lane, which puts bicyclists at risk.

2. Intersection treatments, like bike boxes, are concentrated in the downtown. The rest of the network lacks infrastructure to support bicyclists' approach, queueing, and turning at intersections.

3. There are currently 47 designated bikeway segments in New Haven, but only 17 (out of 1,556) intersections where two bikeways meet.

4. Many existing streets with shared lane markings are faded, and need to be re-painted/upgraded to a more robust facility type.

5. On-street bikeways connect park trails, drives, or other shared use paths in only six locations across four neighborhoods (Dixwell, Downtown, East Rock, and Long Wharf).

KEY RECOMMENDATIONS

Recommendations for improvements to the bikeways network in the City of New Haven are below:

1. Add protected bike lanes wherever feasible, especially along the most City's dangerous corridors (see pg. 17). To minimize parking loss, use "floating parking" to protect cyclists.

2. Incorporate bike boxes, two-stage turn boxes, bike signals, and protected intersections in conjunction with "no right turn on red" and Leading Pedestrian Intervals (LPI's) at intersections, especially where existing/new bikeway facilities intersect.

3. Focus on expanding network connectivity when selecting new bikeway projects; Pay special attention to building out continuous "trunkline" east-west and north-south routes.

4. Enhance all existing shared lane markings with green-backed "super sharrows." Introduce neighborhood greenways with traffic calming as low-stress alternatives to dedicated bikeways.

5. Add dedicated bike lanes where feasible to directly connect to more parks, schools, commercial centers, and transit; Emphasize on-street connectivity to park trails and drives.

Proposed Network

The proposed bicycle network increases New Haven's protected bike lane miles from 8 to 39 miles, a nearly 400% increase.

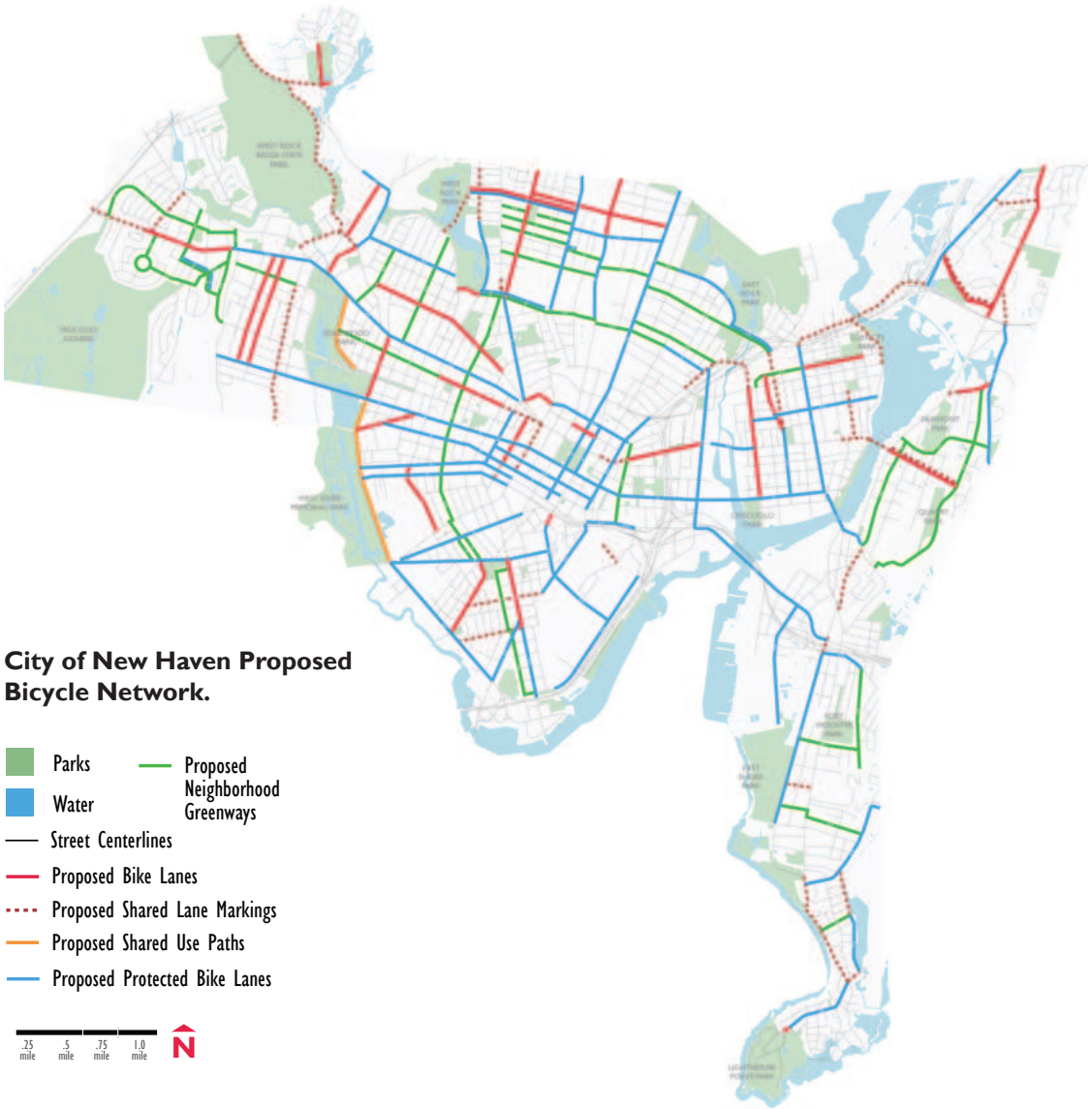
The Citywide Active Transportation Plan Proposed Network is designed to greatly increase safety and connectivity across the whole City. A number of factors were considered and analyzed to determine the bike way network's placement and type. These include but are not limited to crash history, existing street width and configuration, land use/key destinations, on-street parking capacity, and the feasibility for near-term implementation.

The result is a network that will almost triple the City's current bikeway mileage from 47 miles to 128 miles, including 39 miles of new protected bike lanes and upgrades to 9 miles of existing facilities. The 90 miles of newly proposed bikeways also includes the addition of 20 miles of neighborhood greenways, a facility type not currently found in New Haven. Most importantly, 41% of the proposed network is slated for Priority Neighborhoods. Neighborhoods most deficient in on-street bikeway facilities, such as the The Hill and Fair Haven, will receive an additional 8 and 7 miles, respectively, of new bikeways under the proposed plan.

Note, the proposed bikeway network includes all active City projects that are either under construction, will be imminently constructed, have been allocated funding, or are currently in the design phase. The project details (eg. bikeway type) for these segments may change, but are included in the the proposed Plan and reflect the City of New Haven's aspirations to become a great city for cycling.

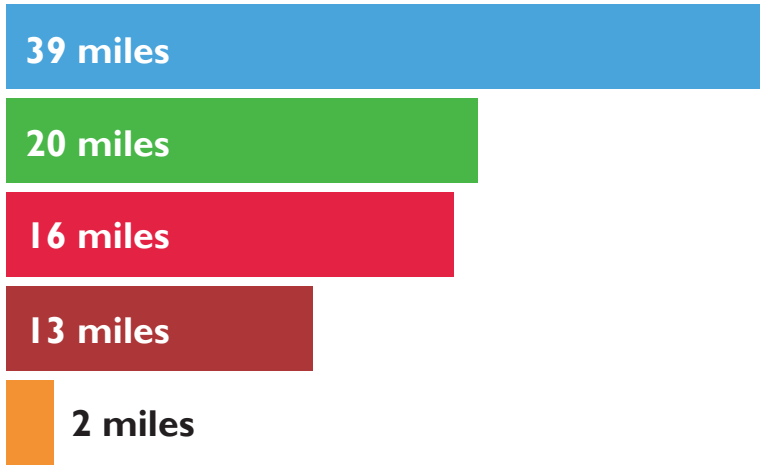
Image Credit: Street Plans

41% of the proposed network mileage is slated for Priority Neighborhoods.

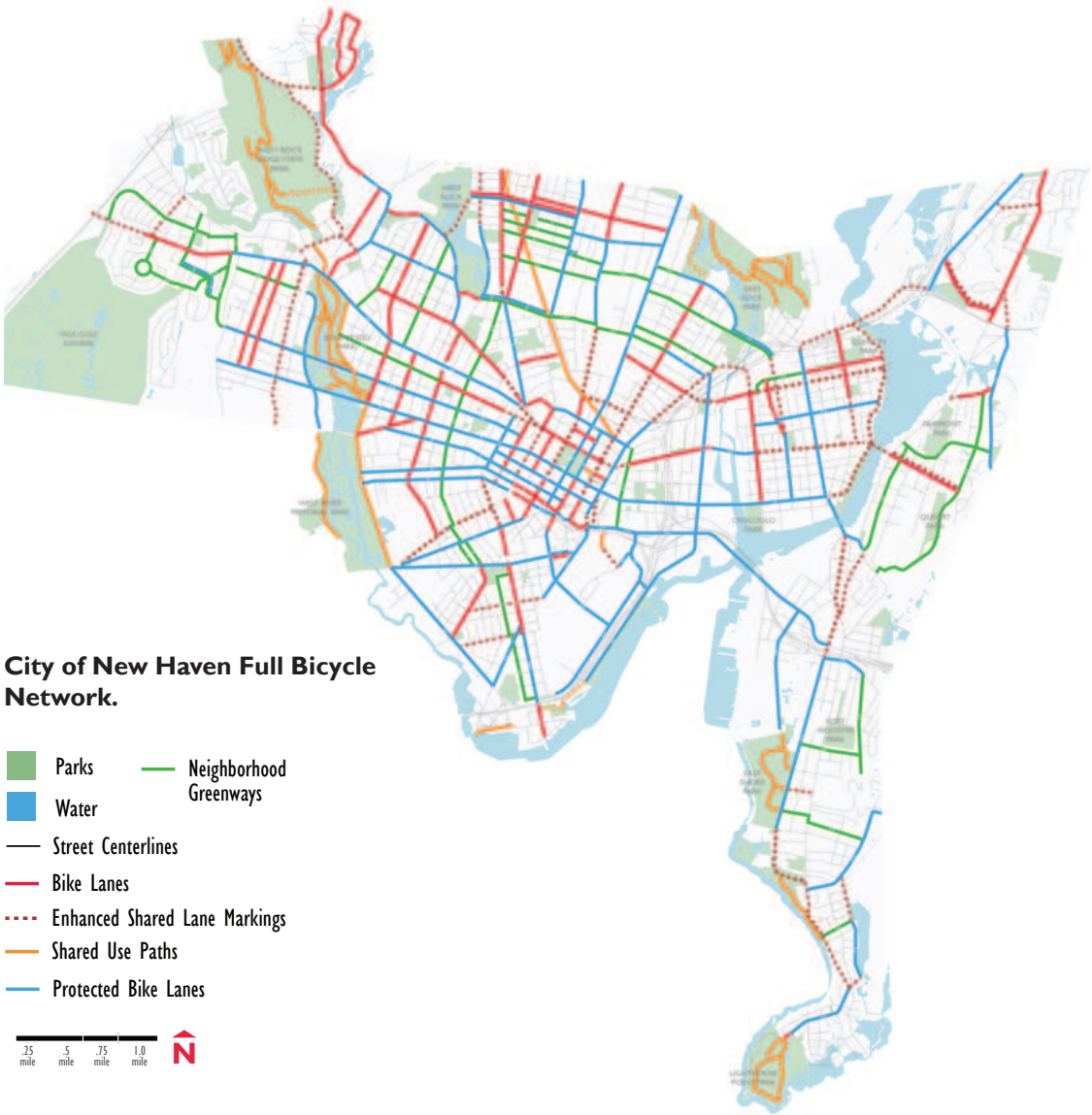


City of New Haven Proposed Bicycle Network.

NEWLY PROPOSED BIKEWAYS



Street Mileage of Proposed Bikeways by Type.
The Proposed Network adds a total of 90 new and enhanced miles of bikeways to the City's existing network. The majority of which are protected bike lanes. Along with these additions, the Plan recommends upgrading all existing shared lane markings with so-called "super sharrows" or to a more robust facility type.



City of New Haven Full Bicycle Network.

PROPOSED BICYCLE NETWORK

47 MILES OF EXISTING BIKEWAYS, **PLUS**

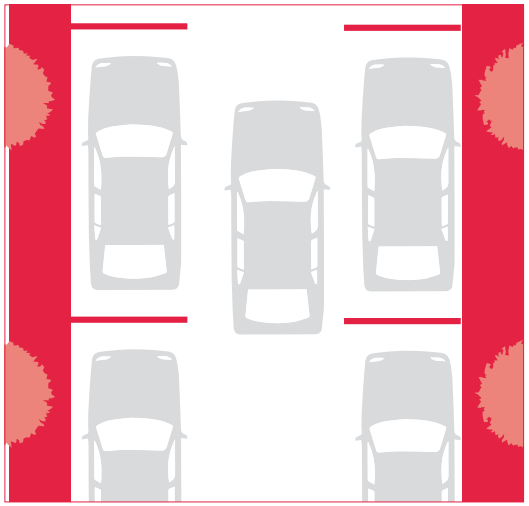
90 MILES OF NEWLY PROPOSED BIKEWAYS, **MINUS**

9 MILES OF UPGRADED BIKEWAYS, **EQUALS**

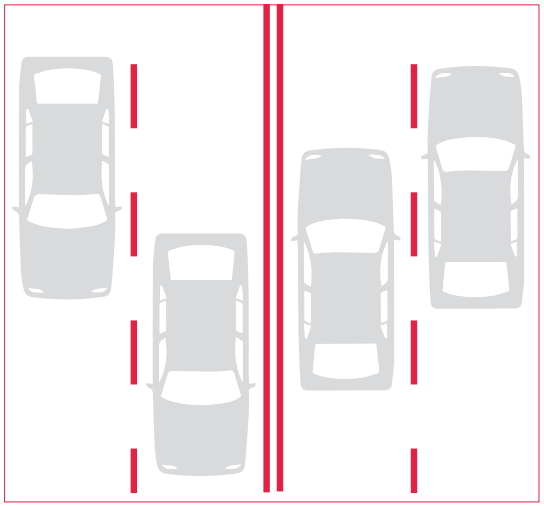
128 MILE BIKEWAY NETWORK

Excluding shared use paths, the Proposed Network allocates bikeways to 52% of the City's street network. The 9 miles of network upgrades consist primarily of replacing existing shared lane markings with a more robust facility. The proposed network (by type) includes: **47 street miles of protected bikeways, 20 street miles of neighborhood greenways, 28 street miles of bike lanes, 30 miles of enhanced shared lane markings, and 12 miles of shared use paths.**

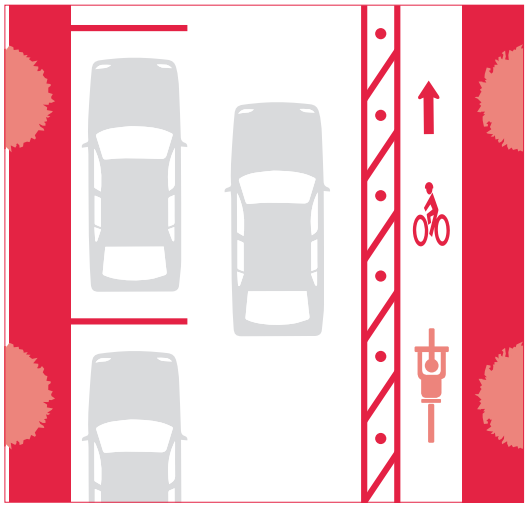
IMPLEMENTATION SPOTLIGHT: TRADING SPACES, SAFER PLACES



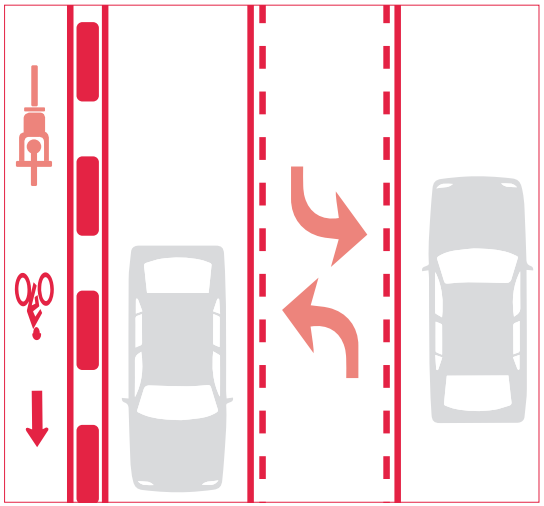
The proposed 128-mile bikeway network requires re-allocating existing parking space along just 6% of the City's street mileage.



The proposed network requires road diets on just 3% of the City's streets.



In the vast majority of instances where spatial re-allocation is required, parking would be replaced on one side of the street only.

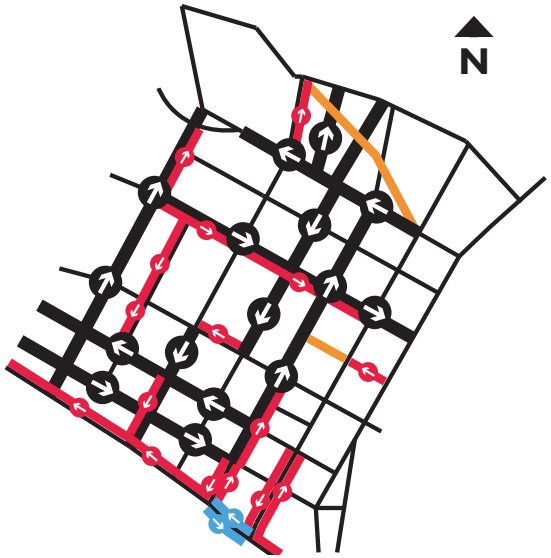


Reducing the number of vehicular travel lanes to accommodate the proposed bikeway network (and pedestrian and transit upgrades) is recommended on seven different corridors throughout the City.

DOWNTOWN SPOTLIGHT: 2-WAY CONVERSIONS

The full bicycle network proposed in this plan responds to the City's current street network. However, areas like downtown New Haven may experience significant changes in the coming years as one- to two-way street conversions impact the configuration of existing and proposed bikeways. The diagrams below show how the bike network evolves according to the short-term and long-term two-way conversions outlined in the 2014 Two-Way Conversion Study. While some trade-offs may ultimately occur in each phase of the network's conversion, the overall intent of providing protected, safe bikeway connectivity to and through Downtown is essential to building out the Full Network.

EXISTING

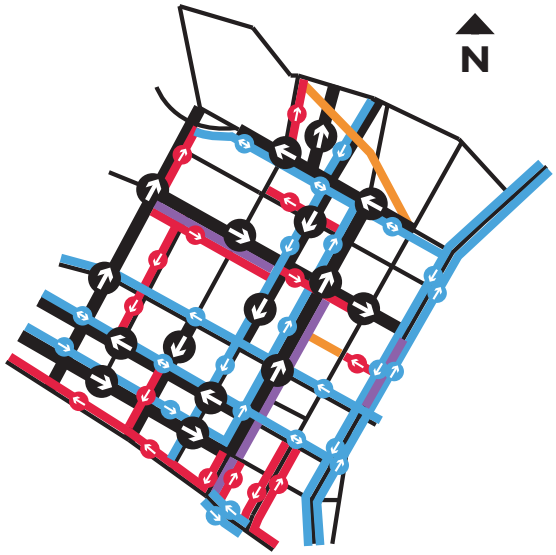


The diagram at left illustrates the existing bikeway network in Downtown, with the roadway segments included in the 2014 report planned for one- to two-way conversion.

The thicker black lines are those street segments proposed for two-way vehicle traffic in the 2014 study.

Shared Use Path
Bike Lane
Protected Bike Lane

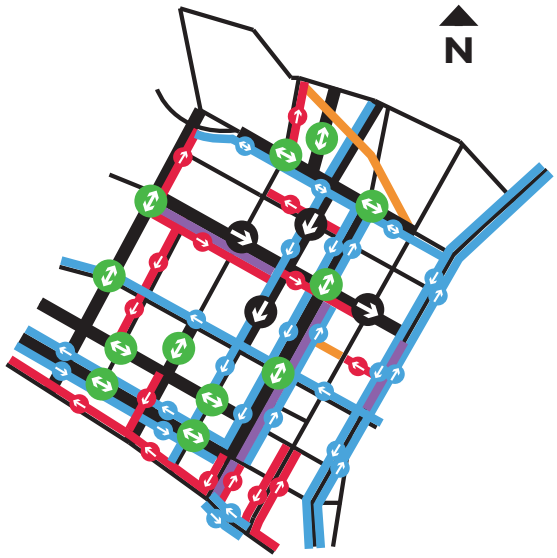
EXISTING W/ PROPOSED BIKEWAY NETWORK



Most of the bikeways proposed for downtown New Haven are protected and configured so that people cycling travel in the direction of vehicular travel. The one exception is Grove Street, where the bike lane is bi-directional. In this interim condition, where many streets remain one-way, the existing bike lane on Church Street between George and Chapel Streets would become protected, and shift to the west side of the street.

Shared Use Path
Bike Lane
Protected Bike Lane
Dedicated Bus Lane

SHORT-TERM ONE-WAY STREET CONVERSIONS



Shared Use Path
Bike Lane
Protected Bike Lane
Dedicated Bus Lane

OVERVIEW

In this scenario, the short-term conversions in the 2014 Report are illustrated in green: Hillhouse Avenue, Grove Street, Church Street, George Street, Crown Street, College Avenue, and York Street.

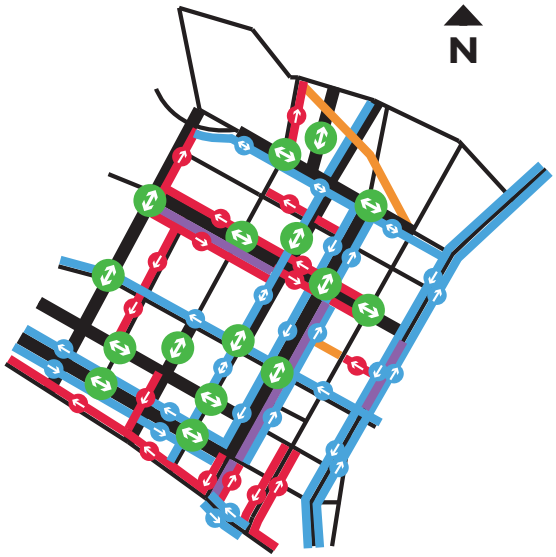
Directional protected bike lanes are proposed for George and Church Streets upon conversion, and the two-way protected bike lane on Grove Street is maintained.

If converted to two-way traffic, the interim two-way facility on Crown Street would be removed.

CONSIDERATIONS

- To accommodate directional protected bike lanes on both Church and George Streets, parking would have to be removed.
- On Church Street, the northbound bus lane and curbside boarding areas remain.

LONG-TERM ONE-WAY STREET CONVERSIONS



Shared Use Path
Bike Lane
Protected Bike Lane
Dedicated Bus Lane

OVERVIEW

Upon the conversion of Elm and Temple Streets (in green), bike lanes in both directions are proposed for Elm Street, and southbound protected bike lane on Temple Street becomes a two-way protected bike lane.

Temple Street would be converted into a transit- and bike-only street

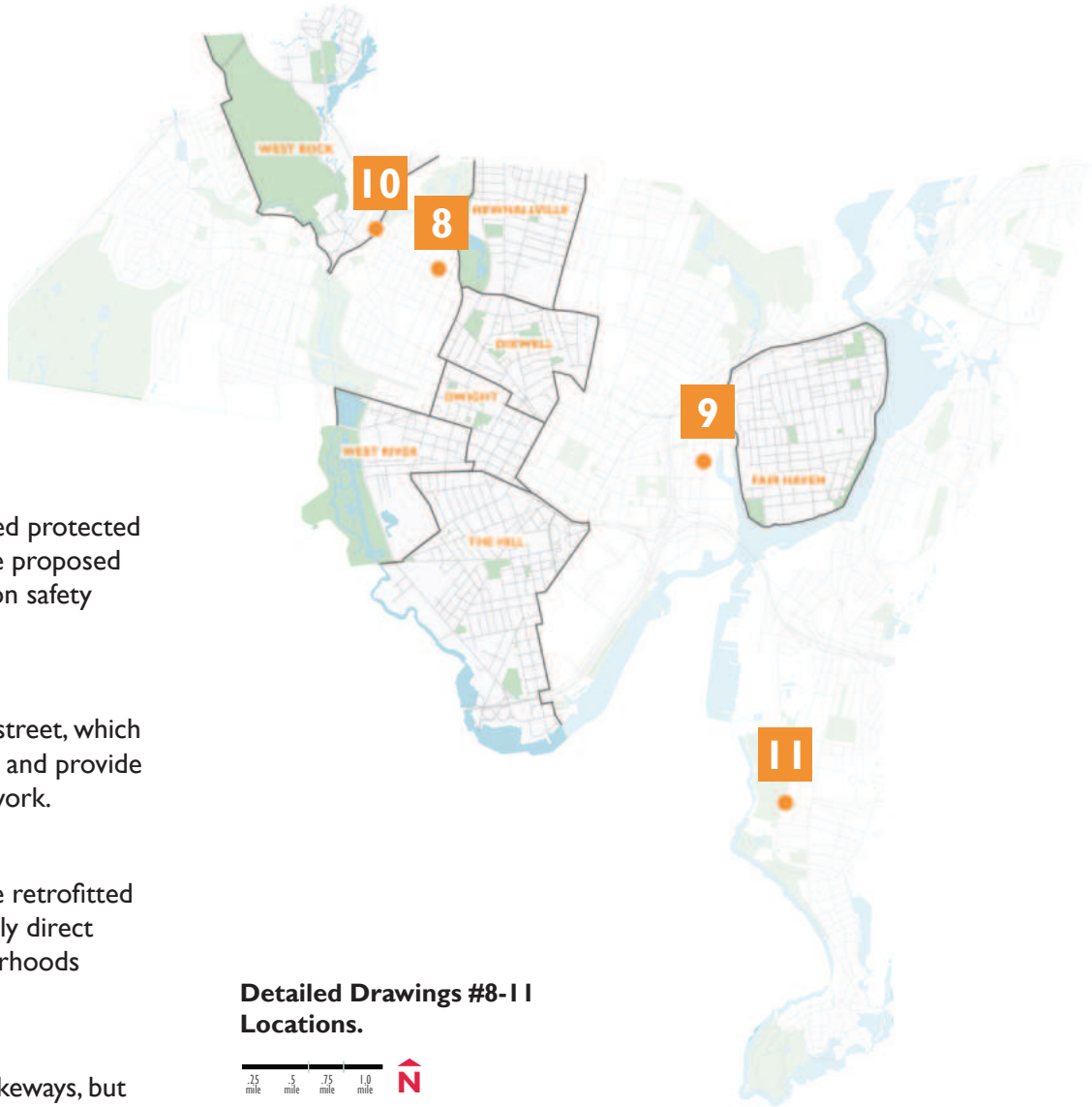
.CONSIDERATIONS

- If bus lanes were to be implemented on Elm Street in both directions upon the two-way conversion, parking may have to be removed to accommodate bike lanes in both directions, one travel lane in each direction, and the bus lanes.

Detailed Drawings

This chapter includes five detailed plan view and section drawings featuring pedestrian, bike, and transit improvements, with an emphasis on a number of proposed bikeways. At right are the locations of the four drawings, with the City's Priority Neighborhoods.

The drawings are illustrative, depicting how bicycle design best practices can be applied to specific locations in New Haven. Following Plan adoption, further outreach, design, and engineering will be required and determine the details of how each project is constructed.



Detailed Drawings #8-11 Locations.

8 Dyer St & Ellsworth Ave

WHY? This intersection features the confluence of proposed protected bike lanes and a neighborhood greenway, a new bikeway type proposed in the Plan. Dyer Street is also in need of multiple intersection safety upgrades.

9 East St

WHY? The City has proposed a conceptual design for this street, which would connect to the Long Wharf Drive protected bike lane and provide a key north-south connection in the protected bikeway network.

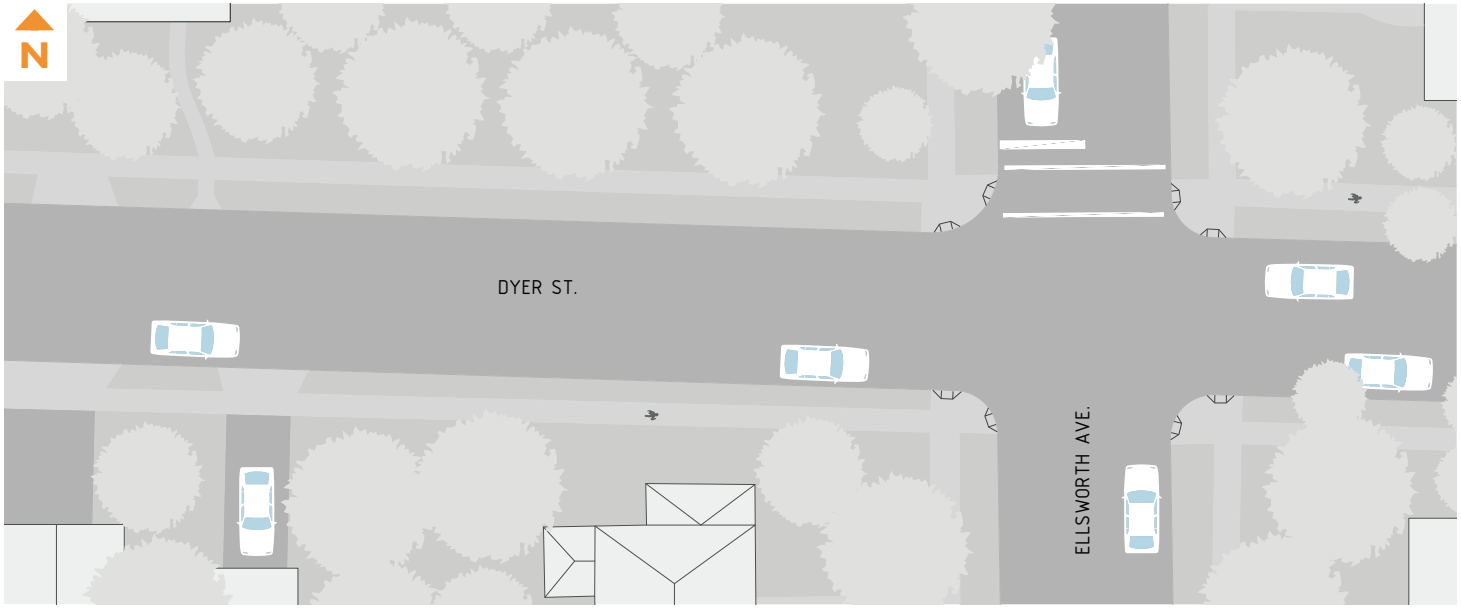
10 Fitch St

WHY? This is a state road that has the available space to be retrofitted to accommodate protected bikeways. It also provides the only direct connection to West Rock from Beaver Hills and the neighborhoods south of Whalley Ave.

11 Woodward Ave & Raynham Rd

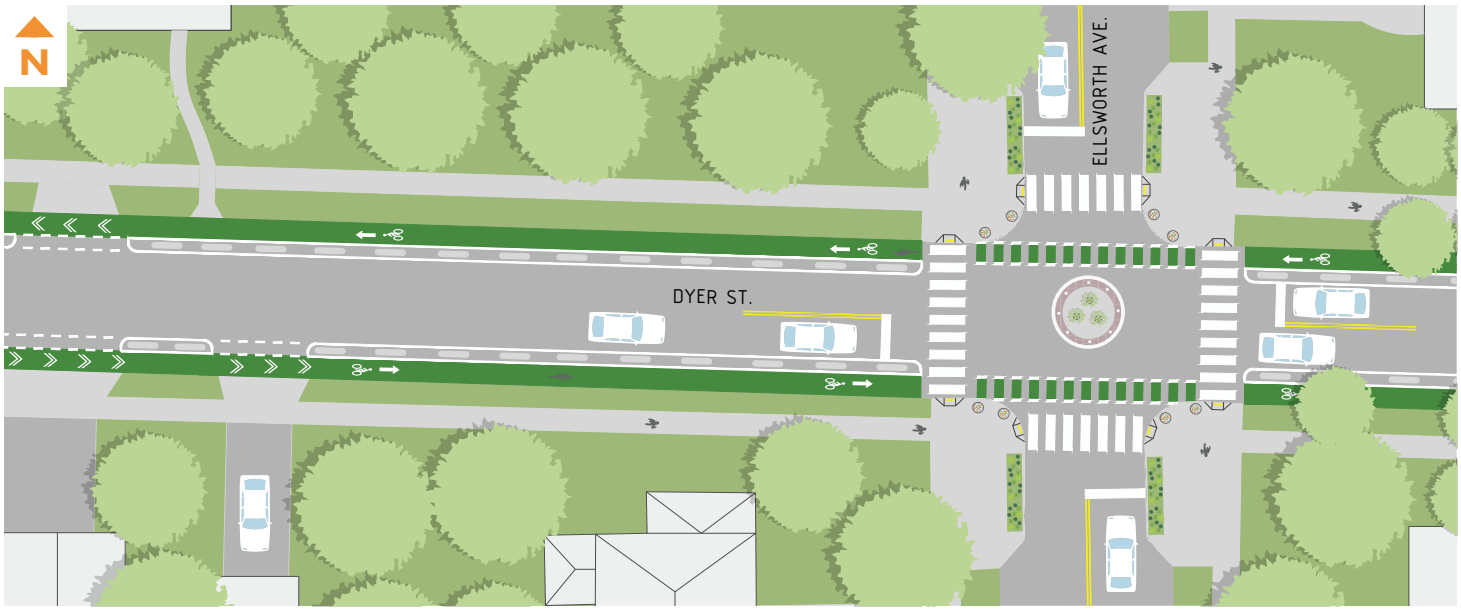
WHY? East Shore currently does not have any dedicated bikeways, but it has multiple trails and park entrances that can be better connected and made more accesssible to adjacent neighborhoods.

8. Dyer Street & Ellsworth Avenue



EXISTING

Dyer Street offers great connections through the Beaver Hills neighborhood, linking residents to the existing Crescent Street protected, two-way bike lane, as well as to key thoroughfares with essential services like Whalley Avenue. As with many residential streets, traffic calming can improve the experience of travel for all modes.

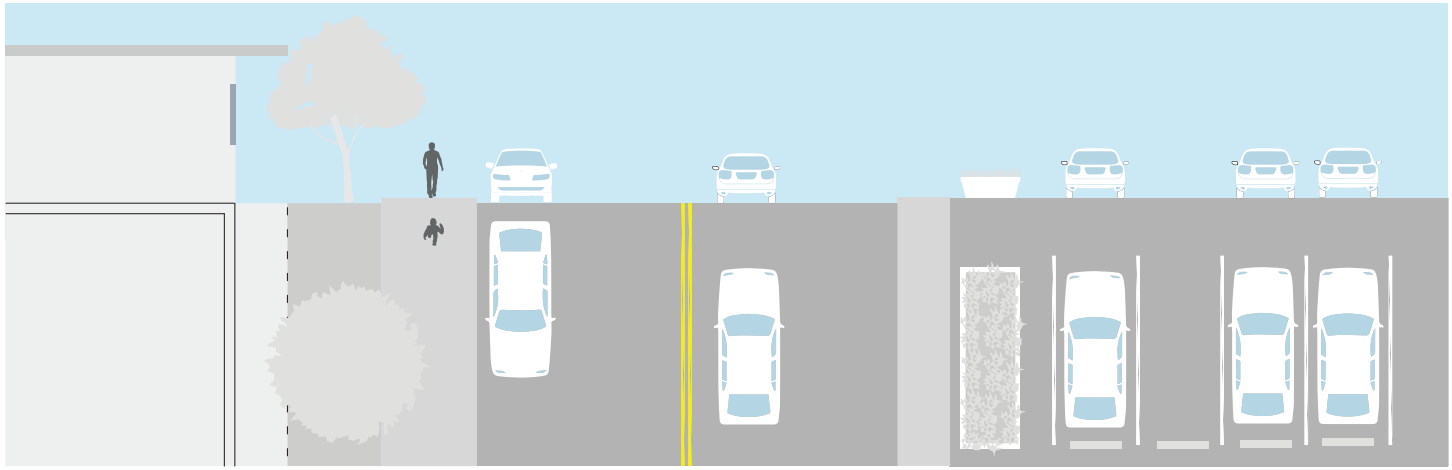


PROPOSED

Protected bike lanes are proposed to connect the existing Crescent Street bikeway to the proposed Fitch Street bikeway. These bike lanes intersect with the proposed **Ellsworth Avenue, neighborhood greenway, which** connects the Crescent Street bikeway through the neighborhood to Whalley Avenue. Curb extensions with rain gardens, neighborhood traffic circles and other measures calm and reduce cut-thru traffic.

All proposed designs are conceptual, and are subject to further design and engineering study.

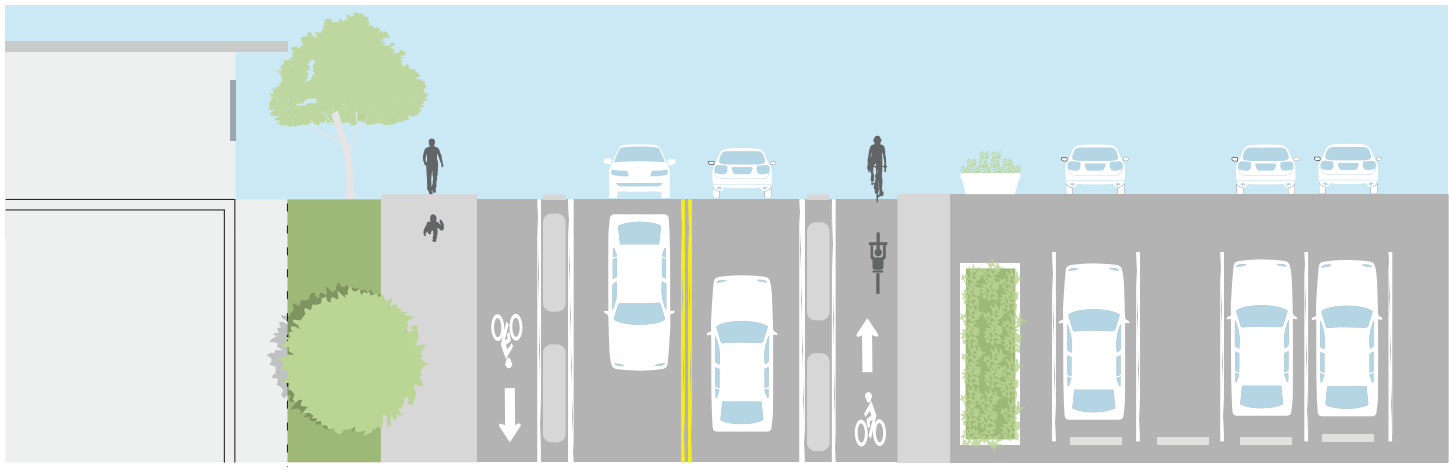
9. East Street



parking	travel lane	travel lane	parking
8’	12’	12’	8’

EXISTING

East Street is 40’ wide with 12’ lanes, and underutilized parking lanes on both sides of the street. This street has the potential to provide a crucial north-south connection through The Mill River District, linking the protected two-way bike lane on Long Wharf Drive with East Rock.



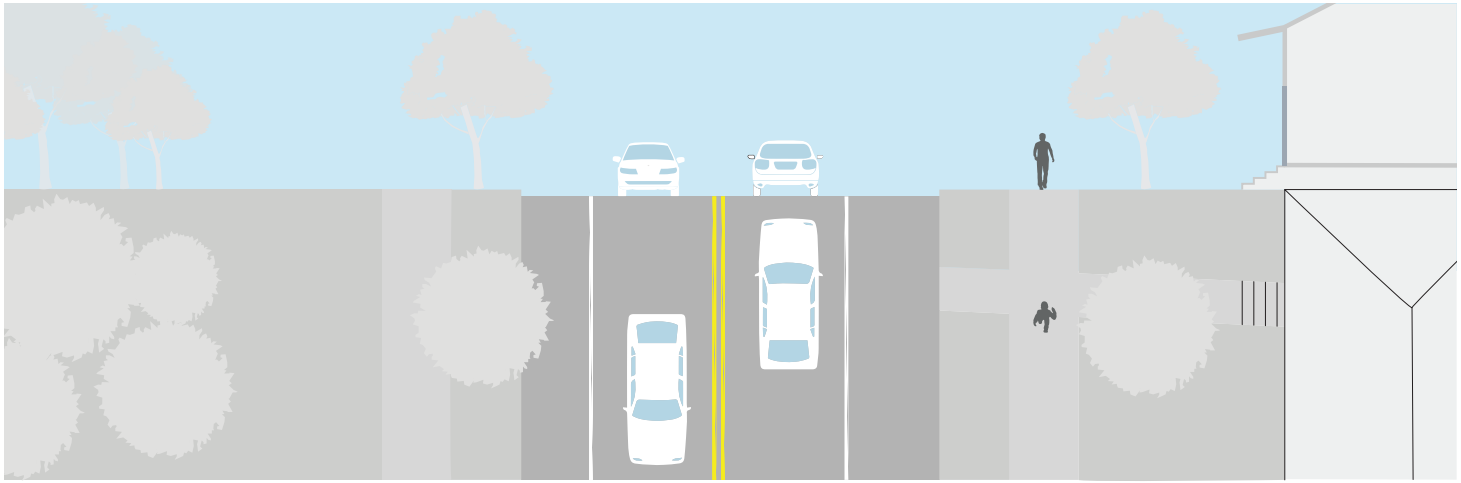
bike lane		travel lane	travel lane		bike lane
6’	3’	11’	11’	3’	6’

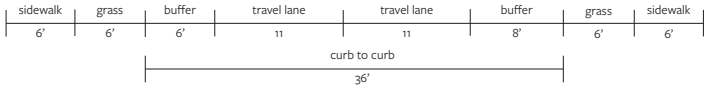
PROPOSED

The Plan proposes reducing the travel lanes by a foot, and replacing the on-street parking with **protected bike lanes** for the majority of the length of the corridor. This bikeway would intersect with two other proposed bikeways on Chapel Street and Grand Avenue, and link Long Wharf to State Street and the neighborhood greenway on Lawrence Street.

All proposed designs are conceptual, and are subject to further design and engineering study.

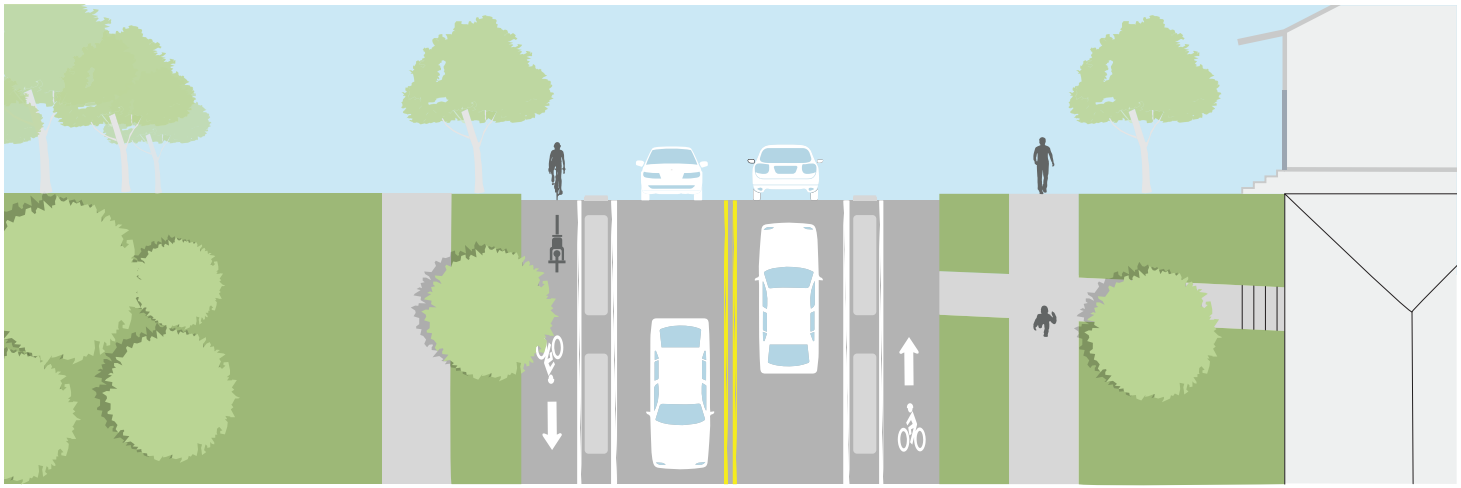
10. Fitch Street

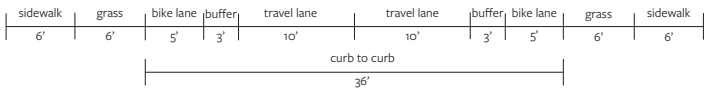




EXISTING

Fitch Street's shoulder and underutilized, permit-only parking lane are opportunities to re-allocate underutilized asphalt for a protected bikeway. The corridor is an important route from Whalley Avenue into West Rock, and offers a direct connection to SCSU's campus.





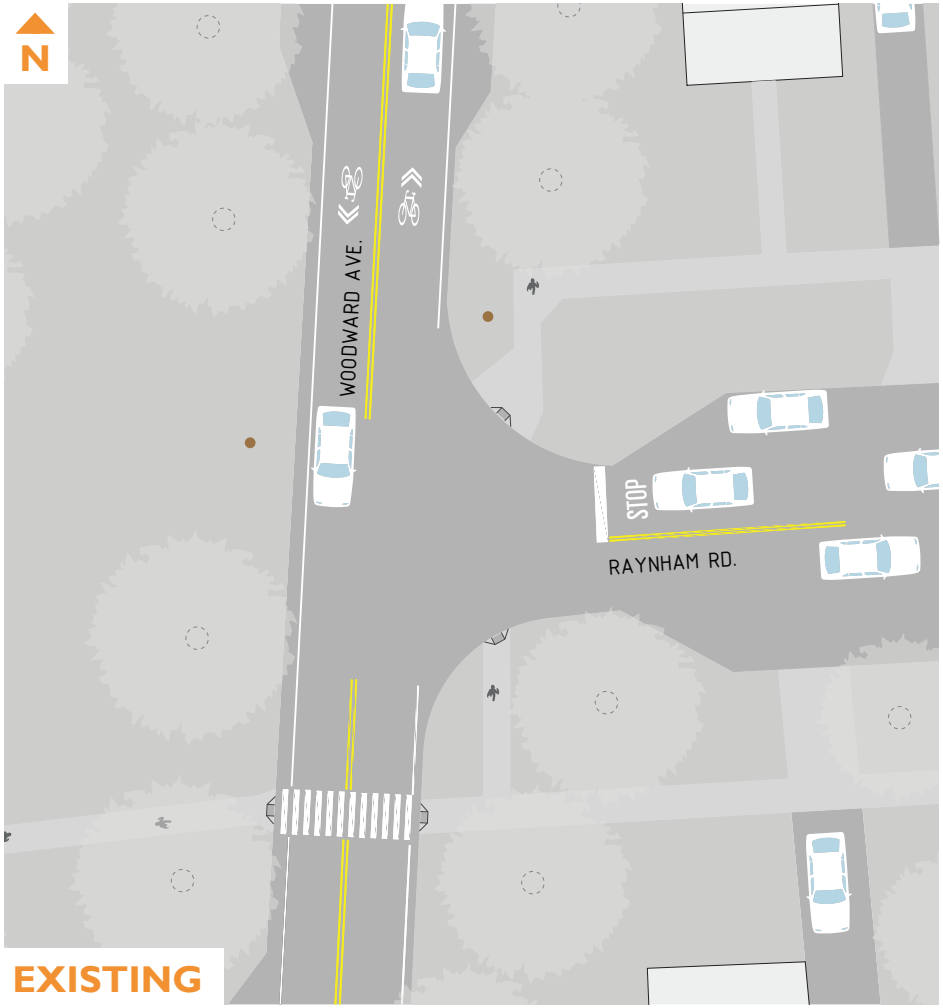
PROPOSED

The Plan proposes adding **protected bike lanes** along Fitch Street, which would offer a direct connection to Edgewood Park and the shared use paths therein, and a dedicated cycling route north of Whalley Avenue into West Rock. With this proposed connection, a bicyclist could one day travel from Long Wharf to West Rock using entirely protected and dedicated cycling infrastructure.

All proposed designs are conceptual, and are subject to further design and engineering study.

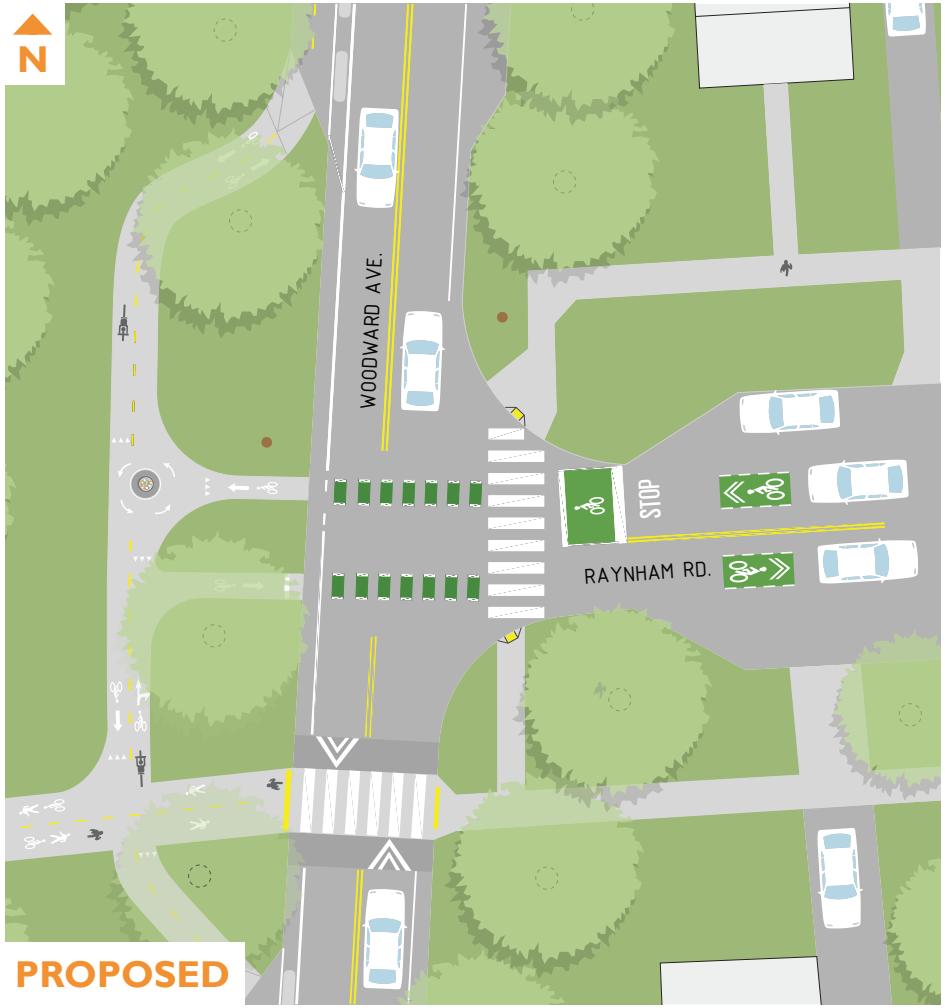
11. Woodward Avenue & Raynham Road

All proposed designs are conceptual, and are subject to further design and engineering study.



EXISTING

Woodward Avenue is a pleasant, tree-lined street offering direct access to East Shore Park. Currently, faded shared lane markings hardly make it a comfortable ride for all ages and abilities, although it has great potential to be a primary cycling route.



PROPOSED

A proposed, **protected two-way bike lane and pedestrian improvements** at Raynham Road increase the safety of biking on Woodward Avenue and the comfortability of connecting with the existing path connecting into East Shore Park. This facility could increase likelihood of both leisurely and commuting bicycle trips from East Shore and The Annex.

Project Evaluation

In the table below are 11 criteria that can be used to evaluate each newly proposed bikeway segment recommended in this Plan. 31 total points may be earned, with up to 3 points awarded per category. The criteria does not replace detailed segment-level analysis, but can be used by the City as an evaluation tool to help prioritize bikeway improvements as resources and opportunities are available.

Network Connectivity	2: Proposed segment connects to two or more existing bikeways. 1: Proposed segment connects to one existing bikeway.
Bikeway Continuity	3: Proposed bikeway allows for over 2 miles of continuous cycling, protected or dedicated, through New Haven. 2: Proposed bikeway allows for 1 mile of continuous cycling, protected or dedicated, through New Haven.
Existing Bikeway Improvement	3: Proposed bikeway is an upgrade to an existing bikeway. 2: Part of the proposed bikeway upgrades an existing bikeway.
Bikeway Type	3: Proposed bikeway is protected. 2: Proposed bikeway is buffered. 1: Proposed bikeway is dedicated and/or includes significant traffic calming.
Neighborhood Equity	3: Proposed bikeway is within a Priority Neighborhood, and a neighborhood previously deficient in on-street facilities. 2: Proposed bikeway is within a Priority Neighborhood. 1: Proposed bikeway is within a neighborhood previously deficient in on-street facilities.
Proximity to Schools/Parks/ Greenways	3: Proposed bikeway passes by a school or park entrance, or an existing Greenway. 2: Proposed bikeway is one block or closer to a school or park entrance, or existing Greenway. 1: Proposed bikeway is three blocks or closer to a school or park entrance, or existing Greenway.
Proximity to Commercial Centers/Essential Services	3: Proposed bikeway passes through a commercial district with essential services (pharmacy, grocery, healthcare etc.). 2: Proposed bikeway is within one block or closer to a commercial center or an essential service(s). 1: Proposed bikeway is three blocks or closer to a commercial center or essential service.
Safety	2: Proposed bikeway provides protection on a dangerous corridor for bicyclists. 1: Proposed bikeway provides a dedicated space for bicyclists on a dangerous corridor for bicyclists.
Transit	3: Proposed bikeway passes by a bus stop or rail station. 2: Proposed bikeway is within two blocks of a bus stop or rail station. 1: Proposed bikeway intersects a bus route corridor.
Feasibility	3: Proposed bikeway uses existing roadway width with no center line changes. 2: Proposed bikeway uses existing roadway width with minimal striping changes. 1: Proposed bikeway requires excavation and/or significant removal of existing striping.
Parking Removal	3: Proposed bikeway does not require parking removal. 2: Proposed bikeway requires partial parking removal. 1: Proposed bikeway requires both sides of on-street parking to be removed.

High Opportunity Corridors

Applying the criteria outlined on the previous page resulted in the following top 10 highest scoring newly proposed bikeway segments. Four out of the first five proposed segments listed below would include physical protection along the most bicycle crash-prone corridors.

SEGMENT	BIKEWAY TYPE	SCORE	COST	NOTES
Chapel Street	Westbound Protected Bike Lane	27	$$	This is the only proposed protected segment that goes through multiple Priority Neighborhoods, and through a neighborhood currently without dedicated bikeways.
Columbus Avenue	Eastbound Protected Bike Lane	26	$$	The proposed protected bike lane mostly uses the existing shoulder, simplifying implementation.
Chapel Street	Westbound Bike Lane	26	$	The proposed segment requires no parking removal.
Dixwell Avenue	Southbound Protected Bike Lane	24	$$	The proposed bike lane is also on a corridor slated for BRT in the Move New Haven Study.
Whalley Avenue	Protected Bike Lanes	24	$$$$	Protected bike lanes within the existing curbs fit on a portion of this segment, but would need to be at sidewalk level further northwest along the corridor, which increases cost.
Fitch Street	Protected Bike Lanes	23	$$$	The proposed bike lanes mostly repurposes an existing shoulder, simplifying implementation.
Ella T Grasso Blvd	Two-Way Protected Bike Lane (sidewalk level)	22	$$$	The stretch of Ella T Grasso Blvd. between Kimberly Avenue and Columbus Avenue is the worst segment for all traffic crashes in the City.
Forbes Avenue	Two-Way Protected Bike Lane	21	$$$	This segment would be a key piece of the Harborside Trail.
Ella T Grasso Blvd	Conventional Bike Lanes	19	$	The proposed bike lanes provide dedicated space for bicyclists along a dangerous corridor, and are a key piece of a north-south route between Beaver Hills and The Hill.
Union Avenue	Two-Way Protected Bike Lane	18	$$$	The City has a draft conceptual plan for the corridor, which passes right by Union Station.

07 Implementation

Image Credit: Street Plans

Future: A Day on the Move

Five years after the adoption of the Citywide Active Transportation Plan, aspects of Mary, Nora, and Alvaro's travel are already improved.

Image Credit: Chat Travieso

(Future) The City has been running a contest for placemaking enhancements at bus stops, like the above that artist Chat Travieso installed in the Bronx, New York City.

West River was in need of several pedestrian signal heads, and numerous improvements to sidewalks and crosswalks at intersections. Nora now has almost an entirely improved walking route between West River and The Hill. Most notably, the intersection improvements along Sherman Avenue at North Frontage Road and Legion Avenue make the walk much easier. The protected bike lanes along both of these intersecting streets actually help make her feel more safe crossing with her mother. As long as they pay attention to any oncoming bicyclists, the crossing distances are actually shorter!

Finally, the installation of Leading Pedestrian Intervals (LPIs) provide Nora and her mom a headstart while crossing. which is important as pushing the wheelchair up to a normal walking speed takes extra time. Nora feels safer and more more visible to turning traffic at these key intersections and overall enjoys the positive mental and physical health benefits walking with her mom provides.

Now that the City and its partners at CT*transit* have been making improvements to the bus stops in his neighborhood, Alvaro finds it much more pleasant to ride the bus. He particularly enjoys the (shorter) wait at at the intersection of Grand Avenue & Ferry Street, which has become one of the City's bus rapid transit hubs. He feels particularly happy that he was able to provide a his input to a local artist from his neighborhood on what kind of asphalt art should be installed to demarcate the new bike corrals that always brighten his day. And now that there is better bike parking and more bike lanes in his neighborhood, he's considering getting a bike to make the trip to and from the bus even shorter.

The BRT service on Grand Avenue cuts his cross-town transit trips almost in half, and he's enthusiastic that the addition of dedicated bus lanes on Whalley Avenue will improve his daily trips even more.

Mary now has multiple safe options for cycling to and from Edgewood Park using dedicated and protected infrastructure. When biking with her kids, she much prefers using the dedicated and protected protected bikeways on Fountain Street and Whalley Avenue. When she's looking for more exercise, she'll take a longer route, utilizing more of the neighborhood greenways through Westville, which allows her to access the park from a different location.

It's now possible for her to use and understand the merits of these different routes because the City's bicycle network is available online and includes a user-friendly interactive map showing where all the bikeways are, the direction of travel, and whether or not they're protected. As a result, Mary now rides her bike more to run errands, rather than just for leisure and exercise because it's easier and safer for her to not just get to commercial corridors like Whalley Avenue, but she can now also access all the great things that downtown New Haven has to offer.

Action Plan

This section includes key recommendations for plan implementation across five areas.

Building infrastructure that supports active transportation is a key part of this Citywide Active Transportation Plan. However, there are myriad additional ways to create safer routes for all. This Action Plan includes recommendations across the following five categories:

1. **Equity**
2. **Engineering**
3. **Evaluation**
4. **Education & Encouragement**
5. **Enforcement**

Consistent with the Plan's framework, this section begins with actions that can be taken to advance the equitable implementation of active transportation projects.

The recommendations in the Action Plan are not all meant to be acted upon simultaneously, but rather provide options for implementing the Citywide Active Transportation Plan as various resources and opportunities are created or arise.

Image Credit: Street Plans

While most of the recommendations in the following pages will be led by Transportation, Traffic, & Parking (TT&P), some will require cross-collaboration with, and leadership from, additional City departments. Recommendations that involve legislative changes at the state should also be approached collaboratively with other departments and the Plan's Implementation Task Force.

Equity

Allocate a fixed amount of budget each fiscal year for pedestrian, transit access, and bicycle improvements in the City's Priority Neighborhoods.

Guided by the analysis in the Plan, the City of New Haven can ensure that Priority Neighborhoods are consistently receiving improvements by obtaining and setting aside funding that cannot be used elsewhere in the City.

ACTIONS:

- Approximate a range of costs for priority active transportation improvements to be implemented annually, and remain steadfast in building out pieces of the bicycle Full Network, Tactical Transit improvements, and pedestrian improvements in the Priority Neighborhoods.
- Work with Alders and community members on an ongoing basis to tailor active transportation project type and design to the local context/need.

OUTCOMES:

- Implementation of three (3) active transportation projects per Priority Neighborhood per year.
- 50% of each annual active transportation project budget allocated for use only in Priority Neighborhoods.

Work together with New Haven's advocacy community to establish annual policy and legislative goals that improve transportation equity.

There are a number of advocacy groups and community champions working to make their community members' voices heard in the City of New Haven. Joint initiatives in direct partnership with the Plan's Implementation Task Force (see Evaluation, Recommendation #1) could help make advocacy efforts more effective, and allow the City to be more responsive.

ACTIONS:

- At the recommendation of the Implementation Task Force, bring together the multiple coalitions and organizations working on safe streets in the City of New Haven for a quarterly roundtable.
- Ensure diverse representation in the coalition, including the City's Disability Commission, and the creation of an equitable decision-making structure.
- Establish a priority action item each year, like a piece of legislation that requires action from state government. As an example, the first piece of legislation could ban police from stopping drivers for low-level traffic violations, which studies show target Black drivers at disproportionately higher rates. Cities like Philadelphia and Pittsburgh, PA have enacted such measures.
- Work with the roundtable group to regularly audit Plan implementation to ensure the focus remains on the Priority Neighborhoods.

OUTCOME:

- One (1) piece of legislation passed at the state level within the next five years that improves street safety for the City's low-income population and People of Color.

Document existing challenges specifically for the disabled and elderly communities in New Haven, and implement projects to increase ability equity.

Many of the mobility challenges documented through the Citywide Active Transportation Plan's public outreach process present even more complex challenges for the elderly and/or disabled people. Further action should be taken to ensure that improvements are addressing the challenges faced by these groups of people.

ACTIONS:

- Task the Disability Commission, as representatives of the Plan Implementation Task Force, with leading a Citywide outreach effort to map the highest populations of elderly and disabled residents.
- Conduct a series of Walk & Roll Audits with these communities in the locations with the highest density of affected residents. For disabled residents who cannot participate comfortably, audits can be live streamed/recorded with participants providing feedback where they notice unique mobility challenges.
- Document any problem areas in addition to intersections identified in the Plan, including bus stops that could be made more accessible.

Image Credit: Youth Safety Council of Vermont

- Use the documentation to focus on improvements in these areas. Repeat the Walk & Roll Audits and update the documentation annually.

OUTCOME:

- Implementation of three (3) active transportation projects per year that are direct responses to vulnerable populations' feedback.

Track and mitigate any potential displacement impacts associated with new and upgraded active transportation projects.

The Citywide Active Transportation Plan's public engagement, analysis, and recommendations focused from the start on equity, with the Priority Neighborhoods as the focus. The planning process identified and engaged stakeholders who may be most affected by the Plan recommendations, documented racial inequities and their causes through the use of the Priority Neighborhoods as the framework, and includes proposals to reduce the inequitable provision of active transportation improvements throughout the City of New Haven.

In this Action Plan, recommendations intend to provide alternative strategies to reduce potentially harmful impacts of Plan implementation, like further isolation of disadvantaged populations, polarizing policing tactics, increased real estate burden, and others. Through the Plan's Implementation Task Force, efforts to ensure the sustainability of these strategies, and to closely track metrics of success, will be taken. Active transportation improvements can have unintended, negative impacts on the communities they intend to serve. Sometimes, new infrastructure can result in negative, unintended real estate consequences that force low-income people and communities of color out of the neighborhoods in which the infrastructure is being installed. In order to ensure that these consequences do not disproportionately affect the City's Priority Neighborhoods, the following steps should be taken.

ACTIONS:

- Collect and analyze median household income and property value data in Priority Neighborhoods where active transportation improvements are slated to be installed.
- Track the same data for the first three years to assess if substantial changes to affordability are detected.
- Assemble a task force to re-visit Community Benefit Agreements and other ways to mitigate unintended consequences; refer to Race Forward's 10-point Impact Assessment Guide for corridor-scale transportation improvements projects (see pg. 128).

OUTCOME:

- Community Benefit Agreements that help maintain Priority Neighborhood affordability while also increasing active transportation infrastructure.

Ensure that information about active transportation improvements is available to residents with all native languages other than English.

It can be difficult to engage all residents of a City in a public process, educational campaign, or other communications efforts when large

portions of the population do not speak English as their first language. To make sure all residents feel included and informed, resources must be made regularly available in other predominant languages.

ACTIONS:

- Create fully translated pages on the City of New Haven's website within the Transportation, Traffic, & Parking Department (TT&P). Specifically, translate the Alternative Transportation Options and Initiatives pages to Spanish.
- Review census data for the next two most frequently spoken native languages in the City for webpage translation.
- Track documents and project information that is distributed in multiple languages.
- Ensure that any public information in a Priority Neighborhood is being distributed in the languages spoken by residents in those neighborhoods.
- Send project and other City communications to neighborhood organizations that represent non-native English-speaking populations.

OUTCOME:

- Official City outreach and information communications regarding active transportation planning and implementation activities are routinely translated to all native languages found within impacted neighborhood(s).
- Increased participation at public meetings, and discourse with City officials, by residents of non-native English-speaking populations.

Image Credit: CARE

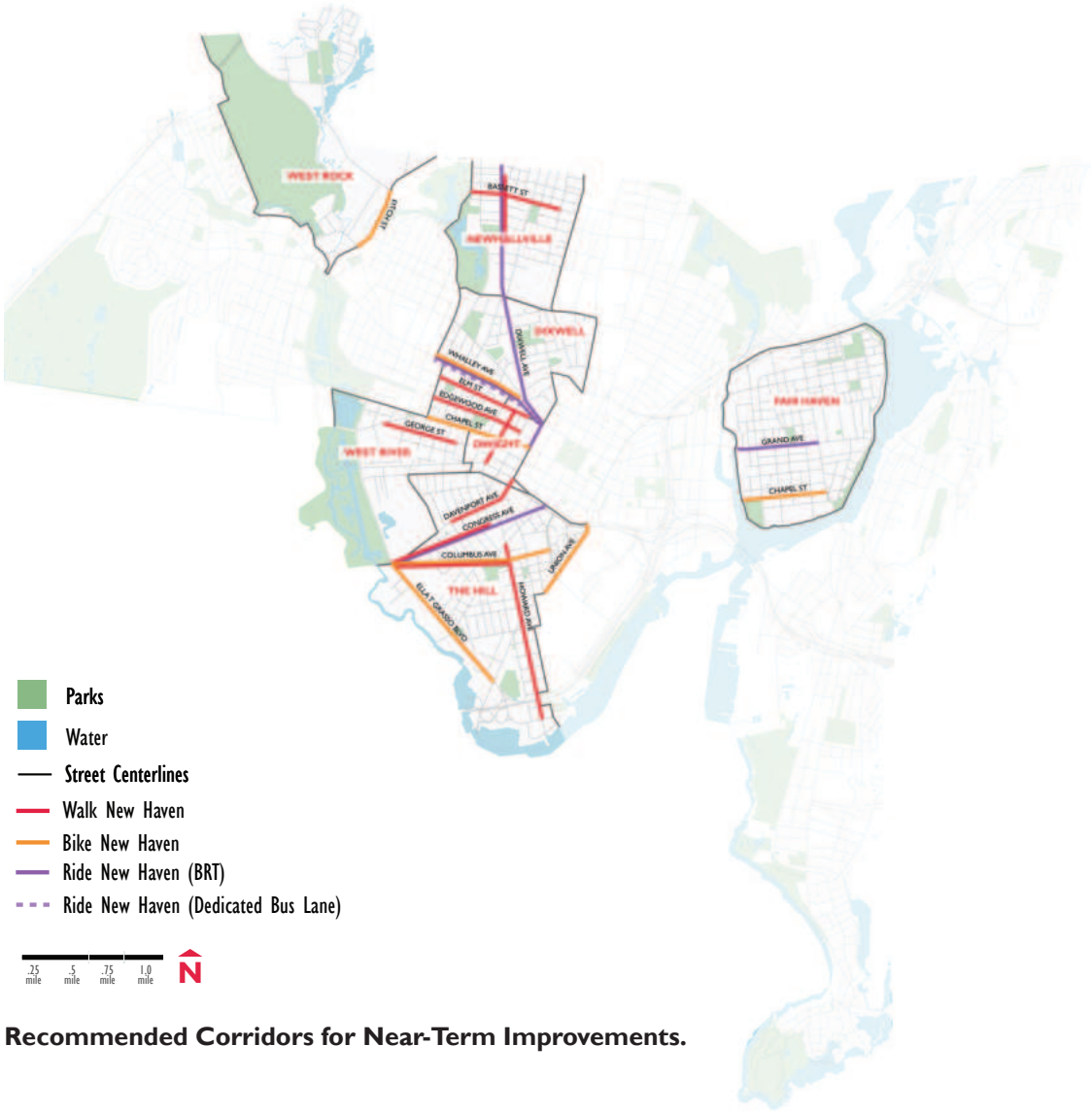
Engineering

Implement pedestrian, bicycle, and/or transit improvements along one (1) entire corridor segment from the map at right every year for the next ten years.

While this Plan is structured by mode (walking, transit, bicycling) there is a significant opportunity for the City to optimize funding and resources to achieve improvements to multiple modes of transportation simultaneously. At right is a map of corridor segments that illustrate the following, within the Priority Neighborhoods:

- Segments of corridors with a minimum of five intersections in need of improvements, derived from the Intersection Database, Priority Intersections, or both.
- High opportunity bicycle corridors.
- Corridors identified as BRT routes or for dedicated bus lanes within the 2019 Move New Haven Study. These include the current high ridership transit corridors.

Corridors with project serving multiple modes should be prioritized for near-term funding and implementation.



Recommended Corridors for Near-Term Improvements.

WALK NEW HAVEN: Segments within Priority Neighborhoods with a minimum of five intersections in need of improvements, informed by the Intersection Database, Priority Intersections, or both.

- **Bassett Street** between Fournier St and Newhall St
- **Columbus Avenue** between Howard Ave and Ella T Grasso Blvd
- **Congress Avenue** between Vernon St and Davenport Ave
- **Davenport Avenue** between S Frontage Rd and Kossuth St
- **Dixwell Avenue** between Pond St and Harding Pl
- **Elm Street** between Park St and Sherman Ave
- **Edgewood Avenue** between Park St and Sherman Ave
- **George Street** between Waverly St and Derby Ave
- **Howe Street** between Whalley Avenue and N Frontage Rd
- **Howard Avenue** between Washington Ave and Sea St

BIKE NEW HAVEN: Segments of the High Opportunity Corridors that are within Priority Neighborhoods.

- **Chapel Street** between Ferry St and the Mill River, and York St and Sherman Ave
- **Fitch Street** between Blake St and Wintergreen Ave
- **Columbus Avenue** between Church St S and Ella T Grasso Blvd
- **Ella T Grasso Boulevard** between Kimberly Ave and Columbus Ave
- **Union Avenue** between Water St and Liberty St
- **Whalley Avenue** between Howe St and Carmel St

RIDE NEW HAVEN: Segments of BRT Routes and Dedicated Bus Lanes identified in the Move New Haven Study that are within Priority Neighborhoods.

- **Congress Avenue** between S Frontage Rd and Ella T Grasso Blvd
- **Dixwell Avenue** between York St and Elizabeth St
- **Grand Avenue** between Ferry St and the Mill River
- **Whalley Avenue/Broadway** between York St and Carmel St

Implement half of the proposed bikeway network in this Plan by 2032.

The Plan includes 90 miles of newly proposed and upgraded bikeways. With the existing and facilities under construction, the Full Network totals 128 street miles of facilities. Steadily building out half of the network over 10 years is both necessary and achievable, and can start with the high opportunity corridor segments.

OUTCOME:

- 48 miles (approximately 5 miles per year) of newly proposed and/or upgraded bikeway facility implementation by 2032.

Make pedestrian signal heads with Leading Pedestrian Intervals (LPIs) standard policy at signalized intersections Citywide.

Leading Pedestrian Intervals (LPIs) typically allow pedestrians a 3-7 second "head start" to cross the street before the signal turns green for vehicles traveling in the same direction or turning onto an intersecting street. This strategy improves pedestrian visibility, and reinforces the pedestrian right-of-way during a walk signal. According to a study conducted by the federal Transportation Research Board, LPIs have been shown to reduce pedestrian-vehicle collisions as much as 60% at intersections where they are installed.

ACTIONS:

- Require that any new or updated signals Citywide contain LPIs. This is a relatively low cost adjustment to signal timing where new or improved signals are already planned to be installed or maintained. The City of Seattle enacted such a policy in 2019, and San Francisco and New York City are national frontrunners with high percentages of LPI intersections citywide.
- Install LPIs concurrently with banning right turns on red where feasible.
- Use the Intersection Database and Priority Intersections in this Plan to guide LPI installation, prioritizing the Priority Neighborhoods.

OUTCOME:

- 30% of intersections (approx. 500) Citywide include LPI signal timing by 2032.

Improve transit-bike integration by installing more long-term bike parking at bus stops and BRT hubs.

Providing convenient bicycle parking at bus stops along the bikeway network can reduce travel time, reduce car usage, and increase transit ridership. However, bike theft, vandalization, and prolonged exposure to inclimate weather are often a major concern for cyclists.

ACTIONS:

- Add bicycle parking corrals, shelters, and/or other long-term bicycle parking infrastructure at key bus stops along bus routes with existing, dedicated bicycle infrastructure. Current examples include Dixwell Avenue, Edgewood Avenue, Orange Street, and Wintergreen Avenue.
- As newly proposed bikeway and BRT segments are built, simultaneously add long-term bike parking along routes within the bus network, especially at BRT hubs.

OUTCOMES:

- Installation of 100 new short-term bike racks (like u-racks) along Dixwell Avenue, Edgewood Avenue, Orange Street, and Wintergreen Avenue by 2027.
- Installation of 10 long-term bike storage facilities (like sheltered bike parking or the Oonee Mini secure bike parking) along Dixwell Avenue and Edgewood Avenue by 2027. Limit the maximum duration that a bicyclist can utilize any secure facilities.

Leverage grants and additional resources to augment City staff for individual project delivery, analysis, and monitoring.

Based on the City of Austin, TX model, the City of New Haven should consider retaining an on-call consultant over multiple years to help implement the detailed project work necessary to move projects from conceptual design to construction. The City should also consider additional staff to assist with tasks like GIS mapping and project tracking to monitor Plan implementation. Include relevant hires and an on-call consultant on the Plan Implementation Task Force.

ACTIONS:

- Create a scope of work for technical assistance for up to five projects per year.
- The retained consultant would participate in the Plan Implementation Task Force meetings, and provide support to Traffic, Transportation & Parking staff.

OUTCOMES:

- A consultant under contract for Plan implementation in 2023.
- Additional City staff for Plan monitoring and project tracking in 2023.

Pass a proclamation committing the City of New Haven to Vision Zero.

The Vision Zero Network is a community of cities nationwide who have committed to zero annual traffic fatalities through actions like Complete Streets design interventions, policies like speed management, and other best practices to reduce preventable tragedies in the roadway. This Citywide Active Transportation Plan is a great first step in getting there. However, the City can use this Plan to operationalize Vision Zero, and move toward this ambitious goal in the years to come.

ACTIONS:

- Have the Mayor issue a proclamation committing to Vision Zero.
- Have the Board of Alders pass a Vision Zero resolution.
- Reference the SRFA Citywide Active Transportation Action Plan in the proclamation and resolution to establish this document as the basis to achieve Vision Zero.

OUTCOMES:

- Issue a Mayoral Vision Zero proclamation by September 2022.
- Pass a Vision Zero resolution by December 2022.
- Zero traffic fatalities by 2032.

Evaluation

Create an Implementation Task Force dedicated to cross-referencing current and planned active transportation projects with the Plan recommendations and analysis.

To give the Plan the best chance to move from the paper to the pavement, it has to be consistantly stewarded, with project tracking and active public conversation. The City can take the lead on forming an internal group of staff, supplemented by selected members of the community, to create a diverse group of experts and leaders to maintain the Plan as the ultimate blueprint for improvements.

ACTIONS:

- Select staff from departments like Transportation, Traffic, and Parking (TT&P), City Planning, Public Works, Engineering, Disability Services, and Parks & Trees.
- Refer to the Citywide Active Transportation Plan's Steering Committee for potential members to join the Implementation Task Force. Consider a stipend for members of the public to join, or donations to organizations they represent.
- Create committees within the Task Force responsible for ushering various components of the Plan forward, whether it's the planning and design of projects, public communication and outreach, or Tactical Transit project implementation.
- Publish an annual Plan implementation update that is publicly available and circulated to the CMTs, Alders, etc.

OUTCOMES:

- Annual, publicly available and disseminated information regarding Plan implementation.
- Ongoing engagement from multiple organizations like the Safe Streets Coalition, the New Haven Coalition for Active Transportation, and Elm City Cycling in working together on targeted active transportation projects, guided by the Plan.

Adopt and internalize the Intersection Database as a working repository to track project implementation and need citywide.

ACTIONS:

- Translate the Intersection Database information into GIS shapefiles; update annually for internal project tracking.
- Review neighborhoods' Database information annually to track the evolving state of the intersections and update the information.
- Allocate staff time to manage the Database through TT&P. Assign management of the Database to Yale or other recent college graduate interns based on staff capacity.

OUTCOMES:

- A more current and frequently updated (every six months) database of Citywide intersection conditions.
- No more than 10% of the total intersections in the City's Priority Neighborhoods in need of improvements annually. Currently, 57% of the total intersections in the Priority Neighorhoods are in need of improvements in at least one of

the following Intersection Database categories (Poor Sidewalks, Poor Crosswalks, No Crosswalks, No Curb Ramps, No Pedestrian Signal), with 11% in need of improvements across two or more categories.

Collect student travel information at the schools used in the Safe Routes to School studies to establish baseline data.

Active transportation infrastructure reaches an adequate stage when it can support children independently riding their bikes or walking safely to school. Building off of the Safe Routes to School studies already conducted, the City can establish baseline travel data to help prioritize where newly proposed bikeways and intersection improvements should be prioritized, and to gauge their impact once built.

ACTIONS:

- Select 10 schools to monitor for one week when school is in session. Collect bicycle and pedestrian counts, as well as the number of students that are dropped off in their vehicles.
- Where the highest numbers of students are being driven to school, explore further how far from the school they live with intercept or email surveys. Note where students live within a mile from their school, but are being driven, to inform the build-out of the Full Network and intersection improvements.

Image Credit: Action for Healthy Kids

OUTCOME:

- An increase of 25% in students who live within one mile, and bike and walk to, school out of the 10 selected schools within five years.

Collect and systematize pedestrian and bicycle count data on select corridors to establish a baseline to track trends over time.

Collecting updated, local data on bicycle and pedestrian travel can further help the City prioritize improvements, and measure the impact of improvements made over time.

ACTIONS:

- Using sensors that can collect data 24/7, execute bike and pedestrian counts in the City's Priority Neighborhoods and other areas of the City with high foot traffic. Start with corridors identified in the Engineering section.
- Move the sensors around to the corridors as needed based on the desired duration of the data collection period.
- Where sensors cannot be installed, engage volunteers or allocate City staff time to collect data manually at least once a year.
- Publish the data in an annual Implementation Task Force report.

OUTCOME:

- A database of data with annual trend reports to inform future active transportation projects.

Image Credit: Eco-Counter

Education & Encouragement

Develop and disseminate more information about the City's growing bicycle and pedestrian network.

When trips on foot and by bike don't have to be pre-planned, people are more likely to take them. Making bicycling and walking information more accessible will help New Haven residents and visitors remember and better understand what is available to them.

ACTIONS:

- Print bicycle network maps to install at bus stops, starting with those along corridors identified in the Engineering section for bike parking improvements.
- Install pedestrian wayfinding in other areas of the City than Downtown to encourage travel on foot. Focus wayfinding content on neighborhood and Citywide destinations, and include distance and average travel time to each destination.
- Ensure these maps are available online for download by residents and visitors.

OUTCOMES:

- Installation of bicycle network maps at all Bus Stop Types #3-6 by 2024.
- Installation of one network of pedestrian wayfinding signs per Priority Neighborhood each year.

Partner with community groups, non-profit organizations, and schools to execute programming for bike and pedestrian safety education.

Active transportation events are ideal platforms for engaging residents in conversations about safe streets, and for bringing bicycle and pedestrian network information into communities.

ACTIONS:

- Using the Streets as Places section as guidance, conduct regular programming to either build out temporary spaces, or activate streets, to create more opportunities for education.
- Establish partnerships with universities, schools, non-profits, and bike shops to tailor education to individual communities and unique community challenges.
- Include driver education in any programming focused on education.

OUTCOMES:

- Repeat successful events from past Bike Months year-round, especially in the Priority Neighborhoods.
- Execute 1-2 additional active transportation events, aside from those that occur during Bike Month each year, at a minimum of three schools per year.

Create a Tactical Transit request and volunteer form to engage residents in improvements to their bus stops.

With so many bus stops Citywide, the majority of which could use simple improvements to the experience of riding and waiting for the bus, why not empower residents to take improvements into their own hands? Literally!

ACTIONS:

- Create a Tactical Transit Request form to live on the Plan's website, or wherever the City is regularly posting Plan updates.
- Instead of the form being a request for the City to do something, it would be a request for permission from the City for a resident to make their own Tactical Transit improvements to their bus stop, according to a set of guidelines prepared by the City.
- The City, in coordination with CT*transit*, could provide materials like laminated route maps for residents to pick up and place up on their own.

OUTCOME:

- Tactical improvements to an additional 25 bus stops per year for the first three years, beyond any City projects driven by Plan recommendations.

Image Credit: Reconnect Rochester

Build on successful, previous Open Streets events to build a Program that sustains annual events.

Open Streets events are opportunities for community members to experience a different side of their streets, and to see how much more connected they could be to their city on foot, bikes, rollerblades, etc. if streets were truly designed for the most vulnerable user. New Haven is no stranger to Open Streets events, but to date these have been more opportunistic, rather than included as a part of a broader Open Streets Program.

ACTIONS:

- Call on the Implementation Task Force to formulate a put together an Open Streets Program, using resources like the Open Streets Project to get started with the basics, and using the routes proposed in the Plan as a basis.
- Think about the long-term life of an Open Streets Program in how the routes are structured and decided upon. Consistent with the Plan, ensure that multiple Open Streets routes make for multiple events per year, touching on different Priority Neighborhoods each time.
- Partner with community organizations and champions to help spread the word about the program well in advance.

OUTCOME:

- Creation of an annual Open Streets Program, and execution of a minimum of three separate routes/events, by 2024.

Image Credit: Bike Walk Macon

Enforcement

Pass legislation to legalize the "Idaho Stop" law.

The Idaho Stop law legalizes bicyclists not coming to a complete stop at stop signs, and enables bicyclists to continue using their momentum to bike efficiently. While it makes it easier for bicyclists to travel uninterrupted, it also manages expectations for cars upon the intersection approach. Rather than be frustrated that a bicyclist doesn't stop at a stop sign, drivers can anticipate and expect that the bicyclist won't stop.

ACTIONS:

- Designate the Plan Implementation Task Force as the lead entity for the effort.
- Research best practices and usage of the law to understand its impacts in cities of similar context to help communicate the law and its benefits in a way that the general public can understand and get behind.
- Usher a draft of the legislation, authored by the Implementation Task Force and advocacy coalition, through the state level.
- Work with the Police Department to help educate and stop enforcing existing laws for cyclists.

OUTCOME:

- An enacted Idaho Stop law by 2026.

Image Credit: Flickr

Implement "slow zones" in residential areas Citywide with the highest documentation of speeding.

Catching speeders in real-time takes a lot of resources and staff time, and the benefits often don't outweigh the costs. However, speeding in the City of New Haven, especially on residential streets, is a well-documented problem. The Citywide Active Transportation Plan recommendations will help alleviate this, like the implementation of neighborhood greenways, road diets, and bike lanes that reduce travel lane widths, but sometimes enforcement is also needed as a supporting strategy.

ACTIONS:

- Identify where in the City the most complaints for speeding are, and where the highest documented speeds are. Other areas of focus could be around the streets recommended in the Streets as Places section.
- Rather than add police to neighborhoods, designate these areas and the surrounding few blocks as "slow zones". Develop a slow zone toolkit, which includes strategies like flashing speed feedback signs, signage and pavement markings, and physical traffic calming interventions.
- Choose an initial 2 or 3 high-speed corridors to test the toolkit. Ahead of time, establish an evaluation protocol to measure the effectiveness of the zones. After a month or so, re-evaluate to see how the zones are performing, and where they could be replicated at other locations Citywide.

OUTCOME:

- 0 serious traffic injuries or fatalities in neighborhood slow zones by 2027.

Install more "smart" street lights with emergency call capacity.

Active transportation infrastructure addresses a large component of street safety by design, but there are multiple other factors that make a street safe for residents of different ages, genders, races, and abilities. In New Haven, gun violence and other crime, and lack of lighting, are issues that impact whether not streets and entire neighborhoods feel safe.

ACTIONS:

- Using gun violence and crime data from New Haven law enforcement, identify pockets of the City that have the highest level of street crime and prioritize them for "smart" light installation.
- Monitor the new street lights for performance and to assess maintenance issues, and to answer any questions from neighbors on how to use them.
- Specifically track any new instances of gun violence or crime, and law enforcement responsiveness, to gauge the efficacy of the lights, to possibly expand throughout the City.

OUTCOME:

- Lowered crime and faster law enforcement responsiveness.

Image Credit: NYC DOT

Audit traffic stops and citations annually to ensure these actions do not cause undue harm to communities of color and low-income communities.

Jaywalking, running red lights, and speeding are all traffic violations that can indeed endanger all users of a street. However, the citations for these violations can cause disproporationate harm to members of disadvantaged communities, and/or be motivated by racial or income bias.

ACTIONS:

- See the local legislation suggested in Equity Action #2 to proactively reduce the potential harm of traffic stops to disproportionately affected communities. Laws enacted in cities like Philadelphia and Minneapolis recategorize certain traffic violations and prohibit traffic stops for things like expired tags or licenses.
- Review citations given for the above offenses, and analyze them for patterns like the race of the offender and the neighborhood in which the citation was given. Over time, if patterns arise that indicate more stops tend to be made in Priority Neighborhoods, for example, investigate potential biases and the nature of these stops to mitigate future bias.
- Lobby the state legislature to offer alternative penalties for low-income violators. Rather than enforce cash penalties and fines, traffic safety and education courses could be provided at no charge. Or, cash penalties could be enforced on a sliding scale proportionate with household income.

- If traffic violations are high in areas lacking in certain active transportation infrastructure, prioritize those areas for improvement. For example, jaywalking often occurs where pedestrians feel it's most convenient, or safest, to cross the street. If crosswalks are not adequate, or do not reach destinations like bus stops or commercial services directly, consider making changes to reduce instances of jaywalking.

OUTCOME:

- Reduced disparity between annual citations for low-level traffic violations given to low-income, Black, and/or Hispanic individuals vs. white individuals.

Expand bans on right turns on red traffic signals.

Right turns on red significantly increase the risk of pedestrian crashes, and banning them is a relatively low cost intervention for a substantial benefit.

ACTIONS:

- Analyze where the City already bans right turns on red to see if this is adequately put in place in Priority Neighborhoods, and at intersections of concern outlined in the Plan.
- Where feasible, couple bans on right turns on red signals with other measures to increase compliance and safety, like LPIs, curb extensions, flashing No Right Turn on Red signs, and raised crossings.

OUTCOME:

- Zero pedestrian fatalities as a result of right turns on red annually by 2027.

Build on the recently passed state legislation H.B. 5429 to expand protections for pedestrians, and reduce the policing of pedestrians.

The new pedestrian safety laws that took effect on October 1, 2021 as a part of H.B. 5429 require drivers to yield to pedestrians if they indicate they are going to cross the street, not just if they are already within a marked crossing. However, this still only protects pedestrians who intend to, or are already in, crosswalks. Pedestrians should be protected no matter where they are in the roadway, including if they are what is labeled as "jaywalking".

ACTIONS:

- Expand upon H.B. 5429 locally to require drivers to yield to pedestrians who are crossing the street *anywhere*. This would effectively remove punishments for jaywalking, and encourage drivers to constantly be more attentive to, and anticipate, pedestrian behavior.
- In the meantime, monitor jaywalking citations to ensure that they are not disproportionately delivered to, and negatively impact, low-impact and communities of color.

OUTCOME:

- No jaywalking citations starting in 2024.

Funding Recommendations

Little can be translated from the paper to the pavement without the budgetary resources to do so. Below are recommendations for ensuring adequate resources for active transportation projects.

Active transportation projects have a myriad of benefits, spanning public safety to economic development to environmental health. Resources to fund active transportation projects can therefore come from a myriad of different sources. Consistent attention paid to this variety of resources is necessary to pounce on opportunities as they arise.

Allocate more Capital funding to active transportation projects, prioritizing those in the Priority Neighborhoods.

Of course cities have to work within budget constraints, but manipulating the budget so that it prioritizes active transportation projects is ultimately what will move the needle on Plan implementation. Each year, a minimum amount of money for Capital projects should be earmarked for things like new bikeways, bus stop improvements, and intersection enhancements based on the priority projects identified that year.

Augment the Capital budget with more federal, state, and other grants.

Just 10% of New Haven's 2021-2022 approved budget for capital projects came from federal grants, while 20% came from state grants. Make it a primary role of the Implementation Task Force to consistently search for and target grants to augment the City's annual Capital budget.

State grant programs for active transportation projects include the Connecticut Department of Transportation's Community Connectivity Grant Program, and the state's Department of Energy and Environmental Protection's Recreational Trails Grant Program.

Federal grant programs that could also fund active transportation projects include the Transportation Alternatives program, the Congestion Mitigation and Air Quality Improvement program, and the Surface Transportation Block Grant Program. The federal Environmental Protection Agency's Smart Growth Implementation Assistance Program provides technical assistance to grant winners for policy analysis and public participatory processes that enhance public health and protect environmental resources.

New federal grant programs like Safe Streets and Roads for All (SS4A) provide opportunities to fund both planning and implementation of projects identified in plans.

Foundations like TransitCenter, and regional sources like Capitol Region Council of Governments, can fund a variety of Tactical Transit projects.

Work with other City departments to allocate funding for active transportation projects.

In the Board of Alders approved 2021-2022 budget, Public Works/ Engineering received 3.25% of the City's total budget, while Public Safety received 13.72%. Active transportation projects are just much about engineering as they are public safety. Seek opportunities to work across the following departments to pool resources: City Plan, Disability Services, Engineering, Health, Livable City Initiative, Public Works, and Transportation, Traffic, & Parking.

Use every new development in New Haven as an opportunity to advance the Citywide Active Transportation Plan, or generally support active transportation.

Infill development within the City provides great opportunity to make spot enhancements to intersections and bus stops, and add newly proposed bikeways. Consistently cross-reference proposed developments with the Citywide Plan to take advantage of privately funded improvements.

Strategically prioritize projects like paving and milling to work toward Plan implementation.

Active transportation projects and improvements identified in the Plan don't all need to rely on separate funding. Other capital projects can be expanded to include Plan implementation where appropriate.

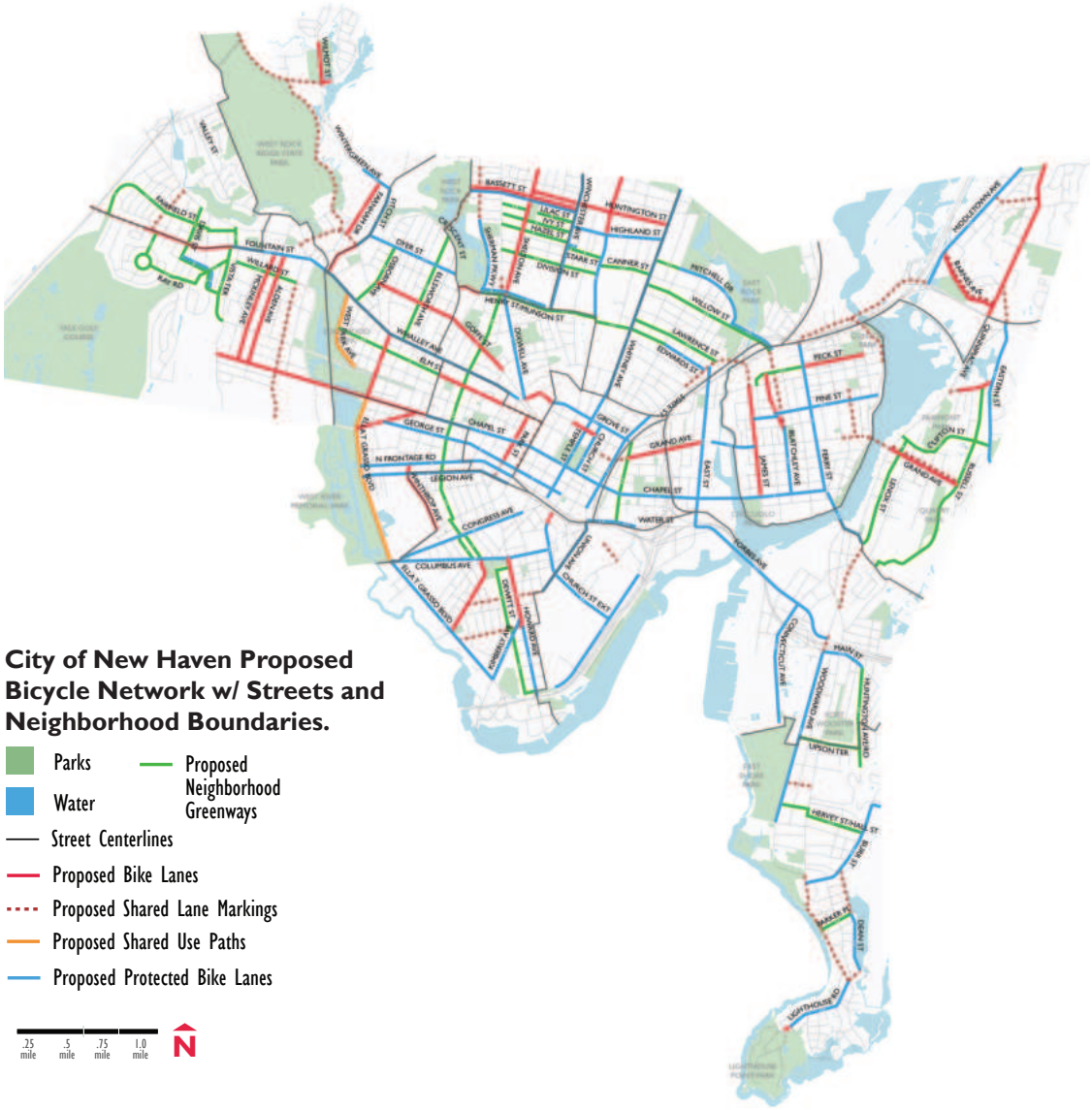
Image Credit: Street Plans

Appendix

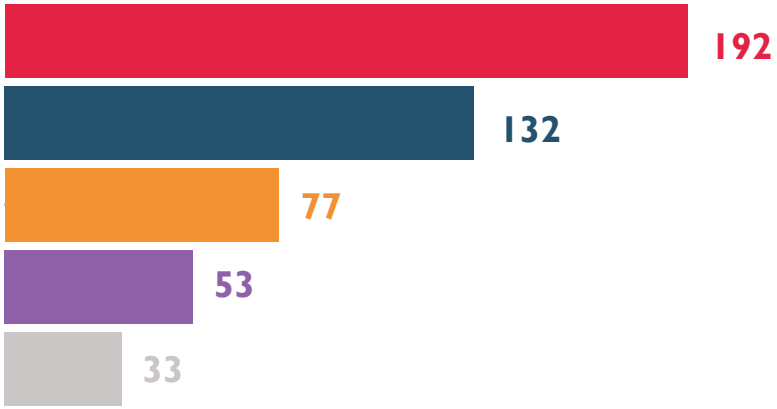
Map A


Existing Bikeways w/ Streets and Neighborhood Boundaries.
Parks
Water
Street Centerlines
Existing Bike Lanes
Existing Shared Lane Markings
Existing Shared Use Paths
Existing Protected Bike Lanes
.25 mile
.5 mile
.75 mile
1.0 mile
N

Map B


City of New Haven Proposed Bicycle Network w/ Streets and Neighborhood Boundaries.
Parks
Water
Proposed Neighborhood Greenways
Street Centerlines
Proposed Bike Lanes
Proposed Shared Lane Markings
Proposed Shared Use Paths
Proposed Protected Bike Lanes
.25 mile
.5 mile
.75 mile
1.0 mile
N

Graphics A-B



Graphic A. Crashes involving the Top Five Crash Contributing Factors (Roadway), 2020-2022.

Data: UCONN CT Crash Data Repository

Out of the 11,659 crashes between 1/1/2020 and 5/31/2022, the top five roadway contributing factors are attributed to only 4% of the total crashes. Due to limitations with the data source, contributing factors cannot be geolocated per crash, or matched to a specific crash type.

	Pedestrian-Involved Crashes	Bicyclist-Involved Crashes	Motor Vehicle, Fixed Object, or Other
Fatal Injury	18	3	18
Suspected Serious Injury	44	12	123
Suspected Minor Injury	85	35	502
Possible Injury	150	48	2,419
No Apparent Injury	42	22	8,138
	339	120	11,200

Graphic B. Crash Severity by Crash Type, 2020-2022.

Data: UCONN CT Crash Data Repository

The above table contains crash-level data for crashes involving pedestrians and bicyclists, and crashes between two motor vehicles, fixed objects, or other crash types between 1/1/2020 and 5/31/2022. Due to limitations with the data source, the above incidents cannot be geolocated.

*At the time of this analysis, crash reports for 2019 were not available, making the time period of this data slightly different than that originally used in the Plan.

Checklist

1. IDENTIFYING STAKEHOLDERS
• Populations that may be most affected by the Plan's recommendations are those within the Priority Neighborhoods, used as the equitable framework throughout the Plan.
2. ENGAGING STAKEHOLDERS
• Public engagement Plan events primarily took place within the Priority Neighborhoods. • The Plan's Steering Committee includes community leaders representing Priority Neighborhood interests. • Included in the Engineering Action Plan, the Plan's Implementation Task Force includes representatives from not just the Priority Neighborhoods, but also members of the City's Disability Commission. • The Plan was reviewed by Charles Brown, founder and principal of Equitable Cities, to ensure strong equity analysis and recommendations.
3. IDENTIFYING AND DOCUMENTING RACIAL INEQUITIES
• Racial inequities were identified and documented through the process of establishing the Priority Neighborhoods. • The Plan's existing conditions analyses for Equity & Access and Health include additional analysis on transportation inequities and their harmful impacts.
4. EXAMINING THE CAUSES
• Causes of racial inequity in transportation were examined by Plan partner CARE in the establishment of the Priority Neighborhoods as a Plan equity framework.
5. CLARIFYING THE PURPOSE
• Plan recommendations include explicit outcomes regarding improving equitable access to transportation improvements.
6. CONSIDERING ADVERSE IMPACTS
• The Action Plan considers adverse impacts of transportation improvements with recommendations for mitigation.
7. ADVANCING EQUITABLE IMPACTS
• The Action Plan includes a recommendation for a Plan Implementation Task Force, which will track the distribution and impact of active transportation projects to ensure positive impacts on racial equity and inclusion.
8. EXAMINING ALTERNATIVES OR IMPROVEMENTS
• The Action Plan includes multiple recommendations for minimizing harmful impacts of transportation improvements on disadvantaged populations.
9. ENSURING VIABILITY AND SUSTAINABILITY
• All Plan recommendations have been reviewed by the City and have been deemed realistic. The Implementation Task Force will pursue funding for Plan implementation.
10. IDENTIFYING SUCCESS INDICATORS
• All Plan recommendations regarding equity include explicit successs metrics, goals, or outcomes.

Race Forward's Racial Equity Impact Assessment Guide & Plan Actions.

2009. The Center for Racial Justice Innovation.

Table A

PAGE #	RECOMMENDATION
THE CURRENT EXPERIENCE	
pgs. 15-19	Increase the bicycle mode share to 10% by 2032, and the walking mode share to 15%.
	Reduce annual bicycle and pedestrian fatalities to 0 by 2032.
	Close the gap between the rates of those with and without a car, in New Haven by 10% by 2032 to improve access to employment and services.
	Reduce the prevalence of asthma in New Haven's school district to below the statewide average by 2032.
WALK NEW HAVEN	
pg. 43	Consult the Intersection Database before undertaking routine maintenance and / or intersection upgrades projects and cross-reference with priority neighborhoods for equitable distribution.
	Prioritize street safety investments at the top 10 most dangerous intersections for pedestrians (see pg. 49) by 2027.
	Adjust pedestrian signal timing at intersection legs with four or more travel lanes to provide more time to cross; Prioritize Leading Pedestrian Intervals (LPIs) at high crash intersections.
	Prioritize pedestrian improvements wherever Bus Stop Type #1 is found (see pg. 72), especially when found at any of the locations identified in the Intersection Database.
BIKE NEW HAVEN	
pg. 86	Add protected bike lanes wherever feasible, especially along the most City's dangerous corridors (see pg.17). To minimize onparking loss, use "floating parking" to protect cyclists.
	Incorporate bike boxes, two-stage turn boxes, bike signals, and protected intersections in conjunction with "no right turn on red" and Leading Pedestrian Intervals (LPI's) at intersections, especially where existing/new bikeway facilities intersect.
	Focus on expanding network connectivity when selecting new bikeway projects; Pay special attention to building out continuous "trunkline" east-west and north-south routes.
	Enhance all existing shared lane markings with green-backed "super sharrows." Introduce neighborhood greenways with traffic calming as low-stress alternatives to dedicated bikeways.
	Add dedicated bike lanes where feasible to directly connect to more parks, schools, commercial centers, and transit; Emphasize on-street connectivity to park trails and drives.

PAGE #	RECOMMENDATION
ACTION PLAN	
EQUITY	
pg. 104	Allocate a fixed amount of budget each fiscal year for pedestrian, transit access, and bicycle improvements in the City's Priority Neighborhoods.
	Work together with New Haven's advocacy community to establish annual policy and legislative goals that improve transportation equity.
pg. 105	Document existing challenges specifically for the disabled and elderly communities in New Haven, and implement projects to increase ability equity.
pg. 106	Track and mitigate any potential displacement impacts associated with new and upgraded active transportation projects.
	Ensure that information about active transportation improvements is available to residents with all native languages other than English.
ENGINEERING	
pg. 108	Implement pedestrian, bicycle, and/or transit improvements to one entire corridor segment from the map at right every year for the next ten years.
pg. 109	Implement half of the proposed bikeway network in this Plan by 2032.
pg. 110	Make pedestrian signal heads with Leading Pedestrian Intervals (LPIs) standard policy at signalized intersections Citywide.
	Improve transit-bike integration by installing more long-term bike parking at bus stops and BRT hubs.
pg. 111	Leverage grants and additional resources to augment City staff for individual project delivery, analysis, and monitoring.
	Pass a proclamation committing the City of New Haven to Vision Zero.
EVALUATION	
pg. 112	Create an Implementation Task Force dedicated to cross-referencing current and planned active transportation projects with the Plan recommendations and analysis.
	Adopt and internalize the Intersection Database as a working repository to track project implementation and need citywide.
pg. 113	Collect student travel information at the schools used in the Safe Routes to School studies to establish baseline data.
pg. 114	Collect and systematize pedestrian and bicycle count data on select corridors to establish a baseline to track trends over time.
EDUCATION & ENCOURAGEMENT	
pg. 115	Develop and disseminate more information about the City's growing bicycle and pedestrian network.
	Partner with community groups, non-profit organizations, and schools, to execute programming for bike and pedestrian safety education.
pg. 116	Create a Tactical Transit request and volunteer form to engage residents in improvements to their bus stops.
pg. 117	Build on successful, previous Open Streets events to build a Program that sustains annual events.
ENFORCEMENT	
pg. 118	Pass legislation to legalize the "Idaho Stop" law.

pg. 119	Implement "slow zones" in residential areas Citywide with the highest documentation of speeding.
	Install more "smart" street lights with emergency call capacity.
pg. 120	Audit traffic stops and citations annually to ensure these actions do not cause undue harm to communities of color and low-income communities.
pg. 121	Expand bans on right turns on red traffic signals.
	Build on the recently passed state legislation H.B. 5429 to expand protections for pedestrians, and reduce the policing of pedestrians.
FUNDING RECOMMENDATIONS	
pg. 122	Allocate more Capital funding to active transportation projects, prioritizing those in the Priority Neighborhoods.
	Augment the Capital budget with more federal, state, and other grants.
pg. 123	Work with other City departments to allocate funding for active transportation projects.
	Use every new development in New Haven as an opportunity to advance the Citywide Active Transportation Plan, or generally support active transportation.
	Strategically prioritize projects like paving and milling to work toward Plan implementation.

Table B

INTERSECTION DATABASE	PRIORITY INTERSECTIONS	PROPOSED BIKEWAYS	DETAILED DRAWINGS
AMITY			
Amity	N/A	Anthony St. Neighborhood Greenway	N/A
		Dayton St. Neighborhood Greenway	
		Fairfield St./Seneca Rd. Neighborhood Greenway	
		Ramsdell St. Enhanced Shared Lane Markings	
ANNEX			
Annex	N/A	Connecticut Avenue Protected Bike Lanes	N/A
		Ferry St. Protected Bike Lanes	
		Forbes Ave. Two-way Protected Bike Lane	
		Huntington Rd/Ave. Neighborhood Greenway	
		Main St. Two-way Protected Bike Lane	
		Quinnipiac Ave. Shared Lane Markings	
		Woodward Ave. Two-Way Protected Bike Lane	
BEAVER HILLS			
Beaver Hills		Dyer St. Protected Bike Lanes	Dyer St. & Ellsworth Ave.
	Ella T. Grasso Blvd. & Glen Rd Traffic Calming		
	Ellsworth Ave. & Whalley Ave. Traffic Calming & LPI	Ellsworth Ave. Neighborhood Greenway	
		Goffe Ter. Bike Lane	
		Osborn Ave. Neighborhood Greenway	

	Whalley Ave. & Winthrop Ave. (*high pedestrian crash intersection) High Visibility Crosswalk Markings & LPI	Whalley Ave. Protected Bike Lane	
DIXWELL			
Dixwell	Broadway & Tower Pkwy. Improved Crosswalks & Pedestrian Wayfinding		
	Dixwell Ave. & Henry St. Bike Intersection Treatments	Dixwell Ave. Protected Bike Lane	
	Dixwell Ave. & Shelton Ave. Curb Extensions & Pedestrian Wayfinding (2019 Quick Build)		
	Goffe St. & Webster St. Curb Extensions & Bike Intersection Treatments	Goffe St. Bike Lane	
		Orchard St. Neighborhood Greenway	
		Tower Pkwy. Bike Lane	
	Whalley Ave. & Sherman Ave. (*high pedestrian crash intersection) Curb Extensions & LPI	Whalley Ave. Protected Bike Lane	Whalley Ave. @ Stop 'n' Shop
	Whalley Ave. & Howe St. Pedestrian Wayfinding		
	Whalley Ave. & Orchard St. (2019 Quick Build)		
DOWNTOWN			
Downtown	Chapel St. & High St. High Visibility Crosswalk Markings	Chapel St. Protected Bike Lane	
	Chapel St. & Church St. (*high pedestrian crash intersection)	Church St. Protected Bike Lane	Chapel St. & Church St.
	Chapel St. & State St. High Visibility Crosswalk Markings & LPI (2017 Concept)		
	Chapel St. & Temple St. (*high pedestrian crash intersection) Curb Extensions & High Visibility Crosswalk Markings		
	Church St. & Elm St. Traffic Calming		
	Church St. & MLK Jr. Blvd. (*high pedestrian crash intersection) High Visibility Crosswalk Markings & LPI		
	Crown St. & State St. High Visibility Crosswalk Markings & LPI		

	Elm St. & Orange St. Curb Extensions & Bike Lane Intersection Treatments		
	George St. & High St. Crosswalks & Pedestrian Signals	George St. Protected Bike Lane	
	George St. & Temple St. High Visibility Crosswalk Markings & LPI	Temple St. Protected Bike Lane	
		Grove St. Two-Way Protected Bike Lane	
	Orange St. & Trumbull St. (see pg. 48)		
	State St. & Trumbull St. (see pg. 49)	State St. Protected Bike Lanes	
		York St. Enhanced Shared Lane Markings	
		Wall St. Contra-Flow Bike Lane	
DWIGHT			
Dwight	Dwight St. & Edgewood Ave. Curb Extensions & Crosswalk Re-Alignment	Chapel St. Protected Bike Lane	N/A
	Dwight St. & N. Frontage Rd. LPI	Elm St. Bike Lane & Enhanced Shared Lane Markings	
	Edgewood Ave. & Howe St. Pedestrian Signals	George St. Protected Bike Lane	
	Edgewood Ave. & Park St. Curb Extensions (2017 Concept)	MLK Jr. Blvd. Protected Bike Lane	
	Elm St. & Sherman Ave. High Visibility Crosswalk Markings & Pedestrian Signals	Orchard St. Neighborhood Greenway	
		Park St. Bike Lane & Enhanced Shared Lane Markings	
EAST ROCK			
East Rock	Bradley St. & Orange St. Raised Intersection		N/A
	Cold Spring St. & Orange St. Traffic Calming	Cold Spring St. Protected Bike Lane & Neighborhood Greenway	
	Cold Spring St. & Whitney Ave. Crosswalks		
		Edwards St. Protected Bike Lane & Neighborhood Greenway	
	Hine Pl. & State St. Improved Crosswalks & Pedestrian Crossing Signage		
		Lawrence St. Neighborhood Greenway	

	Lincoln St. & Trumbull St. Curb Extensions		
		Mitchell Dr. Protected Bike Lane	
	Nash St. & Willow St. Traffic Calming	Willow St. Neighborhood Greenway with Protected Bike Lanes	
	Nicoll St. & Willow St. Traffic Calming		
		State St. Enhanced Shared Lane Markings	
EAST SHORE			
East Shore		Burr St. Protected Bike Lanes	
		Dean St. Protected Bike Lanes	
	Fort Hale Rd. & Townsend Ave. Crosswalks & Park Access		
		Hervey St./Hall St. Neighborhood Greenway	
		Lighthouse Rd. Protected Bike Lanes	
		Parker Pl. Neighborhood Greenway	
		Raynham Rd. Enhanced Shared Lane Markings	Raynham Rd. & Woodward Ave.
		Townsend Ave. Enhanced Shared Lane Markings	
		Upson Terrace Neighborhood Greenway	
		Woodward Ave. Two-Way Protected Bike Lane	
EDGEWOOD			
Edgewood		Chapel St. Bike Lane	N/A
	Edgewood Ave. & Ellsworth Ave. Four-Way Stop		
		Ella T. Grasso Blvd. Bike Lanes	
		Elm St. Neighborhood Greenway	
		West Park Ave. Shared Use Path	

FAIR HAVEN			
Fair Haven	Blatchley Ave. & Peck St. Neighborhood Traffic Circle	Blatchley Ave. Protected Bike Lanes & Enhanced Shared Lane Markings	
	Blatchley Ave. & Clay St. (2017 Concept)		
	Chapel St. & Ferry St. (2019 Quick Build)	Chapel St. Protected Bike Lane	
		Clinton Ave. Enhanced Shared Lane Markings	
	Downing St. & Peck St. Neighborhood Traffic Circle	Peck St. Bike Lanes & Neighborhood Greenway	
	Ferry St. & Peck St. Curb Extensions	Ferry St. Protected Bike Lane	
	Ferry St. & Grand Ave. (*high pedestrian crash intersection)		Ferry St. & Grand Ave.
		Front St. Enhanced Shared Lane Markings	
		Grand Ave. Protected Bike Lanes & Enhanced Shared Lane Markings	
	James St. & State St. Exclusive Pedestrian Signal	James St. Bike Lane	
		Monroe St. Bike Lanes	
	Peck St. & Rowe St. Neighborhood Traffic Circle		
		Pine St./Market St. Two-Way Protected Bike Lane	
FAIR HAVEN HEIGHTS			
Fair Haven Heights	Clifton St. & Quinnipiac Ave. Traffic Calming	Clifton St. Neighborhood Greenway	
		Eastern St. Protected Bike Lanes	Eastern St. & Hemingway St.
	E. Grand Ave. & Quinnipiac Ave. Curb Extensions & Exclusive Pedestrian Signal	E. Grand Ave. Bike Lane	
		Hemingway St. Bike Lane & Enhanced Shared Lane Markings	
		Lenox St. Neighborhood Greenway	
		Russell St. Neighborhood Greenway	

HILL			
Hill	Barclay St. & Frank St. Crosswalks & Additional Stop Sign		
		Church St. S. Protected Bike Lanes & Bike Lanes	
	Congress Ave./Davenport Ave./Columbus Ave (2017 Concept)	Congress Ave. Protected Bike Lane	
	College Ave. & Columbus Ave. (2017 Concept)		
	Columbus Ave. & Ella T. Grasso Blvd. (*high pedestrian crash intersection) Bike Intersection Treatments & LPI	Columbus Ave. Protected Bike Lane	
		Ella T Grasso Blvd. Two-Way Protected Bike Lane	
	Howard Ave. & Sea St. Neighborhood Traffic Circle	Howard Ave. Protected Bike Lanes & Bike Lanes	
	Kimberly Ave. & Grant St. Crosswalks	Kimberly Ave. Two-Way Protected Bike Lane	
	Kimberly Ave. & Howard Ave. Curb Extensions & Intersection Realignment		
	Kimberly Ave. & Lamberton St. (*high pedestrian crash intersection) High Visibility Crosswalk Markings & LPI	Lamberton St. Enhanced Shared Lane Markings	
		Orchard St./Kossuth St./White St. Neighborhood Greenway	
		Portsea St./Dewitt St./Greenwich Ave. Neigborhood Greenway	
	S Frontage Rd. & York St. (see pg. 49)	S Frontage Rd. Protected Bike Lane	
		Spring St. Enhanced Shared Lane Markings	
		Union Ave. Two-Way Protected Bike Lane	Union Ave. @ Union Station
		Washington Ave. Bike Lane	
LONG WHARF			
Long Wharf	N/A	Brewery St. Enhanced Shared Lane Markings	N/A
		Church St. S Ext. Protected Bike Lane	
		Sargent Drive Protected Two-Way Bike Lane	

MILL RIVER			
Mill River	N/A	Chapel St. Protected Bike Lane	
		East St. Protected Bike Lane	East St.
		Grand Ave. Bike Lanes	
NEWHALLVILLE			
Newhallville	Bassett St. & Dixwell Ave. *high pedestrian crash intersection)	Bassett St. Bike Lane & Protected Bike Lane	Bassett St. & Dixwell Ave.
	Bassett St. & Goodyear St. Raised Crosswalks		
	Bassett St. & Shelton Ave. High Visibility Crosswalk Markings & LPI		
	Bassett St. & Watson St. Raised Crosswalks		
		Division St. Neighborhood Greenway	
		Fournier St. Enhanced Shared Lane Markings	
		Hazel St. Neighborhood Greenway	
		Huntington St. Bike Lane	Winchester Ave. & Highland St.
		Ivy St. Neighborhood Greenway	
		Lilac St./Brewster St. Neighborhood Greenway	
		Shelton Ave. Bike Lane	
		Sherman Pkwy. Protected Bike Lane & Enhanced Shared Lane Markings	
PROSPECT HILL			
Prospect Hill		Canner St. Neighborhood Greenway	
	Cliff St. & Whitney Ave. (see pg. 48)		
		Division St. Neighborhood Greenway	
		Edwards St. Neighborhood Greenway	
	Highland St. & Whitney Ave.	Highland St. Protected Bike Lane	
	Highland St. & Winchester Ave.		Highland St. & Winchester Ave.
		Huntington St. Buffered Bike Lane	

		Prospect St. Bike Lane & Protected Bike Lane	
		Starr St. Neighborhood Greenway w/ Contra-Flow Bike Lane	
		Whitney Ave. Two-Way Protected Bike Lane	
		Winchester Ave. Protected Bike Lane	
QUINNIPIAC MEADOWS			
Quinnipiac Meadows	N/A	Barnes Ave. Bike Lane & Enhanced Shared Lane Markings	N/A
		Cranston St. Enhanced Shared Lane Markings	
		Eastern St. Enhanced Shared Lane Markings	
		Middletown Ave. Protected Bike Lanes & Enhanced Shared Lane Markings	
		Quinnipiac Ave. Bike Lanes	
WESTVILLE			
Westville		Alden Ave. Bike Lane	N/A
	Blake St. & Whalley Ave. Curb Extensions & New Crosswalk (2017 Concept)		
	Blake St. & Valley St. Curb Extensions		
		Central Ave. Enhanced Shared Lane Markings	
	Chapel St. & Yale Ave. (see pg. 48)	Chapel St. Bike Lane	
	Conrad Dr. & Ray Rd. Traffic Calming		
	Edgewood Way & Forest Ave. Curb Extensions	Edgewood Way/Vista Ter. Neighborhood Greenway	
		Fountain St. Protected Bike Lanes, Bike Lanes, & Enhanced Shared Lane Markings	
		Lowin Ave. Neighborhood Greenway	
		Maplewood Rd./Hemlock Rd./Laurel Rd. Neighborhood Greenway w/ Contra-Flow Lanes	
		McKinley Ave. Bike Lanes	
		Ray Rd./Marvelwood Dr./Brooklawn Cir. Neighborhood Greenway	

		Willard St. Neighborhood Greenway	
	Yale Ave. & West Rock Ave. Traffic Calming		
WEST RIVER			
West River	Derby Ave. & George St. High Visibility Crosswalk Markings & Curb Extensions	Derby Ave. Bike Lanes	N/A
	N Frontage Rd. & Sherman Ave. LPI	Ella T Grasso Blvd. Shared Use Path	
		George St. Protected Bike Lane	
		N Frontage Rd. Protected Bike Lane	
		Orchard St. Enhanced Shared Lane Markings	
		S Frontage Rd. Protected Bike Lane	
	Winthrop Ave. & Sylvan Ave. (2019 Quick Build)	Winthrop Ave. Bike Lane	
WEST ROCK			
West Rock	Blake St. & West River Trail Raised Crosswalk	Blake St. Enhanced Shared Lane Markings	Fitch St.
		Brookside Ave. Bike Lane Extensions & Enhanced Shared Lane Markings	
		Farnham Ave. Buffered Bike Lanes	
		Fitch St. Protected Bike Lanes	
		Wilmot Rd. Bike Lane Extensions	
	Springside Ave. & Wintergreen Ave. Curb Extensions (2019 Quick Build)	Springside Ave./Wintergreen Ave. Enhanced Shared Lane Markings	
		Wintergreen Ave. Protected Two-Way Bike Lane	
WOOSTER SQUARE			
Wooster Square	Brewery St. & Water St. Bike Intersection Treatments		N/A
		Chapel St. Protected Bike Lane	
	Grand Ave. & Olive St. High Visibility Crosswalk Markings & LPI	Grand Ave. Bike Lane & Enhanced Shared Lane Markings	
		Olive St. Neighborhood Greenway	
		Water St. Two-Way Protected Bike Lane	